Cartography and Culture in Medieval Iceland

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Abstract

While previous studies of the medieval Icelandic world maps have tended to be cursorily descriptive, and focus on their roles as representatives of the geographical information available to medieval Icelanders, this thesis directs attention towards their manuscript contexts. Rather than narrowly approaching the maps as vehicles for geographical information, the chapters assembled in this thesis explore their relevance to other areas: pan-European histories of astronomy and the computus (chapters 1 and 2), Icelandic literary history (chapter 4), and the history of the Icelandic Commonwealth (chapter 5). Ultimately, this thesis attempts to rehabilitate the Icelandic maps as sources for the cultural history of medieval Iceland, and demonstrates that they connect with more textual worlds than has previously been supposed.

Chapter 1 presents an examination of the Icelandic hemispherical world map, preserved in two manuscripts: the encyclopaedic fragments in Copenhagen's Arnamagnæan Institute with the shelf marks AM 736 I 4to (*c.* 1300) and AM 732b 4to (*c.* 1300-25). I demonstrate that this map's primary function was to illustrate the configurations of the sun and moon responsible for variations in tidal range. Chapter 2 presents an examination of the Icelandic zonal map, preserved in the large illustrated encyclopaedia in Reykjavík's Stofnun Árna Magnússonar with the shelf mark GkS 1812 I 4to (1315-*c.* 1400). This map also shows the structure of the ocean and the mechanisms responsible for the tides. These two chapters restore these maps to their manuscript contexts, and demonstrate that they sustain a complex suite of relationships with the items preserved alongside them.

Chapter 3 concerns the relationship between the two world maps preserved in Reykjavík, Stofnun Árna Magnússonar, GkS 1812 III 4to (*c.* 1225-50). Although these two maps are preserved on the recto and verso of the same manuscript folio, the relationship between them has not hitherto been examined. The two chapters that follow concern different aspects of these paired maps, and foreground their implications for Icelandic national identity at the time of their production. Chapter 4 concerns their depiction of Europe, with a particular focus on Iceland. Chapter 5 concerns the relationship between the two maps and a register of forty highborn Icelandic priests preserved alongside them, and calls attention to the secular uses to which maps might have been put in thirteenth-century Iceland.

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Note on translations

I have maintained the orthography of the editions from which I have quoted. Where bibliographical details of a Latin or Greek translation (or edition with translation) of a text are given, translations will be those of the editors; otherwise translations are my own. Citations from the Icelandic maps are drawn from my own transcriptions.

When under discussion, place-names are written in italics. Thus *Iceland* refers to the place-name, but Iceland refers to the island.

Acknowledgements

A project such as this incurs many debts, and it is my happy duty to acknowledge them here. I would like to thank my supervisor, Matthew Townend, for his tireless encouragement from early days to the completion of this thesis, which is all the better for his advice. My thanks are also due to Christopher Callow, who first taught me Old Norse; and to Judith Jesch, for good much advice and encouragement to travel. To these three guides I am extremely grateful.

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Declaration

I declare that this thesis, and the research on which it is based, is my own work. Where reference is made to the works of others, the extent to which that work has been used is indicated and duly acknowledged in the text and bibliography.

This work has not been already accepted in substance for any degree, nor is it being concurrently submitted in candidature at any other university, or for any other degree.

Introduction

Cartographic knowledge in medieval Iceland

Introduction

There are five extant witnesses to the cartographic culture of medieval Iceland. The Icelandic maps that come down to us are preserved in manuscripts that were produced between *c*. 1225 and *c*. 1400. The corpus is chronologically narrow, and dates to the apogee of map production in medieval Europe. The evidence of surviving maps suggests that there was a pronounced upswing in their production in the thirteenth century, when maps begin to appear in greater numbers, and in a greater variety of contexts.[1] The Icelandic corpus is not altogether *sui generis*, but contains examples from the major European cartographic genres. In brief, the Icelandic corpus comprises two hemispherical world maps (*c*. 1300-25), one zonal map (1315-*c*. 1400), one detailed world map with more than 130 geographical legends (*c*. 1225-50), and one schematic T-O map (*c*. 1225-50).

Previous discussions of these maps have been cursory and narrowly focussed. The aim of this thesis is to bring the Icelandic maps and their contexts to light, to demonstrate their significance to Icelandic literary and cultural history, and to enrich medieval cartographic scholarship with a new regional perspective. This thesis examines the Icelandic maps against the backdrop of the wider European cartographic output of the thirteenth and fourteenth centuries, and also argues for the importance of these little-known maps to other fields of thought in Icelandic cultural history.

The maps of medieval Iceland have previously enjoyed little prominence in histories of Icelandic cartography. Halldór Hermansson's *Cartography of Iceland* concerns primarily early sea charts that show Iceland, and the maps that derive their information from them. Halldór was not interested in the medieval Icelandic world maps, which he described as the 'conventional products of monks, or men of the traditional learning, [that] give no indication of any real knowledge about the country.'[2] Halldór identifies these maps as Latin-derived and conventional, and therefore dismisses them as unrepresentative of Icelandic

[1] Catherine Delano Smith and Roger J. P. Kain, *English Maps: A History* (London: The British Library, 1999), 13.

[2] Halldór Hermansson, *The Cartography of Iceland* (London: Milford, 1931), 2.

culture and interests. Haraldur Sigurðsson's *Kortasaga Íslands* contains less than a page on these maps,[3] and reproduces only one half of the double-page map from GkS 1812 4to (ff. 5v-6r) in facsimile, the portion that shows Europe and Iceland.[4] These histories focus mostly on the maps drawn in the fifteenth and sixteenth century that show Iceland. These maps originated with the reintroduction of Ptolemy's *Geographia* (second century AD) to the Latin West at the start of the fifteenth century, which enabled European mapmakers to draw maps to mathematical principles, and on which places are plotted by paired coordinates. Ptolemy's *Geographia* was updated with *tabulae modernae*, which showed regions unknown to Ptolemy; the earliest to show Iceland was drawn by the Danish cartographer Claudius Clavus (*fl.* 1430s). Douglas McNaughton observes that 'at the outset it must be said that the Vikings and early medieval Norse did not make maps.'[5] Cartographic historians have bypassed the maps of medieval Iceland because they are traditional in the Latinate, wider European sense, and are generally silent on the Norse explorations of northern waters in the Viking Age. However, while these maps are Latinate in their origins, they are not impervious to influence from the culture that produced them. On the contrary, this thesis demonstrates that the Icelandic maps foreground Icelandic interests.

Maps in Icelandic literary scholarship

This thesis contributes to two scholarly fields: the history of cartography, and Icelandic literary and cultural history. These areas have hitherto seen very little overlap – one of the reasons this thesis has been written. In Icelandic literary scholarship the twinned themes of geography and travel have long been keynotes. The Viking voyages of exploration and settlement across the North Atlantic and more distant seas continue to attract considerable attention, and our awareness of the geographical information available to medieval Icelanders

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[3] Haraldur Sigurðsson, *Kortasaga Íslands: Frá öndverðu til loka 16. aldar* (Reykjavík: Bókaútgáfa Menningarsjóðs og Þjóðvinafélagsins, 1971), 46.

[4] Ibid., 45.

[5] Douglas McNaughton, 'A World in Transition: Early Cartography of the North Atlantic,' *Vikings: The North Atlantic Saga*, ed. William W. Fitzhugh and Elisabeth I. Ward (Washington: Smithsonian Institution Press, 2000), 257-269, 258.

continues to expand.[6] Occasional recourse to medieval maps, though never with examples from the Icelandic corpus, has been made in recent scholarship on terms of direction and orientation in Old Icelandic literature,[7] and their moral and symbolic connotations.[8]

Within this literature, the cartographic culture of medieval Iceland has long been acknowledged. Carl Christian Rafn's *Antiquitates Americanae sive Scriptores Septentrionales rerum ante-Columbianarum* provides a condensation of the literary and documentary evidence for the Norse discovery of America, and it is in this volume that the earliest facsimile of an Icelandic map appears. [9] Rafn reproduces a partial facsimile of the Icelandic hemispherical world map, which shows the three continents of the known world – Africa, Asia, and Europe – and a putative landmass in the southern hemisphere. The evidence presented by Rafn was summarised and translated for an Anglophone readership in Joshua Toulmin Smith's *The Discovery of America by the Northmen in the Tenth Century*. Although this volume reproduces no maps *per se*, it does feature a reconstructed rectilinear 'chart of the world, according to Icelandic MSS. of the thirteenth century.'[10] Toulmin Smith does not identify the Icelandic manuscripts on which he based his map, but its Old Norse legends are extracted primarily from the so-called Icelandic *Geographical Treatise*, an

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[6] For an overview, see Judith Jesch, 'Geography and Travel,' *A Companion to Old Norse-Icelandic Literature and Culture*, ed. Rory McTurk (London: Blackwell, 2008), 119-35. On the 'mental maps' of the Vínland voyages see Gísli Sigurðsson, *The Medieval Icelandic Saga and Oral Tradition: A Discourse on Method* (Cambridge, MA: Harvard University Press, 2004), 253-301. On the world view of the Icelanders and the culmination of their inherited and observed geographical knowledge see Sverrir Jakobsson, *Við og veröldin: Heimsmynd Íslendinga 1100-1400* (Reykjavík: Háskólaútgáfan, 2005).

[7] Tatjana Jackson examines Old Norse directional valances in North Atlantic and Scandinavian chorographies, in a number of studies on the Old Norse cardinal points and terms for travel between them see Tatjana Jackson, 'On the Old Norse System of Spatial Orientation,' *Saga-Book* 25 (1998), 72-82; and 'Ways on the 'Mental Map' of Medieval Scandinavians,' *Analecta Septentrionalia, Beiträge zur nordgermanischen Kultur- und Literaturgeschichte*, ed. Wilhelm Heizmann *et al*. (Berlin: Walter de Gruyter, 2009), 211-20; and 'On the Possible Sources of the Textual Map of Denmark in *Göngu-Hrólfs saga*,' *Skemmtiligastar Lygisögur: Studies in Honour of Galina Glazyrina*, ed. Tatjana Jackson and Elena Melnikova (Moscow: Dmitriy Pozharskiy University, 2012), 62-70.

[8] Kevin Wanner, 'Off-Center: Considering Directional Valences in Norse Cosmography,' *Speculum* 84:1 (2009), 36-72.

[9] Carl Christian Rafn, *Antiquitates Americanae sive Scriptores Septentrionales rerum ante-Columbianarum* (Copenhagen: Schultz, 1837).

[10] Joshua Toulmin Smith, *The Discovery of America by the Northmen in the Tenth Century* (London: Charles Tilt, 1839), 339.

important text to which this thesis will frequently return, with an isolated borrowing, *synrri byggð* (‘southern inhabitable land’), from the aforementioned Icelandic hemispherical world map. The Icelandic maps make their first substantial appearance in Rafn’s *Antiquités Russes d'après les monuments historique des anciens et des Islandais Scandinaves*, volume 2.[11] This work enumerates the Scandinavian sources for geographical information about Eastern Europe and Kievan Rus’, often known as the *austr vegr* (‘the eastern way’) in Old Icelandic literature, and cites the maps in illustration of the Icelanders’ familiarity with mainstream European geographical instruction, through such concepts as the three continents, the climatic zones, and the parallels of latitude. The maps are accompanied by slender descriptions but their purposes beyond the transmission of basic geographical principles are not mentioned.

[11] Carl Christian Rafn, *Antiquités Russes d’après les monuments historiques des Islandais et des anciens Scandinaves*, vol. 2 (Copenhagen: De l'imprimerie des frères Berling, 1852).

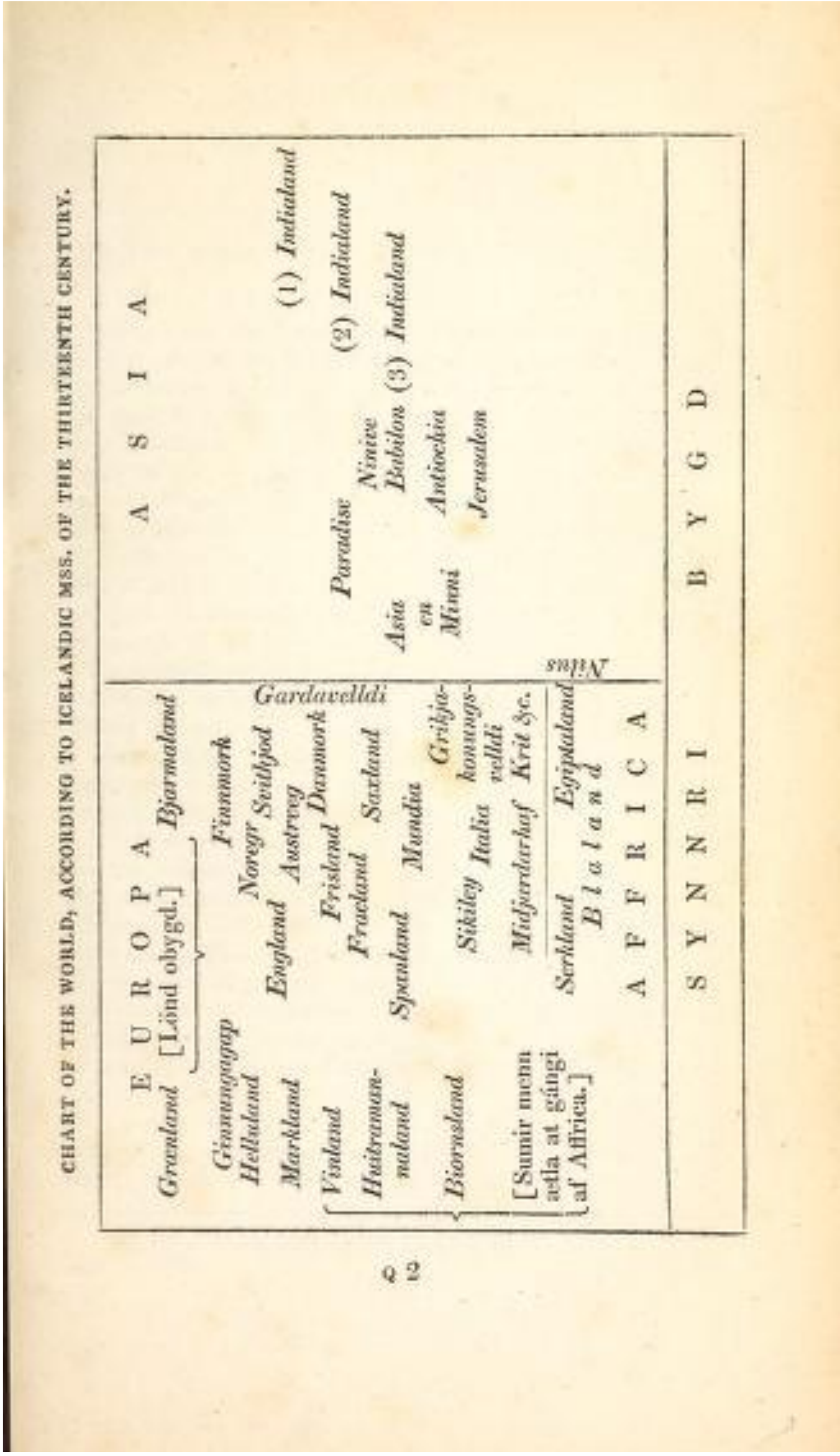

Figure 1: A reconstructed 'chart of the world' from Toulmin Smith's *Discovery*, 339. Its legends are taken from the Icelandic *Geographical Treatise*, with one importation from the Icelandic hemispherical world map.

The earliest critical editions of the Icelandic maps appear in Kristian Kålund's *Alfræði Íslenzk*,[12] a multivolume edition of the encyclopaedic material preserved in Icelandic manuscripts. The maps surface again in Rudolf Simek's important *Altnordische Kosmographie*,[13] which locates the geographical culture of medieval Iceland in its wider European context. The Icelandic maps' histories of reproduction in printed editions are described in detail in the chapters that follow, so no more will be said about them here.

Maps and cosmography

Simek and others have incorporated the maps into enquiries about the geographical and cosmographical knowledge available to medieval Icelanders, and it has been widely assumed that this is the most appropriate intellectual context in which to place them. However, it is commonly noted that there are no words in Medieval Latin for geography or cosmography.[14] More frequently those materials that assembled in these studies were classified as geometry, which as a category included information about the size and shape of the world, as well as gazetteers of place-names, and other information about regions and their inhabitants.[15]

Altnordische Kosmographie does not provide any firm criteria for deciding what does and does not qualify as cosmography.[16] While the Icelandic maps are included, many of the texts and diagrams preserved alongside them are not. Sometimes, these texts and diagrams are explicitly concerned with the

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[12] Kristian Kålund, ed. *Alfræði Íslenzk*: I*slandsk encyklopædisk litteratur*, 3 vols. (Copenhagen: *Møllers bogtrykkeri*, 1908-18).

[13] Rudolf Simek, *Altnordische Kosmographie: Studien und Quellen zu weltbild und weltbeschreibung in Norwegen und Island vom 12. Bis zum 14. Jahrhundert* (Berlin: Walter de Gruyter, 1990).

[14] Edward Grant*, The Foundations of Modern Science in the Middle Ages: Their Religious, Institutional, and Intellectual Contexts* (Cambridge: Cambridge University Press, 1996), 7.

[15] In Martianus Capella's *De nuptiis Philologiae et Mercurii* information about the earth's surface is covered in Geometry (VI.588). William Harris Stahl, trans. *Martianus Capella and the Seven Liberal Arts*, vol. 2: *The Marriage of Philology and Mercury* (New York: Columbia University Press, 1977), 220.

[16] There are two consecutive entries in *Medieval Scandinavia: An Encyclopaedia*, ed. Philip Pulsiano (New York: Garland, 1993): Kirsten Hastrup, 'Cosmography,' 108-09; and Rudolf Simek, 'Cosmology,' 110-11. The former concerns the Icelandic civic calendar, and anthropological considerations about centre and periphery, inside and outside; the latter concerns the Latinate material to which the maps belong. The authors draw no clear lines between their subject matters, and both use the terms 'cosmology' and 'cosmography' interchangeably.

nature and structure of the cosmos, such as the planetary diagrams that accompany the Icelandic zonal map (chapter 2), and their absence from *Altnordische Kosmographie* is unexpected. Sometimes, these materials are not obviously cosmographical in theme, such as the register of forty Icelandic priests' names that accompanies the two Viðey maps (chapter 5). In their original manuscript contexts, these texts are an inalienable condition of the maps' reception, but have previously received no mention in commentaries on them. The differences between the contents of studies such as Rafn's *Antiquités Russes* and Simek's *Altnordische Kosmographie* and the manuscripts from which the maps were extracted point towards a discontinuity between modern and medieval assumptions about the nature of these maps. In her study of medieval geography, Natalia Lozovsky makes little reference to maps, which she argues 'constitute a separate group of sources' from written geographical descriptions.[17] Studies that interpret maps within a narrowly defined geographical framework run the risk of misrepresenting the intellectual contexts that produced them. These modern volumes make a powerful argument for the meaning of medieval maps that is not wholly consistent with period assumptions about their natures. Scholarship has consequently focussed disproportionally on these maps' sometimes narrow geographical interstices; their (sometimes) lean geographical nomenclatures are better known than their other textual contents (see chapter 5); and the maps appear, more often than not, in cropped or partial facsimiles, so that their complete visual arguments cannot be seen (see especially chapters 2 and 3). The Icelandic maps do exemplify certain geographical doctrines, but to do so was not their primary purpose. Their primary concerns cannot be understood so long as their contexts, and the circumstances of their presentation, remain unknown.

In the history of cartography, maps have traditionally been examined primarily in the context of other maps. It has become a commonplace in more recent map scholarship to note that more is known about their symbolic and religious symbolism than the maps themselves.[18] Daniel Birkholz in particular notes that assumptions about their religious and didactic purposes have become

[17] Natalia Lozovsky, *The Earth is Our Book: Geographical Knowledge in the Latin West ca. 400-1000* (Ann Arbor: University of Michigan Press, 2000), 4.

[18] Leonid S. Chekin, *Northern Eurasia in Medieval Cartography: Inventory, Text, Translation, and Commentary* (Turnhout: Brepols, 2006), 13.

conventional, so that their relevant cultural and political contexts have gone unstudied.[19] In recent years, however, scholars have increasingly turned their attention to the wider cultural discourses in which maps are embedded. Medieval maps have increasingly been seen as registers of national identity,[20] and interventions into political culture.[21] The Icelandic maps have also traditionally been viewed alongside maps in generic isolation, but also hermetically sealed upon themselves, so that information about their purposes, and the circumstances of their production, have been sought only within the narrow horizons of their own outlines. The cultural contexts of maps are in the foreground of this thesis. As J. B. Harley noted, 'maps redescribe the world – like any other document – in terms of relations and power and cultural practices, preferences, and priorities.'[22] Although it is clear that the Icelandic maps are committed to the pursuit of scholarship, in scientific (chapters 1 and 2) and religious (chapters 3-5) veins, they also functioned in dialogue with the political cultures that produced them.

This thesis emphasises the social natures of maps, and demonstrates that they connect with worlds outside the corpus of geographical and cosmographical materials in which they have previously been interpreted. I show that the Icelandic maps connect with medieval theories about the tides (chapter 1), planetary kinematics (chapter 2), history and Icelandic literary tradition (chapter 4), and Icelandic Commonwealth political structures (chapter 5). This approach permits us to revaluate the significance of these maps to Icelandic cultural history.

[19] Daniel Birkholz, *The King's Two Maps: Cartography and Culture in Thirteenth-Century England* (London: Routledge, 2004), xviii. The importance of maps' codicological contexts, and their neglect in map scholarship, is stressed by Patrick Gautier Dalché, 'De la glose à la contemplation: place et fonction de la carte dans les manuscrits du haut Moyen Age,' *Testo E Immagine Nell'alto Medioevo* (Spoleto: Presso la sede del Centro, 1994), 693-764, esp. 698-704.

[20] Kathy Lavezzo, *Angels on the Edge of the World: Geography, Literature, and English Community, 1000-1534* (Ithaca: Cornell University Press, 2006).

[21] Birkholz, *Two Maps*, passim.

[22] J. B. Harley, *The New Nature of Maps: Essays in the History of Cartography*, ed. Paul Laxton (London: John Hopkins University Press, 2001), 35.

Maps and encyclopaedias

Very little attention has been directed towards the Icelandic maps' manuscript contexts. All the Icelandic world maps are preserved in encyclopaedic manuscripts, namely the encyclopaedic fragments in Copenhagen's Arnamagnæan Institute with the shelf marks AM 736 I 4to (*c.* 1300) and AM 732b 4to (*c.* 1300-25), and the manuscript in Reykjavík's Stofnun Árna Magnússonar with the shelf mark GkS 1812 4to (in two sections dated *c.* 1225-50 and 1315-*c.* 1400).

The medieval encyclopaedia is a collection of texts and diagrams that were excerpted and anthologised in an attempt to encompass all knowledge, and render it accessible to non-specialist readers.[23] Among these encyclopaedias numbered works by individual authors, such as Isidore's *Etymologiae*, which sought to summarise learning on multiple subjects, and single-volume anthologies of works attributed to multiple authors, such as the *Liber Floridus*. The Icelandic encyclopaedias belong to the second group, being compilations of texts written by multiple authors, excerpted, paraphrased, and arranged into a single volume. The earliest medieval encyclopaedias included Isidore of Seville's *Etymologiae* and *De natura rerum*, which were imitated soon after by Bede in his *De natura rerum* (*c.* 720). Bede initiated the incorporation of the natural sciences into the medieval science of computus, the determination of the date of Easter, and in so doing 'adapted classical natural science to the stringent requirements of the monastic vocations.'[24] The encyclopaedias that developed out of these early examples often comprised a core of computus materials – Easter tables, calendars, and instructive texts on how to use them – with other materials from the tributary disciplines of mathematics, astronomy, and medicine. In the twelfth century, the corpus of texts available to encyclopaedists was extended by the translation from Greek and Arabic into Latin of Aristotle's so-called 'natural books' – *Physica*, *De caelo*, *De generatione et corruptione*, *Meteorologica*, and *De anima* – and Ptolemy's technical geometrical manuals,

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[23] B. Ribémont, 'Encyclopaedias,' *Medieval Science Technology and Medicine: An Encyclopaedia*, ed. Thomas F. Glick, Steven John Livesey, and Faith Wallis (New York: Routledge, 2005), 159-61, 159.

[24] Margaret Clunies Ross and Rudolf Simek, 'Encyclopaedic Literature,' *Medieval Scandinavia: An Encyclopaedia*, ed. Phillip Pulsiano (New York: Garland, 1993), 164-166.

accompanied by sophisticated commentaries on them.[25] Universities introduced students to the study of spherical astronomy, planetary theory, and the use of calendars and tables to predict astronomical phenomena such as planetary conjunctions and eclipses.[26] Icelanders who trained at urban schools abroad would have been exposed to these influences.

Clunies Ross and Simek observe that many of the major encyclopaedic compilations in circulation in Europe were known in Iceland to some degree, citing Icelandic authors' familiarity with Pliny's *Naturalis historia* (77-79 AD), Solinus's *Collectanea rerum memorabilium* (early third century), Hrabanus Maurus's *De rerum naturis* (ninth century), Lambert's *Liber Floridus* (*c.* 1121), and Peter Comestor's *Historia Scholastica* (*c.* 1173).[27] Vernacular handbooks, such as the Norwegian *Konnungs Skuggsjá* (*c.* 1260), the Icelandic *Hauksbók* (1306-1308), in addition to the manuscripts that contain the world maps, certainly developed under their influence.[28] The precise relationships between the Icelandic encyclopaedias and their exemplars are often obscure; many of their contents have been translated 'in a free and independent way, so that their sources are often difficult or impossible to trace.'[29] Furthermore, the processes of translation, adaption, and redaction are not easily distinguishable in these compilations, which freely manipulate their sources to suit their requirements.[30] It is frequently only possible to distinguish between their sources approximately.

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[25] Edward Grant, 'Cosmology,' *Science in the Middle Ages*, ed. David C. Lindberg (London: University of Chicago Press, 1978), 265-302, 265; Grant, *Foundations*, 22-25. On the contributions of Arabic science to Icelandic encyclopaedias, especially in regards to tidal science and planetary astronomy, see chapters 1 and 2 of this thesis.

[26] Olaf Pedersen, 'Astronomy,' *Science in the Middle Ages*, ed. David C. Lindberg (London: University of Chicago Press, 1978), 303-337, 320.

[27] Clunies Ross and Simek, 'Encyclopaedic Literature,' 165.

[28] On the influence on encyclopaedias and cosmographical writings on other areas of Old Icelandic literature, see Margaret Clunies Ross and Kari Ellen Gade, 'Cosmology and Skaldic Poetry,' *JEGP* 111: 2 (2012), 119-207; Margaret Clunies Ross, 'The Influence of the Medieval Encyclopaedia on Snorri's *Edda*,' *The Sixth International Saga Conference 28/7-2/8 1985, Workshop papers 2 vols.* (Copenhagen: Det Arnamagnænsk Institut, 1985) 1:177-206. On the influence of the Neoplatonists and cosmography on Icelandic literature see also Gúðrun Nordal, *Tools of Literacy: the Role of Skaldic Verse in Icelandic Textual Culture of the Twelfth and Thirteenth Centuries* (London: University of Toronto Press, 2001), esp. 271-308.

[29] Margaret Clunies Ross, 'Medieval Icelandic Textual Culture,' *Gripla* 20 (2009), 163-82, 175.

[30] Clunies Ross and Simek, 'Encyclopaedic Literature,' 165.

Icelandic encyclopaedias are little studied. Although the dependence of early Icelandic literary culture on foreign exemplars and translation has long been acknowledged, scholars have tended to prioritise works of indigenous production over those that have been translated, or derived directly from the influence of foreign literatures. However, scholars have increasingly turned their attention to the extensive connections that exist between Old Norse and Latin literary cultures, and the 'thesis of Icelandic exceptionalism,' in regard to the Icelandic use of Latin, has found considerable opposition.[31] The traditional view that Icelandic literary culture was radically different from others in Europe has been challenged in view of the evidence for Latin composition in Iceland,[32] the influence of Latin *vitae* on native saints' lives, and the literary genres that developed under their influence.[33] Furthermore, recent contributions in translation studies have nuanced the ways in which we view the relationship between a translation and its original, and furthered enquiry into the role of translations in the development of European literary cultures.[34] This renewed attention has yet to extend to the Icelandic encyclopaedic material.

Although much of the Icelandic encyclopaedic literature has been edited, notably in Kristian Kålund's *Alfræði Íslensk* and Rudolf Simek's *Altnordische Kosmographie*, the focus has been principally on individual texts, and not compilations. This has restricted our view of the relationships between the Icelandic maps and their companion texts and diagrams. For example, the Icelandic hemispherical world map in AM 736 I 4to is preserved on folio 1v, alongside other items reproduced in Simek's *Altnordische Kosmographie*: a planetary diagram on the same folio, and a map of Jerusalem on the facing recto.

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[31] This term originates in Gottstálk Jensson, 'The Lost Latin Literature of Medieval Iceland: The fragments of the *Vita Sancti Thorlaci* and other evidence,' *Symbolæ Osloenses* 79 (2004), 150-170, 162. See also Clunies Ross, 'Textual Culture,' 163-181. For an earlier authoritative account see Gabriel Turville-Petre, *Origins of Icelandic Literature* (Oxford: Clarendon Press, 1953).

[32] Jonathan Grove, ed. 'Anonymous, stanzas addressed to fellow ecclesiastics 1 & 2 (*Anon Eccl 1-2*),' *Poetry on Christian Subjects, Part 2: The Fourteenth Century*, ed. Margaret Clunies Ross (Turnhout: Brepols, 2007), 471-475.

[33] Siân Grønlie, 'Saint's Life and Saga Narrative,' *Saga-Book* 36 (2012), 5-26; Carl Phelpstead, *Holy Vikings: Saints' Lives in the Old Icelandic Kings' Sagas* (Tempe: Arizona Centre for Medieval and Renaissance Studies, 2007).

[34] On the relationship between a translation and its original see Rita Copeland, *Rhetoric, Hermeneutics and Translation in the Middle Ages: Academic Traditions and Vernacular Texts* (Cambridge: Cambridge University Press, 1991), esp. 28. For a recent study of translation and Old Norse literary culture see Sif Ríkharðsdóttir, *Medieval Translations and Cultural Discourse: The Movement of Texts in England, France and Scandinavia* (Cambridge: D. S. Brewer, 2012).

However, these related items are reproduced separately in Simek's edition: the hemispherical world map appears on its own,[35] with the planetary diagram reproduced several pages later,[36] and the map of Jerusalem almost one hundred pages later.[37] These editions create an artificial sense of distance between texts and diagrams that were placed alongside one another in their manuscripts, and thus encountered by medieval readers. There have until now been few attempts to alter the lens and begin to characterise these compilations: to describe their thematic structures, their levels of sophistication, and the editorial policies that shaped them. Notable exceptions, to whose number this thesis adds, are to be found in recent scholarship on the early fourteenth-century Icelandic encyclopaedia *Hauksbók*,[38] and the universal history in AM 764 4to.[39]

Cartographic culture in medieval Iceland

This thesis is the first extended study to address the cartographic culture of medieval Iceland. In earlier studies in which they appear, the Icelandic maps are subordinate to other thematic interests, usually medieval geography and cosmography. Information about the cartographic culture of medieval Iceland, however, can be sought outside the corpus of extant maps. Before we examine the maps themselves, we will review some of this evidence.

Few maps were made in medieval Europe; historically, maps have always been 'a minority form of expression.'[40] How much the dearth of surviving medieval maps is due to their actual rarity, or to their subsequent loss, is unclear. One medieval Icelandic map is known anecdotally, but has since perished. The

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35 Simek, *Altnordsiche Kosmographie*, 409.

36 Ibid., 417.

37 Ibid., 516.

38 *Hauksbók* perhaps owes the attention it has been given to its preservation of a version of the poem *Völuspá*, and the Icelandic *Landnámabók* ('book of settlements'). See Clunies Ross and Simek, 'Encyclopaedic Literature,' 165; Elizabeth Ashman Rowe, 'Literary, Codicological, and Political Perspectives on *Hauksbók*,' *Gripla* 19 (2008), 51-76, 69; Sverrir Jakobsson, 'Hauksbók and the Construction of an Icelandic World View,' *Saga-Book* 31 (2007), 22-38.

39 Svanhildur Óskarsdóttir, 'Universal history in fourteenth-century Iceland: studies in AM 764 4to,' (PhD diss.,University of London, 2001); Svanhildur Óskarsdóttir, 'Writing Universal History in Ultima Thule: The Case of AM 764 4to,' *Mediaeval Scandinavia* 14 (2004), 185-194; and Svanhildur Óskarsdóttir, 'The world and its ages: the organisation of an 'encyclopaedic' narrative in MS AM 764 4to,' *Sagas, saints and settlements*, ed. Gareth Williams and Paul Bibire (Leiden: Brill, 2004), 1-11.

40 Delano Smith and Kain, *English Maps*, 4.

preeminent sixteenth-century antiquarian and collector of Icelandic mauscripts, the Icelander Árni Magnússon, describes a large world map in the Codex Resenianus 6, which was destroyed in a fire in Copenhagen in 1728, together with a copy drawn by Hjalti Þorsteinsson.[41] Three place-names from this map are known from Árni's correspondences: (i) *Þrasnes*, which, according to Árni, lay on the 'promontorium Celticum i Spenien strax vid þad nes, sem skipsfolk kallar Cabo d'Ortegal' ('on the *Promontorium Celticum* in Spain, immediately next to that headland that sailors call the Cape of Ortegal');[42] (ii) *Ermland* (Armenia); and (iii) *Hafið dauða* (the Dead Sea). Simek observes that this map must have been more detailed than any of those that survive, with the possible exception of the larger Viðey map. We are otherwise poorly informed about this map's contents, date, and provenance. None of its place-names appear, in Latin or the vernacular, on any other Icelandic map that survives.

