**Approval**

**Name:** Esther Souman  
**Degree:** Master of Arts  
**Title:** Beehives of Knowledge: Cosmographer Networks of Sebastian Münster, Gerard Mercator, and Abraham Ortelius (1540-1570)

**Examinining Committee:**  
**Chair:** Emily O'Brien  
Associate Professor  
**Luke Clossey**  
Senior Supervisor  
Associate Professor  
**Hilmar Pabel**  
Supervisor  
Professor  
**John Christopoulos**  
External Examiner  
Assistant Professor  
Department of History  
University of British Columbia

**Date Defended/Approved:** July 25, 2019
Abstract

Like the classical bee gathering honey from many flowers, sixteenth-century cosmographers built their cosmographies from various sources. I analyse and compare the correspondence of three influential cosmographers, Sebastian Münster (1488-1552), Gerard Mercator (1512-1594), and Abraham Ortelius (1527-1598). The networks of these men, their locations, contacts, and the routes by which information traveled, shaped and limited their cosmographies. These influences challenge prevailing constructions in the historiography on sixteenth-century science which would see Münster as more traditional and medieval, and Ortelius as more empirical and modern.

Each cosmographer was looking for novel information in different contexts. Münster and others revealed rigorous approaches to novel Hebrew scholarship and its application to cosmography, rivaling the approaches of cosmographers who applied non-traditional geographical knowledge. The more meaningful contrast I see was between “centred” scholars for whom Hebrew and the Holy Land were central to cosmography, and “fragmented” scholars who worked without a unifying theme.

Keywords: knowledge networks; sixteenth-century cosmography; German lands; Flanders; Hebrew studies
Dedication

To my family, biological and otherwise.

ליהוה הארץ ומלואו זבלי ושביה

(The Westminster Leningrad Codex, Psalm 24:1)

Domini est terra, et plenitudo ejus; orbis terrarum, et universi qui habitant in eo.

(The Vulgate, Psalm 23:1)
Acknowledgements

Having spent these last few years studying networks, I have been constantly aware of my own, and have appreciated the influences that my contacts have had on my work. First and foremost, I thank my senior supervisor, Dr. Luke Clossey. If there is anyone who has repeatedly made studying history seem exciting and valuable, it is he. I have Dr. Clossey to thank for the confidence I gained to study history on my own terms, and according to what seems right, rather than purely conventional. Dr. Hilmar Pabel, by his keen insights, corrections, and encouragement, has pushed me to become a stronger and more professional academic, and I am grateful to him. I am indebted to Joost Depuydt and the librarians at the Plantin-Moretus reading room in Antwerp, and to Greet Polfliet at the Mercatorumuseum in Sint Niklaas—it was a pleasure to be in both locations, diving into sources and engaging in conversations. Drs. Emily O’Brien and Vlad Vintila have patiently guided many hours of Latin learning, and in addition I have appreciated their and Dr. John Craig’s excellent and sincere conversations. For me, academia has been more about these interactions—the living networks—than about the books.

I cannot imagine these past two years without my wonderful graduate and undergraduate companions. They have been an integral part of the graduate experience, in classes, conferences, Latin reading groups, RA projects, and in discussions over meals and drinks, during outdoor adventures, and just anywhere and everywhere. I thank them for caring and for keeping me sane, each in their own way.

Finally, I am thankful to and for my family, and in particular my parents, my greatest mentors in all aspects of life. Oceans can’t keep us apart.
# Table of Contents

Approval .......................................................................................................................... ii  
Abstract .......................................................................................................................... iii  
Dedication ....................................................................................................................... iv  
Acknowledgements ......................................................................................................... v  
Table of Contents ............................................................................................................ vi  
List of Figures .................................................................................................................. vii  

Chapter 1.  Introduction: Setting the Scene ................................................................. 1  
1.1.  Defining Cosmography ....................................................................................... 1  
1.2.  German and Flemish Cosmography in the Sixteenth Century ......................... 5  
1.3.  Historiography .................................................................................................... 13  
1.4.  Methodology ...................................................................................................... 16  
1.5.  Argument ............................................................................................................. 20  

Chapter 2.  Epistolary Networks ............................................................................... 30  
2.1.  Introduction ........................................................................................................ 30  
2.2.  The Central Nodes: Cosmographers in their Habitats ...................................... 31  
2.3.  The Contacts: Statistics and Traits .................................................................. 37  
2.4.  The Ties: Information Routes ........................................................................... 45  
2.5.  Conclusion ......................................................................................................... 47  

Chapter 3.  Hebrew Scholarship and the Key to the World .................................... 49  
3.1.  Introduction ........................................................................................................ 49  
3.2.  The Hebrew Connection ................................................................................... 49  
3.3.  The Holy Land and Hebrew in Cosmographies .................................................. 52  
3.4.  Hebrew Studies and Cosmographers’ Networks ................................................. 54  
3.5.  A New Perspective on Cosmographical Approaches ......................................... 59  
3.6.  Hebrew Scholarship and Novelty in Cosmography .......................................... 63  
3.7.  Back to Celtis: The Holy Land and German Identity ......................................... 67  
3.8.  Conclusion ......................................................................................................... 69  

Conclusion: Esdras and Strabo .................................................................................... 70  

References ..................................................................................................................... 72
# List of Figures

Figure 1: Sebastian Münster's *Cosmographia* (1544) ........................................9
Figure 2: Abraham Ortelius' *Theatrum Orbis Terrarum* (1570) .......................10
Figure 3: Gerard Mercator's *Atlas sive cosmographicae meditationes* (1596) ....11
Figure 4: Münster's, Mercator's, and Ortelius' networks ...................................22
Figure 5: Map of Münster's, Mercator's, and Ortelius' networks .........................23
Figure 6: Münster's network .............................................................................24
Figure 7: Map of Münster's epistolary network ..................................................25
Figure 8: Map of authors mentioned in Cosmographia preface .........................25
Figure 9: Mercator's network ...........................................................................26
Figure 10: Map of Mercator's epistolary network ..............................................27
Figure 11: Ortelius' network ............................................................................28
Figure 12: Map of Ortelius' epistolary network ...............................................29
Figure 13: Map of authors mentioned in Theatrum preface ................------------29
Figure 14: Socially cohesive (a) and structurally diverse (b) networks ............30
Chapter 1.

Introduction: Setting the Scene

1.1. Defining Cosmography

“I shall now begin this undertaking, hoping that many of you will come to my assistance,” wrote Sebastian Münster in an exhortation published in Oppenheim in 1528. Listing eleven men and their native regions, he added that he had no doubt that these men “will help and sustain me in my enterprise, along with many other erudite men of whose names I am ignorant, else I should ask them too to be of help to me.”¹ The undertaking of which he spoke was a description of the German lands: “Let everyone lend a helping hand to complete a work in which shall be reflected, as in a mirror, the entire land of Germany with all its peoples, its cities, its customs.”² As it turned out, Münster’s project would grow to encompass not only the German lands, but the entire world. This was his Cosmographia, first published in 1544.³ Within the German lands the Cosmographia became so popular that it “taught nearly three generations of laymen most of what they knew about the world beyond their native places.”⁴ Sixteenth-century cosmographies were meant to contribute to all sorts of scholarship. They have been described as “massive repositories of marginal citations and authorities,”⁵ and were considered useful as guides for merchants and explorers, or as topographical references for theologians and Bible readers.⁶ I examine the kinds of networks to which Münster referred, highlighting trends that provide new insights into broader developments within sixteenth-century cosmography in German lands and in Flanders.

² Ibid., 27.
“Cosmography,” John Short wrote, derives from a “Greek word that means order, the opposite of chaos.” Cosmography in the sixteenth century was the study of the earth and its place in the cosmos, with cosmographers investigating and revealing what they believed this order to be. Sixteenth-century cosmography in Europe took its cue from ancient Greek and Roman scholars, but especially from Claudius Ptolemy’s *Geographia*, first translated into Latin between 1406 and 1409 by the Florentine Jacopo Angeli. Cosmographers saw the terrestrial and celestial, in Short’s words, as “part of a broader whole that connected people to their environment in all kinds of subtle and profound ways.” By the sixteenth century the boundaries and possibilities of the terrestrial environments in particular appeared to be expanding for Europeans in unprecedented ways. Cosmography was accordingly becoming an increasingly popular pursuit among scholars as they realized that they had to re-think and re-chart the way they looked at the world, even as they recognized and grappled with the authority of ancient scholars. In their letters, cosmographers showed a high level of enthusiasm for new discoveries abroad as well as news from closer to home. Inspired in part by competing religious attitudes of the day, several also had a distinct renewed interest in the area that had always been pivotal to Christian identity: the Holy Land.

Cosmographers were, first of all, one of various authorities on the cosmos. The German humanist and cosmographer Peter Apian, whose small *Cosmographicus Liber* (1524) served as a short and manageable introduction to the field as well as an inspiration to subsequent cosmographers, was a master at explaining concepts through images. In his *Astronomicum Caesareum* (1540), an instruction manual for astrolabes, he employed a number of disc-shaped images, including one in which representatives of four different professions stand each at a different cardinal direction. Each of these men played a role in finding and passing along meaning in the universe: to the east, a priest; to the west, a poet; to the south, an astronomer; to the north, a cosmographer. Cosmography was one of various professions concerned with the interpretation of the cosmos.

---

8 Ibid.
9 Peter Apian, *Cosmographicus Liber* (Landshut: Peter Apian, 1524).
10 Peter Apian, *Astronomicum Caesareum* (Ingolstadt: Peter Apian, 1540). The artist was Michael Ostendorfer.
In the sixteenth century, the definition of cosmography was not always clear nor universal. According to Apian, cosmography was the description of the earth and the heavens in tandem, whereas geography involved the most important parts of the earth. Both of these approaches involved the use of mathematical calculations and of maps. In reality, the boundaries between cosmography and geography were much vaguer in the fifteenth and sixteenth centuries. Ptolemy’s *Geographia*, brought from Constantinople to Florence and translated into Latin by 1409, was one of the greatest authorities to inform sixteenth-century cosmography, especially in Italian cities and German lands. It was the most published ancient scientific text of its time. The translator of the *Geographia* himself, Angeli, had changed the title of Ptolemy’s work to *Cosmographia*, arguing that cosmography was a contemporary term which more accurately reflected what Ptolemy was doing. Furthermore, sixteenth-century cosmographers tended not only to follow Ptolemy’s mathematical approach, as Apian had suggested, but also drew on the descriptive traditions of Strabo, Pliny, and Pomponius Mela, and on the more recent Italian authors Flavio Biondo and Enea Silvio Piccolomini, frequently emphasizing individual areas. Cosmography had become a catch-all term for a combination of elements of sixteenth-century astronomical, geographical, and chorographical scholarship.

Chorography, on the other hand, was more easily distinguished from cosmography in its scope. In comparison to cosmographers, who were describing parts of the earth and universe which they themselves had never visited, chorographers wrote about specific areas and could be expected to have a reasonable level of familiarity with their subject matter. While cosmographers depended heavily on information coming from their networks of correspondents, chorographers could largely depend on first-hand knowledge for their work or in order to verify incoming information.

In keeping with the flexibility of these definitions in the sixteenth century, I do not always draw clear-cut distinctions between geography and cosmography in this thesis. I treat cosmography as more philosophical, with cosmographers asking questions about

---

11 Peter Apian and Gemma Frisius, *Cosmographia* (Antwerp: Arnold Berckman, 1540), II-III.
the meaning of the earth and its place in the universe, whereas geographers were in the first place concerned with the technical and descriptive aspects of their discipline. In technique and practice, however, the boundaries between sixteenth-century geography and cosmography were fluid.

For cosmographers to define cosmography and outline a project was one thing—to realize it quite another. The cosmographer Gerard Mercator developed a grand plan, which he describes in his *De Chronologia* (1569). He envisioned a cosmographic project that would consist of five stages: first, an account of the creation of the world; second, a work of astronomy, or the description of the heavens; third, a description of the earth and the sea—this part of his project materialized as his edition of Ptolemy’s *Geographia* in 1578; as well as in his own *Atlas sive cosmographicae meditationes* (1596); fourth, a genealogy and a political history (traces of both can be found in the *Atlas*); and fifth, a chronology, which was the present work. Mercator had a family to support. In August of 1540, Mercator wrote to Antoine Perrenot that he was in financial difficulties and must at present concentrate on the making of geographical instruments for a living. Likewise, the celebrated Dutch cosmographer Gemma Frisius, who edited and expanded Apian’s *Cosmographia*, eventually had to become a doctor in order to provide for his family. On a practical level, cosmographers were doctors, instrument makers, printers, and professors. Cosmography appears to be the ultimate goal and philosophical ideal of these scholars, who, constrained by common hurdles of scholarship and the more mundane aspects of life, sometimes had to settle for less. Mercator was unable to complete his project as planned, but throughout his career he did not lose sight of the

---

17 Mercator to Antoine Perrenot, 4 August 1540 in Van Durme, *Correspondance Mercatorienne*, 15.
fact, nor did others,\textsuperscript{19} that he was not only a cartographer, instrument-maker, or geographer, but ultimately a cosmographer.

1.2. German and Flemish Cosmography in the Sixteenth Century

On October 31, 1517, in Wittenberg, a backwater German university town, so the story goes, Dr. Martin Luther set off a chain of events that led to the Protestant Reformation.\textsuperscript{20} Brad Gregory considered this phenomenon in the first place an “alternative basis for Christian truth claims in opposition to important claims by the established, Roman church,”\textsuperscript{21} rather than having been a movement for social change for its own sake. Tensions between different authorities—textual or otherwise—played out in various arenas among Europe’s intellectuals. Furthermore, the printing press facilitated the spread both of old and new, or newly discovered, works, but also of their critiques. With their fellow countrymen making momentous claims and discoveries, altering understandings of the world as well as the universe, sixteenth-century cosmographers found themselves in a period of lively intellectual debates and transformations.

These intellectual movements took on a particular timbre in the German lands, where humanists, unsatisfied with what classical Greek and Roman sources had had to say about their Germania, were eager to define what it meant to be German. Many of the German lands’ brightest minds were grappling with the idea of German-ness, attempting to write Germans into a historical canon that had largely ignored or villified them. In 1492, at the University of Ingolstadt, the humanist Conrad Celtis had initiated what would become an intense German fascination with geography. In his speech “Oratio in Gymnasio in Ingolstadio publice recitata,” Celtis urged his German audience to “do away with that old disrepute of the Germans in Greek, Latin, and Hebrew writers who ascribe to us drunkenness, cruelty, savagery and every other vice bordering on

\begin{itemize}
  \item \textsuperscript{19} In a letter to Maximilian II, the Duke of Cleves called Mercator his cosmographer. William IV, Duke of Cleves to Maximillian II, 1569 in Van Durme, \textit{Correspondance Mercatorienne}, 98.
  \item \textsuperscript{20} Or rather, to a set of reformations.
  \item \textsuperscript{21} Brad Gregory, \textit{The Unintended Reformation} (Cambridge, MA: Harvard University Press, 2012), 82.
\end{itemize}
bestiality and excess.”\(^{22}\) In particular, Celtis, though a poet and philosopher himself, fixated on geography: “consider it … the height of shame to know nothing about the topography, the climate, the rivers, the mountains, the antiquities, and the peoples of our regions and our own country.”\(^{23}\) Celtis inspired fellow German humanists to help him compose a “Germania Illustrata,” modeled on Flavio Biondo’s \textit{Italia Illustrata}. Celtis himself never realized this project before his death in 1508. That task was taken up by other German scholars, notably by some of the great cosmographers of the century.