Inventories have proved to be a valuable resource for the study of medieval maps, particularly because so many have disappeared.[43] Though there are no inventories of maps alone until the sixteenth century, maps do occasionally appear as separate items in book-lists.[44] Michael Lapidge makes no mention of maps in his reconstruction of the Anglo-Saxon library,[45] though Loredana Teresi has since established that maps are not mentioned in Anglo-Saxon or early Anglo-Norman inventories.[46] The Icelandic inventories transcribed in the *Diplomatarium Islandicum* likewise do not appear to contain any references to documents, such as *mappamundi*, *tabula*, *pannus depictus*,

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[41] Simek, *Altnordische Kosmographie*, 60-61.

[42] Kristian Kålund, ed. *Arne Magnusson. Brevveksling med Torfæus (Þormóður Torfason)* (Copenhagen: Christiania, 1916), 33.

[43] For an outline of the methodological problems relating to the use of book-lists and inventories, their imprecision, and the high dispersal rate of libraries, see Michael Lapidge, *The Anglo-Saxon library* (Oxford: Oxford university press, 2008), 55. Examples of inventory entries that relate to maps have been assembled in Leo Bagrow, 'Old Inventories of Maps,' *Imago Mundi* 4 (1948), 18-20; and Birkholz, *Two Maps*, xvii.

[44] Bagrow, 'Old Inventories,' 18; David Woodward, 'Medieval *Mappaemundi*,' *The History of Cartography*, vol. 1: *Cartography in Prehistoric, Ancient, and Medieval Europe and the Mediterranean*, ed. J. B. Harley and David Woodward (London: The University of Chicago Press, 1987), 286-370, 292.

[45] Lapidge, *Anglo-Saxon Library*.

[46] Teresi Loredana, 'Anglo-Saxon and Early Norman England Mappaemundi,' *The Foundations of Learning: The Transfer of Encyclopaedic Knowledge in the Early Middle Ages*, ed. R. Bremmer and C. Dekker (Paris: Peeters, 2007), 341-377, 341.

rotulus, that might have been rolled or monumental maps, as exemplified by the English Hereford map.

Further evidence for the presence of maps in medieval Iceland is provided by Icelandic manuscript illumination, an area in which there has been little enquiry. Even a brief reconnaissance of the existing literature, however, unearths numerous examples of the schematic tripartite world map, usually in the form of the sovereign orb. There are five examples in the Icelandic Teiknibókin, a model book for artists and illuminators compiled *c.* 1400-50.[47] These highly schematic images are commonly overlooked as maps, but can be taken as evidence for familiarity with their iconography and conventions. Four of these images in Teiknibókin feature as sovereign orbs held by the Norwegian royal St Óláfr (Óláfr II of Norway, 995 – 29th July 1030, locally canonised in 1031 and confirmed by Pope Alexander III in 1164). Simek has noted this connection with St Óláfr, which he situates in a wider European context of the depiction of sovereigns holding the *orbis terrarum*.[48] While there are undoubtedly more images of this type, a systematic survey has yet to be done.

[47] Björn Th. Björnsson, *Íslenzka teiknibókin í Árnasafni* (Reykjavík: Prentsmiðjan Hólar, 1954).

[48] Simek, *Altnordische Kosmographie*, 121-122.

Figure 2: A small T-O map shown beneath a depiction of Christ in Majesty, from the Icelandic Teiknibókin (Reykjavík, Stofnun Árna Magnússonar, AM 673a III 4to).

The most valuable alternative source for cartographic knowledge in medieval Iceland is supplied by the written texts that show their influence. C. S. Lewis examined the cosmographical substrate in medieval literature in *The Discarded Image*. For Lewis, medieval cosmography was the ultimate synthesis of theology, science, and history 'in which most particular works were embedded, to which they constantly referred, from which they drew a great deal of their strength.'[49] Although Lewis was little concerned with the roles played by maps and diagrams in the transmission of this model, he demonstrated that literary texts could be opened up with reference to the implicit cosmographical models that underlie them. In more recent years, scholarship has examined more closely the roles played by maps in the development of this model, and the interfaces between visual and literary cultures that this implies. Tom Conley has argued that written texts can be considered cartographic in so far as both maps

[49] C. S. Lewis, *The Discarded Image: An Introduction to Medieval and Renaissance Literature* (Cambridge: Cambridge University Press, 1964), 12.

and texts are shaped by 'tensions of space and of figuration.'[50] Patrick Gautier Dalché has likewise described 'the tacit influence of the cartographic medium' on written descriptions of world geography, revealed in the spatial traits shared by maps and textual descriptions.[51] I suggest that literary texts can evidence cartographic knowledge in three ways: through ekphrases (written descriptions of map artefacts), verbal reminiscences (descriptions of world geography tacitly indebted to their author's familiarity with map images, real or imagined), and logical inferences that are the result of cartographic reasoning. Old Icelandic literature exemplifies all three.

Written descriptions of maps in literary texts are few, but valuable as sources for cartographic knowledge in antiquity and the middle ages. The description of Achilles' shield and its cosmographical decoration in Homer's *Iliad* (18.478–608) is the earliest known reference to a map from the ancient world.[52] Likewise, the earliest reference to a world map in medieval Europe takes the form of a literary description in Jonas of Bobbio's *Vita Columbani*, written in Northern Italy *c.* 643. In the *Vita*, St Columba considers going to the Slavic territories to preach Christianity, but is dissuaded from this mission by an angel who descends and shows him a world map. The description of this map, possibly akin to those simple T-O maps that circulated with the writings of Isidore of Seville, antedates the earliest extant example of such a map by around 150 years.[53] Similarly, the earliest mention of a sea chart antedates the earliest extant example by around twenty years. This appears in the French chronicler Guillaume de Nangis's (d. 1300) life of the French royal Saint Louis IX (1214-1270), which relates how Louis was caught in a storm on a ship bound for Tunis in around 1270. When the ship was forced to change course, the ship's captain

[50] Tom Conley, *The Self-Made Map: Cartographic Writing in Early Modern France* (Minneapolis: University of Minnesota Press, 1996), 3.

[51] Patrick Gautier Dalché, 'Maps in words: The descriptive logic of medieval geography from the eighth to the twelfth century,' *The Hereford World Map: Medieval World Maps and their Context* (London: British Library, 2006), 223-242, 225.

[52] See Germaine Anjac, 'The Foundations of Theoretical Cartography in Archaic and Classical Greece,' *The History of Cartography*, vol. 1: *Cartography in Prehistoric, Ancient, and Medieval Europe and the Mediterranean*, ed. J. B. Harley and David Woodward (London: The University of Chicago Press, 1987), 130-147, 131.

[53] See Gautier Dalché, 'De la glose à la contemplation,' 697-98; and more recently Thomas O'Loughlin, 'Map Awareness in the Mid-Seventh Century: Jonas' *Vita Columbani*,' *Imago Mundi* 62:1 (2010), 83-85.

showed the king a 'mappa mundi,' which must in the circumstances have been a sea chart.[54]

An example of cartographic ekphrasis in Old Icelandic literature appears in *Alexanders saga*, the Old Norse prose translation of Walter of Châtillon's twelfth-century *Alexandreis*. In both the *Alexandreis* (7.420-77) and its Icelandic translation, the tomb of the Persian King Darius is engraved with a world map.[55] The Icelandic prose translation follows the Latin original closely in its description of the three continents, the ocean's islands, the circumambient ocean, and the Mediterranean Sea:

> Vppi yvir stolpunum var hvalf sva gagnsett sem gler. Þvilict vaxet sem himinn til at sia. áþvi hvalve var scrifaðr heimrenn allr greindr isina þriðiunga. oc sva hver lond liggia ihveriom þriðiunge. eða hverirr ágetir staðer erv íhverio lande. oc þar með nattura. beðe landanna oc þeira þioða er londin byggia. oc sva eyiar þér er i hafino liggia. Þar var oc markar hversu vthafet gerðer vm oll londin. eða hversv miðiarðar siar er allar ár falla í.[56]
>
> (Up above the pillars was a vault as clear as glass, and just as wide as the sky. On this vault was inscribed all the world, divided into its thirds, so that each land could be seen in its third, and where noble places were in each land, and of the natures of the lands and the peoples that lived there, and also the islands that lie in the ocean. There was also marked how the ocean that girds all lands, and the Mediterranean Sea into which all rivers flow.)

Importantly, the object of the description here is not the world *per se*, but a simulacrum or map onto which geographical information has been inscribed ('scrifaðr'), and Simek speculates that the Icelandic translator might have had a map in mind.[57]

Verbal reminiscences that only imply familiarity with map images are somewhat harder to identify with certainty. Geographically themed introductions and digressions, historiographical structures inherited from

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[54] See Tony Campbell, 'Portolan Charts from the Late Thirteenth Century to 1500,' *The History of Cartography*, vol. 1: *Cartography in Prehistoric, Ancient, and Medieval Europe and the Mediterranean*, ed. J. B. Harley and David Woodward (London: The University of Chicago Press, 1987), 371-462, 439.

[55] David Townsend, trans. *Alexandreis: A Twelfth Century Epic* (Philadelphia: University of Pennsylvania Press, 1996), 156, fn. 1. For the description of the tomb see 156-57.

[56] Finnur Jónsson, ed. *Alexanders saga: Islandsk Oversættelse ved Brandr Jónsson* (Copenhagen: Kommissionen for det Arnamagnænske Legat, 1925), 112.

[57] Simek, *Altnordische Kosmographie*, 62.

Roman historiography,[58] are numerous in Old Icelandic literature. One such example appears in *Rómverjasaga*, which combines Old Norse translations of Sallust's *Bellum Jugurthinum* and *Bellum Catilinae* and a prose paraphrase of Lucan's *Pharsalia* into a saga about the Romans.[59] The so-called 'African excursus' (17.1-18.12) is the first of three formal digressions in the *Bellum Jugurthum*,[60] two chapters on African geography that correspond with the latter half of *Rómverjasaga* Ch. 7. While Þorbjörg Helgadóttir maintains that the Icelandic translation follows the Latin quite closely,[61] the translation of the African excursus departs from its Latin original in a number of details, particularly in its description of Africa's boundaries. Sallust demarcates Africa thus.

> Ea finis habet ab occidente fretum nostri maris et Oceani, ab ortu solis decliuem latitudinem, quem locum Catabathmon incolae appellant.[62]
>
> (As its boundaries it has the strait between our sea [the Mediterranean Sea] and the [Atlantic] ocean to the west, and a sloping expanse to the east, a region its inhabitants call Catabathmos.)

The Old Norse translation improvises in its description of these boundaries, with recourse to a different geographical tradition.

> Aff*ri*ca g*en*gr allt vestr at vt hafínu. ok sudr at Miðíardar sío. ok austr til Nilar.
>
> (Africa extends west along the ocean, south along the Mediterannean Sea, and east to the Nile).

The Old Norse translation substitutes Catabathmos for another boundary frequently described on maps and in geographical writings, the Nile. The

[58] On the geographical digression as a historiographical structure in antiquity, and its afterlife as a literary device, see Andrew H. Merrills, *History and Geography in Late Antiquity* (Cambridge: Cambridge University Press, 2005).

[59] Þorbjörg Helgadóttir, ed. *Rómverjasaga*, 2 vols. (Reykjavík: Stofnun Árna Magnússonar í Íslenskum Fræðum, 2010), 1:xiii.

[60] On the African excursus and its alignment with Sallust's social themes see Ronald Syme, 'Military Geography at Rome', *Classical Antiquity* 7 (1988), 227-251, 227; Thomas Wiedemann, 'Sallust's 'Jugurtha': Concord, Discord, and the Digressions,' *Greece & Rome* 40 (1993), 48-57, esp. 49-52; and Robert Morstein-Marx, 'The Myth of Numidian Origins in Sallust's African Excursus (*Iugurtha* 17.7-18.12),' *The American Journal of Philology* 122 (2001), 179-200, esp. 179-80.

[61] Þorbjörg Helgadóttir, 'On the Sallust Translation in *Rómverja saga*,' *Saga-Book* 22:3-4 (1987-88), 263–77, 264.

[62] Sallust, *Bellum Jugurthinum*, Loeb Classical Library, ed. John C. Rolfe (London: Harvard University Press, 1931), 17.4.

redefinition of Africa's principal boundaries evidences the ability of an Icelandic translator to substitute one account of African geography for another, or respond to one geographical description with recourse to another with which he was familiar.

Similar geographical descriptions are found in two works usually attributed to the Icelandic statesman and literary magnate Snorri Sturluson (1179-1241).[63] The prologue to *Snorra Edda*, an Icelandic *ars poetica* compiled *c.* 1220, comprises a euhemeristic account of the primeval migrations of the Norse gods, the Æsir, out of Asia and into the North. Snorri links the Æsir to their ancestral home in Asia on etymological grounds: he names the *Æsir* (singular *Ás*) as *Asiamenn*.[64] The geographical introduction contextualises the primeval migrations of the Æsir out of Asia, and avers the centralist origins of Icelandic vernacular poetics, which are implied to have originated in Troy.

> Veröldin var greind í þrjár hálfur. Frá suðri í vestr ok inn at Miðjarðarsjá, sá hlutr var kallaðr Affrica. Hinn syðri hlutr þeirar deildar er heitr ok brunninn af sólu. Annarr hlutr frá vestri ok til norðrs ok inn til hafsins, er sá kallaðr Evropa eða Enea. Hinn nyðri hlutr er þar kaldr svá at eiga vex gras ok eigi má byggja. Frá norðri ok um austrhálfur allt til suðrs, þat er kallat Asia. Í þeim hlut veraldar er öll fegrð ok prýði ok eign jarðar ávaxtar, gull ok gimsteinar. Þar er ok mið veröldin, ok svá sem þar er jörðin fegri ok betri at öllum kostum en í öðrum stöðum, svá var ok mannfólkit þar mest tignat af öllum giptum, spekinni ok aflinu, fegrðinni ok alls kostar kunnustu.[65]
>
> (The world was divided into three regions. From south to west and in at the Mediterranean Sea was called Africa. The southern part of that division is hot and burnt by the sun. The second part from west to north and in at the sea is called Europe or Enea. The more northerly part is so cold that grass does not grow and none may settle there. From the north, around the eastern half, and all to the south is called Asia. In that part of the world all is beautiful and magnificent, and rich in the fruits of the earth, gold and gemstones. The middle of the world is also there, and just as the earth there is more beautiful and better in all ways than other places, so are the people there most noble and most possessed of all gifts, in wisdom, body, and beauty and kinds of knowledge.)

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[63] Rudolf Simek, 'Snorri als Kosmograph,' *Snorri Sturluson: Beiträge zu Werk und Rezeption*, ed. Hans Fix (Berlin: Walter de Gruyter, 1998), 255-66.

[64] Anthony Faulkes, ed. *Snorra Edda: Prologue and Gylfaginning* (London: Viking Society for Northern Research, 2005), 6.

[65] Faulkes, ed. *Snorra Edda*, 4.

The division of the known world into the three continents between the bounds of the four cardinal points is a common feature of medieval geographical descriptions, as well as on the T-O map. The extreme climates in the southern part of Africa and in Northern Europe evidences familiarity with theories about the earth's climatic zones, which are likewise explicated in texts and on maps (see chapters 1 and 2). A notable feature of the description is the place-name *Enea*, which is presented as an alternative name for Europe. This alleged place-name is unattested outside the prologue to *Snorra Edda* and *Ynglingasaga*, and has been taken as evidence for their common authorship. Simek suggests that it was invented to identify Europe with an eponymous founder in Aeneas, and complement the prologue's theme of Trojan origins.[66]

Ynglingasaga, the second work attributed to Snorri Sturluson, is the first of fourteen sagas about Norwegian kings in the *Heimskringla* cycle. The world description in *Ynglingasaga* (Ch. 1) occupies a similar, prefatory position as the prologue to *Snorra Edda*, contextualising its action and signifying the centralist origins of the Scandinavian royal lines. *Ynglingasaga* relates the arrival of the Norse gods in Scandinavia, and the establishment of the Swedish Yngling dynasty at Uppsala by the Norse god Freyr.

> Kringla heimsins, sú er mannfólkit byggir, er mjök vágskorin; ganga höf stór or útsjánum inn í jörðina. Er þat kunnigt, at haf gengr frá Nörvasundum ok alt út til Jórsalalands. Af hafinu gengr langr hafsbotn til landnorðrs, er heitir Svartahaf; þat skilr heimsþriðjungana: heitir fyrir austan Asía, en fyrir vestan kalla sumir Európa, en sumir Enea. En norðan at Svartahafi gengr Svíþjóð hin mikla eða hin kalda; Svíþjóð hina miklu kalla sumir menn eigi minni en Serkland hit mikla, sumir jafna henni við Bláland hit mikla. Hinn nörðri hlutr Svíþjóðar liggr úbygðr af frosti ok kulda, svá sem hinn syðri hlutr Blálands er auðr af sólar bruna. Í Svíþjóð eru stórheruð mörg, þar eru ok margskonar þjóðir ok margar tungr: þar eru risar ok þar eru dvergar, þar eru ok blámenn, ok þar eru margskonar undarligar þjóðir, þar eru ok dýr ok drekar furðuliga stórir. Ór norðri frá fjöllum þeim, er fyrir utan eru bygð alla, fellr á um Svíþjóð, sú er at réttu heitir Tanais; hon var forðum kölluð Tanakvísl eða Vanakvísl; hon kemr til sjávar inn í Svartahaf. Í Vanakvíslum var þá kallat Vanaland eða Vanaheimr. Sú á skilr heimsþriðjungana: heitir fyrir austan Asía, en fyrir vestan Európa.[67]
>
> (The circle of the world, which humankind inhabits, is much indented with bays. Large seas extend out of the ocean into the earth. It is known

[66] Simek, 'Snorri als Kosmograph,' 262-64.

[67] Bjarni Aðalbjarnarson, ed. Snorri Sturluson, *Heimskringla* vol. 1, Íslenzk Fornrit 26 (Reykjavík: Hið Íslenzka Fornritfélag, 1941), 10.

> that the sea extends from the Straits of Gibraltar and all the way out to the Holy Lands. From the sea extends a long gulf to the northeast, which is called the Black Sea; this divides the world's three regions: the east is called Asia, and the west is called by some Europe, and others Enea. To the north of the Black Sea extends Sweden the Great or the Cold [Russia]. Some people say that Sweden the Great is no smaller than Serkland the Great [North Africa], some equate it with Bláland the Great [sub-Saharan Africa]. The Northern part of Sweden is not settled because of the frost and cold, just as the southern part of Bláland is empty because of the scorching sun. In Sweden there are many great realms, and many kinds of people and many languages. There are giants and there are drawrves. There are black people and there are many kinds of wonderful people, there are wonderfully large animals and dragons. Out of the north from those mountains that are outside all inhabited regions a river flows into Sweden [the Great, i.e. Russia], which is correctly called the Tanais. It is previously called the Tana-estuary or Vana-estuary. It comes to the sea in the Black Sea. Around the Vana-estuary was then called Vana-land or Vana-home. This river separates the three parts of the world: called to the east Asia; and to the west Europe.)

Simek suggests that the phrase that opens the description, *kringla heimsins* ('circle of the world'), is a calque of the Medieval Latin *orbis terrarum* ('circle of lands').[68] Also attested in Old Icelandic writings are the cognate phrases *hringr iarðar* ('circle of the earth') and *heimballar* ('the world-sphere'). *Hringr iarðar* appears in the Norwegian *Konnungs Skuggsjá*, a thirteenth-century mirror for princes, in a description of the sphericity of the earth: 'böllóttur er *jarðar hringur*, og ber eigi öllum stöðum jafnnær sólu' ('the circle of the earth is ball-shaped, and not all places are equally close to the sun').[69] *Heimballar* appears in the Old Norse translation of Honorius Augustodunensis's *Elucidarius*. The tripartition of the *kringla heimsins* is once again conventional, and the references to climatic extremes in the north and south again evidences familiarity with climatic theories.

This description also adheres to a prominent hydrographic framework. The circumambient ocean is referred to metonymically as the bays that indent the *kringla heimsins*. The Mediterranean Sea, which extends between the Straits of Gibraltar and the Holy Lands, is accorded particular prominence, and has clear written parallels in Latin geographical writings: 'inter Calpem et Atlantem, usque juxta Hierusalem, Mediterraneum vocatur' ('between the Calpe

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68 Simek, 'Snorri als Kosmograph,' 259.

69 Magnús Már Lárusson, ed. *Konungs Skuggsjá: speculum regale* (Reykjavík: H. F. Leiftur, 1955), 21.

Mountains [Gibraltar] and the Atlas Mountains, nearly as far as Jerusalem, is called the Mediterranean Sea').[70] The Tanais (or River Don) frequently figures on maps and in texts as the boundary between Europe and Asia, and is here named in both Latin, *Tanais*, and Old Norse, *Tanakvísl*. The alternative names *Vanakvísl* and *Vanaheimr* are intelligible in same euhemeristic context that gives us the Asian Æsir in *Snorra Edda*. These forms have been fabricated to create a link to the Norse divinities called the Vanir; *Ynglingasaga* Ch. 5 informs us the Tanais estuary was their ancestral home.[71] Interestingly, the Tanais is named 'Tanakvisl flum*en* maxim*us*' ('the Tanais Estuary, a great river') on the larger Viðey map (*c*. 1225-50), a map that was probably produced during Snorri's lifetime, and at a monastic foundation he established (see chapter 3).

Simek argues that the geographical descriptions in *Snorra Edda* and *Ynglingasaga* are influenced more by their author's familiarity with world maps than Latin geographies. He notes that the description in *Ynglingasaga* of the bays that indent the land (the 'kringla heimsins' is described as 'mjök vágskorin') is a feature unattested in the Latin geographies, but often depicted on world maps.[72] The map Simek uses in support of this claim is the Anglo-Saxon Cotton map, though this map is exceptional and scarcely representative of the surviving corpus of Anglo-Saxon world maps, or for that matter the Icelandic ones. The disposition of land and sea and the arrangement of the three continents in these texts is certainly compatible with the view provided by the T-O map, but compatibility is not in itself proof of influence. There are, besides maps, widespread textual analogues for these descriptions. If the descriptions in these three texts do not evidence the influence of the cartographic medium on written descriptions, then they at least show that Icelandic readers might have been familiar with conventions similar to those that underpin medieval maps.

More tangible evidence of cartographic knowledge can be identified in those texts whose descriptive logic is the effect of cartographic reasoning. Maps are tools with which to think, as well as to show, and evidence that newly

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[70] William of Conches, *De philosophia mundi*, III.xiv.

[71] Bjarni Aðalbjarnarson, ed. *Heimskringla*, 10. The Vanir are a subgroup of the Æsir, the Old Norse divinities, whose number includes Njörðr, Freyja, and Freyr. See Ruldolf Simek and Hermann Pálsson, *Lexicon der altnordischen Literatur* (Stuttgart: Kröner, 1987).

[72] Simek, 'Snorri als Kosmograph,' 264.

available geographical information has been processed with cartographic frameworks in mind permits us a sharper insight into the presence of maps in the culture. The Scandinavian evidence for cartographic reasoning concerns the location of Greenland, which is described in the Icelandic *Geographical Treatise* thus.[73]

> Fra grenalandi isuðr ligr hellu land þa markland. þaðan er eigi langt til vinland ersumir menn etla at gangi af affrica.
>
> (South of Greenland lies Helluland and then Markland. From there it is not far to Vínland, which some people think protrudes from Africa.)

Greenland, Helluland ('slab-land') and Markland ('forest-land') are lands associated with the Norse discovery of America, which is related in the so-called Vínland sagas, *Grænlendingasaga* and *Eíriks saga Rauða*. Carolyne Larrington attributes the proximity of Vínland and Africa in the *Treatise* to a literary impulse to describe remote places in similar terms; their proximity follows from the fact that both are remote, and that both are reportedly inhabited by denizens of the Plinean races.[74] This geographical description has been used to explain the appearance of a uniped (Old Norse *einfætingr*) 'so far from its normal habitat' in *Eiriks saga Rauða* (Ch.12).[75] The position of Greenland is described more explicitly in a similar passage in the Norwegian synoptic history *Historia Norwegiae* (*c.* 1160-75):

> Que patria a Telensibus reperta et inhabitata ac fide catholica roborata terminus est ad occasum Europe, fere contigens Africanas insulas, ubi inundant occeani refluenta.[76]
>
> (This country [Greenland], discovered, settled and confirmed in the Catholic Faith by Icelanders, marks the Western boundary of Europe, and almost touches the islands off Africa, where the ocean tides surge in.)

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[73] The *Icelandic Geographical Treatise* is preserved in eleven manuscripts written between the early fourteenth and eighteenth centuries, but only three are medieval. The *Treatise* is preserved in AM 736 I 4to, alongside the Icelandic hemispherical world map, and will be discussed in detail in chapter 2. For editions see *AÍ* II, 231-40; and Simek, *Altnordische Kosmographie*, 428-9. An English translation of the *Treatise* first appeared in Toulmin Smith, *Discovery*, 335-37.

[74] See, for instance, the location of the Plinean races on the Hereford, Ebstorf, and Psalter maps. See Asa Simon Mittman, *Maps and Monsters in Medieval England* (New York: Routledge, 2006).

[75] Carolyne Larrington, "Undruðusk þá, sem fyrir var': wonder, Vínland and mediaeval travel narratives,' *Mediaeval Scandinavia* 14 (2004), 91–114, 111.

[76] Inger Ekrem and Lars Boje Mortensen, ed. *Historia Norwegie* (Copenhagen: Museum Tusculanum Press, 2003), 54.

I suggest that the descriptions in these two works reveal their authors' use of maps to speculate about the relative positions of the lands known to them. In his work on the interactions between tradition and observation in the aftermath of Columbus's transatlantic discoveries, Anthony Grafton has written that the ancient texts that formed the basis of geographical knowledge in the Middle Ages 'served as both tools and obstacles for the intellectual exploration of new worlds.'[77] Here we see them used as tools: the theoretical proximity of Greenland and Africa in the Icelandic *Geographical Treatise* (the modal verb 'ætla' implies conjecture) evidences an attempt to locate Greenland in the context of traditional, Latinate frameworks available to its author. In particular, it seems to me that the localisation of Greenland in this text is intelligible in the context of medieval cartography: when Europe is visualised on the T-O map, its western boundary, which is explicitly named in the *Historia Norwegiae*, comes appreciably close to Africa. The mention of the place where the ocean tides surge in ('ubi inundant occeani refluenta') references the Straits of Gibraltar, where the Atlantic Ocean meets the Mediterranean, and Europe meets Africa. These authors organised and sought to understand new geographical information through the traditional means provided by the medieval world map.

It can thus be demonstrated that cartographic culture is at large in the Old Norse textual tradition. The foregoing discussions are necessarily perfunctory; a thoroughgoing investigation into the possible cartographic influences on the literary and historiographical output of the medieval Icelanders cannot precede an examination of the maps themselves. These examples affirm the need for such an enquiry. If it is to be suggested that Icelandic texts show their authors' familiarity with map images, then we must seek to identify the kinds of maps with which they might have been familiar. A study of the influence of these models at a literary level, to which this thesis would be a companion, awaits to be written. I should stress, however, that this thesis does not examine the Icelandic maps simply to arrive at a better understanding of the literatures or modes of thought that might have developed under their influence. Rather, it aims to show that the maps themselves have wider implications for the intellectual and cultural history of Iceland than have previously been addressed.

[77] Anthony Grafton, *New worlds, Ancient texts: The power of Tradition and the Shock of Discovery* (Cambridge, MA: Harvard University Press, 1992), 6.

Thesis outline

In the chapters that follow, descriptions of the maps are necessary because little has previously been stated explicitly or in detail. The maps are difficult to comprehend without instruction: the Icelandic hemispherical and zonal maps present complex visual arguments about the nature and structure of the physical universe, and two Viðey maps possess complex symbolic structures that are initially difficult to interpret. The maps must be understood before they can be analysed.

In previous studies, the contexts of these maps have been assumed rather than demonstrated. Since Rafn incorporated these maps into studies of medieval geography, their connections with other textual worlds have not been seen. This thesis places a particular emphasis on the manuscript contexts in which these maps are encountered. Therefore, the appropriate intellectual contexts in which to interpret these maps are not imposed *a priori*, but emerge in response to the intellectual programmes that originally accommodated them. As a result of this protean method, the chapters assembled in this thesis are distinctively themed: chapters 1 and 2 address the maps in their scientific contexts, while chapters 3 to 5 focus variously on cultural or literary history. This responsive method ensures that the maps are understood in terms consistent with period assumptions about their natures.

Chapter 1 concerns the Icelandic hemispherical world map, preserved in two manuscripts produced in the early fourteenth century. I demonstrate that the primary purpose of this map was to explain the effects of the sun and moon on the ebb and flow of the tides.

Chapter 2 examines the Icelandic zonal map. This map contains a slender geographical nomenclature, which has restricted previous studies into its form and function, whose reaches have not extended beyond the map's outlines. In particular, this chapter examines the relationship between the map and the suite of planetary diagrams it accompanies.

Chapter 3 presents a broad-brush examination of the two Viðey maps, and is a touchstone for the two chapters that follow. This chapter concerns two maps preserved on the recto and verso of the same manuscript folio, which are here treated together for the first time. This chapter examines their genres and relationships with other European maps, as well as with each other.

Chapter 4 foregrounds the representation of Europe on the two Viðey maps. A description of the ways in which relationships between European polities are constructed on these maps yields to a particular focus on Iceland, the relationship between Iceland and its double Thule, and the geolinguistic situation of Iceland in Europe.

Chapter 5 presents an examination of the Viðey maps' quadripartite frames, the suite of inscriptions disposed around these maps' perimeters. I demonstrate that these grouped inscriptions aver the harmony of Creation and man's place within it. This leads onto an examination of the relationship between the Viðey maps and the register of forty highborn Icelandic priests preserved alongside them.

Ultimately, this thesis rehabilitates the Icelandic maps as sources for the cultural history of medieval Iceland, and demonstrates that they connect with more textual worlds – from the medieval encyclopaedia to the historical writings of Ari Þorgilsson the Wise – than has previously been supposed.

The Icelandic hemispherical world map

Copenhagen, Arnamagnæan Institute, AM 736 I 4to, f. 1v and AM 732b 4to, f. 3r

The Icelandic hemispherical world map

The Icelandic hemispherical world map is preserved in two encyclopaedic manuscripts in Copenhagen's Arnamagnæan Institute: one version in the bifolium with the shelf mark AM 736 I 4to (*c*. 1300); and a second version in the manuscript AM 732b 4to (*c*. 1300-25).

The map shows the earth divided along five lines of equal latitude, or parallels: the two polar circles, the two tropics, and the equator. In the northern hemisphere, the temperate inhabitable region is anatomised to show the relative positions of the three continents of the known world: Africa, Asia, and Europe. In the southern hemisphere, an Old Norse legend identifies the inhabitable region that lies to the south of the impassable equatorial ocean. The sun and moon are shown in two configurations in their orbits around the earth: in conjunction (on the left of the diagram, where sun and moon are in the same region of the sky) and in opposition (on the right of the diagram, where the moon stands alone and opposite the sun). The sun, and the side of the moon that faces it, are coloured red. The narrow band that connects these two configurations of the sun and moon is the zodiac, the series of constellations through which the sun moves in its annual orbit around the earth. The map contains twenty-one inscriptions, written in a combination of Latin and Old Norse. In both of the manuscripts that preserve the map, it accompanies two short Old Norse texts: the first a note on the error in the Julian calendar, the second a note on the ebb and flow of the tides and the influences of the sun and moon upon them.

There has been little written on this map; its sources, its relationships with other European world maps, its Icelandic contexts, and its function, have not hitherto been described and analysed.

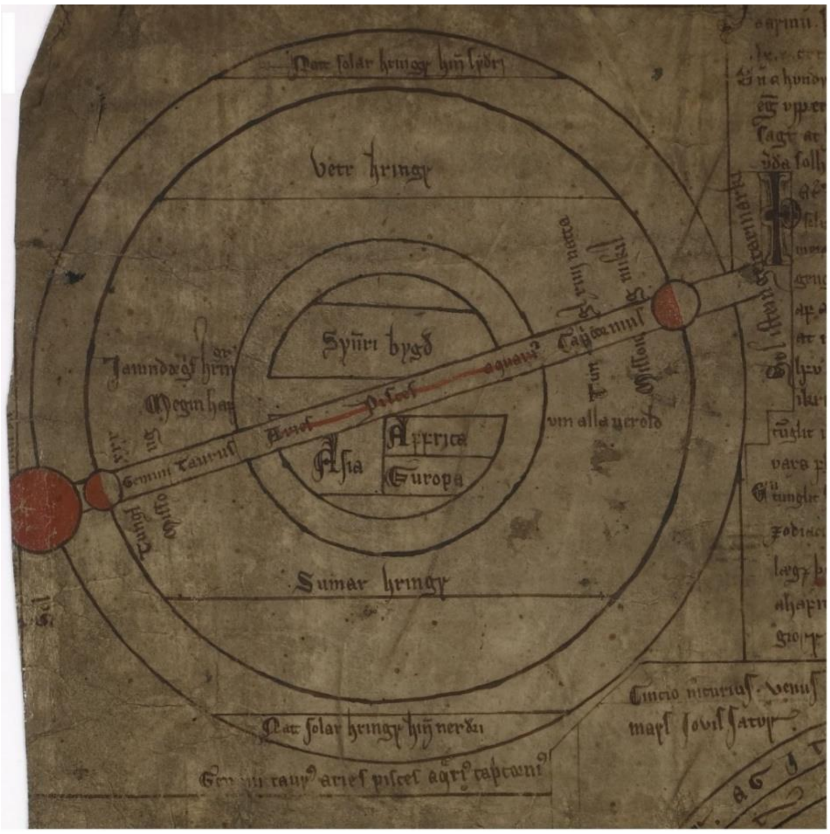

Figure 3: The hemispherical world map in Copenhagen, Arnamagnæan Institute, AM 736 I 4to f. 1v (*c*. 1300).