Two large schools of cosmographical thought developed in German lands: the historically-oriented Lorraine-Franconian school and the mathematical Nuremberg school. Individual cosmographers tended to favour one or the other orientation, but rarely exclusively. Recent historians, following categories which some sixteenth-century scholars themselves created, have also identified two different cosmographical approaches based on authorities such as the first-century BCE Greek geographer-historian Strabo, and the second-century mathematical geographer Ptolemy.\(^{24}\) A third iteration of this division seems to have missed the attention of historians: a cultural divide between the Greek Ptolemy and the “Latin.” Angeli wrote in his dedicatory letter to his translation of the \textit{Geographia} that Ptolemy provided a unified survey of the whole world, so that each part could be seen in its context, while “our Latin” had merely been describing “the habitable portion of the whole world.”\(^{25}\) In Angeli’s estimation, Latin geography had lacked the comprehensiveness of Ptolemy’s cosmography.

Cosmography appears to have been a particularly German phenomenon. Even the term itself seemed especially popular among Germans.\(^{26}\) In areas of northern

---


\(^{23}\) Ibid.


\(^{25}\) Angeli, “Introduction,” trans. Burnett, 466. The Latin term Angeli used was “oribis.”

\(^{26}\) The only time Mercator was referred to as a cosmographer in the epistolary record was in an exchange between the Duke of Cleves and Maximillian II: Van Durme ed., \textit{Correspondance Mercatorienne}, 98; between 1540-1570, two of three correspondents calling Ortelius “cosmographer” were German: J.H. Hessels ed., \textit{Abrahami Ortelii, (Geographi Antverpiensis) et virorum eruditorum ad eundem et ad Jacobum Colium Ortelianum (Abrahami Ortelii Sororis...
Europe where the Renaissance took hold, the activity of describing the world seemed to take on the proportions of a “craze,” “becoming an ostentatious part of the mental furniture of all educated men.” The sixteenth century in Europe saw a significant increase in the popularity of mapmaking and collection of geographical and ethnographical information into books. German lands were crucial areas for this kind of knowledge-diffusion, since, as the Iberian peninsula lacked the proper printing technology, it was in German lands that cartographic results of "New World" discoveries first appeared in print.

It was in this environment that Sebastian Münster was educated, and in which he conceived of his *Cosmographia*. Published in 1544 in Basel, the *Cosmographia* became the most popular work next to the Bible among readers and buyers in the German lands for a century, going through forty-six editions up until 1650 and appearing in six different languages. Münster’s biographer, Karl Burmeister, estimated that about 50,000 German copies and 10,000 Latin copies were produced in total. Each edition spurred on scholars throughout Europe to send in contributions for the next, as Münster wrote to Konrad Pellikan in 1550: “many regret that they had not sent their contributions to this edition, but they want to send them for a later edition.” Münster mentioned correspondents from Strassburg to Italy to Poland, and even the Holy Roman Emperor Ferdinand himself.

---

Filium) Epistulae (Osnabruck: Otto Zeller, 1969), 58, 70. (The third was Guillaume Postel, see Chapter 3 of this thesis.)


Cosmographers worked within—and responded to—various political and religious contexts. In 1570, Abraham Ortelius published his *Theatrum Orbis Terrarum*. He too updated his work regularly. Being based in Antwerp in the second half of the sixteenth century, Ortelius found himself at one of the centers of the Eighty Years’ War. Great cosmographies such as Apian’s *Cosmographicus Liber*, Münster’s *Cosmographia* (figure 1), Ortelius’ *Theatrum* (figure 2), and Mercator’s *Atlas* (figure 3), along with various others, exemplified German and Flemish cosmographical thought from the early years of the Reformation to the start of the Eighty Years’ War.

---

Figure 1: Sebastian Münster’s *Cosmographia* (1544)
Source: Wikipedia (public domain)
https://uk.wikipedia.org/wiki/%D0%A4%D0%B0%D0%BB%D0%BB:Cosmographia_titelblatt_der_erstausgabe.JPG.
Figure 2: Abraham Ortelius’ *Theatrum Orbis Terrarum* (1570)
Source: Wikimedia Commons (public domain)
Cosmographers tended to keep their distance from overt religious polemics in their work, but by no means avoided questions of dogma or topics such as free will and
salvation. In a letter to Mary of Hungary dated 23 February, 1543, Pierre de Corte, priest of Saint Peter’s Church in Leuven, pleaded for the life of one of his parishioners: the suspected heretic Mercator, imprisoned at Rupelmonde. De Corte vouched for the integrity of his parishioner, who was accused of Lutheranism, and assured Mary that, had he known of any heretical tendencies in this man, he would certainly have reported him. Mercator was acquitted, and was allowed to continue his work in the service of various Flemish clergy. Eventually, he came to be called by contemporaries the Ptolemy of his age. Ortelius, Mercator’s fellow countryman, friend and cosmographer, was likewise personally caught up in the theological disputes of his day. He wrote in a letter in December 1567 that the “patient,” Antwerp, suffered from “the Catholic evil, the Gueux fever, and the Huguenot dysentery, mixed with other vexations of black horsemen and soldiers.” Ortelius noted: “All this we have deserved through our sins; for we are up to our heads in pride and ambition; every one wishes to be called, but not to be, good; every one wishes to teach others, but not to humble himself; to know much and do little, to dominate over others, but not to bow under God’s hand.” As these cases demonstrate, faith and introspection preoccupied the minds of these two cosmographers. In works concerned, as cosmographies were, with the origins, history, current state, and future of the world and the universe, engagement with contemporary and controversial disputes in theology and doctrine was almost unavoidable.

Years earlier, Münster had complained in a letter that he found the monk’s cowl restricting: “I wish to leave the order and be as other good Christians, but that is not allowed, or at least until now not beneficial, where I am better known than I should like.” Leaving the Franciscan order in 1529 and joining the Reformed community in Basel, Münster did eventually find a thriving intellectual environment for his

34 Pierre de Corte to Mary of Hungary, 23 February 1543 in van Durme, Correspondance Mercatorienne, 22. (The letter was dated 1543 by the author, but this book contains several typographical errors, and other sources indicate that Mercator was arrested in 1544.)
35 Ibid.
37 Ortelius to Emanuel Demetrius, 13 December 1567 in Hessels, Abrahami Ortelii, 52.
38 Ibid.
40 Münster to Beatus Rhenanus, 9 March 1526 in Burmeister, Wort und Bild, 27.
cosmographical endeavours. At the high point of his career at the university, Münster resented being given the post of professor of Theology—he felt that his time was better spent as a linguist and working on his cosmographical project. Nevertheless, Burmeister tells us, “it is very clear that Münster had the Bible in view at all times and everywhere, and that its dissemination and an increasing knowledge of it among human beings was the primary impetus of his humanist existence.”\footnote{Burmeister, \textit{Wort und Bild}, 16.} Cosmography was a tool, according to Münster, to reveal hidden secrets in Holy Scripture.\footnote{Münster, \textit{Cosmographia}, ii.} Salvation and the human condition fully informed and pervaded the \textit{Cosmographia}. The cases of Mercator, Ortelius, and Münster demonstrate that these cosmographers were devout men, whose ideals for cosmography were grounded in their religious convictions. Their approaches to cosmography clearly differed from Apian’s straightforward mathematical approach. For these three scholars, cosmography was a “tool” for demonstrating salvation history, perhaps more closely linked to religious paintings and icons than to geographical texts as we would understand them today. It was not always clear with which confessions these cosmographers associated most strongly. Gottfried Buschbell wrote that Mercator was “a traveler between both worlds.”\footnote{G. Buschbell, \textit{Drei Briefe Gerhard Mercators an den jüngeren Granvela} (Munster: 1931), 168, quoted in Van Durme, \textit{Correspondance Mercatorienne}, 25.} In fact, in this time of challenges arising in religious, political, and scientific spheres, all of these cosmographers could be found wandering between various worlds. The correspondence of these men gives us an idea of how they navigated and attempted to make sense of these “worlds.”

1.3. Historiography

Historians have approached cosmographers and cosmography in different ways. “Presentist” scholars set out to explain the origins of our current fields of geography and ethnography. For these historians, cosmography was really the inferior precursor to professional academic fields today.\footnote{See, for example, Hodgen, “Muenster.”} On the other hand, “contextualist” historians like Matthew McLean have insisted that works like Münster’s \textit{Cosmographia} should be put in
their historical context and can be used to gauge the interests, ideas, and perspectives of the age.\textsuperscript{45} One historian even claimed that the \textit{Cosmographia} “quite faithfully reflected everything that people in the first half of the sixteenth century knew about geography, cartography, and the history of particular lands.”\textsuperscript{46} Another study focused on the popularity and style of a number of cosmographical works.\textsuperscript{47} More recently such contextualist historians have looked at early modern cosmographies and chorographies within the context of a larger humanist literature. Gerald Strauss and Julie Tanaka were interested in how this larger literature and these works specifically portrayed German lands and the construction of a national identity,\textsuperscript{48} and Christine Johnson in how they portrayed distant lands and the construction of the “other.”\textsuperscript{49}

Whereas these historians studied cosmographies to identify particular attitudes or conceptions of the world, an examination of the networks of cosmographers reveals processes that lay behind the creation of these books. The correspondence of cosmographers contains information about the kinds of data these men were requesting, from where and whom, but also about circumstances that facilitated or restricted their scholarship. This is not a study of the cosmographies themselves and their effects on the public, but of processes of data collection, the mundane aspects of the cosmographer’s scholarship. These processes reveal patterns in the ways that these scholars approached cosmography, individually, and when compared to one another.

My research adds to what we know about the development of cosmography and subsequent subjects, such as geography, ethnography, and astronomy, but it also asks crucial questions about early modern scholarship generally. Cosmography, more than any other subject among sixteenth-century scholars, required collaboration. Sebastian Franck wrote about his \textit{Weltbuch} (1534) that it was a “beehive of history, that is, like a

\textsuperscript{45} McLean, \textit{The Cosmographia}, 3.
\textsuperscript{48} Strauss, \textit{Sixteenth-Century Germany}; Tanaka, “The Roman Empire’s Progeny.”
bee I have taken from each flower a little bit with which to build my hive.”50 In 1570, in a letter accompanying a list of corrections sent to Ortelius, Caesar Orlandius wrote: “in your Theatrum you ask all persons, who possess descriptions of particular regions wanting in that work, to let you have access to them.”51 Various scholars from around Europe similarly sent in corrections to the Theatrum, just as they and others had been accustomed to do with previous works of cosmography.52 An analysis of networks shows the process of knowledge-creation, and how cosmographers gathered information to which they did not have immediate access.

Several studies exist on the networks of individual cosmographers, such as Burmeister’s scholarship in the 1960s on Münster.53 Burmeister incorporated Münster’s correspondence in his studies on the Cosmographia, tracing its evolution from conception to publication (and re-publication in several editions). Other than that, however, cosmographers and their networks have not featured much in scholarship until very recently. Two books appeared in 2017 which continued in Burmeister’s vein and examined aspects of individual cosmographers’ works in light of their networks. In Erudite Eyes, Tine Meganck placed Ortelius within a network of collectors of antiquarian objects and data.54 She did not concern herself, as I do, with Ortelius’ cosmographical scholarship as exemplified in the Theatrum. Jasper van Putten examined the networks of Münster in Networked Nation for his contacts’ collective contributions to the conceptualization of the “German” city.55 Like Strauss and Tanaka, van Putten focused on developments in German (and Swiss) identities, and so this is a topic on which I will spend little time in my thesis.

50 Quotation in Strauss, Sixteenth-Century Germany, 53.
51Caesar Orlandius to Ortelius, 15 May 1572 in Hessels, Abrahami Ortelii, 89-96. Orlandius refers to Ortelius, Theatrum.
52 Suggestions and corrections to published cosmographical works can be found in numerous letters written to Sebastian Münster, Gerard Mercator, and Abraham Ortelius.
1.4. Methodology

My interest lies in the relationships between cosmographers and their contacts more generally, how they differed and what they had in common, in order to draw conclusions about processes of knowledge-creation in the development and perpetuation of early modern cosmological thought. In the process I ask questions like: To whom were they writing? Which contemporary authorities informed their works? Their epistolary records contain answers to these questions.

These German and Flemish cosmographers were, in Denis Cosgrove’s words, “publisher-humanists in independent merchant cities,” where “cosmographic materials circulated freely through merchant contacts and in independent universities” and spread throughout Europe. These men differed from court cosmographers elsewhere in Europe who were “subject principally to the demands of patrons for prognostication, technical, or political services,” as well as from Spanish and Portuguese cosmographers, much of whose works were, at least in theory, supposed to be kept secret. In contrast, the maps in Ortelius’ *Theatrum*, published for a consumer market, “provided as much known geographic information as possible,” and Ortelius himself emphasized their political neutrality. Another characteristic that German and Flemish cosmographers shared, and which set them apart from most other European cosmographers, is that they lived and operated in confessionally mixed areas. The wider scope of the intended audiences of these authors also spurred them to broader and more varied inquiries, into what might interest a variety of scholars or armchair travelers.

Restricting myself to the networks of German and Flemish scholars allows me to examine these networks in depth. Their correspondence sheds light on processes and routes of information dissemination—information which often ended up in editions of these highly influential works. This correspondence forms the basis of my thesis.

---

56 Cosgrove, “Images,” 75.
57 Ibid., 76.
In chapters two and three I delve into the networks of three of these scholars in the period between 1540 (shortly before the publication of Münster’s *Cosmographia*) and 1570 (the year Ortelius’ *Theatrum* was published). The three cosmographers are the German Sebastian Münster, who in this period resided in Basel, the German Fleming Gerard Mercator in Duisburg, and the Fleming Abraham Ortelius in Antwerp. I have collected and sorted as much of the correspondence of these cosmographers and their colleagues as I could find from this time period. Within the broader context, the period between 1540 and 1570 sees the peak of Münster’s career as a cosmographer in the first half and the rise of Mercator and Ortelius in the second. Robert Fuson wrote that “after Münster’s [sic] death in Basle (of the Plague), the nerve-center of geography shifted to the Low Countries. The Dutch-Flemish influence was to last for about 100 years.” This appears to have been a watershed period for cosmographical scholarship among German and Flemish scholars, containing important themes of change and continuity in cosmographical scholarship.

The letters of Münster, Mercator, and Ortelius were the most abundant and the most readily available to me. It is for this reason, and in the interests of space, that their networks will receive most of my attention. I searched for additional collections of letters from other cosmographers and their allies, being mostly restricted to volumes that I could access through Simon Fraser University’s library. I included only those letters that I judged to address aspects of cosmographical research broadly defined: aspects of what we would call geography, history, astronomy, and so forth. I foreground terrestrial rather than celestial aspects of cosmography, as did Münster, Mercator, and Ortelius.

---

60 Münster, *Cosmographia*; Ortelius, *Theatrum*.
62 Burmeister, *Wort und Bild*; Burmeister *Briefe*.
63 Van Durme, *Correspondance Mercatorienne*.
64 Hessels, *Abrahami Ortelii*.
65 I could not find or access sources for Peter Apian or Sebastian Franck.
67 Cosmographical networks that emphasized astronomy and related fields would include Joachim Rheticus. This theme would likely lead in very different directions.
Collecting data about senders, recipients, their locations, confessional backgrounds at the time of writing, and the information being exchanged, I entered this data into a spreadsheet.

These three cosmographers acted in three very different environments, and Münster and Ortelius were of two different generations. Münster’s letters end by December of 1550, a year and a half before his death, while Ortelius’ first letter dates from April 1556. In spite of these differences, Münster, Mercator, and Ortelius considered themselves to be cosmographers, were called cosmographers by other scholars and authorities, and Mercator and Ortelius both thought highly of and relied in part on each other’s and Münster’s work. These men were the most successful in their field, in terms of the popularity of their works, and I do not assume that they were representative of German and Flemish cosmographers generally. I do believe, however, that a comparison of the three—and of them with others—is both justifiable and illuminating when considering developments in the field of cosmography more generally.

I examine these cosmographers and their contemporaries through their epistolary record. Letters were a scholar’s way into the community: “whom one wrote to, who replied, and who wrote on one’s behalf were … important signs of one’s standing in the Respublica litterarum and in the world at large.” Joost Depuydt, editor of a collection of Abraham Ortelius’ letters, stated that “uncovering such relations, making visible his position within the social constellation of his time, will lead to new insights and perhaps generate new, interdisciplinary research.”

The second set of sources are the cosmographies themselves. In fact, various editions of cosmographies were themselves prefaced by letters, because of the information they contained and because of the reputation of their writers. Unlike previous scholarship, my study prioritizes letters to find trends in cosmographical approaches that are not directly obvious in the published works themselves.

In a time of rapidly expanding and more regular connections between European states and entities, correspondence played a significant role in early modern

---

scholarship. Cosmographers wrote numerous letters and fostered diverse professional relationships. At a high point in his career, Münster spoke of writing four to six letters per day to gather cosmographical data, beyond his daily work. The letter itself was a recognized and respected medium: “in the era before the genre of the essay had fully emerged, and before scholarly journals were established, the letter became a favoured medium of academic discourse.” Some letters had a particularly wide readership, appearing as prefaces to their recipients’ works and acting as endorsements for the author and his book, or published by these scholars in volumes of their correspondence.

Using Palladio, an open-source program from Stanford University, I visualized the networks of Münster, Mercator, and Ortelius—both as simple node-link diagrams (figures 4, 6, 9, 11) and as geographical node-link diagrams (figures 5, 7, 8, 10, 12, 13). These visualizations give an overview of the networks of cosmographers, individually as well as of connections between them. The data represented in these three sets of items, the spreadsheet containing 141 letters, a set of node-link diagrams, and a set of geographical node-link diagrams (the diagrams are based on the 71 letters belonging to Münster, Mercator, and Ortelius), forms the basis for the rest of this thesis.

In addition to the letters, I used separate lists of contributing scholars mentioned by Münster (1544) and Ortelius (1570) in the prefaces to their works (figures 8, 13). Though some of these scholars were deceased before 1540, they were contemporaries with Münster and Ortelius at some point, and their work was still relevant for these men in my chosen period. Seen alongside Münster’s and Ortelius’ epistolary networks, the connections mentioned in these prefaces reveal further trends.

From the various published volumes, I selected 141 letters in total, from 1540 up to and including 1570. These particular letters conveyed information that was useful for cosmographers. My study is limited because of incomplete epistolary records. 141 letters do not give a full picture of the correspondence of these men over a thirty-one-year period. Furthermore, each volume of correspondence has its own peculiarities. In my selection of Ortelius’ letters, all letters but one are to Ortelius, and in the collections

70 Münster to Pellikan, 20 June 1549, in Bürmeister, Wort und Bild, 51.
of Münster’s correspondence, all letters are from Münster. These letters only give half of the conversation, so rather than a complete overview, they provide a glimpse into the networks of these men—but a revealing glimpse. The letters in all of these collections provide valuable information on both senders and recipients, and on the topics that occupied the time and energy of cosmographers.

My approach comes with another limitation, determined by the nature of epistolary records. Reconstructing knowledge networks through the correspondence of cosmographers overlooks in-person contacts, which would undoubtedly have been just as important, if not more so, to cosmographical scholarship. These connections would be much harder to trace, although they are hinted at in the letters themselves, in publications, and in other sources such as Ortelius’ ‘Album Amicorum.’ I chose to look at the letters because they give a clear indication of the scholarly exchanges within these relationships.

1.5. Argument

An analysis and comparison of the intellectual networks of Sebastian Münster, Gerard Mercator, and Abraham Ortelius reveals aspects of their scholarship that have not always been obvious from their published works. Networks show the authorities and types of information that these men pursued most vigorously, as well as the sites, individuals, and events that affected the work they produced. The locations of these men, the contacts they established, and the routes by which information traveled shaped and limited cosmographies. These influences challenge those prevailing narratives and constructions in the historiography on sixteenth-century science which would see Münster as more traditional and medieval, and Ortelius as more empirical and modern. Both men were looking for diverse and novel information in different contexts. They wrote what they wrote not because of their innate “traditional” or “modern” sensibilities, but because of the extent and limits of their networks.

Münster’s, Mercator’s, and Ortelius’ epistolary networks differed quite substantially and contained few direct connections between each other in this period.

---

73 The ‘Album Amicorum’ was Ortelius’ autograph book. Abraham Ortelius, Album Amicorum, 1574-1596, MS LC.2.113, Pembroke College Library, https://cudl.lib.cam.ac.uk/view/MS-LC-00002-00113/1.
Münster appeared to rely on fewer and less diverse scholars for more coherent portions of information, while Ortelius received more varied and fragmented information from a larger range of contacts. Rather than attributing these different scholarly approaches to an insular attitude in Münster and a more objective and empirical attitude in Ortelius, I see another distinction. Hebrew and Holy Land scholarship played a crucial role in establishing coherence in the networks and cosmographical conceptions of Münster and various other cosmographers of his time—a coherence that was missing in the scholarship and networks of Ortelius. These different approaches were reflected in networks with different orientations, in both geographical and demographical terms. While historians have traditionally associated fields like astronomy, ethnography, and geography with cosmography, the Hebrew connection so clear in these networks added a different flavour. In fact, the incorporation by cosmographers of Hebrew scholarship conducted on intellectual peripheries was as untraditional and empirical as were attempts to accurately portray discoveries that were being made in geographical peripheries.
Figure 4: Münster’s, Mercator’s, and Ortelius’ networks
Figure 5: Map of Münster’s, Mercator’s, and Ortelius’ networks
Figure 6: Münster’s network
Sebastian Münster:
34 letters
19 contacts
(spanning 10 years and 10 months)
Figure 7: Map of Münster’s epistolary network

Figure 8: Map of authors mentioned in Cosmographia preface
Gerard Mercator:
21 letters
12 contacts
(spanning 28 years and 7 months)
Figure 10: Map of Mercator’s epistolary network
Abraham Ortelius:
17 letters
15 contacts
(spanning 14 years and 7 months)
Figure 12: Map of Ortelius’ epistolary network

Figure 13: Map of authors mentioned in Theatrum preface
Chapter 2. 

Epistolary Networks

2.1. Introduction

Correspondence and objects traveling between various individuals (the nodes) via certain routes (the ties), shaped cosmographical scholarship. I tease out larger trends in the epistolary networks of Sebastian Münster, Gerard Mercator, and Abraham Ortelius, and look at qualities and circumstances of these cosmographers and their contacts, as well as the routes by which information traveled. The patterns reveal common as well as markedly differing attitudes and approaches towards cosmography. Münster depended primarily on contacts whom he believed he could trust, because of professional, ethnic, and, at the international level, confessional similarity. The network of Ortelius, on the other hand, was more diverse and less consistent than that of Münster. Mercator’s network was more restricted but, like Münster’s, also showed a greater dependence on particular contacts. These network qualities helped to determine which topics received priority in cosmographies, and how cosmographers approached these topics.

Visually prominent aspects of cosmographers’ networks, the geographical locations of the nodes and the routes of the ties, show which areas featured most strongly in these scholars’ intellectual environments. More precisely, their visual aspects show us to whom cosmographers turned for information. Geographically, these dynamics manifested themselves as a much more north-oriented network for Münster from Basel, and an east-, west-, and most notably south-oriented network for Ortelius,
working under a Spanish, Catholic government in Antwerp. Ortelius’ wider connections quite naturally lay in Spain and Italy, while Münster seemed to make a particular point of creating and maintaining connections in Protestant Scandinavia. Nodes and ties affected the works of both men, and networks provide the proper context for an analysis of their scholarship.

2.2. The Central Nodes: Cosmographers in their Habitats

The formation, preservation, and expansion (or deterioration and breakdown) of intellectual networks first of all depended on the central nodes themselves: the cosmographers and their contexts. Cosmographers created or allowed for specific circumstances and opportunities that affected their networks, and thus their scholarship. Mercator moved in 1552 from Leuven to Duisburg, but his relative isolation also hampered his network. Ortelius, on the other hand, seemed determined to stay in cosmopolitan Antwerp, in spite of religious and political turmoil, showing how important this particular location was to him. Living in Duisburg, and without direct involvement in the printing press, Mercator had very little say about his works once they were sent off to Christophe Plantin. Ortelius, in a letter to his nephew Emanuel van Meteren in 1584, observed pessimistically that authors who published their works through others “seldom obtained money.”

Alas, Mercator himself “never achieved a comfortable financial position in spite of his hard work as a globe and instrument maker, engraver and map-maker.” However, life in Duisburg had its perks. Mercator moved there soon after he was released from prison, in all likelihood to avoid further persecution on account of his suspected heretical beliefs. Mercator’s biographer Walter Ghim wrote that Mercator “was a man of calm temperament” and “fond of peace and tranquility in both public and private affairs.”


Duisburg was a place where a renowned scholar could work in relative peace and isolation.

Münster’s move to Basel also affected his network and cosmographical scholarship. Early on in his work, Münster found that his research travels were impeded because it was considered contemptible for monks to travel. He also indicated that he was not happy in Heidelberg. In 1529 Münster left Heidelberg, and, joining the Reformation, settled in Basel until his death. It appears that Münster’s decision was religiously motivated, but in addition to that, greater mobility and access to further opportunities and contacts at Basel were significant perks that accompanied these life changes.

Lying on the crossroads between the Italian, German, and French lands, and with strong connections to the Frankfurt book fair, Basel was a vital center for the book trade and for intellectual exchange. Part of the city’s intellectual vibrancy in the sixteenth century could be attributed to the “presence of great numbers of confessional exiles from many corners of the continent,” and from France in particular. Benefitting from the presence of esteemed foreigners, the university at Basel, where Münster taught Hebrew and various other subjects, was experiencing its golden age at this time. The great humanist Erasmus himself lived in Basel in the 1520s and described it in this way:

“They all know Latin, they all know Greek, most of them know Hebrew too; one is an expert historian, another an experienced theologian; one is skilled in mathematics, one a keen antiquary, another a jurist… I have certainly never before had the fortune to live in such gifted company. And to say nothing of that, how open-hearted they are, how well they get on together!”

Harmony and cooperation—hallmarks of the Republic of Letters—were strongly evident among the scholarly community at Basel. In this atmosphere, Münster pursued his scholarship, not only at the university, but also at the Petri printing press. Münster established his contacts among learned Christians of various stripes, but especially

77 Münster to Rhenanus in Burmeister, *Wort und Bild*, 27.
Protestants. It was also in this context that he gained his Scandinavian contacts—whether directly, or, in other cases, through mutual contacts. In a letter to Christiern Morsing in Copenhagen, Münster implied that Morsing had visited him in Basel. Münster sent personal greetings from his wife. ¹¹

Both Münster and Ortelius were well-positioned in their connections to established printing houses, and these connections played a key role in the success of their works. Münster worked first for Adam Petri, then with Heinrich Petri, who became Münster’s stepson when Münster married Adam’s widow Anna Selber in 1530. ²² Ortelius was a close friend of Plantin, with whom he also collaborated. In letters from both Münster and Ortelius, we see recurring preoccupations with the carving of maps, with the numbers of copies sold in various places, with obtaining funds and permissions from patrons, with encouraging other authors to publish their works with the Petri press (in Münster’s case), and most frequently with intense financial and time pressures. All these added duties benefited Münster and Ortelius in providing both practical insights and intellectual connections for their scholarly work.

Besides the university, Basel’s printing houses were sites that facilitated cultural and intellectual exchange. By the 1570s Basel had become a “great cosmopolitan publishing center” among Swiss cities, where publishers like Heinrich Petri “took advantage of their central position in the international book trade, their contacts with both Catholic and Protestant centers, and their articulate, well-informed local communities of exiles to make their cities central nodes in the sixteenth century’s international web of information-gathering institutions.” ³⁷ The printer’s shop was a place where individuals of diverse skills collaborated in sometimes novel ways. Elizabeth Eisenstein examined the

¹¹ Münster to Christiern Morsing, 23 November 1526 in Burmeister, Wort und Bild, 38.
²² McLean, The Cosmographia, 37.
³³ Justus Laureins to Ortelius, 25 February, 1567; Johannes Crato à Crafheim to Ortelius, 30 October 1570; Gerard Mercator to Ortelius, 22 November, 1570 in Hessels, Abrahami Ortelii, 73-74; Münster to Rhenanus; Münster to Pellikan, 2 September 1544 in Burmeister, Wort und Bild, 27, 39.
⁴⁴ In letters to Ortelius after the publication of the Theatrum in 1570.
⁵⁵ Münster to Gustav Vasa, January 1550; Münster to Ferdinand I, February 1550; Münster to Sigismund August, March 1550 in Burmeister, Wort und Bild, 54-55, 57-58, 59-61; Ortelius, in letters after the publication of the Theatrum in 1570.
⁶⁶ Münster to Aegidius Tschudi, 17 August 1537 in Burmeister, Wort und Bild, 28-29.
groups and cultures that formed around early printing presses in Europe. These locations brought new ties “among diversely skilled workers and encouraged new forms of cross-cultural interchange,” bringing together former priests, university professors, and academics from various fields with metal workers, mechanics, engravers, and painters. Polyglot communities formed around major scholarly printing houses, and a scholar’s connection to the book trade opened up considerable avenues for information.