Figure 4: The hemispherical world map in Copenhagen, Arnamagnæan Institute, AM 732b 4to f. 3r (*c*. 1300-25).

The map’s legends, as demonstrated below, pertain to the parallels of latitude, the ecumene and antoecumene, and the tides.[1]

Natt solar hringr hin*n* syðrj Vetr hringr	Antarctic Circle Winter Tropic / Tropic of Capricorn
Sol isteingeitarmarki	Sun in Capricorn
tungl xiiij natta missong mikil tungl xxx missong	Moon at 14 nights High springs Moon [at] 30 [nights] springs
Gemini Taurus Aries Pisces Aquari*us* Cap*ri*cornius	Gemini, Taurus, Aries, Aquarius, Capricorn
Syn*n*ri bygð	Southern inhabitable land
Iamndæg*ri*s hringr um alla uerold	Equator around the whole world
Megin haf	Ocean
Asia Affrica Europa	Asia Africa Europe
Sumar hringr	Summer Tropic / Tropic of Cancer
Natt solar hringr hin*n* nerðri	Arctic Circle
Gemini Taurus Aries Pisces Aq*a*ri*us* Cap*ri*corni*us*	Gemini, Taurus, Aries, Pisces, Aquarius, Capricorn

[1] The map’s legends are transcribed diplomatically below but will appear in normalised form in subsequent citations. Citations from the map and its companion texts are from my own transcriptions.

Previous editions and commentaries

I. Rafn, *Antiquités Russes* II (1852), 391 (drawn facsimile)
II. *AÍ* II (1916-18), 118-119 (transcription and facsimile)
III. Destombes, *Mappemondes* (1964), 175 (description)
IV. Simek, *Altnordische Kosmographie* (1990), 410 (transcription and facsimile)

Although this map has a long history of reproduction in printed editions, it has attracted little critical attention. The map first came to attention with the publication of Rafn's *Antiquités Russes* vol. 2 in 1852, in which all the extant Icelandic world maps were reproduced in drawn facsimile. As noted previously, Rafn's concern in *Antiquités Russes* vols. 1 and 2 (1850-52), and its forerunner *Antiquitates Americanae* (1837), was the Scandinavian evidence for European knowledge about North America in the west and Kievan Rus' in the east. The Icelandic hemispherical world map is cited as visual evidence for the assimilation of European cosmographical doctrines, such as the sphericity of the earth, the climatic zones, and the positions of the the three continents, into Icelandic thought. The map's function as an exposition of tidal theory occasions only brief mention.

Kålund reproduces the map in his edition of the Old Norse computus treatise *Rímbegla II*, whose principal witness is the text preserved in Reykjavík, Stofnun Árna Magnússonar, AM 624 4to (*c.* 1490 – *c.* 1510). Kålund footnotes a facsimile of the map and a transcription of its legends in his edition of an Old Norse text about the ebb and flow of the tides, a text that appears in AM 624 4to, as well as both manuscripts that contain the map. The map accompanies the tidal note in both 736 I and 732b, but not in 624.[2]

Destombes' description of this map is slender and faulty. He describes the map in 736 I, but appears to be unaware of the version in 732b.[3] He numbers the map alongside those that cannot be associated with a known author.[4] Destombes states that the map contains a 'nomenclature réduit à 3 noms latins (*Asia*, *Affrica*, *Europa*) et une légende en Islandais (*Synnri Bygd*, désignant la zone

[2] *AÍ* II, 118-19.

[3] Ibid., 175.

[4] Marcel Destombes, ed. *Mappemondes A.D. 1200–1500. Catalogue préparé par la commission de Cartes Anciennes de l'Union Géographique Internationale* (Amsterdam: N. Israel, 1964), 164.

australe)' ('a nomenclature reduced to three Latin names (*Asia*, *Affrica*, *Europa*) and a legend in Icelandic (*Synnri bygd*, designating the southern region)').[5] The map's other legends, and the tidal note it accompanies, are not mentioned.

In Simek's *Altnordische Kosmographie*, the map features in a discourse on European cosmographical knowledge and its diffusion in Old Norse literature. Although Simek assembles other Old Norse cosmographical writings to contextualise the map, these do not include many, or in the case of 732b, most of the texts assembled alongside the map in its manuscripts. Little attention is directed towards its associations with other texts and diagrams, such as the Old Norse tidal note, and its functions are not analysed.

Two observations can be made from this conspectus of the map's previous editions and commentaries. Firstly, limited attention has been directed to its function as an explication of tidal theory. Secondly, its contexts are unknown: the examination of the map as a vehicle for the transmission of cosmographical doctrines has removed it from the intellectual programmes to which it originally contributed. The aim of this chapter is to rehabilitate the map as an explication of tidal theory. Further, the map must be understood in relation to its companion texts: a note on the error in the Julian calendar attributed to the otherwise unknown computist Meistari Galterus,[6] and an anonymous note on the seasonal variation in the ocean tides.[7] In 736 I these two texts are preserved alongside the map, on folio 1v; in 732b they are preserved on the facing verso, on folio 2v. These two texts have occasioned no mention in previous commentaries on the map. This omission is striking for the fact that the tidal note explicitly enjoins its reader to consult the map below, which it identifies as a *figura*: 'þessa hluti máttu prófa en giọr í þessi figuru' ('this matter can be proved in this diagram'). This directive affirms the need to examine the map's companion texts in order to understand its subject matter.

The following chapter is arranged into three sections. The first concerns the map's origins, an area in which little progress has previously been made. This will inform a second section on the map's textual inscriptions. A third section

5 Destombes, *Mappemondes*, 175.

6 *AÍ* II, 237-239.

7 Ibid., 117-118, §§ 67-68.

restores the map to its two manuscript contexts in the encyclopaedic fragments 736 I and 732b. These three sections bring to light the map's history, its function, and the intellectual programmes to which it contributed.

Hemispherical world map origins

The relationship between the Icelandic hemispherical world map and other European maps has been given scant attention in previous scholarship. Kålund describes the Icelandic map as typical of its genre ('autotypisk gengivne figur'), but makes no further statement about its origins or the tradition to which it belongs.[8] Destombes numbers it among those maps for which there is insufficient information to identify an author.[9] The maps in this category are diverse in form but, like the Icelandic examples, are more generally preserved in association with scientific treatises than literary ones.[10] Simek observes that the manuscripts that preserve the Icelandic hemispherical world map are 'obviously remnants of copies of an illustrated encyclopaedic MS modelled closely on Latin illuminated encyclopaedias,'[11] but maintains that neither gives a clear indication of its origins.[12] Thus far, little progress has been made in describing the history of this map. However, in the discussion that follows, I demonstrate that the Icelandic hemispherical world map does have a history that can be reconstructed through comparison with the earlier maps and diagrams from which it has been adapted. These comparisons are not only informative of the map's history, but provide new insights into its form and function

Macrobius's Commentarii in Somnium Scipionis

The map's outline shows the shape and structure of the cosmos, and most of its inscriptions relate to the division of the celestial and terrestrial spheres into regions along lines of equal latitude, or parallels. Macrobius's *Commentarii in Somnium Scipionis*, written in the early fifth century, was among the most widespread and influential sources for information about the structure of the

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[8] *AÍ* II, 118, fn. 3.

[9] There are, according to Destombes, 40 such anonymous maps drawn before 1200, and a further 90 from the period up to 1500. Destombes, *Mappemondes*, 7.

[10] Ibid., 164.

[11] Simek, 'Cosmology,' 110.

[12] Simek, *Altnordische Kosmographie*, 70.

physical universe in the High Middle Ages, and provides explanations for the features on the Icelandic hemispherical world map. The *Somnium Scipionis* is the last part of Cicero's *De re publica* (54-51 BC), a dialogue on Roman politics in six books that relates the cosmic vision of the Roman military tribune Scipio Aemilianus. In a dream, Scipio's departed adoptive grandfather, Scipio Africanus, takes up the younger Scipio to look upon the cosmos, and take in the smallness of the world known to the Roman Empire. In his description of the cosmos, Cicero adapted the theories of Crates of Mallus (second century BC), a Stoic commentator on Homer who theorised that the world was divided into four inhabitable regions separated by an equatorial sea, which divided the world horizontally into its northern and southern hemispheres, and a meridional sea, which divided the world vertically into its eastern and western hemispheres (see figure 10, and discussion below).[13] The inhabitable part of the world known to the Roman Empire was but one of these four inhabitable regions, located in the earth's northern hemisphere. Ambrosius Aurelius Theodosius Macrobius (*c.* 395-436) authored a commentary on the *Somnium Scipionis*, in which he explained Scripio's cosmic vision in terms of the cosmographical theories of the fifth century. The manuscript transmission of the *Commentarii* demonstrates that its cosmographical contents were particularly valued. It circulated in two distinct versions: one complete, and the other an astronomical abridgement that enabled these contents to circulate independently.[14]

While it is clear that Macrobius was renowned as an authority in Iceland, it is not clear whether the *Commentarii* circulated in its entirety, or was known through paraphrases in encyclopaedias and *florilegia*. No complete text of the *Commentarii* survives in Icelandic manuscripts. However, there are a number of author attributions to Macrobius in Icelandic encyclopaedias, for example:

[13] Crates of Mallus's quadripartite globe is known to us through a description in the *Geographica* (2.5.10) of the Greek historian and geographer Strabo (64/63 BC – *c* 24 AD). On the so-called Cratesian division of the globe see Germaine Aujac, 'Greek Cartography in the Early Roman World,' *The History of Cartography* vol. 1: *Cartography in Prehistoric, Ancient, and Medieval Europe and the Mediterranean*, ed. J. B. Harley and David Woodward (London: University of Chicago Press, 1987), 161-176, esp. 162-64. For a more recent discussion of the implications of the Cratesian division for medieval representations of the antipodes see Alfred Hiatt, *Terra incognita: Mapping the Antipodes before 1600* (Chicago: University of Chicago Press, 2008), 17.

[14] On the manuscript transmission of the *Commentarii* and the independent circulation of its astronomical components see William Harris Stahl, trans. *Commentary on the Dream of Scipio* (New York: Columbia University Press, 1952), 16; and Alfred Hiatt, 'The Map of Macrobius before 1100,' *Imago Mundi* 59:2 (2007), 149-176, 154.

‘sva telr Makrobius’ (‘so says Macrobius’) and ‘Macrobius dicens’ (‘Macrobius says’),[15] in addition to references to his alleged works, such as the ‘tractatus philophie [*sic*] de spera.’[16] Macrobius did not write a work under such a title, and the reference seems to imply familiarity with an astronomical abridgement. However, such references demonstrate which authors and works the encyclopaedist thought he was familiar with, not necessarily those he had direct access to.

In explanation of the fifth-century cosmographical doctrines he evokes, Macrobius provides instructions for the drawing of four diagrams: the first shows the earth in its relation to the seven planets (1.21.3-5); the second shows how rain falls on the spherical earth (1.22.11-12); the third depicts the zonal divisions of the earth (2.5.13-17); and the fourth shows the correlation between lines of celestial and terrestrial longitude (2.7.3-6).[17] Because these diagrams are integrated into the text through the detailed instructions on how to draw them, they have been noted as remarkable for their consistency.[18] In addition to these four canonical diagrams, Macrobius alludes to a world map that shows the earth’s climatically optimal zones and onto which several cities and waters might be plotted.[19] Versions of this zonal map are preserved in thirty-five extant manuscripts of the treatise written before 1100, and 150 before the end of the fifteenth century.[20]

The Icelandic hemispherical world map bears a strong resemblance to Macrobius’s fourth diagram: the so-called celestial-terrestrial zone diagram (2.7.3-6).[21] The purpose of this diagram was to demonstrate that the zonal division of the sky described by Virgil in the *Georgics* (I.233) does not contradict

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[15] *AÍ II*, 239-242; 239-241.

[16] Ibid., 96-97, §§ 32-33.

[17] Hiatt, *Terra Incognita*, 49.

[18] Destombes, *Mappemondes*, 85. On the relationship between text and diagram in the *Commentarii* see Hiatt, *Terra Incognita*, 49.

[19] On this map, see Hiatt, ‘Macrobius.’ See also Konrad Miller, *Mappaemundi: die ältesten Weltkarten*, vol. 3: *Die kleineren Weltkarten* (Stuttgart: Roth, 1895), 122-26.

[20] Hiatt, *Terra Incognita*, 69, 153.

[21] This similarity was observed by Konrad Miller, who reproduces the central part of the Icelandic hemispherical map, the ecumene and antoecumene, in facsimile. See Miller, *Mappaemundi*, 3:125.

Cicero's description of the zonal division of the earth in the *Somnium Scipionis* (cited by Macrobius, 2.5.2). Macrobius explains that the parallels that delineate the regions of the sky on the celestial sphere (the convexity of the sky, upon which the motions of the planets are observed) are projected onto the terrestrial sphere in the same way that a large object is reproduced in a small mirror, on a smaller scale but in its correct proportions (2.7.3). Further, Macrobius adduces the differences in temperature and climate on the earth to the physical nature of the upper air, which is conducted to the portion of the earth directly below (2.7.2). The outline of this diagram (figure 5) clearly underlies the Icelandic hemispherical world map.

The text of the *Commentarii* contains detailed directions for the construction of this diagram, and Macrobius's definitions of its parts can enhance our understanding of the Icelandic map.

> Sed hic quoque adserendi quod dicitur minuemus laborem oculis subiciendo picturam. Esto enim caeli sphaera ABCD, et intra se claudat sphaeram terrae, cui adscripta sunt SXTV, et ducatur in caeli sphaera *circulus septentrionalis* ab I usque in O, *tropicus aestivus* a G in P et *aequinoctialis* a B in A et *tropicus hiemalis* ab F in Q et *australis* ab E in R; sed et zodiacus ducatur ab F in P; rursus in sphaera terrae ducantur idem limites cingulorum quos supra descripsimus in N in M in L in K.[22]
>
> (Once again, we shall lessen the difficulty of proving our point by using a diagram. Let the circle ABCD represent the celestial sphere, and include within it the circle SXTV representing the earth. Draw upon the celestial sphere the line IO to represent the Arctic Circle, GP to represent the Summer Tropic, BA to represent the Equator, FQ to represent the Winter Tropic, and ER to represent the Antarctic Circle. Then draw the zodiac line from F to P. Next draw upon the earth the same demarcations for the zones mentioned above, lines terminating at N, M, L, and K.)

These definitions of the diagram's parts enable us to identify the features common to both Macrobius's diagram and the Icelandic map. Both show the celestial sphere with the terrestrial sphere, the earth, at its centre. These spheres are encircled by five parallels of latitude: the two polar circles, the two tropics, and the equator. The zodiac inclines between the two tropics. However, unlike the Icelandic map the Macrobian diagram does not include a geographical nomenclature or divide the inhabitable northern quarter to show the positions of the three continents, and the text provides no instructions to do so. The

[22] Ambrosius Theodosius Macrobius, *Commentarii in Somnium Scipionis*, ed. J. Willis (Leipzig, 1963), 2.7.3-4. Emphases are my own.

Icelandic map is an expansion of the Macrobian template, into which these features have been incorporated.

The Macrobian template underwent many medieval revisions, through such intermediaries as William of Conches and Lambert of St Omer, whose maps show the certain influence of their Macrobian models. A further stage in the Icelandic map's history can be discerned through examination of these parallels, and the textual inscriptions they bear.

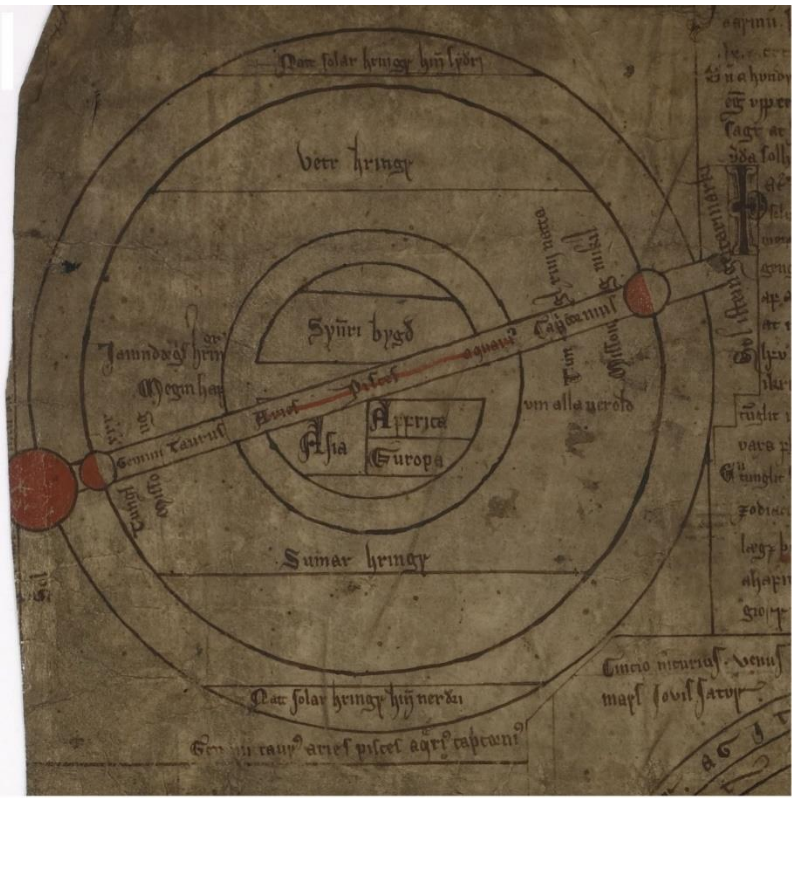

Figure 5: The celestial-terrestrial zone diagram from Macrobius's *Commentarii in Somnium Scipionis* (Cologne, Cathedral Library MS 186, f. 108v). Below, for comparison, the Icelandic hemispherical world map.

Parallels of latitude

The parallels of latitude are a prominent feature on the Macrobian diagram and on the Icelandic hemispherical world map. Although Macrobius's diagram does not incorporate any written inscriptions to name these parallels, they are named in the instructions on how to draw the diagram. Macrobius's instructions (2.7.3-4) name the Arctic Circle as the *circulus septentrionalis* ('northern circle') and the Antarctic Circle as and *circulus australis* ('southern circle'); the tropics as the *tropicus* (or *circulus*) *aestivus* ('summer tropic') and *tropicus hiemalis* ('winter tropic'), and the equator as the *circulus aequinoctialis* ('equinoctial circle'). These circles, or parallels, are markers by which to locate phenomena on the celestial sphere (equinoxes and solstices) and on the terrestrial sphere (the climatic distinctions between different inhabitable and uninhabitable regions). The parallels are defined in Macrobius's *Commentarii* (1.15.12-13), Isidore's *Etymologiae* (III.xliv), and Martianus Capella's *De nuptiis Philologiae et Mercurii* (8.818-822). The Antarctic Circle is the parallel south of which there is at least one twenty-four hour period of continuous daylight, and one twenty-four hour period of continuous night, per solar year. The Winter Tropic marks the most southern point at which the sun can be directly overhead: the sun is on this parallel on the winter solstice. The equator marks the point at which sun passes overhead at the two equinoxes. The Summer Tropic is the most northern point at which the sun can be directly overhead: the sun is on this parallel on the summer solstice. The Arctic Circle is the parallel north of which there is at least one twenty-four hour period of continuous daylight, and one twenty-four hour period of continuous night per tropical year.

The names of the tropics and the equator on the Icelandic map are calques or loan translations from Latin into Old Norse. Thus the Old Norse *vetr hringr* ('winter circle') and *sumar hringr* ('summer circle') are loan translations of the Latin *tropicus* (or *circulus*) *hiemalis* and *tropicus aestivus*, and the Old Norse *jafndægris hringr* ('equator') is a clear loan translation from the Latin *circulus aequinoctialis*. The Old Norse terms for the Arctic and Antarctic Circles alone, *nátt sólar hringr hinn nerðri* and *nátt sólar hringr hinn syðri* (the 'northern' and 'southern night sun's circle'), are not calques of Latin originals. Old Norse possessed its own name for the sun that shone at night, the *nátt sól*,[23] and combined it with the noun *hringr* to name the polar circles in analogy with the other parallels. This name also shows some degree of awareness of the astronomical circumstances that define the polar circles: the Arctic Circle marks the southern-most latitude in the northern hemisphere at which there is at least one day of continuous daylight (on the summer solstice) per solar year.

Although Macrobius's fourth diagram did not include a geographical nomenclature, the parallels are named on the zonal or hemispherical world maps derived from it. A number of such examples are preserved in the large illustrated encyclopaedia the *Liber Floridus*, completed in 1121 by the Flemish canon Lambert of Saint-Omer. Lambert of Saint-Omer (c.1050-1125?) seems to have been a canon at the church of Our Lady at Saint-Omer in Flanders. The autograph manuscript of this encyclopaedia (Ghent, University of Ghent Library, MS 92) comprises 287 numbered folios that contain a universal history, assorted items on natural philosophy, and genealogy, and fifteen maps and diagrams.[24] Simek suggests that the *Liber Floridus* is the most probable source for the Icelandic hemispherical map.[25] The map preserved on folio 227v (figure 6) bears a particularly strong resemblance to the Icelandic map, and can also be shown to derive from Macrobius's fourth diagram. In terms of its function, Lambert's map comes somewhat closer to its Macrobian antecedent than the Icelandic map. The map on folio 227v shows the northern and southern hemispheres studded with the constellations, the fixed stars that turn with the celestial sphere. The parallels are prominently marked with Latin inscriptions (see below) and in the spaces between them, the celestial and terrestrial zones they delineate.[26] Thus the map, like the diagram it is based on, shows that the division of both the

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[23] The phrase *nátt sól* has some currency in Old Norse outside astronomical literature; the agnomen Guðrún *náttsól* appears in *Njáls saga* (Ch. 58).

[24] The autograph Liber Floridus has been edited by Albert Derolez, *Lamberti S. Audomari Canonici Liber Floridus: Codex Autographus Bibliothecae Universitatis Gandavensis* (Ghent: Story-Scientia, 1968). Citations from the *Liber Floridus* are taken from this volume; page numbers refer to the text from the plates, which are transcribed at the back of this volume. An index to its contents is contained in Albert Derolez, *The autograph manuscript of the Liber Floridus: a key to the encyclopedia of Lambert of Saint-Omer* (Brepols: Turnhout, 1998). On Lambert's maps, see Miller, *Mappaemundi*, 3:43-53.

[25] Simek, 'Cosmology,' 110.

[26] Derolez, *Liber Floridus*, [98].

celestial and terrestrial spheres along the parallels was possible.[27] The Old Norse names of the parallels that appear on the Icelandic map can be compared with Latin equivalents on the map in the *Liber Floridus* on folio 227v.

Liber Floridus	*Icelandic map*	*Parallel*
[Circulus] australis	*Nátt sólar hringr hinn syðri*	*Antarctic Circle*
Tropicus hiemalis	*Vetr hringr*	*Winter Tropic*
[Circulus] aequinoctialis	*Jafndægris hringr*	*Equator*
Tropicus aestivus	*Sumar hringr*	*Summer Tropic*
[Circulus] septentrionalis	*Nátt sólar hringr hinn nerðri*	*Arctic Circle*

Here it can be seen more clearly that the Old Norse inscriptions are loan translations from Latin originals. Further, the *Liber Floridus* map shows that the names of the parallels had been incorporated into the Macrobian outline before the map had arrived in Iceland. The *Liber Floridus* map demonstrates that the Icelandic map was copied and translated from an earlier exemplar, rather than being an original composition.

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[27] Derolez, *Key*, 58.

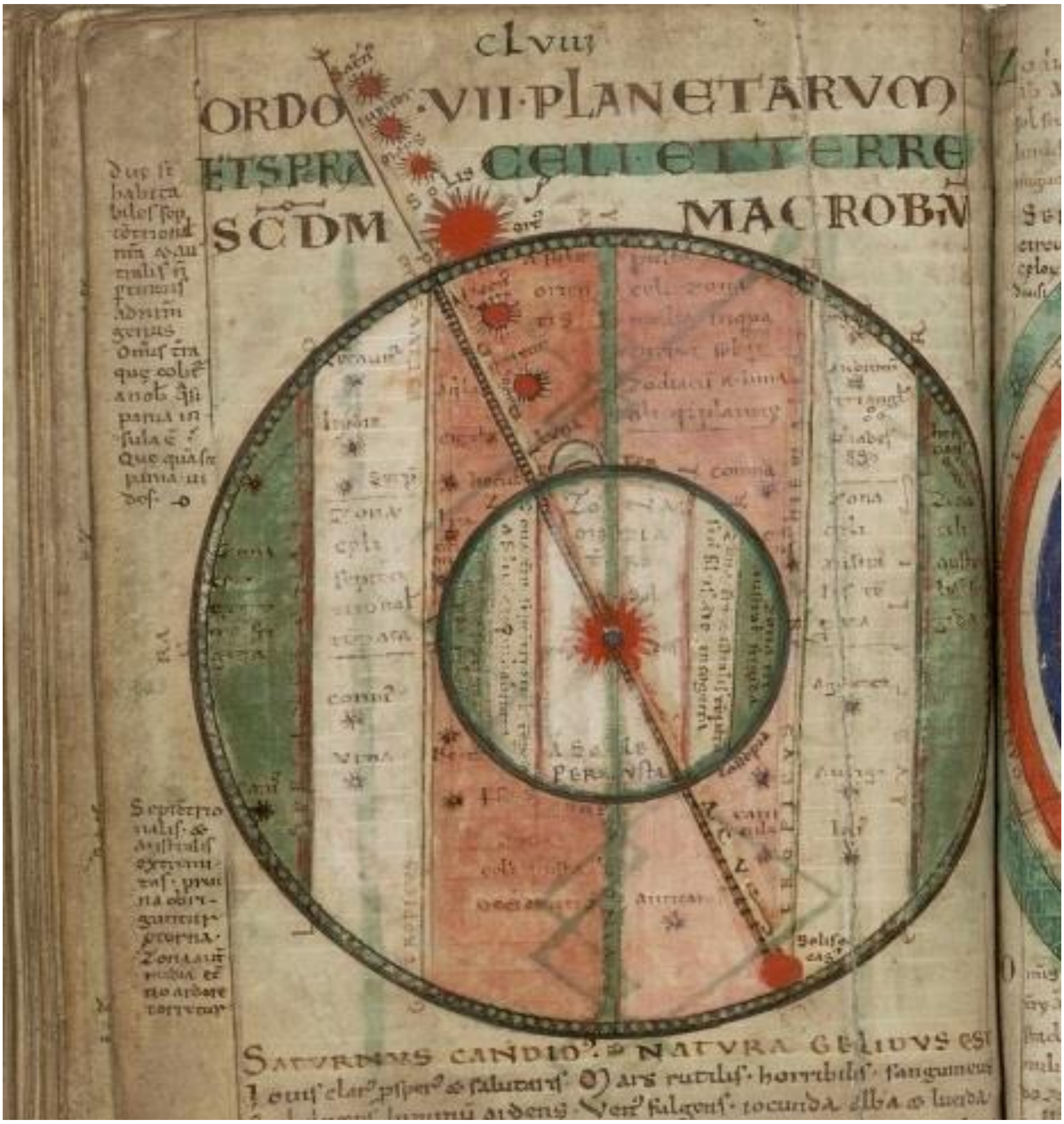

Figure 6: A hemispherical world map from the autograph *Liber Floridus*, modelled on Macrobius's fourth diagram. The *titulus* ‘ordo vii planetarum et spera celi et terre secundum Macrobium’ (‘order of the seven planets and the celestial and terrestrial spheres according to Macrobius’) indicates that the map’s purpose was to show the structure of the physical universe (Ghent, University of Ghent Library, MS 92, f. 227v).

The zodiac also features on the Icelandic map, and can be better understood with reference to Macrobius's description of it. Inclined across the map is a narrow band onto which six signs of the zodiac – Gemini, Taurus, Aries, Pisces, Aquarius and Capricorn – are named. The zodiac is the sequence of twelve constellations through which the sun moves on its apparent yearly orbit of the earth, and occupies the portion of the celestial sphere 8-9° north and south of the ecliptic. The ecliptic is the course taken by the sun through the middle of the zodiac belt, and is so called because an eclipse occurs when the sun and moon travel along this line at the same time. The map shows the sun in Cancer on the left of the map, where it rises on the summer solstice; and in Capricorn on the right of the map, where it rises on the winter solstice. The tropical signs (Cancer and Capricorn) are those in which the sun appears to stand still in its course around the earth and reverse direction, and contain the sun's course within their bounds: 'in utraque obviante solstitio ulterius solis inhibetur accessio, et fit ei regressus ad zonae viam cuius terminos numquam relinquit' ('the solstices lie on either side of the sun's path, preventing farther progress and causing it to retrace its course across the belt beyond whose limits it never leaves') (1.12.1). The six signs named within the band represent the course of the sun over the half of the year between the summer and winter solstices, centred on the vernal equinox, at which time the sun rises in Pisces.[28] The ecliptic inclines between the two tropics because the earth's orbit is not perpendicular to its celestial pole. In modern terms, we understand this is so because the earth tilts on its axis by 23.4°. However, the interpretation of this astronomical observation advanced by the map is that the plane of the ecliptic is set at an angle to the celestial equator. The zodiac therefore inclines between the tropics ('de tropic in tropicum zodiacus obliquatus est') (2.7.17).

The parallels and ecliptic on the Icelandic hemispherical world map have been poorly drawn. The ecliptic should extend between the two tropics, the *sumar hringr* and *vetr hringr*. On Macrobius's fourth diagram, the ecliptic inclines between points F and P, located on the winter and summer tropics respectively. Macrobius is explicit in his statement that the sun never deviates in its motions from the region between the two celestial tropics (2.5.11-15; 2.7.2-6). However, on the Icelandic map the ecliptic line falls considerably short of the

[28] John North, *The Fontana History of Astronomy and Cosmology* (London: Fontana Press, 1994), 259.

points at which the *vetr* and *sumar hringar* touch the celestial circle. Furthermore, while the names of the parallels have been written onto the 732b map, the lines have not been drawn. While the maps have been copied on the whole with a good degree of accuracy, such oversights evidence the mapmaker’s unfamiliarity with the finer cosmographical doctrines that, had it been drawn accurately, the map might have illustrated.

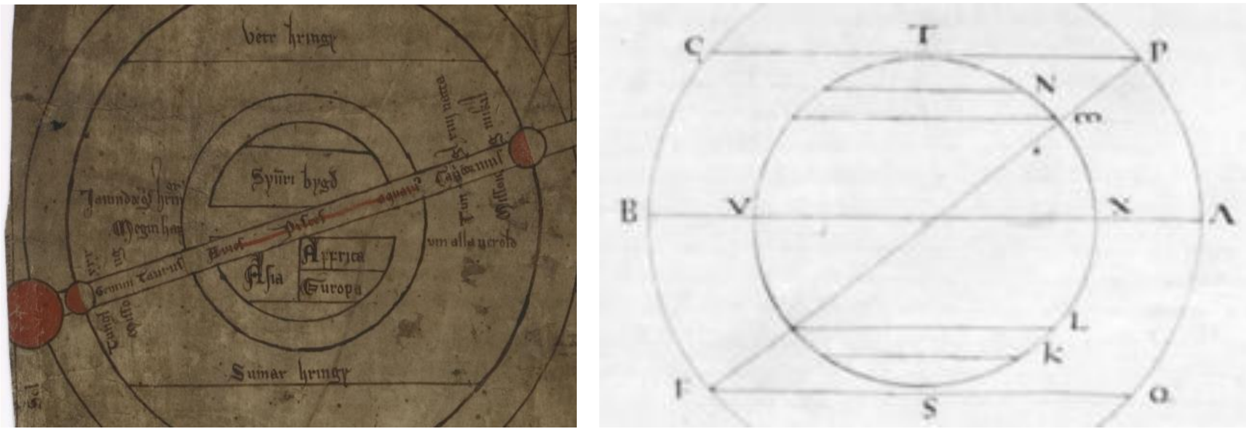

Figure 7: Compare the course of the zodiac or ecliptic on the Icelandic map and the Macrobian diagram. The ecliptic on the Icelandic map does not extend as it should to the two celestial tropics.

There is a further difference between the representation of the zodiac on the Icelandic map and on the Macrobian diagram. The zodiac is the only circle that Macrobius recognises as having breadth as well as length (1.15.8). Although the zodiac is represented on the fourth diagram as a single line, Macrobius explains that the zodiac is better imagined as bound by two lines that accommodate the constellations within: ‘quantum igitur spatii lata dimensio porrectis sideribus occupabat, duabus lineis limitatum est’ (‘two lines, therefore, bound the amount of space occupied by this belt with its spreading signs’) (1.15.10). Of the five maps preserved in the autograph *Liber Floridus*, three show the ecliptic. While the 227v and 228r maps show the ecliptic as a single line that connects depictions of the sun, moon, and other planets, the map on folio 24v features an ecliptic with breadth enough to accommodate the signs.[29] With the addition of the ecliptic, the number of lines used to represent the zodiac can increase to three: ‘et tertia ducta per medium ecliptica vocatur’ (‘in addition, a third one drawn through the middle is called the ecliptic’) (1.15.10). Thereby Macrobius demonstrates that the zodiac can be imagined as two or even three lines, but was spoken of as a single line by such authorities as Cicero: ‘quamvis

[29] Derolez, *Liber Floridus*, [10].

igitur trium linearum ductus zodiacum et claudat et dividat, unum tamen circum auctor voluit antiquitas' ('although three lines are required to bound and divide the zodiac, the men of antiquity, the authors of our vocabulary, wished it to be spoken of as one circle') (1.15.10). On the 736 I map (figure 7), a third line intersects the names of the zodiac written within this band. The line is drawn in the same red ink as the sun and the portion of the moon that faces it. It is possible that this line represents the ecliptic, the route taken by the similarly red sun through the zodiac. This third line is absent from the version in 732b. This additional red line might be understood as a visual exegesis on the map's form that shows the mapmaker's familiarity with Macrobius's extended description of the zodiac.

Figure 8: A zone map from the *Liber Floridus*. This map features a broad belt inscribed 'zodiacus… lacteus' ('zodiac … Milky Way') (Ghent, Ghent University Library, MS 92, f. 24v).

Ecumene and antoecumene

The ecumene and antoecumene are represented on the Icelandic map with a greater degree of detail than on the Macrobian diagram. The map shows the ecumene anatomised into the three continents, while the antoecumene bears an inscription that identifies it as the southern inhabitable land. These two landmasses are encircled by the meridional ocean and are separated from one another by the equatorial ocean. The 732b map contains a number of minor errors and omissions: it lacks the line that separates Africa and Europe, and that which marks the limit of the inhabitable climatic zone in the southern hemisphere. However, the ocean is coloured blue on the 732b map, which is a feature absent from 736 I.

Figure 9: Details of the terrestrial circles with their representations of the ecumene and antoecumene from the Icelandic hemispherical world maps: 736 I on the left, 732b on the right.

As mentioned previously, Cicero's *Somnium Scipionis* drew from the theory of the quadripartite division of the spherical earth promulgated by the Greek Stoic philosopher Crates of Mallus. The conjecture that the earth contained inhabitable regions unknown to the Roman Empire arose in late antiquity out of mathematical proofs of the earth's sphericity and size, which confirmed that the known world did not amount to its entire surface.[30] Macrobius explains the division of the earth into these four inhabitable regions by the circumambient equatorial and meridional oceans, whose intersection

[30] Hiatt, *Terra Incognita*, 14.

divides the earth's surface into four regions (2.9.5-6).[31] The hemispherical world map shows two of these inhabitable regions: the ecumene and the antoecumene; the earth's remaining two inhabitable regions are on the vertical hemisphere outside the map's purview.[32] The ecumene is not named the northern inhabitable region, as is sometimes conventional on maps of this type, but is instead divided to show the three continents. However, in the tidal note that accompanies the map, the northern inhabitable region is referred to twice as 'vorri byggð' ('our inhabited region'). The antoecumene is labelled *synnri bygð* ('southern inhabited land'), and the equinoctial ocean that separates it from the ecumene is labelled *megin haf* ('ocean', literally 'main sea', cf. *mainland*).

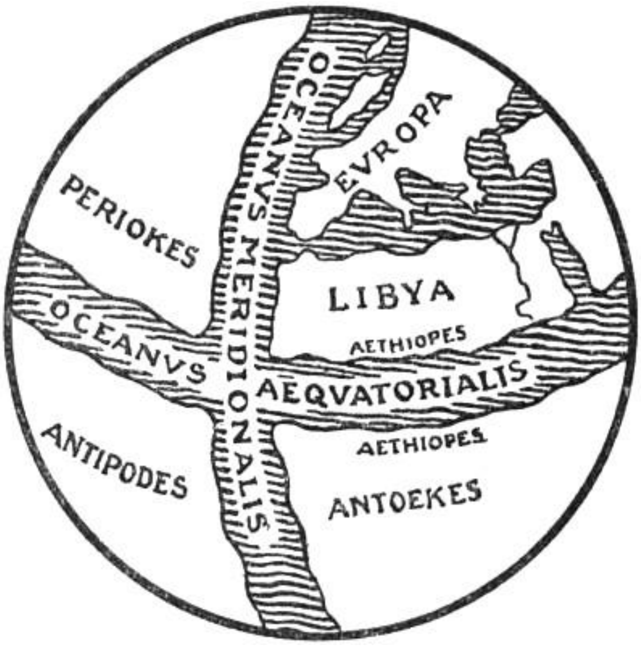

Figure 10: The globe as imagined by Crates of Mallus. Image reproduced in Fridtjof Nansen, *In Northern Mists: Arctic Exploration in Early Times* vol. 1, trans. Arthur G. Chater (London: William Heinemann, 1911), 79.

The antipodes are granted cartographic representation on five of the maps in the autograph *Liber Floridus*. Four maps, those on folios 24v, 92v-93r, 225r, and 227v, are marked with the inscription: 'zona terre Australis temperata sed filiis Ade incognita' ('the southern temperate zone unknown to the sons of Adam'), which references the temperate climate of this region in the southern hemisphere, a mirror image of the climatic zones in the northern hemisphere.

[31] This passage from Macrobius is paraphrased in William of Conches' *De philosophia mundi*, which exists in an Old Norse paraphrase and translation alongside the zone map presented in GkS 1812 I 4to. The Cratesian division is will be examined also in chapter 2 of this thesis.

[32] Martianus Capella, *De nuptiis Philologiae et Mercurii*, ed. James Willis (Leipzig: Teubner, 1983), 6. 604-05.

The map on folio 228r bears the inscription: 'temperata Australis habitabilis sed filiis Ade incognita' ('the southern temperate inhabitable zone unknown to the sons of Adam'), which further supplements the description with the Latin adjective *habitabilis* ('inhabitable'). Simek has identified the Old Norse inscription *synnri byggð* as a loan translation of the Latin *zona habitabilis*,[33] which sometimes labels the putative southern continent on Macrobian zonal maps.[34] The antipodes appear rarely in Old Icelandic literature. In *Alexanders saga*, mentioned in the introduction to this thesis, the antipodes are referred to as *annarr heimrinn* ('the other' or 'second world').[35] It seems that an inscription similar to the one on the 228r map underlies the Old Norse inscription.

The Latin *habitabilis* and Old Norse *byggð* are, however, imprecise equivalents: while the adjective *habitabilis* neutrally denotes inhabitable, but not necessarily inhabited, the noun *byggð* more firmly denotes inhabitation and human settlement. The noun *byggð* is related to the verbs *búa* ('to live') and *byggja* ('to inhabit' or 'settle'), as well as the noun *bygging* ('an inhabitation' or 'colonisation'). By contrast, its antonym *úbygðir* includes deserts, mountains, and wooded areas.[36] On the basis of these definitions, Simek has described the *synnri byggð* as 'one big inhabited island.'[37] On this point, however, we might call into question the familiarity of the Icelandic translator with the debates that surrounded antipodal inhabitation in the Middle Ages, an issue that divided medieval authorities. In the *Comentarii* (2.5.23-36), Macrobius allows that the earth's distant climatically optimal regions may be inhabited while in *De temporum ratione*, Bede discredits these notions as *fabulae*. In *De civitate dei* (*c.* 413-26), Augustine rejected the idea of antipodal inhabitation on theological grounds: if the earth's distant inhabitable regions are peopled but unreachable,

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33 Simek, *Altnordische Kosmographie*, 199.

34 Hiatt's study of the toponyms of Macrobian maps before the twelfth century has shown that the antipodes are more commonly referred to in terms of their inhabitants, the antipodeans. Inscriptions that refer to the climatic qualities of these regions, such as inhabitable or temperate, are rarer. See Hiatt, 'Macrobius,' 156.

35 David Ashurst, 'Journey to the Antipodes. Cosmological and Mythological Themes in *Alexanders saga*,' *Proceedings of the Eleventh International Saga Conference*, ed. Margaret Clunies Ross and Geraldine Barnes (Sydney: University of Sydney, 2000), 1-13, esp. 5.

36 This definition is supported by examples assembled in the *ONP*. See also Richard Cleasby and Guðbrandur Vigfússon, *An Icelandic-English Dictionary* (Oxford: Clarendon Press, 1957), 89.

37 Simek, 'Cosmology,' 110.

then Christ's injunction to the apostles to spread Christianity to all nations would be impossible.[38] Augustine's rejection of antipodal inhabitation was known in medieval Iceland through *Stjórn*, a collection of translated material from the Old Testament. In this work (Ch. 25) antipodal inhabitation is denied on the basis 'that no earthly person can go there from our inhabitable world because of the heat of the sun and many other impassable obstacles' ('at engin iarðneskr madr ma þagat komaz or uarri byggiligri uerolldu sakir solar hita ok margrar annarrar umattuligrar ufaeru'). The compiler of *Stjórn* further argues that 'all humankind is descended from Adam and all his descendants have settled these three named regions of the world [the three continents] and with them all the lands and countless islands that lie in the northern region' ('allt mannkyn er fra Adam komit ok allt hans afkuemi hefir bygt þessar þrennar fyrr nefndar heimsins haalfur medr þeim ollum laundum ok eyjum utöldum sem i nordrhaalfunni liggia').[39] If the Old Norse *synnri byggð* does imply certain inhabitation, then we might infer that the map's translator was unfamiliar with these debates.

Sun, moon, and tides

While a considerable proportion of the map's legends pertain to the tides, its function as an explication of tidal processes has garnered little attention. The Old Norse *missong* ('spring tide') appears twice on the map, in conjunction with its two representations of the moon. The full moon, which marks the middle of the lunation, after around fourteen nights, is shown on the right of the map: *tungl xiiij natta / missong mikil* ('moon [at] fourteen nights, high spring tide'). The new moon, which marks the end of one lunation and the start of another, approximately every thirty nights, is shown on the left of the map: *tungl xxx missong* ('moon [at] thirty [nights] / spring tide').[40] These inscriptions have no direct equivalents on the maps presented in the *Liber Floridus*. While a number of Lambert's maps show the *refusiones* ('tides') caused by the collision of the

[38] For a comprehensive account of late antique and early medieval theories about antipodal habitation see Hiatt, *Terra Incognita*, 38.

[39] C. R. Unger, ed. *Stjorn: Gammelnorsk Bibelhistorie fra verdens skabelse til det Babyloniske fangenskab* (Christiania: Feilberg & Landmarks Forlag, 1862), 99-100.

[40] Macrobius was interested in these points in the lunar month because they are the points at which a solar or lunar eclipse can occur, if the sun and moon travel along the ecliptic at the same time (1.15.10-11)

equatorial and meridional oceans,[41] there is no implication of the moon's involvement. The Icelandic map is preserved alongside an Old Norse note on the tides in both 736 I (on the same folio, folio 1r) and 732b (on the facing verso, folio 2v). This short text describes the augmentation and diminution of the tides as the result of the motions of the sun and moon. It culminates in the interpretative directive 'þessa hluti máttu gjör prófa í þessi figuru' ('this matter can be proven in this diagram'), which formalises the connection between the map and the tidal note and makes explicit the map's function as an illustration of these processes.[42]

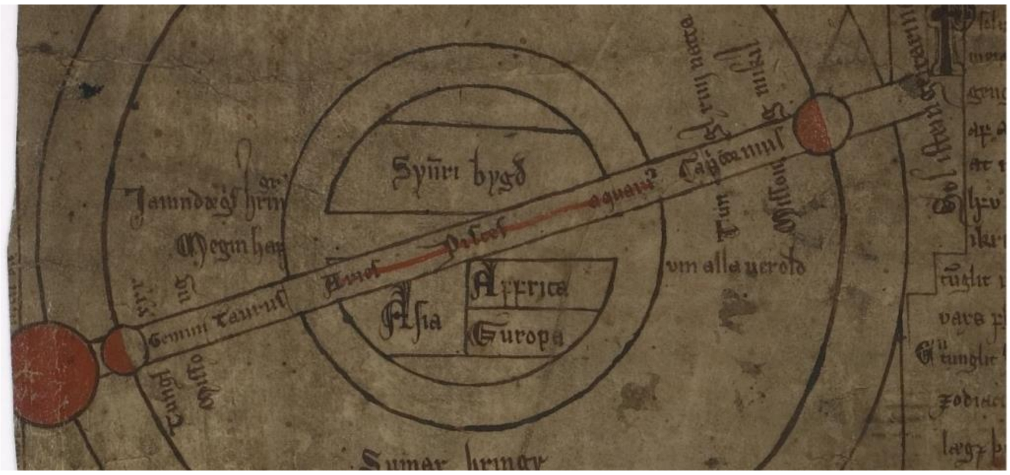

Figure 11: The new moon is shown on the left of the map alongside the inscription *tungl xxx / missong*; the full moon is shown on the right of the map, alongside the inscription *tungl xiiij nátta / missong mikil*. The sun and the portion of the moon that faces it are coloured red, so that the new and full moon can be easily distinguished.

Both the map and tidal note describe how the motions of the sun and the moon cause the augmentation and diminution of the tides.[43] Monthly variations are caused by the relative positions of the sun and moon in the sky, principally, those times at which the sun and moon are opposite one another in the sky (with the earth between them) and those times at which they are in the same part of the sky (together on the same side of the earth). These are the celestial

[41] The repeated inscription *refusio* features on the maps on ff. 24v, 225r, and 228r. See Derolez, *Liber Floridus*, [10], [94], [99].

[42] Any word meaning 'picture' could refer to a map. The term *figura* was used to designate a map in Classical Latin, and by the medieval period had come to signify a smaller illustration or diagram in the service of an accompanying scientific text. *Mappa* was not used in Classical Latin, where the preference was for *forma*, *figura*, *orbis pictus*, *orbis terrarum descripto*, *formula picturarum*. See Woodward, 'Medieval *Mappaemundi*,' 287; P. D. A. Harvey, *Mappa Mundi: The Hereford World Map* (London: British Library, 1996), 389.

[43] *AÍ* II, 117-118, §§ 67-68.

arrangements that produce the full and new moons respectively, and are clearly depicted on the Icelandic map (see figure 11). When the sun and moon are thus aligned their influences on the ocean are compounded, and produce high tides that are higher, and low tides that are lower, than average. This phenomenon is called the spring tide (Old Norse *missong*).

The tidal note further elaborates on the annual variation in the tides produced during the solstices and equinoxes, at which times the spring tides are greatest.

> Þa e*r* tungl isomu ætt af iorðu at lita 7 sol. En solin gengr iþ*vi* marki e*r* vær kaullum krabba mark 7 norðaz e*r* isolar hring minkaz meir en [vant] e*r* hiti solarin*n*ar i megin hafinu af [fiar]lægd solarin*n*ar. þ*vi* at zodiacus gengr en*n* af vestri iafnt iaustr sva sem megin hafit girðer irorðina. Heldr af ættingi vestrs 7 utsuðrs iætting æustrs 7 l*an*dnorðss. verða þa missaung at nyi meiri en aðr. 7 þa gengr ny hest sem sol af varri byggveligre halfu at sia. En þa e*r* tunglit stende gegnt solu i marci steingeitar. 7 solen e*r* ikrabba marci sem fyr gatu*m* vær gengr tunglit lægzt fullt. þ*vi*at þa gengr tu*n*glit iþvi marki e*r* sun*n*az e*r* izodiacus 7 fi[arlægaz] e*r* voRi bygð. 7 af nalægd tungls vaxa flæðar. þa e*r* solin gengr iruzt liki eða iskalamarki 7 jafndæg*ri* e*r* um alla ve*r*old Enntunglit stendr gegnt sol e*r*u missaung af vellu solar hita. þ*vi*at solin e*r* þa iþei*m* lut zodiaco e*r* iafnt stendr yfir megin hafino. þa gengr tungl hæst vaxanda. en lægz þu^e^randa. 7 þa e*r* ny verðr i þessum maurkum. skytur tunglit meire sinn e*r* vauku ahafit en vant e*r*. þ*vi*at þa stendr tungl gengr yfir hafino. þessa lute ma[tu] gior pda iþesse figuru.[44]
>
> (When the moon is seen from the earth in the same house[45] as the sun, and the sun goes into the sign we call Cancer and is in the north of its cycle, then the heat of the sun over the ocean lessens more than usual due to the distance of the sun,[46] because the zodiac extends even further to the west and east than does the ocean that encircles the world, extending rather from a west-south-westerly direction to an east-north-easterly direction.[47] The spring-tides then rise higher during the new moon than before. The moon is then seen to rise as high as the sun, in the region we inhabit. When the moon stands in the sign of Capricorn opposite the sun,

[44] *AÍ* II, 118-19.

[45] The 360° of the night sky is divided into twelve astrological houses (ON *ættingar*) of 30°, each assigned a zodiacal sign.

[46] The sun rises and sets to the north (*solin… nordaz er i solar hring*) in the half of the year centred on the summer solstice, during which there are longer days and shorter nights in the northern hemisphere. The summer solstice occurs when the sun is directly overhead the Summer Tropic, which is identified on the map.

[47] This confusing statement seems to describe the inclination of the zodiac, which is set at an angle to the celestial equator, under which the equatorial ocean flows.

> and the sun is in Cancer as we conjectured previously,[48] the moon becomes lowest in the sky. This is because the moon then goes into that sign which is south in the zodiac and farthest away from the lands we inhabit, and the tides increase due to the nearness of the moon.[49] Then the sun declines into Libra and above the equator, which is around all the world.[50] When the moon stands opposite the sun, spring-tides result from the boiling heat of the sun,[51] because the sun is then in the middle part of the zodiac which stands over the ocean. Then the moon becomes at its most waxed and least waned. And when it becomes new in this sign, it rises and is seen above the ocean more than usual, because then the moon moves above the ocean. This can be proved in this diagram.)

There are three verbal echoes between the tidal note and the map's written inscriptions, which are underlined in the passage above. These overlaps suggest either that the map derives its textually inscribed contents from the text, or that the two items were paired because of their shared vocabulary. Of particular interest is the connection between the map's *sól í steingeitarmarki* and the tidal note's 'sólu í marki steingeitar' ('sun in Caprincorn'). The map contains inscriptions for multiple signs of the zodiac. These are all in Latin except for this one, which formalises a connection between this map inscription and the tidal note. The position of the sun when it is in Capricorn (on the winter solstice) is identified in order to show the seasonal variations in the tides caused by the solstices and equinoxes.

The tidal note describes the midsummer springs that occur when the sun is in Cancer, and the equinoctial springs when the sun is in Libra. This is not the

[48] The note previously mentioned the position of the sun on the summer solstice when, in the northern hemisphere, the sun rises to its highest point in the sky, causing its influence on the equatorial ocean to lessen.

[49] These are the high or midsummer springs that occur around the summer solstice (when the sun in Cancer) when the moon is full.

[50] The sun is directly above the equator on the autumn equinox when the sun rises in Libra. Libra is named the scales, hence *skálamarki*, because the sun is balanced mid-way in its course in this sign. See Isidore of Seville, *Etymologiarum sive originum libri xx*, ed. W. M. Lindsay, 2 vols. (Oxford: Clarendon Press, 1911), III.lxxi.29.

[51] The verb *vella* ('to well over, to boil') frequently appears in Old Norse writings on the tides. This might originate in a translation from Latin, the noun *aestus* has the dual meaning of 'heat' and 'tide'. Another possible origin is Hermann of Carinthia's twelfth-century translation of Abū Maʿshar's *Introductorium in astronomiam* (III.5), which used the Latin verb *efferventes* ('to boil up') to describe the ocean's flow. See below for more details on the similarities between the tidal theory in Icelandic encyclopaedias and the *Introductorium*. See Charles Burnett, 'Does the Sea Breathe, Boil, or Bloat? A Textual Problem in Abū Maʿshar's Explanation of Tides,' *Mélanges offerts a Hossam Elkhadem par ses amis et ses élèves*, ed. Frank Daelemans *et al*. (Brussels: Archives et bibliothèques de Belgique, 2007), 73-79, esp. 76.

theory expounded by Macrobius. Most discussions of the tides in the works of ancient writers are cursory, since the tides in the Mediterranean Sea exhibit considerably less range than they do in the Atlantic Ocean.[52] Macrobius says little about the ocean's tides, but adduces their origins to the confluences of the equatorial and meridional oceans, as they appear on the Cratesian globe (2.9.1-4). William of Conches's chapter *De refluxionibus Oceani* (On the ocean currents) in *De philosophia mundi* (III.xiv) elaborates upon Macrobius, and illustrates these colliding oceans with a zonal map (see chapter 2 of this thesis). The aforementioned maps in the *Liber Floridus* similarly contain the repeated inscription *refusio* ('tide') at the intersections between the equatorial and meridional oceans.

The main proponents for the moon's influence on the tides are Bede and the ninth-century Persian astronomer Abū Maʿshar (Albumasar), whose works became available in the Latin West in the twelfth century. In *De temporum ratione* (Ch. 29), Bede revised and enlarged the earlier tidal theories of Pliny and seventh-century Irish cosmographers, and advances a theory, supported by observational evidence, that the moon was the principal influence on the ocean's tides. Bede's particular interest was in their periodicity, and in determining the precise figure for the daily retardation of the moon.[53] However, from the twelfth century onwards tidal theories were based primarily on Abū Maʿshar's (787-886 AD) *Introductarium in astronomiam*, a ninth-century Arabic text translated into Latin by John of Seville in 1133 and Hermann of Carinthia in 1140.[54] This treatise exerted considerable influence on later encyclopaedists and natural philosophers, including the prolific Bishop of Lincoln, Robert Grosseteste (1175-

[52] For example, the tides receive short shrift in Aristotle's *Meteorologica*, in which the ocean's ebb and flow is adduced to the size of the sound or basin into which the water flows. Aristotle, *Meteorologica*, Loeb Classical Library, trans. H. D. P. Lee (London: Harvard University Press, 1952), II.354a. See Marina Tolmacheva, 'Geography, Chorography,' *Medieval Science Technology and Medicine: An Encyclopedia*, ed. Thomas F. Glick, Steven Livesey, and Faith Wallis (London: Routledge, 2005), 186-191, esp. 188.

[53] North, *Astronomy and Cosmology*, 228. For a discussion of Bede's contribution to tidal science see the commentary in Faith Wallis, trans. *Bede*, *Reckoning of Time* (Liverpool: Liverpool University Press, 1999), 310-14; and Faith Wallis, 'Bede,' *Medieval Science Technology and Medicine: An Encyclopedia*, ed. Thomas F. Glick, Steven Livesey, and Faith Wallis (London: Routledge, 2005), 81-83, esp. 81.

[54] References to the Latin translation of Abū Maʿshar's *Introductorium* are taken from Hermann of Carinthia, trans. *Introductorium in astronomiam Albumasaris Abalachi octo continens libros partials* (Venice: Sessa, 1506).

1253).[55] In the *Introductorium* (III.6), Abū Maʿshar enumerated the causes of the tides and their seasonal variations in considerable detail and placed particular emphasis on the influences of the sun and moon upon them.[56] The Icelandic tidal note summarises how both the relative positions of the sun and moon and the moon's celestial latitude influence the ocean. The alignments of the sun and moon, in conjunction and opposition, are clearly depicted on the Icelandic map. Of these two alignments, Abū Maʿshar asserts that opposition exerts the stronger influence (III.6). This view is maintained on the Icelandic map, which contrasts the *missong* ('spring tide') produced when the sun and moon are in conjunction, with the *missong mikil* ('high spring tide') produced when they are in opposition.[57] The Icelandic tidal note further describes the moon's latitude, and its inferred proximity to the *megin haf* ('the equatorial ocean'). On the strength of the tides in the northern hemisphere, Abū Maʿshar maintains that 'quandiu luna in latitudine sua ascendit accessus vis augetur quandiu descendit recessus' ('when the moon ascends in its latitude its strength increases and when it descends it ebbs') (III.6). The implication, as understood by Edgar S. Laird, is that when the moon declines southwards it approaches the equatorial ocean, which increases its influence over the tides. The influence of Abū Maʿshar on the Icelandic tidal note appears certain but imprecise: the note contains an abbreviated overview of two of the causes for the tides outlined in the *Introductorium*, which were perhaps adapted from an encyclopaedic intermediary.

[55] Edgar S. Laird, 'Robert Grosseteste, Albumasar, and Medieval Tidal Theory,' *Isis* 81:4 (1990), 684-694, 684. For further information about Albumasar on the tides see Pierre Duhem, *Le système du monde. Histoire des Doctrines Cosmologiques de Platon à Copernic*, 10 vols. (Paris: Hermann et Fils, 1913-59), 2:369-386.

[56] Tolmacheva, 'Geography, Chorography,' 187.

[57] Grosseteste omits Abū Maʿshar's statement that opposition causes greater tidal range than conjunction from his paraphrase of it in *De fluxu*. The Icelandic encyclopaedias in which the tidal note appears, therefore, must have received their information about the tides from some other channel than *De fluxu*. See Laird, 'Medieval Tidal Theory,' 690.

Contexts: The hemispherical world map in AM 736 I 4to

In the previous section, I described the map's origins in Macrobius's fourth diagram, and its adaptation in the twelfth century by encyclopaedists such as Lambert of Saint-Omer. Comparisons between the map and its diagrammatic antecedents have called attention to the change in its function, from a visual statement on the relationship between celestial and terrestrial latitude, to an exposition on tidal phenomena. To this end, the Macrobian template was augmented with a suite of written inscriptions, originally in Latin and then translated into Old Norse. The remainder of this chapter aims to restore further this map to its manuscript contexts.

The version of the hemispherical world map preserved in 736 I is probably the elder of the two. The manuscript survives as a bifolium (measuring 27.2 x 22.7 cm) and contains items produced by two hands: the hand responsible for folios 1r-2r has been dated on palaeographical grounds to *c*. 1300, while the hand responsible for folio 2v dates to *c*. 1350. The other Icelandic manuscripts in which we find maps (AM 732b 4to and GkS 1812 III and I 4to) are large encyclopaedic compilations, and this bifolium was probably intended for inclusion in a similar encyclopaedia.

The bifolium contains the following items written in the earlier hand (*c*. 1300): a description of the three continents, sometimes called the Icelandic *Geographical Treatise* (f. 1r); a short Old Norse text on the three Biblical Magi (f. 1r); the hemispherical world map (f. 1v); an Old Norse note on the error in the Julian calendar (f. 1v); the Old Norse tidal note (f. 1v); a *rota* diagram that shows the orbits of the seven planets (f. 1v); and a circular map of Jerusalem (f. 2r). In a hand dated *c*. 1350, there is a description of the Church of the Holy Sepulchre and the environs of Jerusalem (f. 2v). A survey of these items will enable the uses to which the map was put to be better understood.

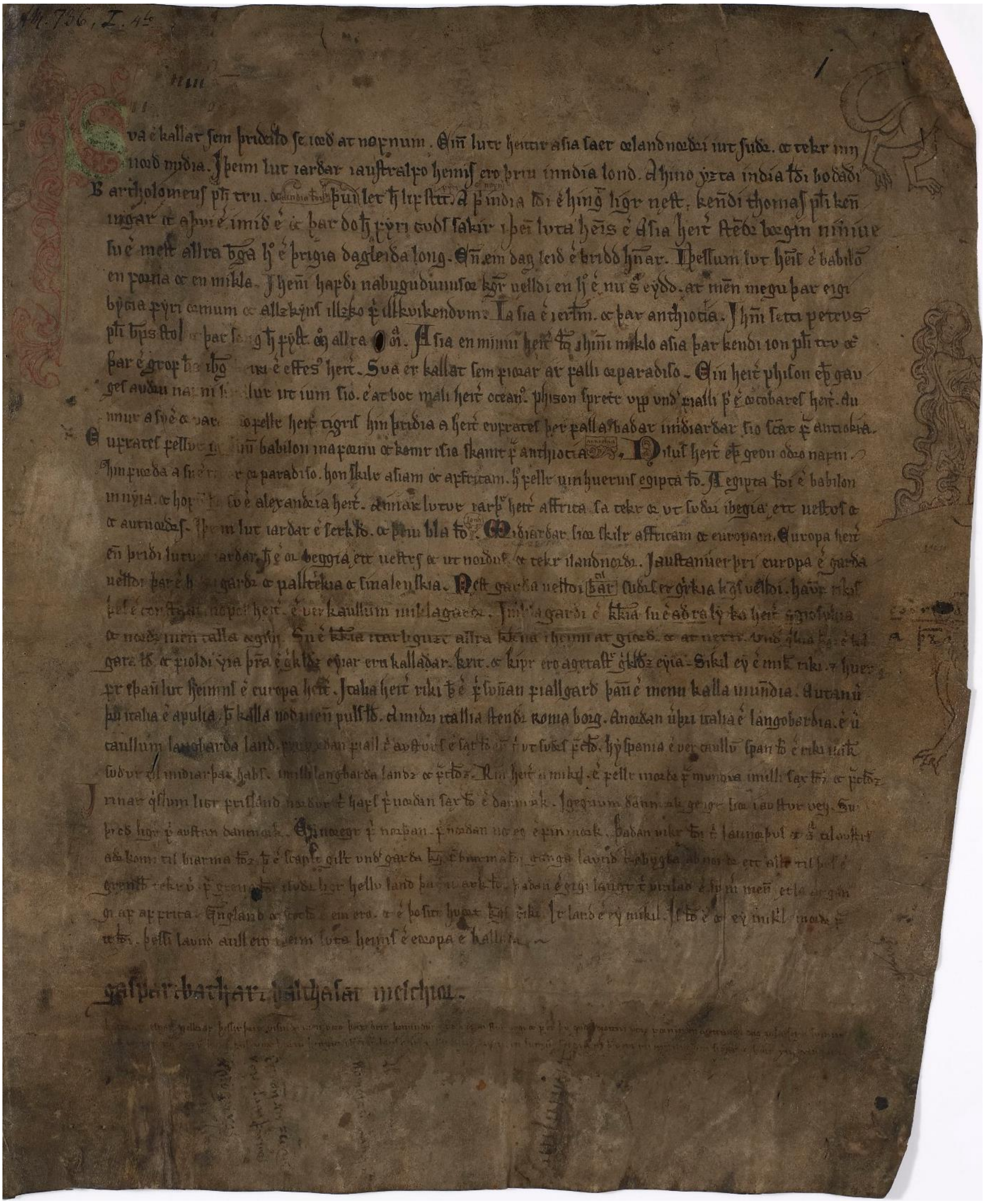

Figure 12: Folio 1r contains the Icelandic *Geographical Treatise* (top) and an unreadable text headed with the names of the three Biblical Magi (bottom) (Copenhagen, Arnamagnæan Institute, AM 736 I 4to, f. 1r).

Geographical Treatise

Overleaf from the hemispherical world map on folio 1r there is an Old Norse description of the three continents, sometimes called the Icelandic *Geographical Treatise*, which begins 'svá e*r* kallat sem þrideíld se íorð at nofnum' ('the three parts of the world are named thus').[58] The text describes the three continents of the ecumene – Asia, Africa, and Europe – and provides more than forty place-names that include regions, countries, cities, rivers, and mountains. Many of the treatise's traditional place-names can be extracted from the gazetteers preserved in works such as Eusebius's *Onomasticon*, Martianus Capella's *De nuptiis Philologiae et Mercurii*, and Isiodre's *Etymologiae*.[59] The treatise describes the approximate locations of cities such as Nineveh, Babylon, Antioch, and Alexandria, with occasional reference to the Biblical events that took place there. For example, 'Asia Minor is the name given to that land in Asia where John the Apostle taught religion, and there lies his grave, in a town there called Ephesus' ('Asia en mínni heit*ir* l*an*d ihin*n*i miklo asia þar kendi ion p*osto*li tru oc þar e*r* grof h*an*s ib*or*g þeiRi e*r* effes*us* heit*ir*'). Antioch is similarly celebrated as the place where 'Peter the Apostle established an episcopal seat and sang the first mass' ('setti petrus p*osto*li b*isku*ps stol oc þar song h*ann* fyst m*esso* allra m*anna*'); and Babylon as the place where 'King Nebuchadnezzar dwelt but it is now destroyed' ('hafði nabugudunusor k*onun*gr uelldí en h*on* e*r* nu s*va* eydd'). In its description of Europe, the treatise is characterised by a greater degree of topographical realism. For instance, England and Scotland are described as 'one island' ('e*i* eín') and Iceland as 'a large island to the north of Ireland' ('ey mik*i*l i nordr f*ra* irl*an*di'). The *Treatise* supplements the traditional view with information derived from observation, with details about Iceland, the North Atlantic, and Greenland (see the introduction to this thesis) unknown to Classical authors.

The combination of tradition and observation, sometimes called 'autopsy,' is best seen in those instances where Latinate or traditional place-

[58] For the *Treatise*'s textual history, see the introduction to this thesis. This entire folio was reproduced in a drawn facsimile in Rafn, *Antiqitates Americanae*, 502.

[59] Tenney observed that most of the information contained in the treatise about Southern Europe originated in Isidore's *Etymologiae*, however the works are of a vastly different scale and character, necessitating that the impulses that shaped the appropriation of those elements that were adopted is understood. See Frank Tenney, 'Classical Scholarship in Medieval Iceland,' *The American Journal of Philology* 30:2 (1909), 139-152, esp. 145-46.

names are placed in apposition with their vernacular equivalents. There are five such instances, introduced by the phrases 'sem vér köllum' ('which we call') and 'sem norðmenn kalla' ('which the Norse call'): 'ríkis þes er constantinopel heitir, er ver kaullum míklagarðr' ('that kingdom called Constantinople, which we call Miklagarðr'); 'agiosofia oc norðr menn calla agisif' ('the Hagio Sofia, which the Norse call Agisif'); 'apulía þat kalla norðmenn pulsland' ('Apulia, which the Norse call Pulsland'); 'langobardia, er uer caullum langbardaland' ('Langobardia, which we call Langbardaland'); and 'hyspania er ver caullum spanland' ('Spain, which we call Spanland'). Through putting these place-names in apposition, the Icelandic author of the treatise demonstrates to his reader that Icelanders participate in the European geographical discourses from which the imported Latinate place-names derive; the insistent repetition of the formula 'sem ver köllum' ('which we call') demonstrates that Icelandic locally-derived information is contiguous with, and can enrich, that which comes from Latinate authorities.