The orientation of printing presses, and presumably the communities that formed around them, could vary widely from press to press. A rival printer to Petri at Basel, Johannes Oporinus, rejected almost any work in the vernacular in order to preserve the scientific integrity of his firm. In contrast, Münster consciously wrote and published the first edition of the Cosmographia (1544) with the Petri press in German for Germans. The Petri press, it seemed, catered to a different readership than the shop of Oporinus. In Antwerp, the printing empire of Plantin was the largest in sixteenth-century Europe. The Plantin press was a site of great diversity and tolerance. Plantin and some of his associates were members of the Family of Love, a sect that allowed for dissimulation; this attitude helped these individuals to avoid persecution “while attracting foreign financial support.” Scholars, merchants, and statesmen of various national and confessional backgrounds passed through and associated with the Plantin press, and Ortelius became acquainted with many of them.

There were also differences in Münster’s and Ortelius’ involvement in printing presses, which affected their networks in different ways. Time constraints resulted in less time and energy to communicate and to form new contacts, especially in the case of Münster, whose involvement went beyond the publication of his own works. As a result, Münster was compelled to prioritize and to maximize what information he could gain from existing contacts. Ortelius, unlike Münster, did not seem to be tied to the location of

---

89 Ibid., 27.
90 Ibid., 202.
92 Eisenstein, Printing Revolution, 200.
93 Ibid., 201.
the presses with which he cooperated in the time leading up to the publication of the
Theatrum (1570). He would not have felt the same pressures that Münster had at the
Petri press. Consequently, he had more time to travel and to connect with a greater
number of people, which was reflected in the number of different contacts with whom
Ortelius corresponded at this time. Antwerp was a key location for Ortelius once he had
established himself, but before that time, it was his flexibility that allowed him to come
into contact with many scholars with whom he would continue to communicate, and on
whom he depended for information.

Residing in Antwerp, a city with global connections, but also a place embroiled in
political and religious quarrels, turned out to be both profitable as well as detrimental for
Ortelius. Antwerp was the economic hub of the Low Countries in the sixteenth century,
and saw a large increase in immigration in the first half of the sixteenth century.94
Chances for forming contacts as well as avenues for communication greatly improved in
this cosmopolitan city when compared to Duisburg, but also in comparison with Basel or
any other renowned but landlocked city. It is telling that Ortelius’ list of contributors at the
beginning of the Theatrum was five times as long as that of Münster in the
Cosmographia. In addition to several contacts who are included in the list of Ortelius’
correspondents between 1540 and 1570, eighty-five scholars were included in the
Theatrum list—compared to twelve mentioned by name in Münster’s list, along with
anonymous contacts from five other locations. It may be appealing to argue, as did some
historians, that Ortelius was more likely than Münster to properly attribute outside
scholarship.95 This may be the case, but I suggest that Ortelius did actually reach a
larger and more diverse number of scholars, accessible to him because of his central
location in Antwerp. On the other hand, Ortelius’ network was limited by political and
religious unrest, and there was significantly less input from scholars in the north,
including the Northern Netherlands, than there was in Münster’s work (compare figures 7
and 8 with 12 and 13).

30, 2 (2017): 264. Mielants estimated that between 1526 and 1542, “there was an annual influx of
more than 2,000 immigrants, huge by 16th century standards.”
95 De Vocht, Dantiscus, 221-222; Marcel van den Broecke, Ortelius’ Theatrum Orbis Terrarum (1570-1641) (Utrecht: Koninklijk Nederlands Aardrijkskundig Genootschap, 2009), 24.
The coverage of sixteenth-century Basel and Antwerp in cosmographical works shed light on the characteristics of the networks of Münster and Ortelius. Münster’s own chapter on Basel in the *Cosmographia* was one of the longest (if not the longest) treatments on a city, but contained little information about the place itself. Münster instead focused on important citizens, as well as on Basel’s role in Switzerland and its connection with rulers and famous personages in the wider world. Even his geographical description, echoing the style of Strabo, emphasized the connection of Basel with the rest of Switzerland and the German lands.⁹⁶ To Münster, what Basel was on its own seemed to be irrelevant; its connections to other cities and great personalities and events were of far greater import.⁹⁷ Many of Münster’s letters were addressed to such personalities, rather than to specialized scholars who could provide specific pieces of information.

Antwerp, on the other hand, received no attention in the first editions of the *Cosmographia*, and comparatively little from Ortelius himself in the first *Theatrum*. Just a few years later, Georg Braun and Franz Hogenberg’s multi-volume *Civitates Orbis Terrarum* (1572-1618),⁹⁸ published as companions to the *Theatrum*, did assign Antwerp a special place. A full two pages of text as well as one of four fold-out maps were dedicated to Antwerp,⁹⁹ while Basel and even Nuremberg each received less than half a page. Antwerp was a hub for cartographical scholarship, so it is not surprising that Braun and Hogenberg had access to a substantial map of the city by 1572, as well as plenty of historical information. What is more surprising is that Münster had not tried or succeeded to gain access to this information. The presence or absence of an Antwerp chapter might say something about the scholarly networks of Braun and Hogenberg compared to Münster’s, but perhaps it is more likely to say something about Münster’s scholarly agenda, which in turn affected his network. Antwerp may have been the economic center of the Low Countries, but Basel, or Nuremberg, for that matter, were important

---

⁹⁷ Ibid.
⁹⁹ Ibid., 27. The others are Jerusalem, Rome, and Krakow.
international humanist hubs, and Münster built connections with these areas at the expense of other major European cities.

Cosmographers, like other scholars, seemed to choose their locations for various strategic reasons, reflecting their scholarly inclinations. How they thought of their respective cities reflected in part how they thought about information and authority. From Basel, Münster would pursue deep and well-rounded connections, while Ortelius formed more varied but also more fragmented connections. Münster corresponded with nineteen contacts in thirty-four letters (spanning eleven years), and Ortelius with fifteen in seventeen letters (spanning fourteen and a half years).

2.3. The Contacts: Statistics and Traits

One of the more obvious differences between the networks of Münster and Ortelius lay in their geographical orientations. Comparing the lists of contributors in the first edition of Münster’s *Cosmographia* in 1544 and the first edition of Ortelius’ *Theatrum* in 1570 (see figures 8 and 13), the following patterns stand out. In spite of his proximity to southern cities, Münster refers to only one, anonymous, connection in southern Europe, Majorca. Münster appeared to depend more heavily on contacts in the German lands and in Scandinavian countries, while Ortelius turned to his contacts in German lands as well, but also to contacts in Italy and France, and then Spain and England. Clearly, Ortelius’ information came from a larger array of places, with outliers primarily in the south—which was also true for his network of correspondents (figure 12).

Münster, on the other hand, did not seem to correspond with or acknowledge Spaniards, Italians, or French contacts. Münster corresponded with Catholic Germans with ease, so if there was a bias, it was probably national rather than confessional. His relations with the Spanish were cool at best. In a letter to Joachim Vadian in 1550, Münster wrote that the Bishop of Arras and keeper of the emperor’s seal, Antoine Perrenot de Granvelle, had received a copy of the *Cosmographia*. On account of Leuven’s censors, Perrenot did not dare to send it on to the emperor, to whom it had been dedicated. Likewise a Herr Seld had not dared to pass it along, for fear of the Spanish.100 Years earlier, in a letter to Beatus Rhenanus in 1542, Damião de Góis, a Portuguese chorographer who

100 Münster to Joachim Vadian, 23 December 1550 in Burmeister, *Wort und Bild*, 69.
sent Rhenanus his booklet on Spain, explained that he wrote this book not to put Germany in a poor light, but to correct Münster’s erroneous description of the Spanish.\footnote{Damianus à Goes to Beatus Rhenanus, 1 June 1542 in Horawitz and Hartfelder, \textit{Beatus Rhenanus}, 485.} As the first scholar with whom Münster had discussed his cosmographical project, when it was still only a description of the Rhineland, Rhenanus was a significant contact to Münster himself. Góis, on the other hand, was no friend of Münster, who wrote in 1549 that he had received a copy of the booklet from Antwerp, but sent it back, and never saw it distributed in the Basel area.\footnote{Münster to Pellikan, 20 June 1549 in Burmeister, \textit{Wort und Bild}, 52.} Góis’ criticism of Münster and Münster’s reaction fit well with the lack of interest Münster seemed to have in gaining up-to-date information by forming reliable contacts in the Iberian Peninsula.

Münster’s priorities lay with his contacts in the German lands and in Nordic lands. In a letter to Georg Normann in Stockholm in 1545, Münster responded to those who wondered at his ability to have formed connections with Swedish noblemen: “I owe these friendships to letters.”\footnote{Münster to Georg Normann, 20 August 1545 in Burmeister, \textit{Wort und Bild}, 42.} In an earlier letter to Normann in 1543, and similarly in a letter to Morsing in Copenhagen in that same year,\footnote{Münster to Normann, 27 July 1543; Münster to Morsing in Burmeister, \textit{Wort und Bild}, 35-36, 38.} Münster gave detailed directions about the kinds of information he desired of their respective kingdoms. Seven years later, after the publication of another edition of the \textit{Cosmographia}, Münster wrote to the king of Sweden, Gustav Vasa. He praised the generosity of the king in his financial support and his interest in Münster’s work, and then requested an illustration of Stockholm and a more detailed description of the Kingdom of Sweden.\footnote{Münster to Gustav Vasa in Burmeister, \textit{Wort und Bild}, 54-55.} This request was in itself not remarkable, and was repeated in letters to contacts in German lands, England, and elsewhere, but in this case, it was obvious from the rest of the letter that Münster had already had access to a variety of sources written by young Swedish historians. With this additional request he showed that he was particularly keen to have up-to-date and accurate information on this kingdom.

Just as Münster seemed to have a special connection with Sweden in particular, Ortelius had one with Italy, although this connection looked very different. Münster was
dealing with a kingdom and its central ruler, while Ortelius corresponded with scholars in various city states. Italy, the birthplace of the Renaissance, was also a traditional center for classical knowledge—whereas Sweden lay on the periphery. In this sense, Ortelius’ appeal for information was less novel than was Münster’s. One interesting dynamic of Ortelius’ network is that he seemed more connected to Italian than to Dutch contacts on topics relating to his *Theatrum*. Joost Depuydt pointed out that of all of Ortelius’ contacts taken together, 33% were from the Southern Netherlands, 20% from the German lands, and Italians were counted among the less than 10% from non-Germanic countries and England.\(^{106}\) However, these statistics were based on Ortelius’ letters as well as his ‘*Album Amicorum*.’\(^{107}\) Only six of the eighty-seven authors listed in the original *Theatrum* show up in the ‘*Album Amicorum*.’ In Ortelius’ cosmographical scholarship, the figures look quite different. A far greater proportion of authors listed in the 1570 *Theatrum*, possibly up to nineteen out of eighty-seven, hailed from Italian cities. As for scholars based in Dutch cities—exclusively southern-Dutch cities such as Antwerp, Leuven and Mechelen—I counted only seventeen. This emphasis on Italian scholars in the *Theatrum* list reveals Ortelius’ inclination to accord greater authority to their scholarship than to that even of his own countrymen.

In Ortelius’ epistolary record, the presence of Italian scholars is more subtle. Of the seventeen letters here under study, the only Italian letters related to cosmography between 1540 and 1570 were from Scipio Fabius in Bologna (in 1561 and 1565).\(^{108}\) In 1561 Fabius thanked Ortelius for his world map, the “Typus Orbis Terrarum,” and asked if he could do anything for him in Italy in return.\(^{109}\) Nevertheless, the content of various other letters showed that Ortelius was well-connected to Italy on both a scholarly and a commercial level. In 1568, Johannes Venduilli, a professor of law, wrote to Ortelius from Douai, asking for various maps and books from Antwerp, including Ortelius’ world map, and for information about a book on Africa that was being printed in Italy.\(^{110}\) Furthermore, Mercator wrote in 1570 to compliment Ortelius on the *Theatrum*, noting

---


\(^{107}\) Ibid.

\(^{108}\) Scipio Fabius to Ortelius, 16 June 1561; Fabius to Ortelius, 14 April 1565 in Hessels, *Abrahami Ortelii*, 24-26, 32-33.


specifically his faithfulness in the reproduction of maps, especially of Italy, which were done poorly by others.\textsuperscript{111} These various letters give an indication of just how connected Ortelius was to Italy and Italians specifically. This is not surprising, considering the trade connections between Antwerp and Italian cities. In fact, Italians proved to be useful as neutral go-betweens: In 1570, Robert Owen directed Ortelius to send his letter to him in England through a certain Italian merchant, since trade between the Flemish and the English was forbidden at the time.\textsuperscript{112} Italians themselves also seemed interested in affairs in Antwerp: Authoritative descriptive texts of the city at the time came not from the nearby Germans, but from Italians like Ludovico Guicciardini. Port cities like Bruges and Antwerp seemed to hold more in common with faraway Italian cities than with landlocked neighbouring cities or the nearby German lands.

In one way, Münster’s approach to scholarship was more revolutionary than that of Ortelius precisely because he did not turn to the Italians for new information. Münster was less interested in Europe’s usual intellectual centers (except for German cities), and more in new discoveries on Europe’s peripheries. Ortelius was interested in accurate information on non-European peripheries, but sought this information in European intellectual centers. Münster wrote to Normann that he considered information from northern Europe as exotic as information from Africa: “I have the same opinion of the North that cosmographers have for many years had of Africa, when they wrote that Africa always brings something new.”\textsuperscript{113}

Münster’s insistence on accurate descriptions of European lands and his seeming carelessness about factual accuracy of more distant lands did not mean that he was a more insular or small-minded scholar than later cosmographers. In 1550 Münster wrote to King Sigismund August that he was interested in current events, for “in the customs and throughout the lives of men such great transformations have taken place and are still taking place, that our day, compared to the old days, proves to be an entirely new century on earth.”\textsuperscript{114} The lesson Münster gleaned from his studies, like a King Solomon, was that everything is variable, and “how uncertain all that is, which

\textsuperscript{111} Mercator to Ortelius in Hessels, \textit{Abrahami Ortelii}, 73.
\textsuperscript{112} Robert Owen to Ortelius, 2 November 1570 in Hessels, \textit{Abrahami Ortelii}, 71.
\textsuperscript{113} Münster to Normann, 20 August 1545 in Burmeister, \textit{Wort und Bild}, 42.
\textsuperscript{114} Münster to Sigismund August in Burmeister, \textit{Wort und Bild}, 60.
people on earth admire from among themselves as eternal and everlasting.” For Münster information did not have to come from the other side of the world to be novel.

Beyond geographical differences, a closer look at the contacts within each network reveals other patterns. First and foremost, cosmographers, like all scholars, needed contacts who had time for them. In a letter to John Calvin in 1549, Münster speculated that Calvin must be preoccupied with far greater matters to be bothered with trivialities, and that this was the reason why the information Münster had asked for had not yet been sent. Münster found more responsive connections among ambassadors and royal patrons, who wished to show their lands at their best in the Cosmographia, and among old acquaintances with whom Münster held things in common—such as his Hebrew studies. Several contacts were pastors and theologians. Given that little is known about Münster’s Hebrew students, but that we do know that he was a greatly respected Hebraist, these theologians would quite possibly have known about Münster through his Hebrew scholarship. Furthermore, most of Münster’s correspondents were younger than he, most of them between one to four decades younger. It may be that a combination of Münster’s seniority and the youthful energy and mobility of these contacts made them more forthcoming correspondents. In other cases where Münster was unable to gain information from governing authorities, from various northern German cities, for example, he appealed to private citizens with whom he was acquainted.

Many of the contacts who made time for Ortelius, on the other hand, were university men and several scholarly contacts at court. In 1570, Johannes Crato à Craftheim wrote from Speyer to congratulate Ortelius on his publication of the Theatrum, saying that this book gave him relief from the oppressive cares at court, and that he had also passed it along to his Imperial Majesty. Primarily, however, Ortelius’ correspondents reflected his position as a publisher and merchant. They were doctors, professors, diplomats, lawyers, and cartographers. They had specialized knowledge

115 Ibid.
116 Münster to John Calvin, 11 February 1549 in Burmeister, Wort und Bild, 51.
118 À Craftheim to Ortelius in Hessels, Abrahami Orteli, 70.
from which Ortelius could benefit, rather than the kinds of bird’s-eye overviews Münster had been requesting from strategically located contacts, such as royal patrons.

Just as with the publication of his *Atlas*, because of his relative isolation Mercator appeared to rely to some extent on middle men for information from further afield. One of these middle men was Plantin, who wrote to Mercator in 1569 that he was unable to send Mercator the supplies for which he had asked, and promised instead to write to Paris to ask a friend for help.\textsuperscript{119} Similarly, Andreas Masius, when he wanted to ask Mercator about information on Palestine, had to ask their mutual friend Georg Cassander to reach the cosmographer for him.\textsuperscript{120} Mercator himself corresponded with a few scholars. Beyond that, his contacts consisted of Perrenot, the Duke of Cleves and his secretaries, and Emperor Maximillian II—the latter two primarily in connection to his publication of works. At the immediate level, Mercator’s epistolary network was more restricted than those of either Ortelius or Münster (compare figures 7, 10, and 12), and he relied on contacts like Cassander, Plantin, and Ortelius himself to expand his network at subsequent levels.

Mercator’s dependence on fewer direct contacts reflected his scholarly orientation, which was much more solitary and mathematical than those of either Ortelius or Münster.\textsuperscript{121} His methods required less immediate and vivid outside information than did Ortelius’ and Münster’s more descriptive cosmographical approaches. Mercator instead was fascinated with astronomical and mathematical instruments and their uses. The first letter we have from Mercator on cosmographical information was addressed to Perrenot in 1544, and in it he extensively described an astronomical instrument. In 1545 and 1546 he wrote to Perrenot again, and again on measurements and instruments.\textsuperscript{122} Of the twenty letters in this study connected to Mercator, most of these letters covered cartographic details, with a particular interest in newly discovered lands, but also in Palestine.

\begin{enumerate}
\item[119] Christophe Plantin to Mercator, 15 February 1569 in Van Durme, *Correspondance Mercatorienne*, 95.
\item[120] Lossen, *Andreas Masius*, 358-360.
\item[121] For a comparison of Ortelius and Mercator’s approaches, see van den Broecke, “Mercator and Ortelius,” 176.
\item[122] Mercator to Perrenot, 9 October 1544; Mercator to Perrenot, 18 March 1545; Mercator to Perrenot, 23 February 1546 in Van Durme, *Correspondance Mercatorienne*, 25-34.
\end{enumerate}
Another network pattern that reveals aspects of information flow involves the frequency of communication between contacts. Münster wrote many of his letters on his cosmographical studies to his former Hebrew teacher, Konrad Pellikan (fourteen letters out of thirty-three extant). Furthermore, he wrote that Masius wrote to him at many points during his travels through Europe (two letters in the collection are written to Masius). In the letters under study, Münster wrote to four out of nineteen contacts many times, making up 59% of letters. In the Ortelius collection only two wrote twice (one of those within the same month), making up 22% of letters. This difference in frequency of correspondence was probably due to the fact that Ortelius’ success as a business-savvy printer before the publication of the Theatrum depended on a wide and varied network, while Münster had already developed trusted contacts through his studies and his position as a professor. Münster was well established as a professor at the University of Basel by the time of the Cosmographia’s publication, while Ortelius did not have a steady position until 1575 when he became royal geographer to King Philip II. Münster had a sense of whom to ask for information, and was writing more frequently to contacts he trusted, whereas Ortelius tried to cast a wider net, giving him access to more diverse kinds of information.

To explore the differences in the networks of Münster and Ortelius, I used insights from a recent study on knowledge networks. In a review of empirically researched knowledge network publications across management, psychology, sociology, and economics journals, Corey Phelps, Ralph Heidl, and Anu Wadhwa identified two general kinds of network structures, “socially cohesive” and “structurally diverse” (figure 14). They argued that cohesive networks, with more frequent but also more closed connections, “promote greater knowledge flows” between nodes, while such flows are reduced in structurally diverse networks. Phelps, Heidl, and Wadhwa pointed out that the trust and reciprocity which come with strong ties between contacts “reduce concerns about opportunistic behavior and increase expectations of cooperation, thereby increasing individuals’ awareness of and access to each other’s knowledge and their willingness to incur costs to transfer, receive, and absorb

123 These were Fabius and Postel, Hessels, Abrahami Ortelii, 24-25, 32-33, 42-49.
knowledge.”125 On the other hand, “contacts who span structural holes beyond the network can facilitate learning and knowledge creation by ensuring novel information flows into it.”126

Münster’s network was more socially cohesive, while Ortelius’ was more structurally diverse. Münster, for example, searched for particular kinds of information through trusted contacts. He wrote in 1540 and 1548 to Masius and to Matthias Erb, respectively, asking them to assert their influence over scholars and rulers in order to gain access to sources and information.127 Likewise, Münster relied on his former teacher, Pellikan, to provide him with information about the works and progress of his rival, Johann Stumpf, and confided in him about his rivalry with Góis.128 Ortelius, on the other hand, valued diversity of contacts. He received a variety of information, ranging from the history of Britain,129 to descriptions of Africa,130 and from sources on individual German lands and Hungary,131 to sources on religions and cultures in Asia.132 Although the cases of Münster and Ortelius displayed aspects of both socially cohesive and structurally diverse networks, Münster seemed to be more keenly aware of what kinds of information his contacts were able to offer him, and grew to depend on them, while Ortelius received less coherent but more diverse information from people who were connected to sources which were novel to others.

The ways in which Münster and Ortelius interacted with their networks revealed a shared eagerness for novel information, but from different sources. Their different preoccupations were reflected in their networks. Münster wrote to the king of Sweden: “I have no doubt that much has evaded me and my associates, and that we have left out much. For we are human, occupied with the most varied tasks, and concern ourselves

125 Ibid., 1124.
126 Ibid., 1123.
127 Münster to Andreas Masius, 15 February 1540; Münster to Matthias Erb, 3 January 1548 in Burmeister, *Wort und Bild*, 31; 44-45.
130 Ibid., 42-46.
131 Ibid., 70; 73-74.
132 Ibid., 69.
by and by with our own matters.” While Ortelius was interested in Italian scholarship and information on various non-European exotic places, Münster looked to European peripheries, and preferred information that was more interconnected.

2.4. The Ties: Information Routes

Looking at the ties—or routes—between contacts adds another layer of complications to the passing of information between scholars. Physical routes and barriers added to the human and highly arbitrary elements of cosmographical scholarship. Münster wrote in 1543 of the difficulties of research travel. Topographical features led him to certain places and away from others—and so he found himself at the library of the Count of Zimmern, who offered him books and conversation. This became useful material for the *Cosmographia*.

Letters traveled as well, and their routes were equally affected by the exigencies of mail at the time. Góis wrote a letter in October 1540 from Leuven to Beatus Rhenanus at Schlettstadt, a distance of about 400 kilometers as the crow flies, which arrived in May of 1541, eight months later. It was even more difficult for a letter to reach a moving target, as was the case with a letter from Hubert Goltz in Leipzig to Ortelius in Antwerp. Goltz mentioned that Ortelius had requested to have a letter sent to him through the Leipzig fair, but, as Goltz had been traveling, it took a detour through Wolfenbüttel. Goltz wrote: “I shall probably be deprived of your letter for a long time, as Wolfenbüttel is a place where no one comes or goes, except those who have dealings with the Duke.” On the other hand, correspondents themselves could travel with information. Münster wrote to Pellikan that Wolfgang Lazius, an Austrian humanist, had promised to bring descriptions of Vienna and Prague when he was going to accompany his king on a trip that would take them through Basel. Likewise, Münster depended on Masius to send him information because the latter would regularly travel through various parts of

---

133 Münster to Gustav Vasa, in Burmeister, *Wort und Bild*, 55.
134 Münster to Pellikan, 1543 in Burmeister, *Wort und Bild*, 37.
136 Hubert Goltz to Ortelius, 2 March 1570 in Hessels *Abrahami Ortelii*, 65.
Europe. These ties between nodes helped to determine the sources that cosmographers used.

Of the various ties and hubs between cosmographers and their contacts, the Messe, or book fair, held a prominent place, in particular the Frankfurter Messe. At the book fair in Frankfurt in the spring of 1555, Mercator and Ortelius first met—and from there the forty-three-year-old cartographer from Duisburg and the twenty-eight-year-old map illuminator from Antwerp developed a long and productive friendship.\textsuperscript{138} In earlier years, Münster asked many of his contacts to send information to him via messengers traveling to and from the book fair. In a letter to the Pomeranian Bartholomew Sastrow in March of 1550, Münster asked the mayor of Stralsund to send his contribution to the \textit{Cosmographia} at Easter, when many of the merchants from Basel returned from the fair at Frankfurt and pass through Speyer—where Münster or one of his associates was presumably then staying.\textsuperscript{139} He sent similar requests to various others,\textsuperscript{140} including his nephew Joseph Münster in Lüneburg or Wittenberg, wherever he would happen to be staying, when he had information to pass along from contacts in Scandinavian lands.\textsuperscript{141}

Not only was the Messe a great center for information exchange, its timing also regulated the opportunities for these exchanges for publishers like Münster and Ortelius. The fair appeared to be held twice a year: during Lent and in autumn.\textsuperscript{142} We can tell from letters to Ortelius that he traveled to the Frankfurt fair on several occasions: in 1556 and in 1567, and likely in other years as well, to conduct business.\textsuperscript{143} Deadlines for the \textit{Cosmographia}, the \textit{Theatrum}, and the \textit{Atlas} revolved around the dates of the book fairs. In July 1567 Plantin wrote from Antwerp to his bookseller in Frankfurt that he could manage to send only Münster’s \textit{Cosmographia} in French for the next Messe.\textsuperscript{144}

Seventeen years earlier, Münster himself had told Sastrow that his descriptions had not

\textsuperscript{138} van den Broecke, “Mercator and Ortelius,” 160.
\textsuperscript{139} Münster to Bartholomew Sastrow, 5 March 1550 in Burmeister, \textit{Wort und Bild}, 62.
\textsuperscript{140} Including Georg Normann, Christiern Morsing, the Bishop of Mainz and Johann Albrecht, Duke of Mecklenburg. See Burmeister, \textit{Wort und Bild}, 52; 35-36; 38; 68.
\textsuperscript{141} Ibid., 35; 38; 43.
\textsuperscript{142} Peter Weidhaas, \textit{A History of the Frankfurt Book Fair}, trans. and ed. C.M. Gossage and W.A. Wright (Toronto: Dundurn Press, 2007), 35.
\textsuperscript{143} Hessels, \textit{Abrahami Ortelii}, 13-14; 41.
\textsuperscript{144} Christophe Plantin to Gilles Beys, 14 July 1567 in Rooses, \textit{Plantin}, 127.
arrived in time for the 1550 edition of the *Cosmographia*. Petri had decided that it would be too costly to wait another year for the next fair.\textsuperscript{145} Deadlines for the book fairs significantly set the pace and the limits for cosmographers’ data collection.

### 2.5. Conclusion

Cosmographers’ priorities were reflected in their choices of contacts. A common approach to sixteenth-century cosmography is to see a mix of methodologies based on experience and observation on the one hand, and a reliance on authoritative classical and biblical texts on the other.\textsuperscript{146} This dichotomy glosses over the arbitrariness of information gathering, and also downplays other trends in the intellectual networks of cosmographers. The networks of Münster, Mercator, and Ortelius reveal three diverse priorities in cosmographical scholarship. While Münster maintained strong ties with a handful of contacts and had a special interest in the Nordic countries, Ortelius corresponded less frequently with a wider range of correspondents and turned south, especially towards Italy. Mercator’s correspondence was largely with well-placed intermediaries and emphasized instruments and calculations. Münster, Mercator, and Ortelius were all interested in collecting new data, but from different geographical and intellectual peripheries.

Ties also affected cosmographical scholarship. In her analysis of the *Cosmographia*, Margaret Hodgen criticized the ethnographer Münster for reproducing pre-Columbian, medieval conceptions of distant peoples, long after the earliest explorations of the “New World.”\textsuperscript{147} Looking strictly at the work’s content, she saw a eurocentrist, religiously bigoted Swiss scholar.\textsuperscript{148} The network of Münster’s *Cosmographia* provides a more compelling argument for the limits of his scholarship in the deadlines, schedules, and exigencies of information exchange. Had circumstances prevented the chiefs and rulers of the Americas to submit their contributions in time for the Frankfurter Messe? When we evaluate the methods of these scholars, looking only

\textsuperscript{145} Münster to Sastrow in Burmeister, *Wort und Bild*, 62.

\textsuperscript{146} Christine Johnson addressed this flaw in the historiography: Christine Johnson, *The German Discovery of the World* (Charlottesville: University of Virginia Press, 2008), 49-50.

\textsuperscript{147} Hodgen, “Muenster,” 528.