In recent years considerable attention has been directed towards the literary representation of space and the spatial traits of written texts. Geographical descriptions necessarily have tense and transformative relationships with the regions they describe. Martin Foys observes that the irregular contours of the landscape can put up a shapely resistance to linear narrative: 'writing can parse geographic representation, lexically breaking continuous terrain into small pieces of necessarily linear description.'[60] Evelyn Edson similarly notes that 'language... is especially unsuited to communicating about space, though rather better adapted to narrating events in time.'[61] These transformations are evident in the Icelandic *Geographical Treatise*. Firstly, world geography has been transformed into a linear sequence of place-names that traces a course from geographical remoteness to proximity. The *Treatise* begins with descriptions of the event-places of Biblical history and antiquity, which are located in Asia, and terminates in Iceland at Europe's outermost edge: 'Isl*an*d e*r* oc ey mikil inorðr f*ra* irl*an*di. þessi laund aull eru iþeim luta heims e*r* eoropa e*r* kalladr' ('Iceland is also a large island to the north of Ireland. These

[60] Martin K. Foys, *Virtually Anglo-Saxon: Old Media, New Media, and Early Medieval Studies in the Late Age of Print* (Gainesville: University Press of Florida, 2007), 120.

[61] Evelyn Edson, *Mapping Time and Space: How Medieval Mapmakers Viewed Their World* (London: The British Library, 1998), 49.

lands all are in that part of the world which is called Europe'). Secondly, the *Treatise* frequently subordinates geography to history, to the extent that many of the places described are terminally inaccessible, like Eden, or no longer exist, like Babylon. The *Treatise* also, therefore, moves from temporal remoteness to proximity: it begins its description with accounts from the lives of the apostles, and ends in Iceland at the site of its production and reception.

However, the *Geographical Treatise* is not entirely linear in its presentation, and visual features of the manuscript folio that accomodate it provide insight into the different ways in which its information might have been accessed. To make medieval texts' linguistic contents accessible, modern editions necessarily change their appearance. These changes to the presentation of a text, however, 'can make a subtle but powerful argument for its nature, history, and meaning, directing and in some cases determining the reader's response.'[62] Editors necessarily prioritise a work's linguistic contents over those elements of the manuscript folio that appear decorative. However, the innate materiality of the manuscript demands that such artefacts be viewed as 'material objects rather than just the linguistic phenomena we call texts.'[63] An examination of the folio that preserves the *Treatise* reveals that the text has a stronger visual element than might be supposed from a modern edition.[64] The text is rubricated in parts with pen decorations that throw certain parts of the *Treatise* into relief. Examination of these accentuations reveal all to be place-names. Through rubrication, pen ornamentation, or bold initials, the place-names *Indialand* (India), *Anthiocía* (Antioch), *Nilus* (Nile), *Blálönd* (North Saharan Africa), and *Miðjarðarsior* (Mediterranean Sea) are thrown into sharp relief against the surrounding text. All these place-names represent important locations. The *Treatise* tells us that India is where the apostle Bartholomew preached. The patriarchate of Antioch was an important crusader state and pilgrimage destination. The Nile was one of the four rivers that in *Genesis* is said

[62] R. M. Liuzza, 'Scribes of the Mind: Editing Old English in Theory and Practice,' *The Power of Words: Anglo-Saxon Studies Presented to Donald G. Scragg on his Seventieth Birthday*, ed. Hugh Magennis and Jonathan Wilcox (Morgantown: West Virginia University Press, 2006), 243-77, 252.

[63] Jerome McGann, *A New Republic of Letters: Memory and Scholarship in the Age of Digital Reproduction* (Cambridge MA: Harvard University Press, 2014), 24.

[64] This observation was made in my unpublished MA thesis, Dale Kedwards, 'Writing Geography in Medieval Icelandic Manuscripts: The Case of AM 736 I 4to' (MA diss., University of Nottingham, 2010).

to flow out of Paradise. The Mediterranean Sea is an important boundary that divides Europe and Asia that features prominently on medieval world maps. This programme of legends embedded into the text thereby throws a number of significant destinations into relief so that elements of the geography can be apprehended at a glance. These entry points enable a reader to contemplate important coordinates in the history of salvation, like Antioch or the mythical Christian kingdom of India, free of the encasing narrative.[65]

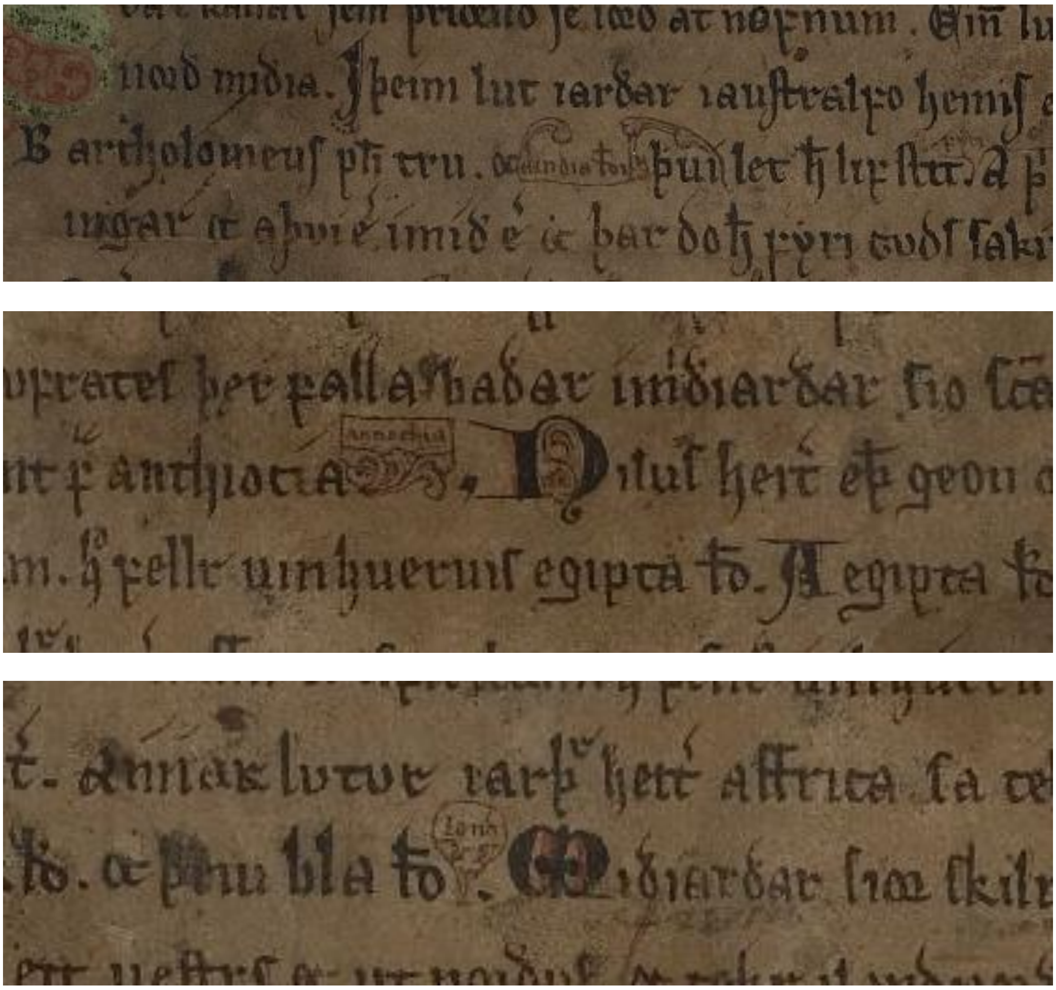

Figure 13: Details from the *Geographical Treatise*, as it is written in 736 I, show that aspects of the description can be apprehended at a glance (from top to bottom): 'á Indialandi' ('in India'); 'Antiochía' and 'Nilus' ('Antioch' and 'Nile'); 'l*ond*' and 'Miðíarðar sior' ('Saharan Africa' and 'Mediterranean Sea').

These embedded legends increase access to particular elements of the geographical description, as well as provide a visual index to its contents. In recent years, the contemplative functions of world maps and written geographies have occasioned considerable commentary. In certain contexts of usage, the

[65] Kedwards, 'Writing Geography.'

medieval world map can facilitate the *peregrinatio in stabilitate*, or the stay-at-home pilgrimage. Certain of the monastic orders took a vow of *stabilitas loci* that restricted travel away from the environs of the monastery or priory except by order of the abbot, because earthly travel could be seen as dangerous, costly, and contrary to the monastic way of life.[66] Geographical descriptions might have provided an opportunity for the sedentary scholar to enjoy vicarious encounters with the holy places of Christianity without having to leave the confines of the monastic library. The highly visible place-names embedded in the *Treatise* enable the reader to apprehend certain spiritual destinations at a glance and to transport themselves imaginatively to the *locus Sanctus*. This suggestion might be strengthened by the association between the *Treatise* (f. 1r) and the map of Jerusalem (f. 2r) and description of the Church of the Holy Sepulchre (f. 2v) preserved in the same bifolium (see below).

There are a number of verbal echoes between the *Geographical Treatise* and the hemispherical world map overleaf on folio 1v. The hemispherical world map contains a comparatively slender geographical nomenclature: its field of ecumenical representation extends only so far as the names of the three continents. The *Treatise*, which begins 'svá e*r* kallat sem þrideíld se íorð at nofnum' ('the three parts of the world are named thus'), adds detail to the map, which in turn locates the world described in the *Geographical Treatise* in its larger cosmographical context.

The Biblical Magi

Beneath the *Geographical Treatise* on folio 1r there are three lines of text headed with the title 'gaspar balthalar melchior' ('Caspar, Balthazar, Melchior'), the names of the three Biblical Magi mentioned in *Matthew* 2. 1-12. The text that follows is no longer readable. However, the role that the Magi might have played in this bifolium can be tentatively inferred through examination of this motif elsewhere.

What have the Biblical Magi to do with world geography? The Biblical Magi are distinguished astronomers and travellers from the east who come to

[66] For a discussion of the *peregrinatio in stabilitate* in Augustinian thought see Brouria Bitton-Ashkelony, *Encountering the Sacred: The Debate on Christian Pilgrimage in Late Antiquity* (Berkeley: The University of California Press, 2005), 111. For studies focussed on the means by which maps, particularly large monumental maps, enable contemplative pilgrimage, see Mittman, *Maps and Monsters*, esp. 31; and Edson, *Mapping Time and Space*, esp. 14.

Judea having observed the appearance of a new star, or a *nova*. The reason for the journey of the Magi and their number is explained in the Old Norse *Elucidarius*.[67]

> *Disciplus*: Hvi kallaði gvð til sin þria avstr vegs kononnga meðr fornum?
> *Magister*: Þvi at hann villdi til sin leiða alla þriðiunga heims sins Asiam ok Affricam ok Evropam ok goðverk.[68]
>
> (*Student*: Why did God call to himself the three eastern kings, with their gifts?
> *Teacher*: Because he wanted to lead to himself all the three parts of the world, Asia, Africa, and Europe, and good deeds.)

Thus the three kings figure as representatives for the three continents, which are described in the above *Geographical Treatise*. The text below the names of the Magi is unreadable, but might once have contained a similar statement about their representativeness of the three parts of the world.

This interpretation is strengthened through comparison with medieval maps and globes, on which the Biblical Magi frequently appear. They appear prominently on the Catalan World Atlas (*c.* 1375), commissioned by Charles V of France and generally attributed to the Catalan book illuminator Abraham Cresques,[69] and the chart produced by the Catalan cartographer Gabriel de Vallseca in 1439 (see figures 14 and 15). A survey of these appearances is beyond the purview of the present examination, but the abundance of examples demonstrates that the motif was an attractive one to medieval mapmakers. The Biblical Magi also appear on the anonymous chart in Florence, Biblioteca Nazionale Centrale di Firenze, portolan 16, *c.* 1440; and the chart produced by Juan de la Cosa in *c.* 1500 (Madrid, Museo Naval, no. 270); the Behaim Globe, produced at Nürnberg in 1492; and the Schöner Globe, produced at Frankfurt and Weimar in 1515.[70] The inclusion of this text on the three Biblical Magi in this bifolium, as well as the above maps and charts, was perhaps motivated by their

[67] The *Elucidarius*, attributed to Honorius Augustodunensis, was written in Latin in the early twelfth century and translated into Old Norse in the same century. It survives in several independent Old Norse translations.

[68] Evelyn Scherabon Firchow, ed. *The Old Norse Elucidarius* (Drawer: Camden House, 1992), 34-35.

[69] Patricia Seed, *Oxford Map Companion: One Hundred Sources in World History* (Oxford: Oxford University Press, 2014), 78-9.

[70] I am grateful to Gerda Brunnlechner for bringing these examples to my attention in August 2014, pers. comm.

associations with travel towards the Holy Lands venerated by Christianity, and their alleged role as representatives from the three continents.

Figure 14: The Biblical Magi following the star on the Catalan World Atlas (Paris, Bibliothequè Nationale de France, c. 1375).

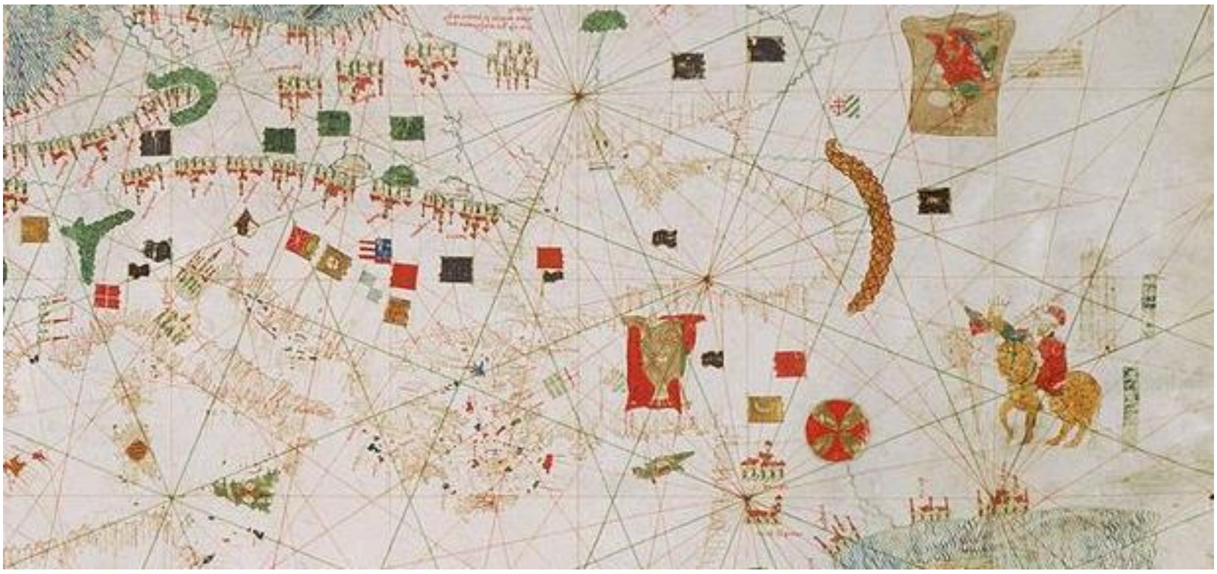

Figure 15: Vallseca's map of 1439, with the three Magi on the right (Barcelona, Museu Marítim de Barcelona, Inv. 3236, 1439).

Figure 16: Folio 1v contains the Icelandic hemispherical map alongside two texts: a note on the error in the Julian calendar, and the tidal note. In the lower register there is a diagram of the seven planetary spheres (Copenhagen, Arnamagnæan Institute, AM 736 I 4to, f. 1v).

The error in the Julian calendar

Overleaf from the *Geographical Treatise* and note about the three Biblical Magi, there is an assemblage of cosmographical texts and diagrams: the hemispherical world map, an Old Norse note on the error in the Julian calendar and Old Norse tidal note, and a diagram that shows the orbits of the seven planets. The note on the error in the Julian calendar is headed by the incipit 'Galtervus Meistari segir solar gang' ('Master Walter says about the course of the sun'), and calls to attention the disparity between the lunisolar and ecclesiastical calendars that formed the basis of computus.

> Meistari. Galt*er*us fan*n* þær. viij. moment*ur* e*r* skortir at solin gangi hring sin*n* a arinu. þær atta momentur takaz af. vi. stund*um* e*r* um f*ra*m e*r*u fim daGa 7 .lx. 7 ccc. þ*at* e*r* fullt solar ar. þessa atta momentur e*r*u a fim aru*m* ein stund. En*n* a hundraði tolfræþu e*r*u þ*at* stundir. xx. vij. þ*at* v*er*ð*r* dagr 7 nott 7 firi þvi at sadagr e*r* e*igi* upptekin*n*. þa þoka a solhvarf u*m*. ij. dogr ahundraði tolfræður. en þ*at* e*r* sanliga sagt at þa v*oro* solhvarf iola nott e*r* vaR drotin*n* v*ar* fædr. en siðan hafa sva þokat. at nu v*er*ða solhvarf hin*n* næsta dag ept*ir* magn*us* messo. I þan*n* tima v*ar* jons messo sol staða asumar. en*n* nu e*r* Idus Ivnij.
>
> (Master Walter discovered those eight moments[71] that are lost as the sun moves in its circle over the course of the year. Those eight moments are equivalent to six hours [*sic*], which exceed the 365 days of the full solar year. These eight moments equal one hour every five years, and twenty-seven hours [*sic*],[72] a day and a night, every 120 years. That day is then not used in calculation. Therefore, the solstice moves one day in every 120 years. It is said truthfully that there was a solstice on the night the Lord was born, but it has since moved so that now the solstice occurs the day after Magnúss messa.[73] At that time, Jóns messa[74] was on the summer solstice, but now it falls on the Ides of June.)

The medieval science of computus aimed to synchronise local and universal time, ensuring that movable feast days, most importantly Easter, were

[71] A moment (Latin *momentum*, Old Norse *momenta*) is a medieval unit of time equivalent to 1.5 minutes. Stephen C. McCluskey, *Astronomies and cultures in early medieval Europe* (Cambridge: Cambridge University Press, 1997), 150. Bede derives his understanding of the moment from Isidore's *Etymologiae* (5.29.1.). In *De temporum ratione* (Ch. 3) he states that: 'they name *momenta* after the swift motion [*motu*] of the stars, when it was observed that something moved and succeeded itself in a very brief space of time.' There are forty moments in an hour.

[72] In Kålund's edition, this figure has been silently corrected to twenty-four. *AÍ* II, 238.

[73] Magnúss messa, the feast day of St Magnús Erlendsson, Earl of Orkney (d.1115), falls on 16th April.

[74] Jóns messa, the feast day of John the Baptist, falls on 24th June.

celebrated simultaneously throughout Europe. Icelandic computus materials – calendars, Easter tables, and instructive texts on how to use them – are found in large anthologies modelled on European illustrated encyclopaedias, alongside other texts on subjects connected to the reckoning of time, such as mathematics, astronomy, and history. These educative volumes enabled the computist to enter Iceland into a clocked community whose observance of the liturgical calendar was consistent across Europe. A primary concern of the Icelandic encyclopaedia was thus the synchronisation of Icelandic and European perspectives, and the integration of Iceland into European Christendom. The Icelandic note on the error in the Julian calendar exemplifies this impulse towards reconciliation and inclusion. The note endows its observations about the disparity between the lunisolar and calendar years with a northern frame of reference through its use of a native saint's day to illustrate the retardation of the solstice: Magnúss messa, the feast day of St Magnús Erlendsson, Earl of Orkney (d. 1115). Such a combination of a universal theme with a local frame of reference recalls those instances in the *Geographical Treatise* where traditional place-names are not replaced but are set in apposition with their vernacular equivalents. This reference to St Magnús endows the astronomical observations attributed to Master Galterus an explicitly Northern European frame of reference, and thus aligns universal observations on the error in the calendar with the veneration of local cults.

Kålund conjectures that Galterus is a computist unknown outside Iceland, and notes that this observation is more commonly attributed to the computist Magister Chonrad, *c.* 1200.[75] There are two substantial errors in the note. The text states that Galterus discovered the eight moments that are lost over the course of the sun's annual revolution around the earth. This is incorrect, as the Julian year was in fact too long, not too short.[76] The Julian year comprised 365 days in which the changes of the seasons, the solstices and equinoxes, fell on fixed dates.[77] However, the solar year is a few minutes shorter than the 365.25 days for which the fourth year embolism, or leap year, was intended to

[75] *AÍ* II, 238 fn. 3.

[76] Ibid., 238.

[77] McCluskey, *Astronomies and Cultures*, 24.

compensate. As a result of the disparity between the lunisolar and calendar years, the Julian calendar gained, as the Old Norse text correctly asserts, around one day every 120 years. In the year 1200, the summer solstice was occuring ten days before it was being celebrated by the Church. Furthermore, the text carelessly states that there are twenty-seven ('xx. vij') hours in a day, which in Kålund's edition has been silently corrected to twenty-four.[78] Such errors tell us much about the manuscript's intended readership. The short astronomical notes on folio 1v are not sufficiently technical to train a cleric in computus. Confusions in the texts are likely indicative of the ability and education of the scribe, who was probably not a skilled computist. In the twelfth and thirteenth centuries, encyclopaedists sought 'to gather the knowledge of their time for non-specialist audiences.'[79] The brevity of this note, in addition to their substantive errors and their absence of technical detail, reveal it to be an introduction to the fundamental concern of computus, the disparity between the lunisolar and calendar years, for a non-specialist audience.

The seven planets

Below the notes on the error in the Julian calendar and on the tides is a *rota* diagram that shows the earth, inscribed with the names of the four elements and their qualities, amid the nested planetary spheres, which guide the orbits of the moon, Mercury, Venus, the sun, Mars, Jupiter, and Saturn around the earth.[80] This diagram locates the hemispherical world map, which concerns mostly the earth, moon, and sun, in its larger cosmographical context. The orbits of the sun: 'sol quarto celo collocatus zodiacum trecentis sexaginta .v. diebus & sex horis peragit' ('the sun stationed in the fourth heaven completes the zodiac in 365 days and six hours') and moon: 'luna primo celo collocatus zodiacum xxvij diebus & octo hore peragit' ('the moon stationed in the first heaven completes the zodiac in 27 days and eight hours') also add details about the durations of these planets' orbits that complement the main theme of the note on the error in the Julian calendar and the hemispherical world map: the courses of the moon and sun.

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[78] *AÍ* II, 238.

[79] Ribémont, 'Encyclopaedias,' 159.

[80] The contents of this diagram were edited in Simek, *Altnordische Kosmographie*, 418.

Figure 17: Folio 2r, which faces onto the hemispherical world map, contains a third circular diagram: a map of Jerusalem (Copenhagen, Arnamagnæan Institute, AM 736 I 4to, f. 2r).

Map of Jerusalem

On the recto that faces the map of the world there is a depiction if its centre, a map of Jerusalem. There are thirteen maps of Jerusalem in medieval European manuscripts, three of which are Icelandic. The Icelandic examples are preserved in the two manuscripts that contain the hemispherical world map, 736 I (f. 2r) and 732b (f. 8v), and *Hauksbók* (f.19r).[81] The three Icelandic examples are extremely similar and plainly derive from a single exemplar. Other maps of Jerusalem generally maintain the city's distinctive circular form and cruciform street plan, but vary stylistically and in terms of their textual contents.[82] Briefly, three of these maps are found in crusade chronicles that bear the title *Gesta* or *Historia Hierolymitana*; two are found in versions of the *Liber Floridus*; and five in psalters and theological compilations.[83] Elizabeth Ashman Rowe suggests that of these known contexts, the three Icelandic examples most likely derive from an encyclopaedic compilation akin to the *Liber Floridus*, since they are also preserved in illustrated encyclopaedias.[84]

The Icelandic map of Jerusalem contains Latin place-names for important sites in and around the city. Prominent buildings include the Dome of the Rock ('Templum Domini') and the Temple of Solomon ('templu*m* salomonis'). The map contains a single vernacular place-name, which again, like those in the *Geographical Treatise*, is placed in apposition with its traditional form: the vernacularized *Jorsalaborg* features prominently above *Jerusalem* at the map's centre.[85] The position of the map of Jerusalem in this bifolium is significant for its relationship with the two circular diagrams, the world map and planetary diagram, presented on folio 1v. The circular form of these three items invites comparison between them, and enable a viewer to locate the world,

[81] Finnur Jónsson, ed. *Hauksbók, efter de Arnamagnæaske Håndskrifter no. 371, 544 og 675, 40* (Copenhagen: Thieles Bogtrykkeri, 1892-96), 186.

[82] The Icelandic map of Jerusalem has been compared on stylistic grounds (the representation of battlements, the cruciform street plan) with the representation of Jerusalem near the centre of the English Hereford map. See Birkholz, *Two Maps*, 99.

[83] Simek, *Altnordische Kosmographie*, 70. See also Rudolf Simek, '*Hierusalem civitas famosissima*: Die erhalten Fassungen des hochmittelalterlichen *Situs Jerusalem* (mit Abbildungen zur gesamten handschriflichen Überlieferung', *Codices Manuscripti* 12 (1992), 121-151; and Miller, *Mappaemundi*, 3:61-67; and Seed, *Companion*, 48-9.

[84] Ashman Rowe, 'Perspectives,' 69.

[85] The vernacularized form does not appear on the version of the map in 732b.

described in the foregoing *Geographical Treatise*, in its wider geographical, cosmographical, and spiritual contexts.

The Topography of Jerusalem

On folio 2v, there is an Old Norse description of the interior of the Church of the Holy Sepulchre, its chapels and shrines, and their dedications. The description extends to the environs of Jerusalem, the valley of Josophat, and the Mount of Olives, as far as the River Jordan. The description of Jerusalem was not originally included in this manuscript, written in a hand dated *c.* 1300, but was added later in a hand dated *c.* 1350. The description has been identified as a fragment of the so-called *Leiðarvísir*,[86] whose principal witness is preserved in the small encyclopaedic manuscript in Copenhagen's Arnamagnæan Institute with the shelf mark AM 194 8vo, completed in 1387.[87] A colophon in this manuscript attributes the itinerary to an Abbot Nikulás, whose identity has been widely discussed.[88] The complete itinerary describes a journey from Iceland to Rome and Jerusalem alleged to have taken place in the middle of the twelfth century; however, Marani has shown that its compiler made extensive use of written sources, and that aspects of the itinerary would be anachronistic at this time.[89]An extensive literature surrounds the *Leiðarvísir* and the circumstances of its composition.[90] The extract included in 736 I, which describes mostly the Church of the Holy Sepulchre and the environs of Jerusalem, complements the cruciform map of the Holy city overleaf.

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[86] For a comprehensive and recent discussion of the *Leiðarvísir*, see Tommaso Marani, '*Leiðarvísir*. Its genre and sources, with particular reference to the Description of Rome' (PhD diss., University of Durham, 2012). Identifications of this fragment with the *Leiðarvísir* have been made in Simek, *Altnordische Kosmographie*, 479-90; and Benjamin Z. Kedar and Chr. Westergård-Nielsen, 'Icelanders in the Crusader Kingdom of Jerusalem: a twelfth-century account,' *Mediaeval Scandinavia* 11 (1978-9), 193-211. An overview of the evidence for Scandinavian participation in crusade and pilgrimage see P. Riant, *Expéditions et pèlerinages des Scandinaves en Terre Sainte au temps des Croisades* (Paris: Lainé et Harvard, 1865).

[87] This manuscript is edited in *AÍ* I, 54.

[88] Marani, '*Leiðarvísir*,' 9-16.

[89] On its dating see Kedar and Westergård-Nielsen, 'Crusader Kingdom,' 194-5, but especially recent discussion in Marani, '*Leiðarvísir*,' 233-35.

[90] The text was edited and translated into Latin in Erich Christian Werlauff, *Symbolas ad Geographiam Medii Ævi* (Copenhagen: Shultz, 1821), 56-59; and into German in Simek, *Altnordische Kosmographie*, 484-96. The *Leiðarvísir* were translated and their geographical contents glossed in Joyce Hill, 'From Rome to Jerusalem: An Icelandic itinerary of the mid-twelfth century,' *The Harvard Theological Review* 76:2 (1983), 175-203.

The preponderance of the excerpt written in 736 I relates to the interior of the Church of the Holy Sepulchre, which it names the 'pulcro' / 'pulkro k*ir*kia.'[91] The Church had been built in the 1140s and consecrated in 1149, and brought a number of the places traditionally associated with the Passion, including Calvary, Golgotha, and the place of the anointing, under a single roof.[92] The text describes important shrines and reliquaries inside the church. For example, the chapel of St Simeon is described on the south wall of the church, and a chapel is decribed whose altar holds the uncorrupted hand of the virgin Anastasia. Some chapels within the church are described in detail, for example: 'the chapel where the Lord's cross was found, and there are crosses incised into the marble floor where the cross lay' ('kapella þar fan*n*z kross drottin*n*s & e*r*o þ*ar* markaðir krossarn*ir* a golfinu a marmara steini se*m* krossarn*ir* lagu'); as well as the place 'where he was tortured, bound, and beaten, before he was fastened to the cross' ('e*r* h*ann* uar pindr bundin*n* & bardr aðr h*ann* u*eri* kross festr'), and where the crown of thorns is now kept. Through these descriptive vignettes, the physical description of the church and its environs becomes a framework into which narrative episodes from the Incarnation can be inserted. This also appears to be the case for the *Geographical Treatise*, whose topographical description permitted its author to relate events from the lives of the apostles.

That its geographical or topographical details provide a framework for other interests is further demonstrated by its 'constant preoccupation with distances and directions.'[93] Distances between chapels and altars in the church are measured in fathoms and sometimes footfalls. The author describes the thirty-one steps that take the pilgrim down into the undercroft from the southeast corner of the chancel at the Church of the Holy Sepulchre; and the fifty-three steps by which one enters the Church of Mary in the Valley of Josaphat, at its southern door. Directions are also described in personal detail, with chapels and architectural features frequently located in relation to the

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91 The word *pulcro* / *pulkro* is a near phonetic rendering of the word *sepulcro* which would likely have been used by locals and adapted by pilgrims to the Holy Lands. See Kedar and Westergård-Nielsen, 'Crusader Kingdom,' 200.

92 Tomasso Marani, 'Contextualising *Leiðarvísir*: Sant' Agnese, The Catacombs, The Pantheon and The Tiber', *Saga-Book* 33 (2009), 44-66, 47; Denys Pringle, 'Architecture in the Latin East 1098-1571,' *The Oxford Illustrated History of the Crusades*, ed. Jonathan Riley-Smith (Oxford: Oxford University Press, 1995), 160-183, 164.

93 Kedar and Westergård-Nielsen, 'Crusader Kingdom,' 203.

viewer with such personal orientational markers as 'on the right-hand-side' ('til hegri handar'). Because of this detail, the itinerary has often been interpreted as a text written for others to follow.[94] Practically, however, the description is of as little use to the itinerant pilgrim as the description of the three continents on folio 1r. The description's fastidious attention to detail makes it an unwieldy travel companion, but extremely useful to the sedentary scholar who intends to contemplate the Holy places venerated by Christianity.

The manuscript placement of the topography also appears to be motivated by a number of verbal echoes between it and the map of Jerusalem overleaf. Latin place-names common to the map and the written description are: *Loco Calvarie* (Calvary), *Templum Domini* (Dome of the Rock) and *Valles Iosafhat* (Valley of Josaphat), which is vernacularized in the written description to 'iosafaðs dalr.' The *Leiðarvísir* clearly complements the map of Jerusalem, but also has themes in common with the *Geographical Treatise*, among them a focus on Biblical history and their associated landmarks in the history of salvation.

Conclusion

The Icelandic hemispherical world map sustains a productive suite of relationships with its companion texts and images that has hitherto been unexamined. The foregoing discussion demonstrates, rather than assumes, that in this bifolium the map features in a compilation of geographical and cosmographical materials. The map accompanies the *Geographical Treatise*, whose description of world geography it locates in its wider cosmographical context. The *Treatise* describes the three continents of the ecumene, which might also have been the subject matter of the text about the Biblical Magi, whose roles as representatives of the three continents meant that they were frequently evoked in other cartographic contexts. The map shows the three continents as part of a wider geographical framework: the map and its companion notes pertain to the shape and nature of the physical universe. The map of Jerusalem and its counterpart written description provide a view of its spiritual centre and its significance.

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[94] Tore Nyberg, *Monasticism in North-Western Europe, 800-1200* (Aldershot: Ashgate, 2000), 223; Rudolf Simek, *Heaven and Earth in the Middle Ages: the physical world before Columbus*, trans. Angela Hall (Woodbridge: Boydell Press, 1996), 79.