\textsuperscript{148} Ibid., 529.
at the cosmographies would conceal something like the Frankfurt fair, which is so prominent in the authors’ networks. Often, information did or did not make it into these great tomes simply because it was not sent, or did not travel fast enough.
Chapter 3.

Hebrew Scholarship and the Key to the World

3.1. Introduction

The networks here under study reveal a clear but surprising connection that is not obvious in the cosmographies themselves: Hebrew scholarship. The Hebrew connection seems unrelated to cosmography as we might understand it, based on our modern ideas about geography, mathematics, ethnography, astronomy, and so forth. In fact, Hebrew was certainly relevant to sixteenth-century cosmography. Hebrew connections largely account for the cohesiveness of Sebastian Münster’s network. His connections were deeper and more well-rounded than those of Abraham Ortelius, which were more varied. By “deeper” and “more well-rounded” I mean the same as what Phelps and his colleagues identified as “multiplexity,” or “the extent to which two actors maintain more than one type of substantive tie with each other.”¹⁴⁹ These contacts influenced each others’ works in various ways, and built on previous knowledge by following up on past information exchanges. Connections through Hebrew scholarship helped to build this trust, as well as common understandings of cosmography.

3.2. The Hebrew Connection

Cosmographers’ networks in the period between 1540 and 1570, which covered the peak of Münster’s and the rise of Ortelius’ careers, showed a noticeable connection between Hebrew scholarship and cosmography. The networks of Münster, Gerard Mercator, and Ortelius were connected by significant Hebrew nodes. One of these nodes was Leuven, with its Collegium Trilingue, and another was the scholar Andreas Masius—a priest, diplomat, and highly itinerant individual (see figure 4). Masius was of Mercator’s generation, between Münster and Ortelius. He corresponded with both Münster and Mercator, and was known by Ortelius. These men had a great deal of respect for each other’s scholarship. In 1539, Münster dedicated one of his Hebrew works to Masius, “a most dedicated scholar of the Hebrew language, and special

friend." Masius spoke highly of Mercator in his commentary on Joshua, and Ortelius praised Münster’s Hebrew and cosmographical work in the “Index Auctorum” of the _Theatrum_.

Masius was connected to a small but prolific group of scholars who combined their scholarship on near-eastern cultures and languages with cosmography. Masius himself was an expert in near-eastern languages, and sought precise geographical information not just of the Holy Land, but also on a variety of areas along his travels to send along to Münster for his cosmographical scholarship. Masius had two key contacts who were also orientalists as well as cosmographers: These were his Arabic teacher, the Frenchman Guillaume Postel, and the Spanish court cosmographer Benito Arias Montano. Postel had traveled and studied widely, especially in the Holy Land, and shared his linguistic and topographical knowledge with scholars like Masius and Ortelius. Arias Montano moved to Antwerp to collaborate on the Antwerp Polyglot Bible, published by Christophe Plantin in 1571, and there became fast friends with Ortelius. Arias Montano was, in fact, responsible for the maps in Plantin’s Bible. Münster, Masius, Postel, Arias Montano, and possibly Mercator as well, were deeply involved in oriental language studies—primarily Hebrew—as well as cosmography.

In this chapter I explore the Hebrew-cosmography nexus in the works and networks of various cosmographers, arguing that Hebrew and cosmography were actually closely linked in their work. Connections forged by these scholars in their Hebrew studies influenced their cosmographical networks, and thus also their sources of information, in crucial ways.

The importance of Holy Land and especially of Hebrew scholarship in the cosmographical pursuits of these men have often been overlooked in existing secondary literature. Recent scholars have recognized that cosmography and Hebrew were growing fields in sixteenth-century German contexts, but I have found no one who studied their growth in tandem, and only one who briefly connected the two fields

---

152 Ortelius, _Theatrum_ (1606), 1.
153 With "oriental" meaning the Middle East, rather than (East) Asia.
philosophically. The secondary scholarship I consulted for this chapter has instead given me various starting points, of which I concentrate on three.

First, John Demaray dealt with the shift from Jerusalem and pilgrimage-centered medieval European scholarship to more “open” and “empirical” early modern approaches based on voyages of discovery. Demaray identified a historiographical shift from a pilgrimage-based view of global history to a more chaotic, empirical view of history that predated the Enlightenment by over a century in the works of various sixteenth-century continental European and English authors. Demaray emphasized historiography, whereas I look at cosmography. Developments in cosmography affected, or were reflected in, related fields. I build on Demaray’s work, although I also disagree with him in aspects. Whereas Demaray took Ortelius’ work as his sample of “messy” continental European cosmography, I examine other continental cosmographers at this time as well, and find that the concept of a “shift to empiricism” should be more heavily qualified. Was there a shift, and if so, was this a shift to empiricism?

Second, scholars have written on the importance of Hebrew scholarship to Münster’s, Masius’, and Arias Montano’s intellectual pursuits individually. Theodor Dunkelgrün studied Masius’ and Münster’s passion for Hebrew scholarship and its integration into the European intellectual environment. María Portuondo and Pamela Merrill Brekka examined more explicitly Arias Montano’s incorporation of Hebrew scholarship into fields related to cosmography. Portuondo studied his use of Hebrew as the key to his understanding the world. Brekka examined the presence of Hebrew scholarship in the visual (primarily cartographic) aspects of the Antwerp Polyglot Bible. Besides Arias Montano, the Antwerp Polyglot Bible brought various other orientalist intellectuals into Mercator’s and Ortelius’ networks, and therefore plays an important role in this chapter. Building on this scholarship, I see the influence of Hebrew scholarship on

155 I also use a catalogue of maps in Bibles in the sixteenth century, but for its primary sources rather than the authors’ limited analysis: Catherine Delano-Smith and Elizabeth Morley Ingram, Maps in Bibles 1500-1600 (Geneva: Droz, 1991).
157 Dunkelgrün, “Hebrew Library.”
159 Brekka, “Antwerp Polyglot.”
cosmography as a broader phenomenon, beginning with Münster and scholars within his network.

A third strain of scholarship is related to the second, and examines the role of Hebrew scholarship in cosmography in the context of Spanish politics and construction of a national identity. This approach can be found in Brekka’s dissertation, as well as in the work of Adam Beaver, a scholar Brekka cited. I examine the Spanish influence in Flemish cosmography, but ultimately I look further east, and back in time, and assert that Hebrew studies helped shape the construction of German identity particularly in the form of Münster’s Cosmographia.

3.3. The Holy Land and Hebrew in Cosmographies

Cosmography in the sixteenth century was closely tied to Scripture and salvation history. The Cosmographia, the Theatrum, and the Atlas each foregrounded the creative and salvific work of the God of the Bible, as well as the historical spread of Christianity. Even Postel, who argued for a common religion among Jews, Muslims, and Christians in Concerning the Harmony of the World (1544), written twelve years before his Cosmographicae disciplinae compendium (1561), provided in this work a manual for Christians to win over Muslims. The connection between the study of the Word and the study of the World was not lost on these cosmographers. In a letter to Ortelius in 1579, Postel called the Theatrum the “principal work of the world after the Holy Bible.”

The Bible informed cosmography, and cosmography in turn was intended to guide the study of the Bible. In the preface to the Cosmographia and in the text accompanying a map of the apostle Paul’s missionary journeys in the Theatrum, Münster and Ortelius both wrote that their works helped to uncover otherwise hidden

\footnotesize

161 Guillaume Postel, De orbis terrae concordia (Basel: 1544); Cosmographicae disciplinae compendium (Basel: Oporinus, 1561).
162 Bietenholz, Basle and France, 138.
163 Postel to Ortelius, 1579 in Hessels, Abrahami Ortelii, 186.
164 Münster, Cosmographia, iii.
165 Ortelius, Theatrum (1606), iiiij.
meanings of holy Scripture. However, the ways in which these two men incorporated and informed biblical scholarship differed in fundamental ways. Ortelius’ approach portrayed biblical themes, geographically exemplified in the *Theatrum*’s section on the Holy Land, as temporal phenomena. On the other hand, Münster, as well as Arias Montano and Masius, linguistically and visually incorporated these themes in a deeper, more meaningful sense throughout their cosmographical scholarship, seeing a deeper truth and organization to the earth they were describing. In the case of these three scholars, Hebrew studies and a thorough understanding of certain Old Testament books played a key role in their approach.

Münster, Arias Montano, and Masius were part of a group of scholars for whom the Holy Land stood central to their conceptualization of cosmography. Kaspar Peucer, a geographer in Wittenberg, saw geography “as nothing less than the science that is concerned with the visible dimensions of divine revelation,” beginning in, and then proceeding from, the Holy Land, “for that was where God’s first self-revelation occurred.” Münster’s view on cosmography was identical to that of Peucer. Münster noted in the *Cosmographia* that God had chosen the Holy Land out of all lands to receive his revelation, which from there would spread to the world. “Therefore, it is not unimportant that this land and its capital, Jerusalem, be placed before all the lands and sites of the whole world.” He went on to state that, after Christ’s coming, this land poured forth its “medicine of salvation” and “life-giving food.” In this conceptualization, the history, geography, and any other scholarship related to the Holy Land would be pertinent to the study of the whole world.

The Hebrew biblical sources that occupied the time of these men contained extensive cosmographical information. Arias Montano looked specifically at the etymologies of Hebrew words in Genesis, arguing that “the source of everything in nature could be derived from God’s actions in the book of Genesis, and this wisdom is hidden specifically in the arcane Hebrew translations.” This attitude towards Hebrew in Scripture turned Arias Montano and others towards kabbala. For Masius, Hebrew and

---


167 Münster, *Cosmographia*, dic.

168 Ibid., dc.

topographical studies intermingled most notably in his commentary on Joshua, a book filled with geographical information of the Holy Land.\textsuperscript{170} This geographical information was important for the understanding of significant biblical events, as was the case with the blessing and the curse at Mount Gerizim and Mount Ebal—two mountains which Masius and Mercator discussed at length in their correspondence.\textsuperscript{171} In fact, Joshua proved to be a crucial source for Mercator’s scholarship. His first published map, a map of the Holy Land (1537),\textsuperscript{172} was based on Jacob Ziegler’s \textit{Quae intus continetur Syria, Palestina, Arabia, Aegyptus, Schondia, Holmiae, Regionum Superiorum}, and Ziegler used Joshua as his primary source for tribal lists, place names, and boundaries.\textsuperscript{173} In order to achieve closer and even new readings of sources such as Genesis and Joshua, sources that were crucial to sixteenth-century cosmography, Hebrew scholarship was indispensable. As I show next, Hebrew scholars were prominent in cosmographical networks.

3.4. Hebrew Studies and Cosmographers’ Networks

Leuven, renowned for its emphasis on cosmographical and cartographical scholarship as well as Hebrew, Greek, and Latin language studies at the \textit{Collegium Trilingue}, I consider the symbolic central geographical node of Hebrew-cosmographer networks in the period between 1540 and 1570. The young Gemma Frisius studied at the \textit{Collegium Trilingue} in the 1520s, and then brought cosmography to Leuven. Frisius’ main patron was the Polish bishop Johannes Dantiscus, who was also a patron of Nicholas Copernicus, and introduced Copernicus’ ideas to Frisius.\textsuperscript{174} Frisius went on to teach Mercator, who also studied for some time at the \textit{Collegium Trilingue}. Language studies and cosmographical pursuits both brought these men together, including Dantiscus, who corresponded extensively with faculty at the \textit{Collegium}.\textsuperscript{175}

\textsuperscript{170} Andreas Masius, \textit{Iosuae imperatoris historia} (Antwerp: Christophe Plantin, 1574).

\textsuperscript{171} Georg Cassander to Mercator, 1564; Mercator to Masius, 1564; Mercator to Masius, 22 May, 1567 in van Durme, \textit{Correspondance Mercatorienne}, 59-61; 69.

\textsuperscript{172} Gerard Mercator, \textit{Amplissima Terrae Sanctae}, Leuven, 1537.


\textsuperscript{174} de Vocht, \textit{Dantiscus}, 72.

\textsuperscript{175} Ibid.
A hub for Christian Hebraica, Leuven held a special attraction for Münster as well. There is no primary evidence to suggest that Münster visited Leuven himself, but he befriended Johannes Campensis, professor of Hebrew in Leuven from 1520 to 1531. More significantly, after he published the first Chaldaic lexicon and grammar in 1527, Münster made the acquaintance of Masius at Leuven, who from 1539 even began to correspond with him in Hebrew. Masius would become one of Münster’s key cosmographical sources.

Basel was also a center for Hebrew studies, and surpassed even Leuven in Hebrew publications. In fact, Basel’s publishers produced by far the most Hebrew books in the German lands: a total of ninety-five different works between 1500 and 1555. Münster played a large role in all this, for he himself wrote and edited the greatest number of Hebrew works in German lands by 1555: sixty-seven in total. Johannes Reuchlin (1455-1522), the pioneer in Hebrew studies as they developed in Europe, published the second greatest number: only fourteen.

Münster was not initially known as a cosmographer, but by the time of the Cosmographia’s publication, he was a celebrated Hebraist. His Hebrew grammars could be found extensively in libraries and ecclesiastical centers around Europe. He depended on his reputation as a Hebraist to form his contacts and gain information for his cosmographical scholarship. In letters to sponsors for the Cosmographia—individuals like the secretary to the king of Sweden, a Polish diplomat, and the duke of Mecklenburg, Münster signed himself as professor of Hebrew at Basel. These letters, written after editions of the Cosmographia had already appeared, treated of his

---


177 See Burmeister, Sebastian Münster, 19.

178 de Vocht, Dantiscus, 219.

179 Ibid., 221.

180 The next greatest number being twelve at Augsburg. Burnett, “Reassessing,” 185, table 8.3.

181 Ibid., 187, table 8.5.


183 Münster to Normann, 20 August 1545; Münster to Stanislaus von Laski, 6 April 1548; Münster to Johann Albrecht von Mecklenburg, 9 December 1550 in Burmeister, Briefe, 115, 134,185.
cosmographical rather than his Hebrew scholarship. In his correspondence Münster drew attention to his reputation as an Hebraist, if anything, rather than a cosmographer.

Hebrew scholars brought cosmographical information to Münster. In 1543, he mentioned to his former Hebrew teacher, Konrad Pellikan, that he had received in his home the publisher, engraver, and reformer Johannes Honter from Siebenbürgen (Transylvania). Münster was happy to listen to Honter’s descriptions of Transylvania, and mentioned in passing that Honter had come to him in Basel for his Hebrew studies. In fact, considering that we have little data on Münster’s Hebrew students but we know that he was an eminent professor of Hebrew, I think it probable that some or perhaps all of the various Protestant pastors in his cosmographical network would at one time have been his students, among them John Calvin himself, and that he knew them through this connection. Most revealingly, the great majority of Münster’s letters (fourteen out of the thirty-five under study) were written to Pellikan, his Hebrew teacher. In these letters, Münster discussed extensively his work and plans for the Cosmographia, as well as its publication and reception. Stephen Burnett, writing about communities of European Hebraists in German lands and Leuven during the Reformation era, emphasized the smallness and connectedness of these groups of scholars. Hebrew scholars into the middle of the sixteenth century, and probably beyond, relied on a considerably limited but tightly-knit set of contacts for their scholarship, and with Münster this was reflected in his cosmographical correspondence as well.