On examination of this bifolium a pattern emerges in its arrangement of texts and diagrams. The *Geographical Treatise* ends with a description of Iceland, which it places at the *caput Europae*, as the northernmost European polity: 'Isl*an*d e*r* oc ey mikil inorðr f*ra* irl*an*di. þessi laund aull eru iþeim luta heims e*r* europa e*r* kalladr' ('Iceland is also a large island to the north of Ireland. These lands all are in that part of the world which is called Europe'). The hemispherical world map overleaf on folio 1v is oriented with south at the top, and therefore literally positions the reader on the northern fringe of the habitable world, with a vantage point that looks inwards from the north towards the map's centre. The map of Jerusalem on the facing recto represents a third stage in a narrative that focusses the reader's attention on the world's symbolic centre. A similar series of perspectives on world geography has been detected by Katharine Breen in a manuscript of Matthew Paris's *Historia Anglorum* (London, British Library, Royal 14.C.vii). This manuscript contains map of Jerusalem on folio 5r and a map of Britain (the earliest known) overleaf on folio 5v. The vivid colours in which Jerusalem is painted are visible through the parchment on the map of Britain, further linking these two maps so that 'one cannot be apprehended without the other.'[95] Breen argues that Matthew 'uses Jerusalem to sacralise the geography of Britain, and so makes it, for the first time, representable and usable.'[96] The geographical items assembled in 736 I might do something similar for Icelandic geography, through the creation of a vantage point from which Icelanders could view and venerate the Holy places of Christianity. This vantage point is not only cultivated by the arrangement of geographical descriptions in the bifolium, but also through their consistently northern frames of reference: their tendency to place traditional place-names into apposition with vernacular equivalents, and references to native saints' days. Its aim is the integration of Icelandic intellectual culture into European Christendom.

[95] Katharine Breen, 'Returning Home from Jerusalem: Matthew Paris's First Map of Britain in Its Manuscript Context,' *Representations* 89 (2005), 59-93, 62.

[96] Ibid., 61.

Contexts: The hemispherical world map in AM 732b 4to

Context plays an important role in the map's reception; it adjusts the reader's expectations of the map, or calls attention to particular features of its design. The map appears in a rather different context in 732b. This manuscript comprises nine folios (measuring approximately 13.5cm x 21cm) written in two hands. Folios 1r to 8v have been dated *c.* 1300-25, while 9r and 9v seem to have been written *c.* 1400.[97] The hemispherical world map is preserved on folio 3r. The version of the map in 732b (*c.* 1300-25) might be slightly younger than the version in 736 I (*c.* 1300).

Like the stray bifolium 736 I, this manuscript is also fragmentary. At least one quire is missing from the beginning of the manuscript: the text on folio 1r begins more than one page into an Old Norse account of the movement of the planets, an account that begins in the manuscript AM 624 4to: '[s]vo seiger Beda prestur' ('so says Bede the priest').[98] 732b contains texts in Old Norse and Latin on computus, cosmography, and astronomy.[99] The texts that accompany the map in 732b are not included in Simek's *Altnordische Kosmographie*.

There are a number of small differences between the two versions of the hemispherical world map. A number of these were outlined earlier in this chapter, on the maps' depictions of the parallels of latitude: the 732b map omits the line that divides Africa and Europe, in addition to the line that marks the southern limit of the inhabitable region in the southern hemisphere. Another difference between these two maps is their use of colour. In 732b, the ocean has been coloured blue. While the 736 I map generally features fewer omissions than the 732b map, its ocean has not been coloured. The use of colour on the 732b map does not indicate that its exemplar was coloured while the other version's was not; it might indicate that its copyist understood the map's iconography, and

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97 The most up-to-date general description of this manuscript accompanies the edition of the Latin skaldic stanzas preserved in its pages. See Grove, ed. Anon *Eccl* 1-2, 471.

98 *AÍ II*, 85

99 Although its contents have not been edited in their entirety, 732b appears in the variant apparatus of Kålund's edition of AM 624 4to (aforementioned because it contains the Old Norse note on the error in the Julian calendar and tidal note). *AÍ* II, 81-178. Its contents are described in *AÍ* III, ix-x. Its ciphered material is edited alongside that from the Codex Uppsaliensis in Finnur Jónsson, ed. 'Lønskrift og lejligedsoptegnelser fra et par islandske håndskrifter,' *Småstykker 1-16* (Copenhagen: S.L.Møllers, 1886), 185-194. 732b is notable for preserving the only two known examples of Latin poetry composed in skaldic meters, Grove, ed. Anon *Eccl* 1-2.

was able to elaborate upon a monochrome exemplar independently.[100] The copying of these maps can therefore be seen as a creative enterprise; differences between versions of the same map need not be framed in terms of accuracy or correctness, but can also be seen as purposeful decisions to enlarge, reduce, or redefine the map's contents. This can be seen in another significant difference between the two versions of the map, their orientations. The 736 I map places south at the top. However, while the legends on the 732b are written to be read with south at the top, the map has been placed on the manuscript folio with east at the top, so that its inscriptions have to be read on their sides from the perspective of the reader. It is not clear whether this change in orientation is an effect of design or accident. It is possible that the compiler of 732b reoriented the map to place east at the top, in analogy with other maps known to him, in the tradition of other monastic map makers who sought to venerate the Holy places of the east.[101]

The main point of difference between the two versions of the hemispherical world map stems from their contexts. Both examples of the map are preserved in association with the note on the error in the Julian calendar and a tidal note. However, their respective relationships to these texts, as will be shown below, are different. The map's context in 732b places stronger emphasis on the lunar and solar cycles, and their implications for the calendar. The map's contribution to 732b can be understood through an examination of these texts.

The tides

The Old Norse text that begins *in medias res* on folio 1r describes how conjunctions of the sun and moon produce the tides. [102] Its contents are broadly similar to those summarised in the tidal note, discussed earlier in this chapter, and describe the cycle of *missong* ('spring tides') *meðaldagar* ('neap tides')

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[100] The use of colour made its way into map production early, but its use was rare. See Ulla Ehrensvärd, 'Colour in Cartography: A Historical Survey,' *Art and Cartography: Six Historical Essays*, ed. David Woodward (London: University of Chicago Press, 1987), 123-146, 126.

[101] A. G. Hodgkiss, *Understanding Maps: A Systematic History of their Use and Development* (Folkstone: Dawson, 1981), 29.

[102] *AÍ* II, 87-88, §§ 14-15.

produced by the motions of the sun and moon.[103] The spring and neap tides were postulated by Bede in *De temporum ratione* (Ch. 29), to whom the treatise is attributed in its opening lines (missing from the 732b version of the text).[104] The text then focusses on the solar cycle and measurements of ecliptical longitude, with notes on how many degrees along the ecliptic the sun moves each day following the solstice.[105]

This treatise on the tides does not draw the entirety of its information from Bede, but cites the observations of other astronomers, including the ninth-century computist Helpericus and the Icelandic computist Bjarni Bergþórsson (d. 1173). The text describes the old Roman calendar and the Julian innovations of the golden numbers, epacts, and embolisms.[106] The text defines these terms and explains the need for the epact to be corrected by one day every nineteen years in order for the cycle to repeat, resulting in a *tunglhoppun* (the *saltus lune* or leap moon). Although the treatise cites Helpericus's *De computo* as its authority, [107] it is not a direct translation but a free and independent summary that cites the observations of other computists. To complement Helpericus's definitions, the text cites the calculations of the length of the lunar month made by the Icelandic priest and computist Bjarni Bergþórsson, with the agnomen 'enn tölvísi' ('the computist').[108] The text further explains lunar retardation and the intercalary leap moon in its explanation of the tides.[109] The text concludes with observations on the points of the lunar year when the moon is highest (at Christmas) and lowest (at Jóns messa), and whether there will be a spring or a

[103] The neap tides are those that occur at five and eleven nights into a lunation, at the midpoints between the full and new moons. At these times the tidal forces are weakest and produce the least tidal range.

[104] *AÍ* II, 89, § 18.

[105] Ibid., 91, § 19.

[106] The *aureus* or *golden number* is the number between one and 19 that marks the position of the year in the 19-year Metonic or Paschal cycle. Every 19 years, the lunar year and solar year achieve parity and begin on the same day. The *epact* refers to the age of the moon (from one to 30 days) on the 1st January in any given year. The *embolism* refers to the intercalary lunation inserted to keep the lunar year in sync with the solar calendar.

[107] *AÍ* II, 92, fn.1. Helpericus's works make several appearances in Icelandic encyclopaedics (see chapter 2). On Helpericus's contributions to medieval astronomy see Duhem, *Le Système du Monde*, 3: 71-76.

[108] *AÍ* II, 92-93, §§ 20-22.

[109] Ibid., 95, § 27; 95, § 28.

neap tide on these dates.[110] The recombination of sources evident through these author references demonstrates that the tidal notes and observations assembled here were adapted from an encyclopaedia or *florilegium*.

The calendar

Besides the focus on the tides in this encyclopaedia, which is the main focus of the texts assembled on folio 1r, there is an interest in the calendar. Folio 1v contains a Latin explanation of the determination of the date of the Paschal full moon, read from certain 'epistolis Grecorum' ('Greek letters'), in which it is described how God revealed the epact table below to the fourth-century Saint Pachomius.[111] Below this note is a nineteen line alliterative poem in Latin, a mnemonic device to recall the dates of the Paschal full moon. The first half of each line gives the date of the Paschal full moon for each year in the nineteen-year cycle. The second half gives the *ferial regular* (weekday displacement) of the Paschal full moon from the concurrent (the weekday of 24th March).[112] The ferial regular is repeated in Roman numerals in the third column. The poem is well known, and probably dates to the late fifth century.[113] Common and embolismic years are marked *concurrents* and *embolismic*.[114] The poem is written out twice in two columns: once with Roman numerals, and again with Arabic numerals for the ferial regular. Beneath the table is an Old Norse note on how to count the year from the creation of the world,[115] and Old Norse notes on the disparity between the lunar and solar years, the concurrent, and the indiction cycle (a 15-year cycle developed by the Romans for taxation purposes). These latter two notes have been identified by Kålund, but have not been edited.[116] The texts assembled on this folio are disparate but thematically contiguous, and culminate with the Old Norse note on the error in the Julian calendar attributed

[110] *AÍ* II, 96, § 32.

[111] Ibid., 235-236.

[112] When the embolism occurs in March (in the 8th and 19th years of the Paschal cycle) Paschal reckoning will be affected. See Wallis, *Bede: The Reckoning of Time*, xlvi.

[113] Wallis, *Bede: The Reckoning of Time*, xlvii, fn. 73.

[114] *AÍ* II, 236-237.

[115] Ibid., 125.

[116] Ibid., 273.

to Meistari Galterus, also preserved in association with the Icelandic hemispherical world map in 736 I.

The twelve winds

On folio 2r there is a wind diagram that shows the twelve winds and the directions with which they are associated. Below the diagram, there is a text about the winds excerpted from Isidore's *Etymologiae* (XIII.xi.3-18) that extends to folio 2v. Previously, it has been demonstrated that thematic parallels or verbal echoes have motivated the collocation of texts and diagrams in an encyclopaedic context. However, there is here a discrepancy between the diagram and the text it appears to illustrate. While the text has been excerpted from the *Etymologiae*, the names of the winds on the diagram are slightly different, and originate in Bede's *De natura rerum*.[117] This discrepancy is a salutary reminder of the processes of combination and recombination of sources that produce the medieval encyclopaedia.

[117] This is the only wind diagram preserved in Icelandic encyclopaedics. This wind diagram and the extract from Isidore's *Etymologiae* it accompanies are given extensive treatment in Dale Kedwards, 'Wind Diagrams in Medieval Iceland', *Quaestio Insularis* 17 (forthcoming, 2015). The names of the twelve winds are disposed around the larger Viðey map, and will be described in greater detail in chapter 5.

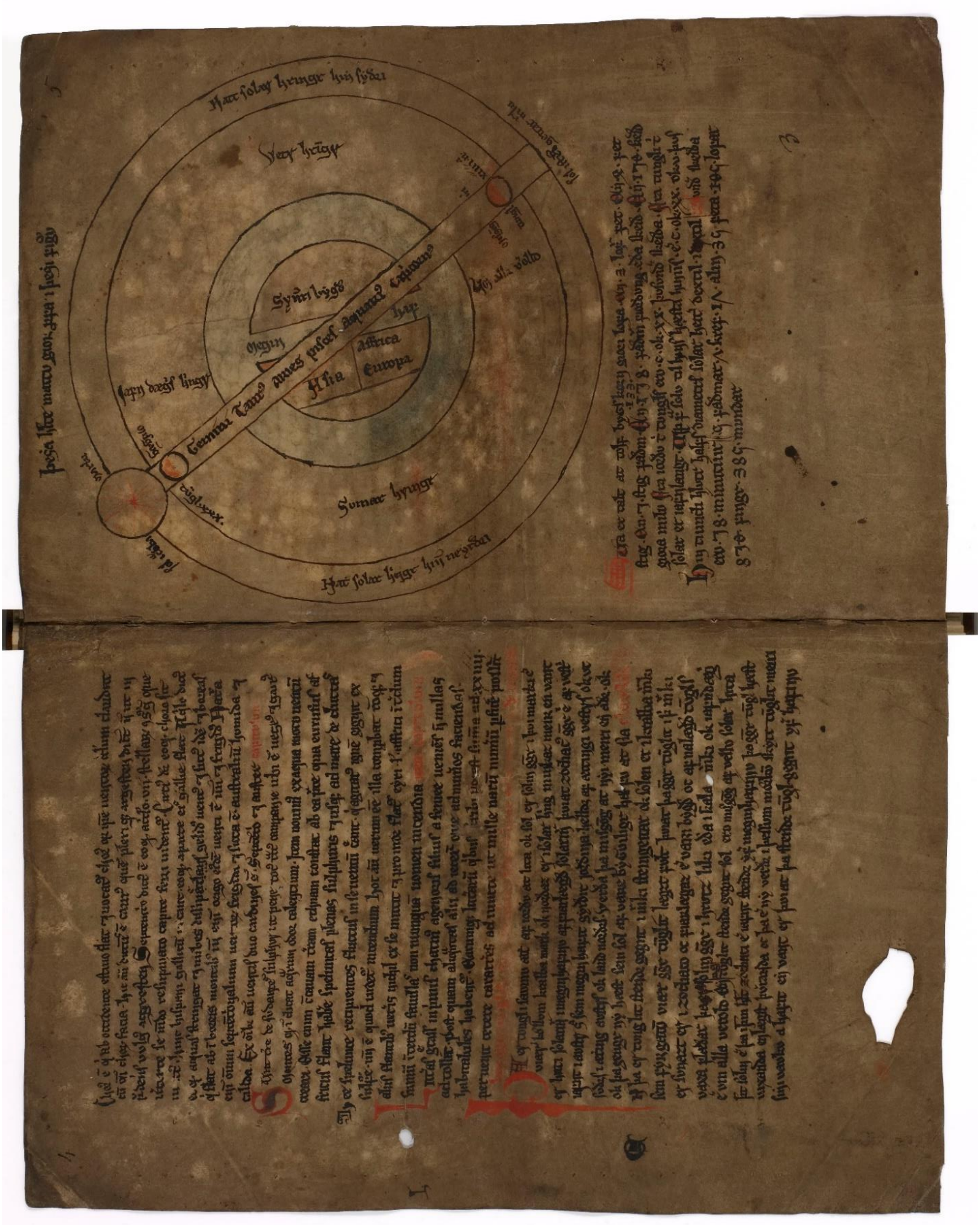

Figure 18: Folios 2v and 3r contain the conclusion of the extract from Isidore's *Etymologiae* (*De ventis*) and the Old Norse tidal note, opposite the Icelandic hemispherical world map.

The tidal note

Folio 2v concludes, after the extract from the *Etymologiae*, with the Old Norse tidal note, which is presented opposite the hemispherical world map on the facing recto. It is separated from the excerpt from the *Etymologiae* above by a rubric that marks chapter divisions.[118] This rubric is faded and no longer readable. What is interesting about the relationship between the tidal note and the map in this manuscript is the position of its final line, which in the 736 I text was the interpretative directive 'þessa hluti máttu giọr prófa í þessi figuru' ('this matter can be proved in this diagram') that connected the subject matter of the tidal note directly to the map. In 732b, this line does not follow on directly from the note; instead, it has been separated from the its main body and assigned to the top of folio 3r, where it is centred and placed immediately above the map. The relocation of this line strains its connection to the tidal note, and therefore the connection between the tidal note and the hemispherical world map, which in 736 I was explicit.

The realignment of this directive can have implications for what we perceive the 'hlutr' ('matter') of the map to be. Below the map on folio 3r there is an Old Norse note on the distances between the earth and the moon, and the moon and the sun,[119] with an unedited Old Norse note on the diameter of the sun, with Latinate metrological vocabulary.[120] The map thus appears in manuscript alongside notes on the sizes and distances between the earth, moon, and sun; planetary bodies prominently depicted in their relations to one another on the hemispherical world map. On examination of the map's most immediate context, folio 3r, the 'matter' proved by the map might be the relative dimensions and organisation of its parts. This perhaps depends on the level of the reader's engagement with the wider encyclopaedia. It seems more credible that the focus on the tides in 732b conditions the map's reception as an illustration of the tides.

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[118] The extract from the *Etymologiae* is not a complete chapter. The chapter divisions refer to the encyclopaedia's own structure.

[119] *AÍ* II, 239. The origins of this figure, given as 120,000 states between the earth and moon and a further 120,000 thence to the sun, is not clear. Macrobius affirms that the sun is twice as far from the earth as the moon (2.3.14). Pliny states in the *Historia Naturalis* that the distance between the earth and moon was 126,000 stades, a figure he attributes to Pythagoras (II.19). On the distance between the planets, see Duhem, *Le Système du Monde*, 2:11-20.

[120] The origins of this figure are likewise uncertain. However, it does fall in the range described by Stahl. On estimates of the sun's apparent size, see Stahl, trans. *Commentary*, 253.

The notes on the earth, moon, and sun seem to have been selected and combined with the map to add quantitative detail to the previous discussion, which was concerned with the motions of these parts.

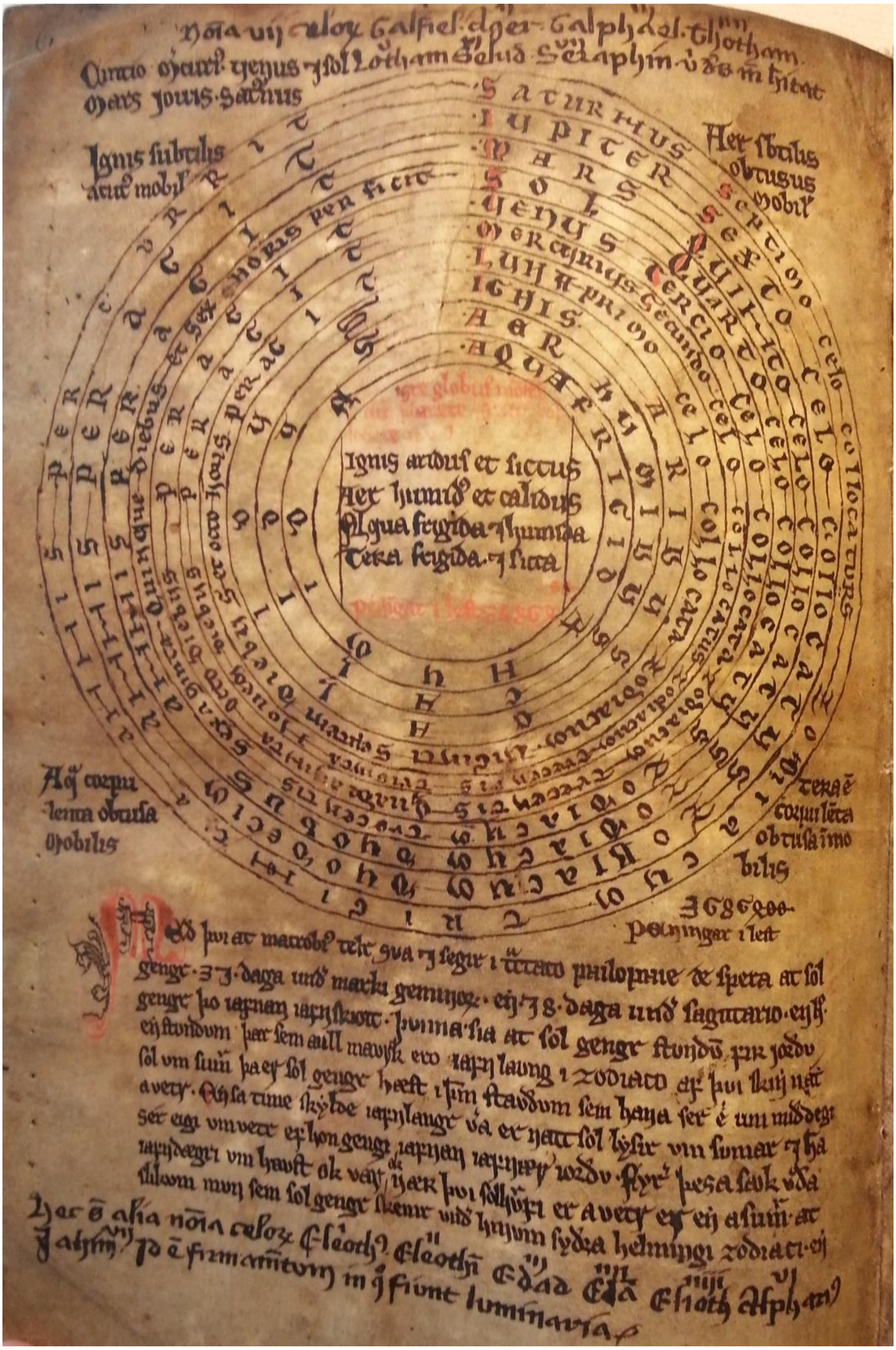

Figure 19: Folio 3v, overleaf from the hemispherical world map, contains a diagram of the planetary spheres that uses the same compass hole (Copenhagen, Arnamagnæan Institute, AM 732b 4to f. 3v).

The seven planets

On folio 3v, there is a diagram that shows the seven planetary spheres with their orbits, similar to the one that accompanies the hemispherical world map in 736 I on folio 1v. This diagram shows the order of the seven planetary spheres and details the durations of their orbits around the earth, with additional information about the four elements that compose all matter in the sublunary world.

The hemispherical world map and the planetary diagram are connected by the material circumstances of their production. The compass hole at the centre of the hemispherical world map has been reused to draw the diagram of the planetary spheres on the verso overleaf. Since these two diagrams have the same diameters (124mm), it seems that they were drawn at the same time using the same apparatus. The influence of manual techniques in the composition of this manuscript must not be overlooked: while it is evident that texts and images in this encyclopaedia were grouped on the basis of their thematic similarities, they were also grouped on a practical and material basis. The world map and planetary diagram collocate at least in part because the scribe preferred to use the hole he had made in the vellum twice. For the same reason, the unicursal labyrinth on folio 7r of this manuscript has been drawn overleaf from a diagram showing the lunar phases on folio 7v.[121] A similar technical parsimony will be seen in the composition of the illustrated encyclopaedia GkS 1812 I 4to in chapter 2 of this thesis.

The text below the planetary diagram, concerning the tides associated with different lunar phases, also connects with the map thematically.[122] The text cites Macrobius directly, in order to disagree with his observations on the amount of time it takes for the sun to move through different constellations in the zodiac.[123] The text references a work by Macrobius described as 'tractatus philophie [*sic*] de spera,' probably an abridgement of the *Commentarii*'s astronomical sections, or a chapter in a *florilegium* such as the *Liber Floridus*,

[121] The labyrinth appears in facsimile in *AÍ* III, 65. On this labyrinth and others in Icelandic manuscripts see Rudolf Simek, 'Völunderhús - Domus Daedali: Labyrinths in Old Norse Manuscripts,' *Nowele* 21 (1993), 323-368. The lunar phase diagram is described in *AÍ* III, 66.

[122] *AÍ* II, 95-96, § 29-31.

[123] Kålund connected these observations with the *Commentarii* 1.6.51, which outlines the amount of time the sun spends in the constellation Gemini. The association is a lose one, the information might also have come from Martianus Capella, *De nuptiis Philologiae et Mercurii*, 8.848,865.

which contains chapter headings along these lines, for example: ‘ordo vii planetarum et spera celi et terre secundum Macrobium.’[124] 732b thereby maintains thematic connections with the hemispherical world map on another level, and engages with what it articulates about the physical structure of the universe, as well as its information about the tides.

[124] Derolez, *Liber* Floridus, [98].

Conclusion

This chapter has demonstrated that the Icelandic hemispherical world map has a history the stages of which can be reconstructed through close comparison with its antecedent texts and maps. We can detect three phases in the map's development, two of them antecedent to its introduction to Iceland. Firstly, the map's outline and inscriptions originate in Macrobius's *Commentarii in Somnium Scipionis*. Its outline originates in Macrobius's fourth canonical diagram, which originally did not contain any inscriptions; these were added later, but can also be extracted from the *Commentarii*. Secondly, the inscriptions were incorporated into the Macrobian template. The resultant map was probably similar to those preserved in Lambert's *Liber Floridus*. Thirdly, the map was imported into Iceland and its inscriptions were translated into Old Norse. The Icelandic map's inscriptions appear to be loan translations of Latin originals that can be identified on Lambert's maps. Over the course of its history, the map has changed function. The diagram began as a statement of the equivalence between lines of celestial and terrestrial latitude. In its Icelandic manuscripts, the map functions primarily as a visual exposition of tidal theory.

Furthermore, the restoration of the map to its manuscript context is a necessary element in its interpretation. There are a number of constants in the manuscript preservation of the hemispherical world map. Both versions are accompanied by Old Norse notes on the error in the Julian calendar, and the ebb and flow of the tides. Both maps are also associated with a diagram that shows the order of the seven planets: in 736 I they are besides one another on the same manuscript folio; in 732b they are on the recto and verso of the same folio, and share a compass hole. In 736 I the map is encountered as part of a geographical compilation. The hemispherical world map, the *Geographical Treatise*, and probably the text about the three Biblical Magi all thematise the three continents. In this compilation, the theme of geography is twinned with salvation, and the geographical contributions of the *Geographical Treatise* and the map are placed into their wider spiritual contexts by the map of Jerusalem and the description of the Church of the Holy Sepulchre. 732b is a computus-core encyclopaedia, in which the map provides illustrates tidal processes, the motions of the sun and moon, and the structure of the physical universe. The map is thus shown to be multivalent and its meaning to some degree context-dependent. In chapter 2, I examine the Icelandic zonal map, which is similar in form and context, and demonstrate that context is once again an important factor in its interpretation.

The Icelandic zonal map
GkS 1812 I 4to f. 11v (1315 – c.1400)

The Icelandic zonal map

The Icelandic zonal map, preserved in the abundantly illustrated encyclopaedia in Reykjavík's Stofnun Árna Magnússonar with the shelf mark GkS 1812 4to, has much in common with the previous chapter's hemispherical world map. This map shows the spherical earth divided into regions, located within an incomplete diagram that outlines the lunar phases. The map contains just three inscriptions, written in Old Norse, that designate the inhabitable areas in the northern and southern hemispheres and the ocean that divides them.

sudr bygilig halfa	Southern inhabitable region
megin haf	Ocean
nordr bygilig halfa	Northern inhabitable region

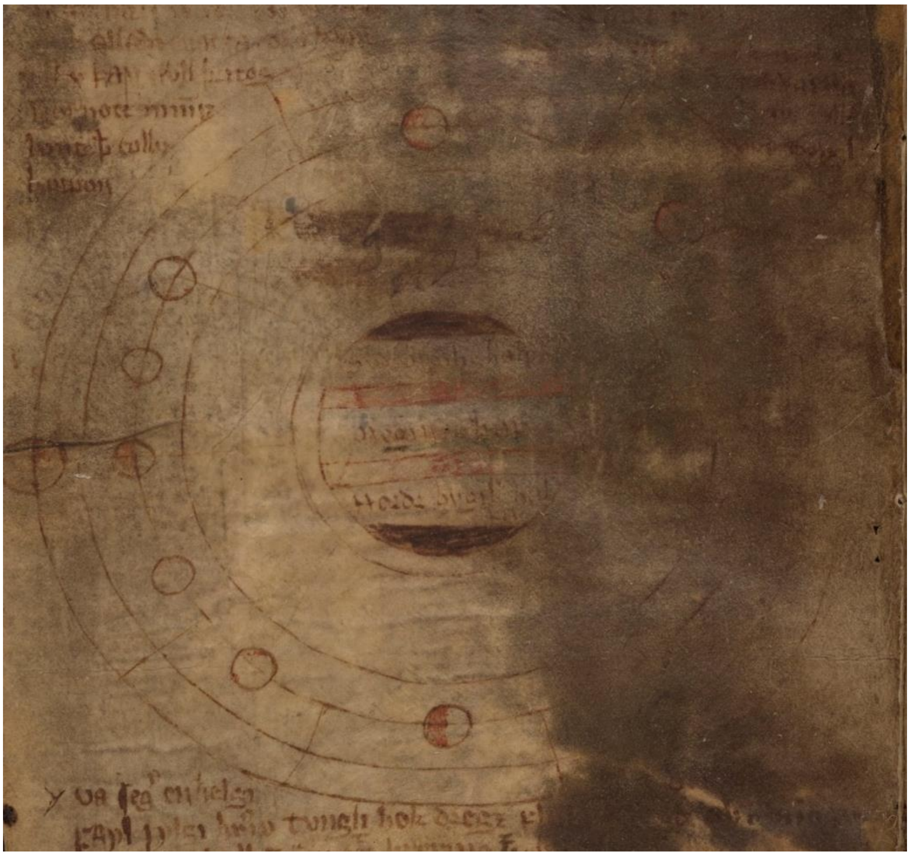

Figure 20: The Icelandic zonal map (Reykjavík, Stofnun Árna Magnússonar, GkS 1812 I 4to, f. 11v) 1315-*c*.1400.

This map has been identified by Simek as a zonal map, so called because it shows the division of the spherical earth into climatic zones.[1] As described in the previous chapter, the polar regions are uninhabitable due to the intense cold while the equatorial region is uninhabitable due to the intense heat of the torrid zone. Between the frozen and torrid zones at extreme latitudes are two inhabitable belts in the southern and northern hemispheres. In addition to its slender geographical nomenclature, the zonal map uses colour to distinguish between inhabitable and uninhabitable regions: the polar regions are shaded in the same dark ink that was used to draw its outline, while the torrid equatorial regions either side of the ocean are coloured red. The use of colour is the only indication of the climatic characteristics of these regions, which bear no written inscriptions.

All three of the map's inscriptions will be familiar from the previous chapter, being very similar to those on the hemispherical world map. The legends *sudr bygilig halfa* and *nordr bygilig halfa* ('southern' and 'northern inhabitable region') are comparable with the inscription on the hemispherical world map *synnri bygð* ('southern inhabited region'). These legends appear to be calques of the Latin *zona habitabilis*, which frequently identifies the inhabitable regions on other European zonal maps, such as those in the *Liber Floridus*.[2] As outlined in the previous chapter, notions of antipodal habitation were contentious in the Middle Ages. The adjective *byggiligr* ('inhabitable') used on the zonal map is more neutral than the noun *bygð* ('cultivated land, inhabitation') on the hemispherical world map; the former adjective more closely resembles the Latin *habitabilis* than the latter noun, which usually denotes certain inhabitation. The hemispherical map does not contain an equivalent term for the *nordr bygilig halfa*, but instead divides this region to show the three continents Asia, Africa, and Europe. However, the Old Norse tidal note that accompanies the hemispherical world map in both manuscripts refers to the northern inhabitable region as *vorri bygð* ('our inhabitation,' or 'the part of the world that we inhabit').

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[1] Simek, *Altnordische Kosmographie*, 590.

[2] Ibid., 199.

The ocean features prominently on the zonal map. The map shows the equatorial ocean that divides the earth horizontally into its northern and southern hemispheres, and the meridional ocean that divides the earth vertically into its eastern and western hemispheres. These two arms of the ocean divide the world into four parts, each of which contains a climatically optimal, inhabitable region (see figure 10). The oceans on the zonal map and the version of the hemispherical world map in 732b are coloured blue, which in both instances demonstrates the scribe's familiarity with the map's conventions.

Previous editions and commentaries

I. Rafn, *Antiquités Russes* II (1852), 390-91 (with drawn partial facsimile)
II. *AÍ* II, ccxiv-ccxv (transcribed legends only)
III. Simek, *Altnordische Kosmographie* (1990), 590-91 (with photographic monochrome partial facsimile)

Rafn provided a description of the zonal map and its scheme of lunar phases, but only reproduced the central map in his drawn facsimile.[3] Rafn provided a faulty description of its context, noting that it appears in the same manuscript as the arithmetical treatise *Algorismus*. However, while the *Algorismus* is bound into the present compilation (ff. 13v-16v) these folios are written in a different hand, and might not have been bound into a compilation with this map until as late as the sixteenth century (see below).

Kålund describes the map and transcribes its inscriptions in his description of the manuscript GkS 1812 4to, but does not reproduce it in facsimile.[4]

Simek reproduces a monochrome photographic facsimile of the same portion of the astronomical diagram drawn by Rafn.[5] The facsimile has been reoriented with west at the top. Simek identifies the text that accompanies the map, which begins '[s]va seg*ir* en helga beda' ('so says the Holy Bede'), as an Old

[3] Rafn, *Antiquités Russes*, 390.

[4] *AÍ* II, ccxiv-ccxv.

[5] Simek, *Altnordische Kosmographie*, 591.

Norse translation and paraphrase of the French scholastic philosopher William of Conches's *De philosophia* (III.xiv-xv), but does not acknowledge or examine further the map's relationships with its companion texts and diagrams.

This map has received the least attention among those in the Icelandic corpus. Facsimiles of the map have hitherto been partial: the lunar phase diagram has occasionally been described but has not previously been examined. With the central zonal map excerpted in facsimiles, the diagram's complete visual argument is not accessible through any previous edition, and has not been examined outside this present study. Furthermore, previous commentaries on the map have not engaged with the suite of four cosmographical diagrams that accompany it. The map has been viewed alongside the other Icelandic world maps in generic isolation, with little attention directed towards those other diagrams that were placed alongside it by the encyclopaedist. The zonal map is one of four circular diagrams in this manuscript, whose number includes a diagram that shows the motions of the circumsolar planets on folio 10v; a diagram that shows the motions of the superior planets on folio 11r; the zonal map and lunar diagram on folio 11v; and the eclipse diagram on folio 12v. These diagrams have not been studied or reproduced in facsimile until now.

The map hosts a complex suite of interractions with its framing texts and diagrams. This chapter focuses on folios 10v-12v, which accomodate the four cosmological *rotae*, in a section of the encyclopaedia that concerns planetary kinematics. Since the Icelandic zonal map features among these cosmographical diagrams, their origins in scientific literature and their functions in the present compilation are explained. The zonal map, like other maps in the Icelandic corpus, has been studied so far only in isolation and the restoration of its context is a necessary element in its interpretation.

Manuscript composition and dating

The manuscript GkS 1812 4to contains three of the five world maps that survive from medieval Iceland. This manuscript has on occasion been called the 'Viðey book,’ because of its association with the Augustinian monastery at Viðey.[6] The manuscript is not made up of regular gatherings. In its 36 leaves (approximately 21cm x 14cm) Kålund detected contributions from four different hands dating from the late twelfth through to the fourteenth century.[7] These hands, and the folios for which they are responsible, are as follows.[8]

> GkS 1812 I (1315-*c.* 1400): ff. 1r-4v, 7r-12v*
> GkS 1812 II (fourteenth-century, Norwegian?): ff. 13r-23v
> GkS 1812 III (*c.* 1225-50): ff. 5r-6v*, 35r-36v
> GkS 1812 IV (*c.* 1200): ff. 24r-34v

* section contains world map(s)

It is unclear when these six fragments were bound together into the present compilation. They might have bound together, in seal skin, as late as the seventeenth century, when the ownership of the book becomes known.[9] Maps are preserved in parts I and III and, therefore, in the following studies of the maps’ contexts, particular attention is directed towards these sections.

Although some texts in 1812 have a long history of reproduction in printed editions, the encyclopaedia as a whole has received little critical attention. Its contents have been edited principally in the variant apparatus to Kålund’s edition of the Icelandic computus treatises *Rímbegla I* (composed in the twelfth century) and *Rímbegla II* (composed *c.* 1275-*c.* 1300) in *Alfræði Íslenzk* volume II. Other substantial editions include Ludvig Larsson’s (1883) edition of the oldest section of the manuscript (1812 IV), and Piergiuseppe Scardigli and Fabrizio D. Raschellà’s more recent (1988) edition of the Latin-Icelandic

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[6] The hands in 1812 are examined in Lilli Gjerløw, *Libri Liturgici Provinciae Nidrosiensis Medii Aevi* Vol. 11: *Ordo Nidrosiensis Ecclesiae (Ordubók)* (Oslo: Universitetsforlaget, 1968), 60; and Lilli Gjerløw, *Liturgica Islandica I: Text* (Copenhagen: C.A. Reitzels Boghandel A/S, 1980), 127.

[7]It has been conventional to name ‘parts I-IV’ in the order youngest to oldest (IV being oldest). However, the hands have been conventionally termed ‘hands 1-4’ with 1 being oldest. These confusing designations have been abandoned in lieu of ‘the scribe responsible for part I’, etc. Kålund identifies the fifth quire as ff. 34-36, however the last quire constitutes ff. 35-36 only (a bifolium containing the first and second months in a calendar, and a time-keeping treatise at the rear). Since 10 months are missing from the calendar, at least three bifolia are missing. *AÍ* II, ccx.

[8] These have been listed in reverse chronological order, in keeping with the numbering of the 1812 parts I-IV.

[9] *DI* I, 183.

glossaries in this same section. A number of smaller items of interest to social and political historians of the Icelandic Commonwealth appear in the *Diplomatarium Islandicum*. The history of the maps in 1812 III in printed reproductions is considered in more detail in chapter 3.

1812 Contents

The items gathered in 1812 pertain broadly to the science of computus, and the tributary disciplines of mathematics and astronomy. The manuscript also contains a suite of cosmological *rota* diagrams and an *Aratea*. The compilation is clearly modelled on European illustrated encyclopaedias. Because this manuscript contains three of the five extant witnesses to the cartographic culture of medieval Iceland, it will be described in some detail below.

Three maps are preserved across two of the component parts of 1812. These maps are, in the order in which they are preserved in the present compilation:

I. The larger Viðey map (1812 III, ff. 5v-6r, *c*. 1225-50)
II. The smaller Viðey map (1812 III, f. 6v, *c*. 1225-50)
III. The Icelandic zonal map (1812 I, f. 11v, 1315-*c*. 1400)

In Simek's *Altnordische Kosmographie*, the table of extant Scandinavian world maps provides the correct dates and foliation for the Icelandic maps, but there are errors in the headnotes that accompany their facsimiles and transcriptions in the same volume.[10] Besides these three maps, there are an additional three cosmological *rotæ* in 1812 I (on ff. 7r, 11r, and 12v) that show the earth as part of their scheme. In two of these (a diagram showing the retrograde motion of the three outer planets on f. 11r, and a diagram showing solar and lunar eclipses on f. 12v) the earth is labelled *jorð* (earth).[11]

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[10] The table is on p. 59. The smaller Viðey map on folio 6v is wrongly attributed in the headnote that accompanies its transcription to folio 11r. The zonal map is correctly dated to the fourteenth century on the table but wrongly dated to the thirteenth century in the relevant headnote. These errors have confused later commentators (see chapter 3). Simek corrected these errors in Rudolf Simek, 'Scandinavian world maps,' *Trade, Travel, and Exploration in the Middle Ages: An Encyclopedia*, eds. John Block Friedman and Kristen Mossler Figg (London: Routledge, 2000), 537-538.

[11] It is without explicit justification that these cosmological diagrams are not included in Simek's *Altnordische Kosmographie*.

The contents of the four component parts of 1812 can be summarised as follows. 1812 I (ff. 1r-4v and ff. 7r-13r of the present compilation, 11 leaves) has been dated on palaeographic grounds to the fourteenth century. This can be narrowed with reference to the *Cisioianus* on folio 2r, [12] a mnemonic verse to aid memorisation of the most important immovable feast days and holidays. The version contained in 1812 I includes the feast day of the Icelandic bishop Guðmundr (d. 1237) who was unofficially canonised in Iceland in 1315.[13] Since Guðmundr is named in this verse, the year 1315 can be established as a *terminus post quem* for the production of this section of the manuscript.

1812 I contains the aforementioned *Cisioianus*, a hexametrical mnemonic that aids memorisation of the most important immovable feastdays and holidays (f. 1r); a Latin memorial verse on computation (ff. 1r-1v); a seven-line Latin memorial verse on the immovable feast days with an Old Norse prose explanation (f. 2r); Old Norse astronomical texts (f. 2r-2v); a series of nine roundels that contain the zodiacal signs with associated Latin descriptions of the constellations (ff. 3r-4r); a diagram that shows philosophy and its epistemological divisions (*Physica*, *Ethica*, *Dialectica*, *Rhetorica, Grammatica*) with associated Latin texts (f. 4v); an Old Norse account of the structure of the cosmos, the seven planets and the twelve signs of the zodiac (f. 7r); a diagram showing the Macrobian planetary week (f. 7r); an *Aratea* that includes drawings of six constellations (*Centarus*, *Lupus*, *Cetus*, *Orion*, *Canis Maior*, *Canis Minor*) with associated Latin texts (f. 7v); an Old Norse text excerpted from John Chrysostom's (whose name is calqued into Jón Gullmuðr, John golden-mouth) treatise on the Star of Bethlehem (f. 8r); a Latin note on the Nativity (f. 8r); a macaronic text about embolisms (f. 8r); an Old Norse text on the signs of the zodiac and other constellations (ff. 8v-10r); an Old Norse text about comets and the events they foretell derived from Bede (f. 10r); an explanation of Latinate metrological terms (f. 10r); an Old Norse text on the sidereal periods of the moon

[12] This poem takes its name *Cisioianus* from the first two feasts whose dates it notes ('Feast of the Circumcision [January 1st], January, Epiphany [January 6th] ...'). See Reginald L. Poole, *Medieval Reckonings of Time* (London: Macmillan, 1921), 19; and Bonnie Blackburn and Leofranc Holford-Strevens, *The Oxford Companion to the Year* (Oxford: Oxford University Press, 1999), 844.

[13] *AÍ* II, 225-28; Ashman Rowe, 'Perspectives,' 66.

and Mercury and diagram showing the heliocentric orbits of Mercury and Venus (f. 10v); an Old Norse note attributed to Sacrobosco (f. 10v); an Old Norse note on the sidereal period of Saturn and a diagram showing the epicycles and deferent (f. 10v); Old Norse texts on the diameters of the earth, moon, and sun (f. 10v); an Old Norse text about the leap moon attributed to the computist Helpericus (f. 11r); a small zone map and an Old Norse text about the division of the earth into four parts by the ocean, attributed to Bede (f. 11v-12r); and an Old Norse text on the tides and a diagram showing the eclipses (f. 12v).

1812 II (ff. 13v-23v of the present compilation, 11 leaves) has been dated on palaeographic grounds to the fourteenth century. Contrary to the order in which they are numbered, notes on folio 1v in the section 1812 I are written in the hand responsible for 1812 II, which indicates that 1812 II is younger.[14] This part contains the Old Norse arithmetical treatise *Algorismus* (ff. 13v-17r); an Old Norse treatise on the use of an astrolabe to determine latitude (ff. 17r-20r); an Old Norse text attributed to Macrobius (ff. 20r-21v); a numerical table that supplies Roman numerals and Latin terms for the numbers 1 – 100 million, with some Arabic equivalents (f. 21v); a Latin mnemonic verse for computus operations with an Old Norse explanation (f. 22r); an Old Norse computus treatise (ff. 22r-22v); an Old Norse table of lunations with golden numbers (f. 23r); and an Old Norse text on the reckoning of days called *Bócarbót* (ff. 23r-23v). Norwegianisms in this section suggest the scribe responsible for it was Norwegian or had been trained in Norway.[15]

However late the disparate sections of 1812 were bound together into the present compilation, there is evidence that 1812 parts I and II have been in circulation with one another continuously or intermittently since the fourteenth century. There are additions to 1812 I folio 1v written in the same hand that produced 1812 II.[16]

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[14] *AÍ* II, ccx.

[15] Ibid., ccxxii-ccxxv.

[16] Ibid., ccx.

1812 III (ff. 5r-6v and ff. 35r-36v of the present compilation, four leaves) is the second oldest part of the compilation and has been dated on palaeographic grounds to *c.* 1225-50. Two single leaves and one bifolium are written in this hand and have been bound into the compilation separately. Two single leaves (ff. 5r-6v) have been inserted together into the section 1812 I between the diagram that shows *Philosophia* and its epistemological divisions (f. 4v) and a diagram of the planetary week (f. 7r). These two leaves contain three items: a list of forty high-born priests (possibly authored by Ari Þorgilsson) with a later (*c.* 1480s) list of Icelandic bishops (f. 5r), the larger Viðey map (ff. 5v-6r), and the smaller Viðey map (f. 6v). The bifolium in this hand (ff. 35r-36v of the present compilation) contains two items: two months from a calendar, January (f. 35r) and February (f. 35v), and a short treatise on time-reckoning (ff. 36r-36v). Since ten months are missing from the calendar, at least three bifolia are missing from this quire.[17] This manuscript is the subject of chapters 3-5 of this thesis.

1812 IV (ff. 24r-34v of the present compilation, 10 leaves) contains two Latin-Icelandic glossaries (f. 24r and 34v), an Old Norse account of the six days of Creation and the Incarnation (ff. 24v-25r), and Old Norse treatise(s) on the reckoning of time and the calendar (ff. 25v-34v). This section contains a passage resembling Ari Þorgilsson's account of Þorsteinn Surtr's reform of the calendar from *Íslendingabók* Ch. 4 (f. 25v).[18]

The association with Viðey

1812 has been tentatively associated with the Augustinian monastery at Viðey, established in 1226 by Snorri Sturluson and the brother of the bishop of Skálholt, Þorvaldr Gizurarson.[19] One reason for its association with Viðey is a note on the inside front cover that reads 'Bok Hakonar Ormssonar Anno…' ('Hákon Ormsson's book, year…' [no number follows]). Hákon Ormsson (1614-1656) has

[17] It has been assumed that since these two fragments are written in the same hand they must have originally been part of the same manuscript composition. However, it is also possible that these folios derive from two different compositions written by the same scribe. Examinations matching the scribal agenda across these two fragments must be made tentatively.

[18] The Old Icelandic computistical treatise *Rímbegla* I is edited in *AÍ* II, 1-80, where 1812 (Kålund's MS 'G') appears in the variant appartus.

[19] Larsson, *Äldsta delen*, iii.

been identified with the sheriff (*ráðsmaðr*) and writer who lived at Skálholt. Hákon's great-grandfather was Alexius Pálsson, the last abbot of Viðey, who presided over the monastery's archives when it was dissolved in 1559. It is possible, then, that Hákon came to own this book through his familial connection with the abbot. The association with Viðey is strengthened by the inclusion of an earlier abbot of Viðey, Abbott Steinmóðar (d. 1481), in a list of bishops added to folio 5r (1812 III) in the 1480s.[20] Since Steinmóðar is the only abbot mentioned among these bishops, it has been suggested that 1812 (or at least the fragment 1812 III) was associated with Viðey at this time. The hand that added this list is seen in other manuscripts associated with Viðey, including Reykjavík, Stofnun Árna Magnússonar, AM 680a 4to.[21] The addition of this list in the 1480s confirms that 1812 circulated in a monastic milieu into the late fifteenth century. Kristín Bjarnadóttir has further pointed out that tidal observations in the Old Icelandic computistical treatise *Rímbegla II* (composed *c.* 1275-*c.* 1300, preserved in 1812 II) associate the book with the south-western corner of Iceland, where Viðey is 'the only educational seat where these observations could have been performed.'[22]

The association with Viðey can be made more strongly for 1812 III than for the other components of 1812. Indeed, the oldest part of the manuscript (1812 IV, written *c.* 1200) antedates its foundation in 1226. After the book's association with Hákon Ormsson, its provenance becomes clearer. 1812 came into the possession of Bishop Brynjólfur Sveinsson (1605-1675), whose hand is discernible in a note on the inside the front cover ('calendar membr. Islandicum') and on folio 1r ('calendarium Islandicum').[23] Bishop Brynjólfur gifted 1812, with other precious manuscripts, to the Danish King Frederick III in 1662.[24] 1812 was

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[20] *DI* VI, 314-315.

[21] Gjerløw, *Libri Liturgici*, 59-60.

[22] Kristín Bjarnadóttir, 'Mathematical Education in Iceland in Historical Context: Socio-Economic Demands and Influences' (PhD diss., Roskilde University, 2006), 42.

[23] *DI* I, 183.

[24] Larsson, *Äldsta delen*, iii.

returned to Iceland on 14th December 1984, where it is now held in Stofnun Árna Magnússonar.

An astronomical handbook

As noted in the introduction to this thesis, there have hitherto been few attempts to characterise Icelandic encyclopaedias: to analyse their intellectual agendas and the editorial policies that shaped them. In this chapter, the structure of this encyclopaedia and what this implies about its intended function will be examined. In the outline of the contents of 1812 I presented above, three main thematic interests can be discerned. These three concerns comprise the larger framework by which its contents are ordered.

The items assembled on folios 1r-2v pertain to computus and the calendar. For example, on folio 1r and 1v are contained the aforementioned *Cisioianus*, and a series of Latin computistical verses, with Old Norse prose explanations.[25] This theme is maintained on folio 2r in a seven-line Latin memorial verse that indicates the immovable feast days. It provides information on how to use the seven ferial letters (A-G) to determine the day of the week on which feast days will fall when the dominical letter (the letter A-G that in that year that stands for Sunday) is known.[26] This is accompanied by an Old Norse prose explanation.[27] Also on folio 2r, there is an Old Norse treatise attributed to the Icelandic computist Stjörnu Oddi ('Star Oddi') on the length of the day and the places the sun rises and sets on the horizon over the course of the solar year.[28]

[25] *AÍ* II, 225-28.

[26] Ibid., 190. These Latin verses include the feast days of Northern saints, including Sunniva, Óláfr, and Þórlákr. This is part of a wider trend in Icelandic computistics that synchronises local and universal perspectives.

[27] Ibid., ccxi, fn. 2.

[28] Ibid., 51-53. On Star Oddi and cosmic dream visions in Icelandic literature see Ralph O'Connor, 'Astronomy and dream visions in late medieval Iceland: *Stjörnu-Odda draumr* and the emergence of Norse legendary fiction', *Journal of English and Germanic Philology* 111:4 (2012), 474-512.

On folio 2v, there is statement about the durations of the planets' orbits,[29] and on folio 7r there is a diagram that explains the origins of the planetary week.[30]

A second thematic interest concerns stellar astronomy, with a focus on the constellations and their mythologies. This section of the encyclopaedia is abundantly illustrated with drawings of the constellations. On folios 3r-4r, there are collectively nine roundels that contain drawings of the zodiac signs Cancer, Leo, and Virgo (f. 3r), Libra, Scorpio, and Sagittarius (f. 3v), and Capricorn, Aquarius, and Pisces (f. 4r) with Latin descriptions. On folio 7v, there are drawings of the constellations *Centaurus*, *Lupus*, *Cetus*, *Orion*, *Canis Maior*, and *Canis Minor*. On folio 8v, there is an Old Norse text on the signs of the zodiac and other constellations.[31] The text is written in Old Norse but uses the Latinate names of the constellations, 'liram' ('Lyra'), 'kassepia*m*' ('Cassiopeia'), and 'pegasi' ('Pegasus'), with the Old Norse names, or descriptions, 'horpv' ('harp'), 'conv' ('woman'), and 'hestz' ('horse'), supplied in superscript.

A third thematic interest emerges towards the end of this encyclopaedic fragment on folio 10r, from which point the encyclopaedia's main focus is the motions of the seven planets. This section concerns the structure of the physical universe and the planets' effects on the sublunary world, namely the tides and eclipses. It is in this section that the zonal map is encountered.

The twinned themes of the calendar and astronomy are witnessed in two of the Icelandic encyclopaedias that preserve maps: 732b and 1812 I. In the medieval period much astronomical enquiry was stimulated by the need to understand the calendar.[32] The Julian calendar was based on the motions of the sun, which were at variance with the ecclesiastical calendar, whose moveable feast days, notably Easter, were in part determined by the motions of the moon. In order to calculate the date of Easter in accordance with the terms decided at the Council of Nicea in 325, a science that could achieve parity between the lunar

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[29] Ibid., 246-47.

[30] This occasions brief mention in chapter 4 of this thesis, pp. 206-07.

[31] *AÍ* II, 249-51.

[32] Pedersen, 'Astronomy,' 304.

and solar calendars was required.[33] Thus computus was 'a problem at once scientific, theological, and disciplinary.'[34] Computus-core encyclopaedias contained the basic computus materials with additional materials drawn from cosmographical treatises to contextualise computistic enquiry with reference to the structure of the cosmos, the planets, and their problematic motions. This rationale for the exposition of planetary motions can be detected in 1812 I. The manuscript begins with an assemblage of practically-oriented computus texts, and verses that aided memorisation of important feast days. This early focus on computus yields to illustrated treatises on the tributary fields of astronomy, planetary kinematics, and tidal science, subjects inducted into the fold of the medieval encyclopaedia through their background association with computus. The encyclopaedia's astronomical texts and diagrams have little practical application, but provide an understanding of the context for computus and the astronomical phenomena that troubled the ecclesiastical calendar.

The scientific literature encountered in medieval encyclopaedias often presented information in a distorted form. The degree to which encyclopaedists understood the scientific material from which they drew is often questionable. These encyclopaedists were indefatigable compilers, but often little understood the Greek theoretical science whose legacy they summarised.[35] Astronomical information disseminated through encyclopaedias was frequently elementary or preparatory. Pedersen remarks that

> The encyclopaedic sources available … completely ignored both the methods by which the results had been obtained and the mathematical form in which they had been expressed, there was no possibility of extending or even fully understanding the Greek achievement, either observationally or theoretically.[36]

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[33] Ibid., 307.

[34] Faith Wallis, 'Chronology and Systems of Dating,' *Medieval Latin: An Introduction and Bibliographical Guide*, ed. Frank Anthony Carl Mantello and A. G. Rigg (Washington D.C.: The Catholoc University of America Press, 1996), 383-87, 383.

[35] Grant, *Foundations*, 12-13.

[36] Pedersen, 'Astronomy,' 306.

The extent to which such remarks might apply to 1812 I will be examined in the discussion that follows. The restoration of the zonal map to its manuscript context is a necessary prerequisite to its interpretation. The map has not previously been seen in light of its relationships with the texts and images it accompanies in manuscript. This chapter surveys the map's immediate manuscript context in the encyclopaedia 1812 I in order to reconstruct its operative intellectual context. The map is shown to sustain a productive suite of relationships with other texts and diagrams that concern the structure of the cosmos and the motions of the planets, and its function emerges through an analysis of this context.

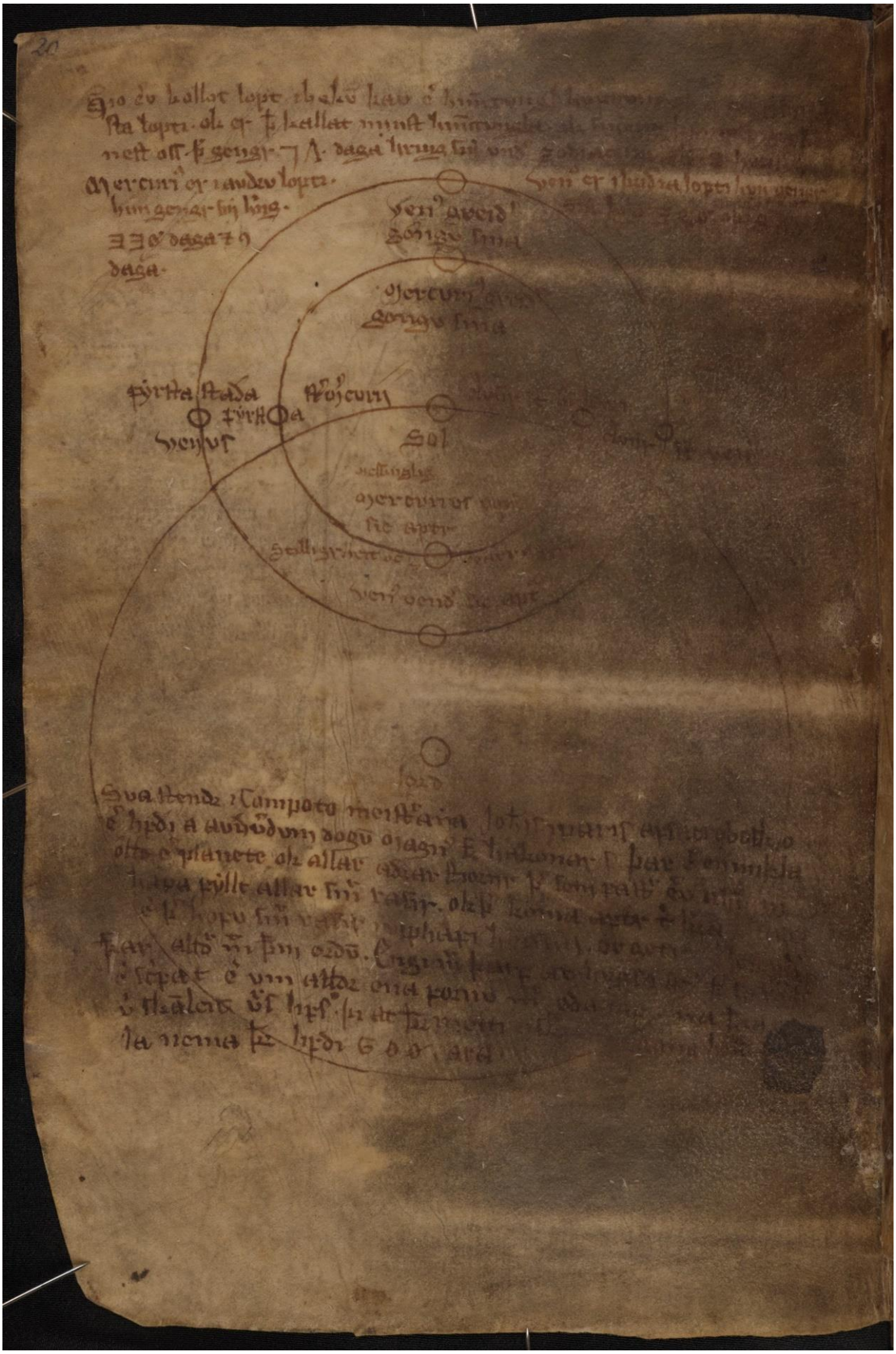

Figure 21: Folio 10v begins an exposition on planetary kinematics, and contains an introduction to the seven planets, a diagram showing the heliocentric orbits of the inner planets, and an extract from Sacrobosco's *De anni ratione*, translated into Old Norse (Reykjavík, Stofnun Árna Magnússonar, GkS 1812 I 4to, f. 10v) 1315-*c*.1400.

The seven planets

Folio 10v begins the exposition on the structure of the cosmos and the motions of the planets in which we encounter the Icelandic zonal map. This section follows on from a meditation on stellar astronomy and the mythologies of the constellations. The distinction between this and the previous section is explicitly stated in a short Old Norse text at the top of folio 10v. This text describes the order of the planets and the durations of their orbits around the earth. [37]

> Sio eru kollut lopt i bokum, þau er himin tungl hverfi um. Ok er tungl i neðsta lopti, ok er þat kallat minst himin tungla, ok synist þi mest, at þat er nest os. Þat gengr xxvii dagha hring sinn vndir zodiacum ok atta stundir. Merkurius er i audru lopti, hun gengr sinn hring ccc ok xxx dagha ok ix dagha. [38]
>
> (There are seven heavens named in books, around which the planets turn. And the moon is in the lowest heaven, and is called the smallest of the planets, and we see it most because it is next to us. It completes its orbit under the zodiac in 27 days and eight hours. Mercury is in the second heaven. It completes its orbit in 339 days.)

This text appears twice in 1812 I. It appears alongside computus texts on folio 2v, where its details about the durations of the planetary orbits complement other texts on the motions of the sun and moon and their implications for the calendar. However, there are notable differences in the presentation of the text across these two versions. The version that begins on folio 10v has been fragmented so that the sections on the relevant planets have been interspersed between the two folios that contain the planetary diagrams, on folios 10v and 11r. At the top of folio 10v, the orbits of the moon, Mercury, and Venus are described above the diagram that shows their orbits.

This short text introduces a section in the encyclopaedia on planetary kinematics. The version of this text on folio 2v contains a coda (absent from the 10v-11r version) that makes explicit the distinction between the planets and the

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[37] These order of the seven planets and the durations of their orbits are shown in an Isidorian diagram on AM 736 I 4to f. 3r next to one of the two Icelandic hemispherical world maps. The term used for heaven on this Latin diagram is *caelo*, which has been translated into *lopt* in this Old Norse text.

[38] *AÍ* II, 246-47. Simek has identified an Old Norse translation of Honorius's *Imago mundi* in the fifteenth-century manuscript AM 685d 4to into which these lines have been inserted. These lines themselves, however, are not from Honorius. *Altnordische Kosmographie*, 399.

stars, and therefore the distinction between this and the previous section of the encyclopaedia: 'þessar eru allar reikendr, en adrar stiornr snuaz með festingu himens' ('these are all wanderers; the other stars turn with the firmament). The 'others that turn with the fixed heavens' are the fixed stars, which comprise lone stars (*stellae*), star clusters (*sidera*), and constellations (*astra*) (*Etymologiae* III.lx). These stars turn with the celestial sphere, the convexity of the night sky against which the sun, moon, and other planets move. The planets (*planetes*, from Ancient Greek 'to wander') are also a variety of star, so called because they are not fixed in their positions in relation to other stars but range across the cosmos (III.lxvii). Information about the fixed stars is concentrated in the first half of this encyclopaedia, which yields to a study of the movements of the planets on these folios. Isidore's definition of a planet calls to attention the peculiarities of their orbits that are the subject of the texts and diagrams assembled in this division of the encyclopaedia:

> Vnde pro eo, quod errant, retrograda dicuntur, uel anomala efficiuntur, id est, quando particulas addunt et detrahunt.Ceterum quando tantum detrahunt, retrograda dicuntur; stationem autem faciunt, quando stant.[39]
>
> (It is because of their wandering that they are called retrograde, or are rendered irregular when they add or subtract orbital degrees. When they pull back only they are called retrograde, and they make a station when they stand still.)

Thus the former section of the encyclopaedia concerns the constellations and their mythologies; the latter concerns the wandering planets. The motions of the planets are the precise focus of the texts and diagrams that follow in 1812 I.

The motions of the inferior planets

The text that begins 'sio eru kollut lopt i bokum, þau er himin tungl hverfi um' ('seven heavens, in which celestial bodies turn, are mentioned in books') introduces the section on the wandering planets, and is woven, through its fragmentation across two folios, into the two diagrams that illustrate their motions. Folios 10v and 11r contain two large circular diagrams. Both show *Iord*

[39] Isidore, *Etymologiae*, III.lxvii. The translation is from Stephen A. Barney, W. J. Lewis, J. A. Beach, and Oliver Berghof, trans. *The Etymologies of Isidore of Seville* (Cambridge: Cambridge University Press, 2006), 104.

(earth) at their centres, located within the orbits of the inner (f. 10v) and outer (f. 11r) planets. The diagram on folio 10v shows the orbits of the sun, Mercury, and Venus with Old Norse inscriptions.[40] It has not been previously been identified or explained, either on its own or in relation to the other texts and diagrams in 1812 I.

This diagram illustrates two cosmographical principles: the deferent and epicycle, and the heliocentric orbits of the inner planets, Mercury and Venus. The earth is placed at the diagram's centre, amid the sun's orbit, the ecliptic. The planets Mercury and Venus are shown to orbit the sun as it moves along the ecliptic. There are two circles centred on the sun: the inner circle shows the orbit of Mercury, the outer circle shows the orbit of Venus. These two planets are shown in four positions in their orbits around the sun: their first station (left) and second station (right), and two points in their movements between them. The upper arc of their orbits shows the planet when it is forward or *prograde*, the lower arc shows the planet when it is *retrograde*. These terms will be explained below. The diagram contains an extensive suite of Old Norse inscriptions that explain the planets' motions, and apparent direction of movement, as follows.

Iord	Earth
Sol messinglig	Sun brazen
Fyrsta staða Venus Ven*us* greid*ir* gongu sina Aun*n*r st*aða* Ven*us* Ven*us* vend*ir* sic apt*r*	First station of Venus Venus proceeds in its course Second station of Venus Venus turns back on itself
Stilligr heit oc varringligr	Calming hot and copper [Mercury]
Fyrsta Mercuri*us* Mercuri*us* greid*ir* gongu sina Aun*n*r st*aða* Mercuri*us* Mercurius vend*ir* sic apt*r*	First [station] of Mercury Mercury proceeds in its course Second station of Mercury Mercury turns back on itself

[40] Its inscriptions have been transcribed in a footnote in *AÍ* II, ccxiii.

In order to explain this diagram, whose meaning is not entirely recoverable from its inscriptions, it needs to be brought into contact with texts found outside this manuscript. No written description of these complexities of planetary motion accompanies the diagram.

Retrograde motion

The diagram accounts for observations of the movement of these planets as seen from the earth. Planets generally move eastwards across the night sky. In modern terms, we know this to be because of the daily rotation of the earth.[41] However, they do not appear to orbit the earth uniformly. Occasionally they appear to stall and then reverse their direction of movement relative to the fixed stars: changing from an easterly to a westerly course. The planets also appear to orbit the earth at different speeds at different times in their orbits.[42] When the planet moves on an easterly course, it is said to be forward or prograde; when a planet reverses direction and moves on a westerly course it is said to be retrograde. Pliny (*Historia Naturalis*, II.70), Seneca (*Naturales quaestiones*, VII.xxv.6-7) and Isidore (*Etymologiae*, III.lxviii-lxix) refer to retrograde motion. In modern terms, the planets are seen periodically to switch direction in the sky because the earth moves faster than the planets in their orbits, and periodically laps them. For medieval natural philosophers, apparent retrograde motion troubled the Aristotelian model of the nested planetary spheres that guided their regular and symmetrical motions around the earth.

The two planetary diagrams in 1812 I show the system developed by Ptolemy to account for the irregularity of the planetary movements, the Ptolemaic eccentric-epicycles. The diagram on folio 10v shows the heliocentric orbits of the inner planets that turn on epicycles around the earth.[43] The

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[41] The question as to whether or not the earth turned on an axis was contentious among medieval natural philosophers and their antique forebears. See Edward Grant, *Planets, Stars, and Orbs: The Medieval Cosmos, 1200-1687* (Cambridge: Cambridge University Press, 1994), 494-510.

[42] This is because of the elliptical nature of their orbits, so that they appear to move faster when their angular distance from the earth is smaller (when they are at their apogee), and slower when it is more oblique (when they are at their perigee).