Münster’s dependence on the same scholars for both aspects of his scholarship can be explained primarily by two factors. First of all, it saved him both time and energy that would have been necessary to establish new contacts, when he was already on a tight schedule with his teaching and printing duties. Münster recounted in various letters how extremely busy he was with his printing business, citing both the various editions of

184 Münster to Pellikan, 10 May 1543 in Burmeister, Briefe, 60.
185 Burmeister, Sebastian Münster, 67.
186 Burnett, “Reassessing,” 182. Burnett’s study does not reach far enough into the sixteenth century to be of much further use for my research (he lists professors of Hebrew up to 1535).
187 Furthermore, several of Münster’s most influential teachers and friends in Freiburg and Heidelberg had combined Hebrew with geographical studies. Burmeister, Sebastian Münster, 20, 35.
his *Cosmographia* as well as his Hebrew works that were being published.\(^{188}\) Add to his hectic schedule his fear of recurring outbreaks of the plague, to which he did in fact succumb in 1552, and one can sense in his letters the level of urgency Münster felt in producing quality scholarship on both fronts. That Münster was indeed looking for ways to save himself time and energy was reflected in a letter in 1545 in which he wrote that, having been busy for many years with both an annotated Hebrew-Latin Bible as well as his cosmo graphical labours, he asked respectable men for contributions to his *Cosmographia*, “for no one can do everything.”\(^{189}\) Secondly, Münster’s contacts through Hebrew studies were men who, through common experiences and goals, had become Münster’s most reliable acquaintances. This was especially true of Konrad Pellikan, to whom Münster turned in 1545 to ask for his impression of the Swiss chorography of Johann Stumpf, Münster’s rival in Zürich.\(^{190}\) The expectation of loyalty and trustworthiness, as well as simple efficiency had Münster turn to his Hebrew network for cosmographical information.

Over the course of his life, Masius’ connections in his capacity as oriental scholar to cosmographers and cosmographical scholarship ran deep. It was particularly his Hebrew scholarship and interest in the Holy Land that connected him to cosmographical scholarship. Münster mentioned in 1539 that Masius had written him letters from Leuven, Luzern, Austria, Frankfurt, and on his way to Spain.\(^{191}\) Masius’ connection to Münster is no surprise. Masius was in fact owner of an impressive Hebrew library in Venice, another center for Hebrew studies. Furthermore, in the preface to one of his Hebrew translations, Münster wrote that Masius had been his source in Rome for Hebrew works, published and unpublished, in the Jewish community.\(^{192}\) Münster’s correspondence with Masius was not restricted to Hebrew scholarship, however, as a letter written in February 1540 and another in November 1544 indicated. In the first letter, Münster thanked Masius for his help in securing a map of Etschland from the

\(^{188}\) See, for instance, Münster to Pellikan, 21 June 1545; Münster to Veit Dietrich, 13 July 1545 in Burmeister, *Wort und Bild*, 41.

\(^{189}\) Münster to Stanislaus von Laski, 6 April 1548 in Burmeister, *Wort und Bild*, 49.

\(^{190}\) Münster to Pellikan, 9 February 1545 in Burmeister, *Briefe*, 95.

\(^{191}\) Quoted in Dunkelgrün, “Hebrew Library,” 201.

\(^{192}\) Ibid., 200.
people of Innsbruck, and asked him to use his influence to gain more information about the region, as well as of Holland and the Rhineland when he would next travel there.\textsuperscript{193} In the second letter, Münster introduced his \textit{Cosmographia} to Masius, and then asked him for Hebrew and Latin works to help Münster as he returned to work on his edition of the Old Testament.\textsuperscript{194}

The content of the first letter spoke to Masius’ advantage not only as a traveller, but also as a well-connected and influential individual. As a sensitive scholar, yet a diplomat rather than a professor tied down at a specific university, Masius was the perfect informant for a cosmographer. The second letter clearly revealed two men who were both deeply involved with Hebrew scholarship as well as cosmography. In his letters and dedications to Masius, we can see that Münster turned to the same person for both his translation activities and his cosmographical scholarship.

Masius also corresponded with Mercator, and was connected to one of the earliest great cosmographers, Gemma Frisius, through their involvement in the \textit{Collegium Trilingue}. Masius left the priesthood and married in 1559, settling in the northern Netherlands in Zevenaar, where he remained until his death in 1573. From Zevenaar, he maintained his connections with Mercator at Duisburg. Writing in 1564 to their mutual contact Georg Cassander, Masius asked Cassander to contact Mercator, who was at this point not personally known to him. Masius was looking for information about the location of Mount Gerizim and Mount Ebal, in connection to his commentary on Joshua, and additionally asked Cassander to buy him a copy of Mercator’s \textit{Chorographia Terrae Sanctae}.\textsuperscript{195} Mercator and Masius must have corresponded after that, and probably several times, for in 1567 Mercator wrote Masius a long letter, containing his revised reflections on the locations of these two mountains.\textsuperscript{196} These two scholars were evidently invested in getting their biblical topography exactly right.

In all likelihood, Mercator himself had some knowledge of Hebrew. In his library he had a Hebrew/Chaldean grammar and a Greek/Hebrew grammar, various works on Jewish astrology and mathematics, and at points in his \textit{Chronologia} he cited Münster’s

\begin{itemize}
\item\textsuperscript{193} Münster to Masius, 15 February 1540 in Burmeister, \textit{Wort und Bild}, 31.
\item\textsuperscript{194} Münster to Masius, 7 November 1544 in Burmeister, \textit{Wort und Bild}, 40.
\item\textsuperscript{195} Andreas Masius to Georg Cassander, 5 September 1564 in Lossen, \textit{Andreas Masius}, 358n5.
\item\textsuperscript{196} Mercator to Masius, 22 May 1567 in van Durme, \textit{Correspondance Mercatorienne}, 74-78.
\end{itemize}
Kalendarium Hebraicum. He also made use of Münster’s Cosmographia. I have found no evidence that Münster and Mercator knew each other personally, but, just as between Münster and Masius, Mercator made use of Münster’s Hebrew as well as his cosmographical scholarship.

Other cosmographers who did make extensive use of Hebrew scholarship at this time were Arias Montano and Postel, both at Leuven. Arias Montano was a close friend to Ortelius, and in a letter to a Spanish contact in 1568, we know that Masius supplied Aramaic and Hebrew works for Arias Montano. Arias Montano’s approach to cosmographical scholarship steered him towards kabbala, and one of his main contacts in this respect was the cosmographer and orientalist Postel, whom one historian has dubbed “in many ways the most important figure amongst the sixteenth-century Catholic kabbalists.” Plantin invited Postel, Arias Montano, and Masius to work on the Polyglot Bible project in Antwerp.

Arias Montano drew the most direct connection between Hebrew and cosmography, but, as I argue in the next section of this chapter, he was one of a number of scholars to work in both fields. Physical components of cosmography, such as geography and astronomy, were intricately connected to Hebrew (and in Masius’ case, also Syriac) scholarship in the minds of various scholars, who turned to all of these for shaping and justifying their cosmologies.

3.5. A New Perspective on Cosmographical Approaches

The Hebrew thread in the networks of cosmographers also puts their works in a different light. A significant benefit of network analysis is that an awareness of scholars’ networks leads to more accurate interpretations of their works as they themselves would have seen them. The roles of scholars within their communities drove their scientific

---

197 Penneman, Boeken, 111.
scholarship, and the networks of Münster and several other cosmographers of his time strongly emphasized Holy Land and Hebrew scholarship. These connections were key to their cosmographical studies. The introduction of Hebrew studies is an understudied innovation in sixteenth-century cosmography. Cosmographers and chorographers alike emphasized Greco-Roman history in understanding the history and names of European locations, but various cosmographers looked to Hebrew scholarship for understanding their place in the wider world.

Both Ortelius’ and Münster’s cosmographical scholarship combined the use of ancient authorities with their and their contacts’ contemporary observations. Münster, for instance, traveled and took measurements for several of the German areas he described, and even wrote of observing and describing two live marmots at his home, because they were a novelty to him. In the Holy Land and Hebrew aspects of their cosmographical scholarship, several of the individuals mentioned in this chapter displayed an enthusiasm for up-to-date information that surpassed their eagerness for information on other discoveries. They were not alone. Even the explorer Christopher Columbus himself had hoped to reach Jerusalem by going west, and encouraged the Spanish monarchs to invest in a crusade to recapture Jerusalem with the wealth that his discoveries would bring. These men seemed to see no dichotomy between classical and Bible-based cosmography on the one hand, and cosmography based on “objective” observation and novel discoveries on the other. I suggest that a more suitable framework sees a division between a cosmographical approach that arrived at a picture of the universe by continually adding various and disparate pieces in a chaotic fashion, and one in which cosmographical sources were all connected to a central node, in this case one that consisted of Hebrew and Hebraica.

In contrast to a centred approach to cosmography, Ortelius’ collection of historical sources and eyewitness accounts for his Theatrum represented a desperate but disordered attempt to document a war-torn and rapidly vanishing world. Meganck saw the artistic pursuits of Ortelius and his friends in the context of political and religious

---


turmoil in Antwerp as defiance of “the horrendous realities outside,” but there seems to have been more to Ortelius’ Theatrum than pure escapism. With rumours of new discoveries, and the raging of political and religious wars, the Theatrum was intended to preserve the world that Ortelius knew, as accurately as possible, but in a haphazard fashion. In the first century BCE, Strabo likewise wrote his Geographia in order to preserve a quickly vanishing Greek society. To Strabo, forgetting, or a “loss of self-knowledge,” was a greater threat to Greek identity than were warfare or economic decline. In his hoarding of information, both historical and current, Ortelius may well have been inspired by a desire to preserve an even more rapidly vanishing society than that of Strabo’s Greeks. Ortelius’ approach exemplified cosmographical thought that lacked a center. The very title of his work, theatre, indicated that Ortelius thought of cosmography as drama and “free-form.”

This haphazard approach to cosmography was reflected in Ortelius’ treatment of the Holy Land. Historians have claimed that Ortelius was inconsistent in his “new” empirical methodology, and betrayed traces of a medieval mentality when he included a biblical rather than a contemporary map of the Holy Land. This map is not an anomaly if we look at Ortelius not only as a cosmographer, but also as a collector and antiquarian, who focused on temporal rather than interconnected, enduring themes, and on disjointed pieces of evidence rather than a unified whole. This map of the Holy Land, the only historic map in the first edition of the Theatrum, was an artefact of interest just as much as up-to-date maps of other parts of the world. They were like museum pieces. Each was individually fascinating, but essentially unconnected to the others.

In the Cosmographia, Münster also gave the Holy Land its own treatment, but more importantly, he connected it geographically and historically to other parts of the world. As did Ortelius, Münster explained directly in the map of the Holy Land that it was intended to aid readers of the Bible, while his other maps were contemporary. Visually,
however, the introduction to the map and the written description of the Middle East were unremarkable,\textsuperscript{209} and this section did not particularly stand out from the rest of the \textit{Cosmographia}, which strongly emphasized Europe and the German lands. This section instead flowed seamlessly and naturally between other parts of the book. He made the geographical Holy Land look natural and connected, rather than putting it on a pedestal as a curiosity. Münster instead saw a larger, more universal role for the Holy Land and for Hebrew.

Unlike in previous, medieval models of the universe, Münster did not place the Holy Land at the geographical center of the world, but signaled its centrality in different ways. In Münster’s ethnographical descriptions, “areas where many confused tongues were used seemed less regenerate than areas where all men understood each other as a result of uniformity of language.”\textsuperscript{210} Münster, who saw the confusion of tongues as God’s divine punishment at the Tower of Babel, considered Hebrew to be the standard by which to measure all other languages, which were derived from it.\textsuperscript{211} Thus, Hebrew could “yield information about the development and hidden connectedness of other languages.”\textsuperscript{212} Münster even included a two-page source on Jewish cosmographical scholarship at the end of the 1550 \textit{Cosmographia}, “so that ‘those skilled in that language can see how the Jewish race observe cosmography’.\textsuperscript{213} Hebrew scholarship was visibly integral to Münster’s view of cosmography.

Münster “imported” the significance of the Holy Land into Europe and the German lands through connections and comparisons.\textsuperscript{214} He approached the histories of the tribes of Israel and of the ancient Germanic tribes in similar ways, emphasizing in both the stories of evangelists and martyrs, as well as the locations of sacred buildings.\textsuperscript{215} These similarities deeply connected the histories and geographies of these two areas.

\textsuperscript{209} Münster, \textit{Cosmographia}, xx; dc-dcix.
\textsuperscript{210} McLean, \textit{The Cosmographia}, 263.
\textsuperscript{211} Ibid.
\textsuperscript{212} Ibid.
\textsuperscript{213} Münster, \textit{Cosmographia}, 1161-1162, quoted in McLean, \textit{The Cosmographia}, 287.
\textsuperscript{214} McLean, \textit{The Cosmographia}, 319.
\textsuperscript{215} Ibid., 319.
Münster visually connected biblical history exclusively to descriptions of European lands. On the *Cosmographia*’s title page for Europe, directly after the world map, Münster included the apostles Peter and Paul, as well as the creatures that represented the four evangelists. A variation on this border could also be found in the introductory section on Spain. Episodes in the history of the Holy Land were specifically incorporated into the borders of European maps. The main map of Italy had a border showing the Old Testament story of Moses and the bronze snake (Numbers 21: 4-9). In Münster’s descriptions of German lands, his introduction to the first map of the Rhine had a border portraying King David bringing the Ark of the Covenant into Jerusalem (2 Samuel 6). The third map of the Rhine showed the miracle of Christ feeding the 5,000 (or 4,000) (Matthew 14: 13-21, or Matthew 15: 29-39). The *Cosmographia* grew out of Münster’s initial desire to write a description of the Rhine, and so these maps were central to the work. One explanation for the use of these borders is that they were expedient. Petri already had produced these images in his editions of the Bible. However, obviously they had access to other kinds of borders as well, including borders with cupids and animals. Furthermore, biblical scenes were not used in descriptions of other parts of the world. By associating Europe in general and the Rhineland specifically with biblical events, Münster established a visual connection between ancient Israelite and Jewish history, and European, particularly German, identities. To Münster, the significance of the Holy Land from a contemporary perspective lay not in the area itself, but in its enduring connections to the German lands.

### 3.6. Hebrew Scholarship and Novelty in Cosmography

Münster’s interest in the Hebrew language led him to sources that were new to Europeans. We see in Münster an eagerness to share novel Hebrew and cosmographical scholarship both in Latin and German, presumably to reach as wide a

---

216 Münster, *Cosmographia*, iii.
217 Münster, *Cosmographia*, v.
218 Ibid., xv.
219 Ibid., viii.
220 Ibid., x.
221 For instance, *Das neuw Testament* (Basel: Adam Petri, 1525).
reading public as possible. In 1546 Münster published a Latin translation of the astronomical and geographical works of Abraham bar Hiyya (*The Shape of the Earth*) and Elijah Mizrahi (*Abridgment of the Art of Mathematics*). Like Münster, these men had pursued—bar Hiyya in twelfth century, and Mizrahi around the turn of the sixteenth century—the natural sciences, astronomy, geography and mathematics. Münster wrote in the preface to his translation of these works:

> They are entirely mistaken, those conceited smatterers, who in their audacity are willing to claim that the Jews have no scholarly or scientific authors whatsoever, that they have alienated themselves from all studies of the human sciences and philosophy, and that nothing can be discovered among them but the aforesaid useless traditions of their ancestors and Talmudic twaddle.

To Münster, the Jews offered useful insights into scholarship, insights which were novel on the European intellectual scene. He was “eager to explore them and share the discovery with his Christian readership.” One could assume that he would have been equally eager to use this scholarship in his cosmographical pursuits.

Whereas a combined interest in Hebrew and cosmography led Münster and Masius to the translation and incorporation of Jewish scholarly works into their own scholarship, it turned other cosmographers to a more mystical use of the language. Arias Montano and Postel were attracted to kabbala, a mystical approach to Hebrew studies, in order to “discover deep hidden truths” in cosmography. Postel had traveled to the Near East twice, learning the languages and collecting works. For his connections to kabbala, Postel was deemed a madman by the Inquisition, and imprisoned for much of the time that he was working on the Antwerp Polyglot. Essentially, however, he had proceeded in his scholarship as other cosmographers had, conducting research,

---

222 Dunkelgrün, “Hebrew Library,” 199.
223 Cited in Dunkelgrün, “Hebrew Library,” 197.
224 Ibid., 200-201.
226 Ibid., 10.
synthesising sources, and finding “connections between languages, script, legends and history”—but in a way “that naturally attracted him to Jewish kabbalistic writings.”

Postel and Arias Montano saw kabbala and the study of the Hebrew language as instrumental to understanding cosmography. Arias Montano, director of Philip II’s library, and natural philosopher, questioned the reliability of sense experience. A full knowledge of the natural world was lost with the Fall of Adam and Eve. Since this loss, philosophers had led people astray with their own inventions that led to chaotic interpretations in cosmography. Arias Montano maintained instead that certain knowledge could be gained by “returning to the revealed word itself,” and in “physical and metaphysical principles derived directly from sacred scripture.” This knowledge lay first and foremost within the original languages of the Bible itself, particularly in the book of Genesis. The variance in cosmographical methodologies, based on classical sources or sense experience, was not at issue. To Arias Montano, writing his Naturae Historia (published posthumously in 1601), any methodology would have failed without the proper foundation, found within the original words of sacred Scripture.

The maps in the Antwerp Polyglot, for which Arias Montano was responsible, stood out from any others sixteenth-century biblical maps because of his direct inclusion of Hebrew writing. In his world map, (which was also the first world map known to appear in a Bible, according to one survey,) he listed in the legend various nations in Hebrew, with Latin translations, while his two maps of Canaan contained Hebrew labels within the maps themselves. Just as one historian argued that maps in Bibles were meant to provide a “‘scientific reality,’ placing the promise of Scripture as part of universal human history,” Arias Montano carried this further by using Hebrew to lend greater scientific authority to his maps. From his kabbalistic perspective, Hebrew words

227 Ibid., 49.
229 Ibid.
230 Ibid., 1134.
231 Benito Arias Montano, Naturae Historia (Antwerp: Christophe Plantin, 1601).
232 Delano-Smith, Morley Ingram, Maps in Bibles.
233 Ibid., 128-9; 67-68. The only other maps in this survey to contain Hebrew were two cosmological maps of Eden and various Exodus maps, all containing “Yahweh” in Hebrew, written in a cloud, to depict God.
234 Quivix, “Palestine,” 33.
conveyed transcendental meaning, revealing deeper truths about the objects and places they signified. From this perspective, their inclusion in these maps added significantly to the visualization of cosmographical knowledge.

Within German Hebrew studies, the role of kabbala was actually relatively small, in particular among Protestant scholars. According to Burnett, who found only five books on kabbalistic Hebrew material in German lands after 1525, the demand for kabbalistic texts and aids there was clearly limited. Münster himself clearly condemned kabbala. Nevertheless, in their different approaches, Arias Montano and Münster both used the Hebrew language to add weight to their scholarship. In the Cosmographia of 1544, Münster inserted Hebrew text only once, but in a cosmographically and theologically crucial place: in the first image, of the creation of Adam and Eve. An excerpt of Psalm 104 in Hebrew lined the left and right borders of this image, with a German translation at the bottom: “May the glory of the Lord endure forever; may the Lord rejoice in his works” (Psalm 104: 31, English Standard Version). As the Hebrew text on the page was not necessary for practical purposes (Münster’s intended audience for this edition was obviously German-speaking), its inclusion seemed to signal that Hebrew itself was an important element of creation, the beginning of cosmography. Through their inclusion of Hebrew scholarship in cosmography, men like Münster and Arias Montano demonstrated a methodological approach that was neither less empirical nor less novel than Ortelius' approach, only more intentional and directed.

The application of Hebrew scholarship in cosmography was not only original: in certain contexts it was even controversial. Postel's, Arias Montano's, and Masius' Hebrew scholarship in the Polyglot Bible and in Masius' commentary on Joshua (placed on the Roman Index of Prohibited Books in 1596) was heavily criticized by Roman and Spanish authorities for kabbalistic influences (in the Polyglot), but also for their use of the Talmud and rabbinical literature. In 1553 Masius’ Hebrew library in Venice had been confiscated, following a decree from the Roman Inquisition that the Talmud and

---

236 Münster, Cosmographia, 16.
238 Ibid.; Wilkinson, Polyglot, 42, 93.
other Hebrew works were to be banned in Italian cities.\textsuperscript{239} Münster’s work appeared on the \textit{Index} because he was a Protestant,\textsuperscript{240} but various opponents accused him of combining religions because of his readiness to work together with Jews. The Jesuit Andreas Frusius called him a monster, made up of parts of different animals (symbolizing religions).\textsuperscript{241} Nevertheless, Hebrew scholarship thrived in German cities.

**3.7. Back to Celtis: The Holy Land and German Identity**

Holy Land and Hebrew scholarship offered rich opportunities for cosmographers to foreground their own lands to rival the Greco-Roman traditions of the Italians and the Byzantines. Arias Montano’s Hebrew scholarship responded to this political dimension. King Philip II, and Charles V before him, was titular King of Jerusalem.\textsuperscript{242} With the Ottoman Turks controlling the Holy Land, “this title would have amounted to an imperial fantasy,”\textsuperscript{243} but Philip was invested in connecting himself symbolically with the ancient Kingdom of Israel in various ways. By sponsoring the Antwerp Polyglot project, Philip sought to “fashion himself the new Josiah, guardian of sacred writ.”\textsuperscript{244} Furthermore, Arias Montano was able to connect Hebrew sources with Spain geographically, by connecting topographical details mentioned in Obadiah to the Iberian Peninsula.\textsuperscript{245} Arias Montano used these theories to develop a founding legend for Spain that was grounded historically and geographically in the Old Testament. He was answering to “Philip’s need to reinvent Spain as a New Jerusalem capable of rivaling Rome.”\textsuperscript{246} Ortelius, who became royal geographer to Philip in 1575, increased his coverage of the Holy Land and biblical events in later editions of the \textit{Theatrum}. Their connection to Philip meant that Arias Montano and Ortelius both had political incentives for emphasizing Hebrew and the Holy Land in their cosmographical pursuits—whether in geographical, historical, linguistic, or ethnographical elements.

---

\textsuperscript{240} Wilkinson, \textit{Polyglot}, 93.
\textsuperscript{241} Burmeister, \textit{Sebastian Münster}, 103.
\textsuperscript{242} Brekka, “Antwerp Polyglot,” 60.
\textsuperscript{243} Ibid.
\textsuperscript{244} Ibid., 68.
\textsuperscript{245} Ibid.
Sixteenth-century cosmographers in German lands also grappled with questions of identity. At the most fundamental level, they were asking what it meant to be German, and where the boundaries lay. In his chorography Brevis Germaniae descriptio (1512), Johannes Cochlaeus constructed German identity by proceeding from what he perceived to be the core of the German lands, Nuremberg. As a cosmographer, Münster looked beyond the borders of German lands and turned what had historically been considered the symbolic center of the universe, Jerusalem and the Holy Land, into a unifying theme to provide a deeper, more ancient basis for German identities. Before Philip’s imperial dreams and Arias Montano’s response, Münster had been making connections between the Holy Land and the German lands.

Among Europeans, Germans dominated the growing field of Hebrew scholarship in the sixteenth century. Although Hebrew typography existed in Italy at a relatively early stage, Hebrew scholarship there was mostly restricted to Jewish communities, and “the knowledge of Hebrew among Christian scholars lagged behind.” European Hebrew scholarship lagged until it spread beyond Italy’s borders, starting with Reuchlin, and significantly improved upon by Münster and others. Hebrew printers in German lands and Leuven dominated the market before 1535, and “German authorities and German texts defined the terms of this discussion and supported it philologically.” The networks and priorities of cosmographers gave an interesting alternative to Gerald Strauss and Julie Tanaka’s arguments that German scholars were writing themselves into Roman history. While chorographers looked to Greece and Rome for their domestic agendas, Münster and his allies turned to more universal connections with the Holy Land, Hebrew, and Jewish history.

---

247 See Thomas Brady, German Histories in the Age of Reformation, 1400-1650 (New York: Cambridge University Press, 2009).
250 Ibid.
251 Burnett, “Reassessing,” 194.
3.8. Conclusion

Cosmographical networks revealed rigorous approaches to novel Hebrew scholarship and its application to cosmography that rivaled the approaches of cosmographers who applied varied and non-traditional geographical knowledge. Like Ortelius, Münster also wrote about distant lands, but rather than getting caught up on their details, he focused on getting the "center" right, and moving on from there. Münster, Ortelius, and Mercator, as well as others in their networks, were all doing ground-breaking work and applying this to their cosmography. On the other hand, their approaches were clearly different. The contrast I see was between “centred” scholars for whom Hebrew and the Holy Land had a central role in cosmography, and “fragmented” scholars who did not work with a clear unifying theme.
Conclusion: Esdras and Strabo

Network analysis yields concrete explanations for trends in the history of science, sometimes directly challenging more abstract interpretations. When he looked closely at Copernicus’ location within scholarly networks, Owen Gingerich was able to directly challenge the Victorian rationalist argument that Copernicus postponed publication of his heliocentric theory because he feared persecution by the Church. Gingerich instead found that Copernicus was simply living too far from centers of technical book publishing.\textsuperscript{252} Gerard Mercator’s work and ability to communicate with distant contacts was similarly impeded when compared to Abraham Ortelius and Sebastian Münster, for he was not proximate, as they were, to great publishing centers.

The networks and epistolary record of cosmographers revealed aspects of their scholarship that would not have appeared in analyses of their published works. Their location, connections to the printing press, their confessional orientation and various other factors influenced their networks and affected their work. Likewise, the locations and characteristics of their contacts as well as the ties between them helped to determine the scope and limits of their scholarship, rather than simply their scholarly biases.

Nuances in the networks of Münster, Mercator, and Ortelius challenge classifications of their scholarship as “more traditional” or “more modern.” Elements of their networks show that cosmographers as opposite as Münster and Ortelius were both interested in incorporating well-known sources as well as untraditional and novel information, but that they prioritized different aspects of cosmography. If sixteenth-century cosmographies were beehives of knowledge, then Münster tended to linger on several flowers, returning to the ones that he knew would give him the best nectar, while Ortelius buzzed from one flower to the next, acquiring as many different flavours as he could. Mercator mostly stayed local, but like the others had strong ties to bees who brought nectar from afar. The bees, the flowers, and the routes taken (or not taken) from and to the hives determined the qualities of the final products.

\textsuperscript{252} Owen Gingerich, \textit{The Eye of Heaven: Ptolemy, Copernicus, Kepler} (New York: American Institute of Physics, 1993), 23-38.
A central unifying theme set apart Münster’s approach to cosmography from that of Ortelius—a theme that was also visible in Münster’s and visibly lacking in Ortelius’ intellectual networks. Like a true antiquary, Ortelius appeared to be collecting data as curiosities, without a central organizing theme to guide his work, while Münster’s cosmographical network and epistolary record reveal a preoccupation with Hebrew studies. Mercator likewise seemed to prioritize the Holy Land in his cosmography, and the works of vital contacts in these cosmographers’ networks, including Benito Arias Montano, Guillaume Postel, and Andreas Masius, incorporated Hebrew and Holy Land scholarship to an even greater degree. These men did not study Hebrew in order to understand contemporary Jewish communities, or even Jewish history for its own sake, as would seem logical to us today, but for a more universal understanding of the world. Ortelius was more systematic about collecting data on geographical peripheries, while in the approaches of Münster and others a thorough knowledge of the center of the world, facilitated by biblical and Hebrew studies, provided the key to knowledge of the whole. Münster’s epitaph read: “Here is laid to rest / the German Strabo and Esdras.”\footnote{Quoted in McLean, \textit{The Cosmographia}, 5.} A Greek geographer-historian and a biblical scribe were not a random combination for sixteenth-century cosmography. Münster was part of a larger trend that included kabbalist cosmographers, for whom a thorough understanding of the Hebrew language was believed to grant a “purer” understanding of cosmography.

Cosmography among Germans in particular was influenced by the impulse among fifteenth- and sixteenth-century humanists to conduct scholarship that could rival that of the Italians. Cosmography by German cosmographers partially answered this call by featuring German lands in the historical and geographical record.

Thorough Hebrew scholarship also appeared to be something more Germanic. This was due in part to the effects of the Reformation, as well as to northern humanist efforts. Hebrew scholarship, with its strong German influences, affected the creation of the same cosmographies that were meant to “reclaim” a German identity. This network approach has brought to light connections between Hebrew studies and German nationalism that were more organic and coherent than earlier scholarship has depicted.
References

Primary


———. Cosmographicus Liber. Landshut: Peter Apian, 1524.


**Secondary**


Karrow, Robert. “Centers of Map Publishing in Europe, 1472-1600.” In The History of Cartography, edited by J.B. Harley and David Woodward: vol. 3, Cartography in the