[43] On the origins of epicycles and deferents in the Hellenic world see Duhem, *Le Système du Monde*, 1:427.

historical background to the reemergence of this theory has been described by Duhem and Grant.[44] Two major cosmological systems entered Western Europe between the middle of the twelfth and thirteenth centuries: those of Aristotle and Ptolemy. The Aristotelian system was known through translations of Aristotle's natural books and commentaries on them. Ptolemy advanced his theory of eccentric-epicycles in a treatise entitled *Hypotheses of the Planets*, which was not known directly in the Latin Middle Ages, but was known in abstract through Arabic treatises, which became assimilated into the European canon in the twelfth and thirteenth centuries.[45]

Both the Aristotelian and Ptolemaic systems proposed that the cosmos comprised seven planets located in spheres, as described in the Old Norse text that introduces this section of the encyclopaedia. Beyond the seven planets were the stars fixed in the eighth sphere, against which the movements of the planets could be observed and described. Both Aristotle and Ptolemy allowed for the planetary spheres to be composed of multiple sub-spheres, in order to account for apparent variations in their orbits.[46] The prevailing difference between the two systems concerned whether or not these spheres were concentric with the earth. The Aristotelian system proposed that the cosmos comprised concentric orbs with the earth at their absolute centre. However, medieval natural philosophers observed that this system could not account for the complexity of the planets' motions.[47] The theory advanced by Ptolemy could account for these irregular motions, but threatened to destabilise the fundamental Artistotelian doctrine of the earth's centeredness. Ptolemy proposed that the planetary spheres were eccentric, that is, that they did not have the earth at their absolute centre. The Ptolemaic system was promulgated in the central Middle Ages

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[44] Edward Grant, 'Eccentrics and Epicycles in Medieval Cosmology', *Mathematics and its Application to Science and Natural Philosophy in the Middle Ages, Essays in Honor of Marshall Clagett*, ed. Edward Grant and John E. Murdoch (Cambridge: Cambridge University Press, 1987), 189-214, 189; Grant, *Planets,* 275; Grant, *Foundations*, 104. On Aristotelian and Ptolemaic astronomy in the Hellenistic world see Duhem, *Le Système du Monde*, 1:488-97.

[45] Duhem, *Le Système du Monde*, 1:429. Many of the avenues by which newly translated cosmographical treatises were assimilated into Western Europe have yet to be identified or analysed.

[46] Grant, *Foundations*, 104.

[47] Grant, 'Cosmology,' 280; Grant, *Foundations*, 105.

through Sacrobosco's astronomical treatise *Tractatus de sphaera* (*c.* 1230), which drew heavily from Ptolemy's *Almagest* and later Arabic commentaries. It defines the eccentric thus: 'eccentricus quidem dicitur omnis circulus … qui … non habet centrum suum cum centro terre sed extra' ('any circle is called eccentric which … does not have the same centre as the earth but one outside it').[48] Furthermore, these orbits were epicyclic, which is to say that the planets turned on smaller circles as they proceeded in their wider eccentric orbits around the earth. The circular path the planet followed around the earth was termed the deferent. Therefore, as the planet proceeded on this course around the earth it turned in a smaller orbit around a point that circled the earth.[49] Sacrobosco, whose treatise was an elementary introduction to astronomy written for non-specialists, defines the epicycle and deferent thus: 'est epiciclus circulus parvus per cuius circumferentiam defertur corpus planete, et centrum epicicli semper defertur in circumferentia deferentis' ('an epicycle is a small circle on whose circumference is carried the body of the planet, and the centre of the epicycle is always carried along the circumference of the deferent').[50] This, as Sacrobosco and other authors acknowledged, could be explained more clearly with reference to a diagram. Thus the Icelandic diagram shows: the deferent, which is the large circle around the earth, and along which the orbits (epicycles) of the inner planets, Mercury and Venus, move. The orbits of the inner planets were therefore geo-heliocentric: they turned around the sun which in turn circled the earth.

Ptolemy's theory better represented planetary motions, and could account in particular for the apparent reversals in their orbits. Medieval natural philosophers sought a compromise that would make the epicycle and deferent compatible with Aristotle's theory of the nested concentric spheres, in order to demonstrate that 'eccentric and epicyclic orbs did not imply consequences that were subversive and destructive of Aristotelian cosmography and physics,' on

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[48] Citations from Sacrobosco's *Tractus de sphaera* are taken from Lynn Thorndike, ed. *The Sphere of Sacrobosco and its Commentators* (London: Cambridge University Press, 1949), 113.

[49] A modern analogy might be an orbit within an orbit: the moon circles around a point (the earth) that in turn circles around the sun. The inferior planets (Mercury and Venus) were thought to orbit the sun which orbited the earth. However, the superior planets (Mars, Jupiter, and Saturn) orbited imaginary points that orbited the earth.

[50] Thorndike, ed. *Sphere*, 114.

which the canon was based.[51] The solution assigned each planet three orbs, a compromise adapted in Sacrobosco's *De tractatus sphaera*.[52] While the diagram shown here derives from the Ptolemaic theory, there is no trace of any tension between the Aristotelian and Ptolemaic systems that made it necessary: the Old Norse text on the seven planets that introduces this section is vague enough to describe either system. The theory of the eccentric-epicycle is described nowhere else in Icelandic astronomical literature.

Heliocentrism

The second principle illustrated by this diagram pertains to Mercury and Venus's heliocentric orbits. Again, this theory is rooted in observation; ancient astronomers perceived that the orbits of Mercury and Venus circled the sun centuries before Copernicus and Tycho Brahe.[53] These two planets orbit closest to the sun and therefore do not appear to stray in their orbits far from it. Because, from a modern perspective, the orbits of Mercury and Venus lie between the sun and the earth, the earth can never come between them. These planets can never, therefore, be in opposition, that is to say, seen from the earth in the part of the sky opposite the sun. This logically implies, with the geocentric model in mind, that their orbits are bound to the sun.[54] Coupled with their retrograde motion, it follows that their deferent is the sun's orbit itself, and that these planets circle around the sun in its course around the earth. The theory of the heliocentric orbits of Mercury and Venus is of antique origins.[55] Duhem, Grant, and Simek have suggested that this theory originated with the Greek philosopher and astronomer Heraclides Ponticus (*c.* 390-*c.* 310 BCE),[56] though this attribution

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[51] Grant, 'Eccentrics and Epicycles,' 195.

[52] Thorndike, ed. *Sphere*, 114.

[53] Duhem, *Le Système du Monde*, 1:47.

[54] See Macrobius, *Commentarii in Somnium Scipionis*, (1.19.4). Macrobius explains that the closeness of these planets to the sun led Cicero to call them the sun's companions ('comites solis'). See Duhem, *Le Système du Monde*, 1:51-2.

[55] For an overview of heliocentric astronomy in the Hellenic world see Duhem, *Le Système du Monde*, 1:339-426. On its intersection with the epicycle and deferents and its mathematical basis, see especially 441-468.

[56] Duhem, *Le Système du Monde*, 3:47-8; Simek, *Heaven and Earth*, 14-16.

has been challenged by Bruce S. Eastwood.[57] The early encyclopaedists most responsible for the transmission of this theory in the High Middle Ages were Chalcidius in his commentary on Plato's *Timaeus*, and Martianus Capella in *De nuptiis Philologiae et Mercurii*. Martianus Capella's description of these planets' orbits describes how these observations on their motions yielded to their association with the course of the sun.

> Nam Venus Mercuriusque licet ortus occasus que cotidianos ostendant, tamen eorum circuli terras omnino non ambiunt, sed circa Solem laxiore ambitu circulantur. Denique circulorum suorum centro in Sole constituunt, ita ut supra ipsum aliquando, infra plerumque propinquiores terris ferantur; a quo quidem uno signo et parte dimidia Mercurius, disparatur. Sed cum supra Solem sunt, propinquior est terris Mercurius, cum infra Solem, Venus, utpote quae orbe vastiore diffusiore que curvetur.[58]
>
> (For although Venus and Mercury are seen to rise and set daily, their orbits do not entirely encircle the earth, but draw their circles around the sun. In fact their circles are centred on the sun, so that they sometimes circle above it and at other times below it and nearer to the earth, when Mercury diverges from the sun by the breadth of one and a half signs. But when they are above the sun, Mercury is the nearer to the earth, and when they are below the sun, Venus is the nearer, as it circles in a larger and wider orbit.)

The diagram illustrates the relationship between the earth and the sun, and its companions in Mercury and Venus.

[57] Bruce S. Eastwood, 'Heraclides and Heliocentrism: Texts, Diagrams, and Interpretations,' *Journal for the History of Astronomy*, 23 (1992), 233-260, 256

[58] Martianus Capella, *De nuptiis Philologiae et Mercurii*, VIII.857.

The Icelandic diagrams resemble others found in twelfth- and thirteenth-century astronomical works, such as Sacrobosco's *Tractatus de sphaera*, William de Conches's *Dragmaticon philosophiae*, and Daniel of Morley's *Liber de naturis inferiorum et superiorum*.[59] A diagram in a twelfth-century manuscript of William de Conches' *Dragmaticon* (IV.4.6-7) has been identified by Obrist as a borrowing from the eighth-century Persian Jewish astronomer Māshā'allāh's *Liber de orbe* (Ch. 32), an abundantly illustrated cosmographical treatise that drew from the Ptolemaic treatises in which the theory of the eccentric-epicycle was developed.[60] William's diagram (figure 22) shows the forward and retrograde motions of the planets: the earth (*terra*) is shown at the centre of the diagram, encircled by the deferent on which the epicycle moves. The planet is shown as textually-inscribed circles in four positions around the epicycle: in forward motion (at the top of the epicycle), at standstill (on the right), in retrograde motion (at the bottom), and at standstill once again (on the left) before forward motion resumes. The diagrams that accompany these treatises are rarely reproduced in textual editions, and when they are, shelf

Figure 22: A diagram in a twelfth-century manuscript of William's *Dragmaticon* identified as a borrowing from *Māshā'allāh's Liber de orbe*. A single planet is shown in four positions in its epicycle, as four textually-inscribed circles: in forward and retrograde motion, and in its two stations (Vatican City, Bibliotheca Apostolica Vaticana, MS Pal. lat. 1042, f. 23r).

[59] Examples of the circumsolar diagrams are described in Duhem, *Le Système du Monde*, 3:153-55; Simek, *Heaven and Earth*, 15; and especially Bruce S. Eastwood and Gerd Grasshoff, *Planetary Diagrams for Roman Astronomy in Medieval Europe, ca. 800-1500* (Philadelphia: Americal Philosophical Society, 2004), for Calcidian diagrams see 75-86; for Capellan diagrams see 133-35.

[60] The influence of Arabic cosmographical treatises on William's encyclopaedia are evaluated in Barbara Obrist, 'William of Conches, Māshā'allāh, and Twelfth-Century Cosmology,' *Archives d'Historie Doctrinale et Littérature du Moyen Âge* 76 (2009), 29-87. His sources were also considered in Duhem, *Le Système du Monde*, 3:87-101.

marks are often not supplied. Sacrobosco's *Tractatus de sphaera* also circulated with diagrams derived ultimately from Ptolemy's *Almagest*, though by which channels is unknown.[61]

The Icelandic diagram's inscriptions describe the forward and retrograde motions of the planets. The inscription *Venus greidir gongu sina* (Venus proceeds in its course) describes the usual course Venus takes in its orbit from west to east across the night sky. The *fyrsta staða Venus* (first station of Venus) is the point at which the planet appears to stall in its course before reversing direction. Thus *Venus vendir sic aptr* (Venus turns back on itself) describes the retrograde motion of the planet when it appears to move east to west across the night sky, and *annr staða Venus* (second station of Venus) the point at which it stalls and changes direction once more. This is described in diagrammatic terms in Sacrobosco's *Tractatus de sphaera*:

> Si igitur due line ducantur a centro terre ita quod includant epiciclum, una ex parte orientis, reliqua ex parte occidentis, punctus contactus ex parte orientis dicitur statio prima, punctus vero contactus ex parte occidentis dicitur statio secunda. Et quando planeta est in alteruta illarum stationum, dicitur stationarius. Arcus autem epicicli superior inter duas stations interceptus dicitur directio, et quando planeta est in illo, dicitur directus. Arcus vero epicicli inferior inter duas stations dicitur retrogradatio, et planeta ibi existens dicitur retrogrades.[62]
>
> (If, then, two lines are drawn from the centre of the earth to enclose an epicycle, one on the east and one on the west, the point of contact on the east is called the first station (*statio prima*) and the point of contact on the west is called the second station (*statio secunda*). When a planet is in either of those positions it is called stationary (*stationarius*). The upper arc of the epicycle intercepted between these two stations is called direction (*directio*), and when a planet is there it is called direct (*directus*). The lower arc of the epicycle between the two stations is called retrogradation (*retrogradatio*), and a planet existing there is called retrograde (*retrogrades*).)

The Icelandic diagram shows the planets in two stations, and connects them through arcs showing their prograde and retrograde motions. The Old Norse inscriptions *fyrsta* and *annr staða* are loan translations of the Latin *statio prima* and *statio secunda*. This is similar to the Old Norse *solstaða* for solstice, which

[61] Pedersen, 'Astronomy,' 318.

[62] Thorndike, ed. *Sphere*, 114-15.

describes the point at which the sun stalls in the sky before its course turns eastwards (at the winter solstice) or westwards (at the summer solstice). The Latin *directio* and *retrogradatio* are not adopted as loanwords but have been allocated more descriptive terms: the planet proceeds in its course (*greiðir göngu sína*) eastwards, and then turn back on itself (*vendir sik aptr*) as it turns in its epicycle and moves westwards.

This diagram transmits cosmographical doctrines about the heliocentric orbits of the inferior planets and their eccentric-epicycles, but provides none of the observational or mathematical astronomy that generated them. The diagram does not explain facts previously established by the texts, but operates for the most part independently from them. While the text at the head of the folio introduces the order of the planets and their orbits, there are no explanations of heliocentrism or retrograde motion, or the need to construct such complex models to save the astronomical phenomena witnessed through observation. Obrist examines William de Conches's appropriation of cosmographical diagrams from the *Liber de orbe*, and observes that they were 'quite easy to assimilate for, although they are ultimately derived from figures used in geometrical demonstrations, they are now endowed with a purely illustrative function.'[63] This highlights the need to characterise Icelandic encyclopaedias not only in terms of their sources, but in terms of how these sources are adapted and assembled. Historians of science have noted the disparity between elementary education and advanced study in the field of astronomy.[64] The astronomical sections in William's *De philosophia mundi* and Sacrobosco's *Tractatus de sphaera* were elementary handbooks of a very different nature to advanced treatises, such as those of Roger Bacon (*c.* 1219-1292). This has been noted by Derolez, who remarks in his study of the *Liber Floridus* that 'the level of the message contained in the pictures is often higher than that shown by the texts, which may render their sources in a clumsy and erroneously condensed form.'[65] So too with the Icelandic encyclopaedia 1812 I, it is important to note that the

[63] Obrist, 'William of Conches,' 53.

[64] Pedersen, 'Astronomy,' 320; Grant, *Planets*, 819-20.

[65] Derolez, *Key*, 12.

texts that accompany the diagrams do not contain the apparatus necessary to understand them. Icelandic encyclopaedic texts do not address the retrograde motion of the planets, and the inscriptions borne by the diagrams are the only evidence available on which to determine how they were understood.

Sacrobosco's De anni ratione

Beneath the diagram showing the motions of the inferior planets on folio 10v there is an Old Norse astronomical note attributed to Sacrobosco.[66] This short text begins 'sva stendr i computo meistaranna Iohannis i Paris af Sacrobosko' ('thus it says in the *Computus* of the master John of Sacrobosco in Paris') and connects this exposition of planetary motions to the primary concern of the computus, reminding the reader of the connection between computus, predicated on the motions of the sun and moon, and its cosmographical context.

Little is known about John of Sacrobosco (possibly Holywood or Halifax in West Yorkshire) other than he was an English astronomer who taught at the University of Paris from *c.*1230 until his death in *c.*1256.[67] Indeed, much of this information is contained within the Old Norse text, which says of Sacrobosco: 'computo meistaranna Iohannis i Paris af Sacrobosko, er lifði a avnðverdvm dogvm Magnus konungs hakonar sonar' ('the *Computus* of master John of Sacrobosco in Paris, who lived during the days of King Magnús Hákonarson').[68] Sacrobosco wrote the three most widely-read scientific treatises of the medieval period. The first, the *Algorismus vulgaris*, describes simple arithmetical functions, such as the extraction of square and cubic roots. The second, the aforementioned *Tractatus de sphaera*, is an exposition on spherical astronomy and cosmography that often contained diagrams similar to those found in 1812 I. The third is a computus manual known as *De anni ratione*, which can be identified as the 'computo' paraphrased and translated into Old Norse here. These works are elementary treatises aimed at the instruction of relative beginners, or non-specialists, in the sciences of arithmetic, astronomy, and

[66] *AÍ* II, 257-58.

[67] Olaf Pedersen, 'In quest of Sacrobosco,' *Journal for the History of Astronomy* 16 (1985), 175-220.

[68] *AÍ* II, 257.

computus. The *Tractatus de sphaera* numbers among the clearest and most popular textbooks in astronomy and cosmography from the thirteenth to the seventeenth century, but is also of an elementary level.

The link between Sacrobosco and the reign of King Magnús Hákonarson (Magnús VI of Norway, 1238-1280) can be seen in the context of the earlier discussion about the synchronisation of Icelandic and European perspectives (see chapter 1). This is thematised through the mention of local saints, such as Magnús Erlendsson, Sunniva, and Bishop Guðmundr, alongside other European saints in the calendrical texts near the beginning of this manuscript. It also reveals something about the nature of the Icelandic adaptation of Latin encyclopaedic texts; their Icelandic compilers were keen to integrate, or else demonstrate the consanguinity, between Icelandic and European intellectual cultures.

The text describes how long it takes for the planets and the fixed stars to turn in their orbits around the earth.

> Þar er en mikla ölld, planete ok allar aðrar stiornr, þær sem fástar erv a himni, hafa fyllt sinar rasir ok þær koma aftr til þeira stada, er þær hofv sinar rasir i vpphafi heimsins.
>
> (Over a great period of time the planets and all the other stars, those that are fixed in the heavens, have completed their courses and come back to their places, which they had at the beginning of the world.)

Sacrobosco then cites the first-century Roman historian Josephus (*c.* 37-100).

> Oc getr Iosephus þessar alldar met þessum orðvm: Engi maðr þarf at hugsa, at þat se rangt, er skrifat er um alldr ena fornv manna eða iafna þeira efi við skamleic vars lifs, þi at þeir metti ei skyra gang himin tvngla, nema þeir lifdi 600 ara.
>
> (Josephus says about these ages these words: No one must think that it is wrong, that which is written in the time of the ancients, or compare their age with the shortness of our lives, because he will not understand the passages of the planets, unless he lives for six hundred years.)[69]

The citation gives formal consent to the view that the planetary motions described in this elementary handbook are complex, and that the motions of the

[69] The subject of the last two clauses is 'þeir,' but this must refer to the singular 'engi maðr.' Therefore, I have translated with a singular pronoun.

constellations are inscrutable and must be accepted as so. While the text on the seven planets gives the orbit of Saturn as thirty years,[70] the fixed heavens turn at a speed not perceptible over the course of a person's life. In the *Tractatus de sphaera*, Sacrobosco states that the firmament moves by just one degree in one hundred years. That is to say, the citation from Josephus implies that while the motions of the planets can be verified by observation, what the antique literature says on the revolution of the firmament must be accepted.

However, it is instructive to compare the Old Norse translation from Sacrobosco's *De anni ratione* with its Latin original, whose contents differ.

> De quo Iosephus sic meminit, Nullus ad vitam modernam et annorum nostrorum breuitatem uitam comparans antiquorum, falsa putet eorum scripta, que nunc ediscere posset, si sexcentos uiueret annos.[71]
>
> (Concerning this, Josephus advises us thus: no one, comparing our modern life and the brief course of our years with those of the ancients, could ever think their writings false, if he were able to study them thoroughly, even if he should live for six hundred years.)

By design or accident, the Old Norse substitutes 'eorum scripta' ('their writings') for 'gang himin tungla' ('the motions of the planets'). Thus the focus of the citation moves from the interpretation of ancient writings to the courses of the planets themselves, which are implied to be impossible to understand or interpret in the course of a person's life. This citation enshrines the attitude of the encyclopaedist to his subject matter. The diagrams derive from far more detailed expositions on planetary kinematics than their companion texts, which do not mention such complexities as retrograde motion, circumsolar orbits, or the eccentric-epicycles. This citation from Sacrobosco's *De anni ratione*, slightly altered in its Old Norse translation, appears to eschew any engagement with the mathematical astronomy that would be needed to fully contextualise and explain these planetary motions.

[70] *AÍ* II, 247.

[71] Sacrobosco, *De anni ratione*, 18

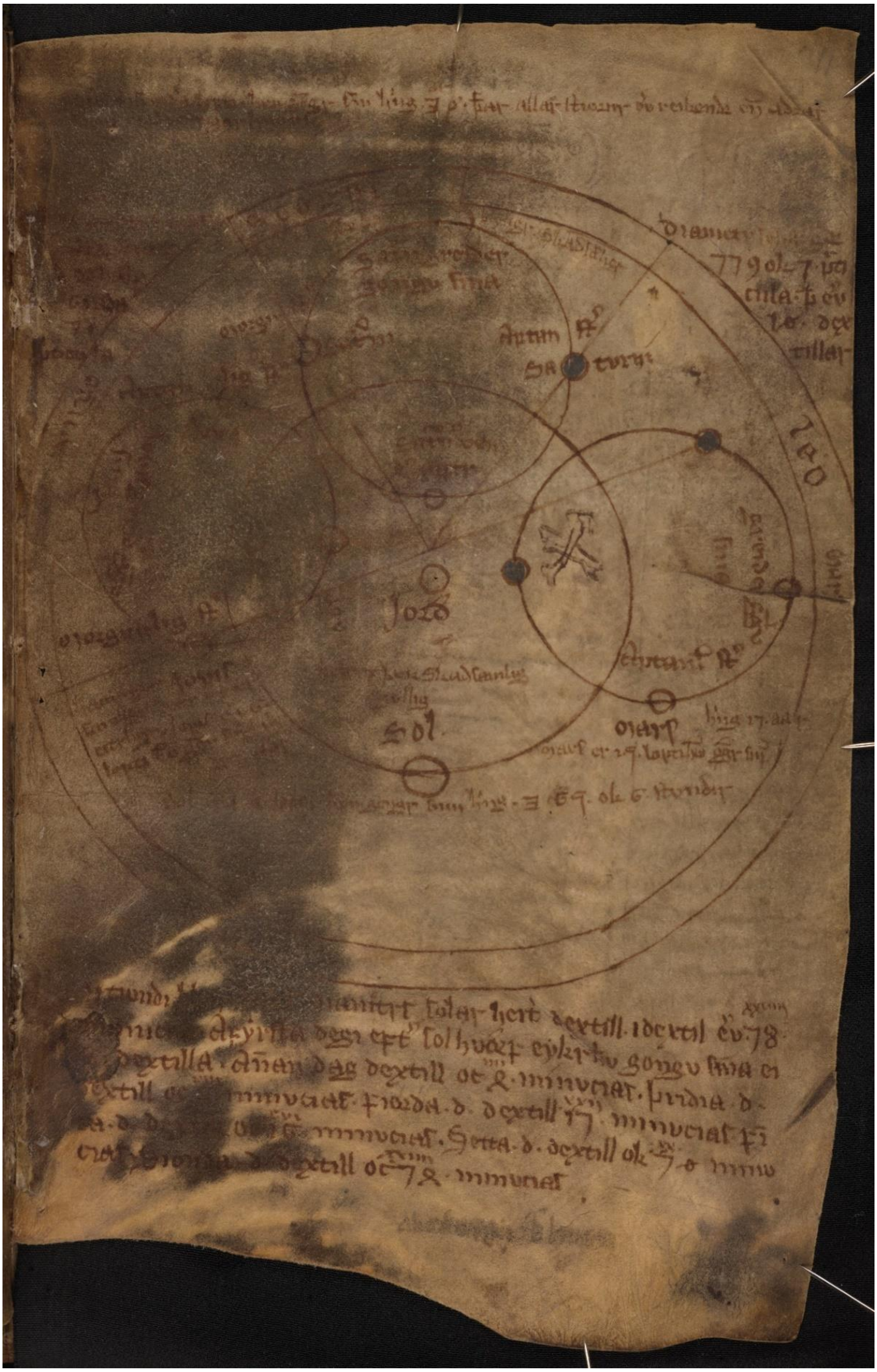

Figure 23: Folio 11r contains a continuation of the description of the seven planets, a diagram showing the epicyclic motions of the outer planets, and three short notes on the dimensions of the planets (Reykjavík, Stofnun Árna Magnússonar, GkS 1812 I 4to, f.11r) 1315-*c*.1400.

The motions of the superior planets

On folio 11r there is a second stage in this visual exposition on planetary kinematics. At the top of the folio there is a continuation of the text on the seven planets that began on the facing verso. This describes the position and orbit of Saturn. Further fragments from this text, describing the positions and orbits of Jupiter, the sun, and Mars, are interspersed into the body of the diagram next to their relevant diagrammatic depictions.

This diagram explains the apparent retrograde motion of Mars, Jupiter, and Saturn: the naked-eye planets that appear to stop in their orbits of the earth and appear periodically to move in the opposite direction.[72] As explained above, the retrograde planets move in small circles (or epicycles) on their eccentric orbits (deferents) around the earth. These circles are parallel to the sun's plane, the ecliptic, which is shown on the diagram. The three planets are shown in their apogees, the point in their orbits farthest away from the earth. The planets' apogees and perigees (the points in their orbits closest to the earth) were situated in different signs of the zodiac.[73] Martianus Capella, and Pliny the Elder, whom he follows, placed the apogee of Jupiter in Virgo, Saturn in Scorpio, and Mars in Leo, as shown in the diagram.[74] The diagram contains inscriptions that relate to the position of the retrograde planets in the sky in the mornings and evenings. A compass hole at the centre of the earth is reused on the verso overleaf for another *rota* diagram, the Icelandic zonal map.[75]

Like the diagram on folio 10v, this one marks the positions of the planets in two stations, and shows the forward and retrograde motions between them.

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[72] Bradley Carrol and Dale Ostlie, *An Introduction to Modern Astrophysics* (San Francisco: Addison-Wesley, 2007), 4.

[73] Pedersen, 'Astronomy,' 307. The planets in their absides (their near and far points, apogees and perigees) were sometimes represented in circular diagrams in manuscripts of Pliny's *Historia Naturalis*. See Eastwood and Grasshoff, *Planetary Diagrams*, 31-32.

[74] Bruce S. Eastwood, 'Invention and Reform in Latin Planetary Astrology,' *Latin Culture in the Eleventh Century. Proceedings of the Third International Conference on Medieval Latin Studies, Cambridge, September 9-12 1998*, vol. 1, ed. Michael W. Herren *et al.* (Turnhout: Brepols, 2002), 264-297, 273.

[75] *AÍ* II, ccxiv.

Iord	Earth
Heit *oc* þur skadsamlig	Hot and dry harmful
gullig	golden
Sol	Sun
hamingjusamligr heitr	Happy hot [Jupiter]
oc vatr eitrligr	and wet poisonous
morgunlig st*aða* Jovis	Station of Jupiter in the morning
Jovis greid*ir* g*on*gu sina	Jupiter proceeds in its course
Aptanlig st*aða* Jovis	Station of Jupiter in the evening
...[76]	[Jupiter turns back on itself]
Þvr *oc* kalldr saturn*us*	Dry and cold Saturn
blyligr skadsamligr	leaden harmful
Morgin sta*ða* Saturni	Station of Saturn in the morning
Saturn*us* greid*ir* gongu sina	Saturn proceeds in its course
Aptan st*aða* Saturn*us*	Station of Saturn in the evening
Saturn*us* vend*ir* sic apt*r*	Saturn turns back on itself
...	[Station of Mars in the morning]
Mars greid*ir* gongu sina	Mars proceeds in its course
Aptanlig st*aða* Mars	Station of Mars in the evening
...	[Mars turns back on itself]

We see the planets in two stations, the points at which they appear to stall and then change direction and become prograde or retrograde in their movements. The morning and evening stations have to do with whether or not the planet is in opposition to the sun. Because the orbits of Mercury and Venus are closer to the sun than the earth they can never be in opposition, that is, Mercury and Venus can never be opposite the sun in the sky, or have the earth come between them. When the superior planets are in opposition to the sun, they rise before it

[76] A number of inscriptions are missing. There is enough room for these inscriptions, and no space central to the diagram has been destroyed by trimming. Such omissions might imply that the diagram's scheme was only partially understood, or valued.

and are seen in the sky at evenings; when they are not in opposition, they are seen in the sky at mornings.[77]

Another feature of this and the previous diagram are the qualitative characteristics attributed to the planetary bodies. The most fundamental mark of Aristotelian inheritance on medieval cosmology is the distinction between the terrestrial and celestial realms, which were described in terms of stark opposition.[78] The terrestrial realm extends from the centre of the earth to the lunar sphere, and is characterised by mutability and impermanence. The terrestrial world was composed of the four sublunary elements, in ascending order earth, water, air, and fire. In contrast, the celestial realm begins at the lunar sphere and extends to the eighth sphere in which the stars are fixed. The celestial realm is fundamentally unchangeable because no contrary qualities – hot or cold, wet or dry – exist there. These two realms had radically different natures. Grant observes that 'if incessant change was basic to the terrestrial region, then lack of change had to characterise the celestial region.'[79] The four sublunary elements – earth, water, air, and fire – whose interactions mobilise change in the terrestrial realm have no place in the celestial realm.

The planets were nonetheless endowed with qualities, as can be seen on the two planetary diagrams in 1812 I. The diagram on folio 10v describes Mercury as calming, hot, and copper, and the diagram on folio 11r describes Jupiter as happy (jovial), hot, wet, and poisonous; the sun as hot, dry and harmful; and Saturn as dry, cold, leaden, and harmful. The qualities attributed to the planets had the potential to be problematic because, in Aristotelian thought, generation and corruption will take hold wherever contrary qualities exist.[80] Planets are regularly assigned qualities that are characteristic of the sublunary world.[81] The planets are characterised as they are on the Icelandic

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[77] Simek, *Heaven and Earth*, 17.

[78] Lewis, *Discarded Image*, 104-109; Grant, *Foundations*, 55.

[79] Grant, *Foundations*, 63.

[80] Grant, 'Cosmology,' 287; Grant, *Foundations*, 109.

[81] Grant, *Planets*, 467-69.

diagrams in the fifteenth-century *Ymago mundi* of Pierre d'Ailly, which describes Saturn as cold and dry, pale and evil in disposition; Jupiter as hot and wet, clear and pure, and thus tempering the maliciousness of Saturn; Mars is hot and dry, fiery and radiant, and therefore provokes war. Venus and Mercury are both radiant, defined by their relationship with the sun, whose course they never stray far from.[82] These qualities were associative, not formal: the planets did not exhibit these qualities in their own natures, but had the capacity to produce them in the sublunary world. The sun, therefore, was not warm itself, but had the capacity to warm. Robertus Anglicus, a thirteenth-century English commentator on Sacrobosco's *Tractatus de sphera*, explained that 'non omne illud quod nigrificat est nigrum' ('not everything that blackens is black').[83] It is notable that the scheme presented on the Icelandic diagrams is partial: not all of the planets are assigned their commonly held characteristics. It is likely that the Icelandic diagrams, or the exemplar from which they were copied, are incomplete.

The sizes of the earth and sun

Three short texts on the diameter of the earth and sun accompany the diagram on folio 11r. Near the upper-left corner of the diagram there is an Old Norse note on the diameter of the earth, with parallels in other Old Norse astronomical texts;[84] near the upper-right is an Old Norse note on the diameter of the sun, with similar parallels.[85] These two notes border the central diagram of the motions of the superior planets. Below the diagram are six lines in Old Norse on the diameters of the sun and its orbit of the earth in the days following the equinox.[86]

These texts are preserved elsewhere in Icelandic encyclopaedic manuscripts AM 415 4to (early fourteenth century) and AM 685 4to (fifteenth

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[82] Edward Grant, ed. *A Source Book in Medieval Science* (Cambridge, MA: Harvard University Press, 1974), 632.

[83] Thorndike, ed. *Sphere*, 155.

[84] *AÍ* II, 233.

[85] Ibid., 233.

[86] Ibid., 91.

century). In these manuscripts, these notes are integrated into a highly technical geometrical treatise on the geometry of circles and the calculation of the circumference.[87] No such text accompanies the statements presented here. This section of 1812 I is concerned with the structure of the earth and its dimensions. However, the diameters are provided without the means to calculate them. Once again, cosmographical doctrines are presented without the apparatus needed to reproduce them, suggesting that this is a more rudimentary handbook.

[87] Ibid., 231-235.

Figure 24: Folio 11v contains extracts from Helpericus's *De computo* and William of Conches's *De philosophia mundi*, paraphrased and translated into Old Norse, with the Icelandic zonal map amid a lunar diagram (Reykjavík, Stofnun Árna Magnússonar, GkS 1812 I 4to, f.11v) 1315-c.1400.

Helpericus's De computo

The Icelandic zonal map appears on folio 11v. Having examined thus far the visual argument constructed through the encyclopaedia's combination of diagrams, we can see that the zonal map appears in the midst of an exposition of the size and structure of the cosmos, and its physical operations. The folio is headed with a short text attributed to the computist Helpricus, or Helpericus. The text is written in Old Norse and describes the establishment of the Julian calendar by Julius Caesar, and the subsequent need for intercalary days.[88] In order to achieve parity between the lunar and solar calendars, a system of *aureum numerum* ('golden numbers') was established. The numbers 1-19 could be assigned to dates in the calendar to number the years in the nineteen-year Paschal cycle.[89] The *saltus lune* (Old Norse *tunglhoppun*) happens when the year accumulates an extra lunar day, because the average lunation (or lunar month) is slightly in excess of the notional lunar month of 29.5 days. Therefore, the calculated age of the moon, or *epact*, must 'jump' one day every nineteen years, in the final year of the nineteen-year Paschal cycle. This will ensure that the lunar year and the solar year begin on the same day, that is, on January 1st, once every nineteen years. This inserted lunar day is called an *embolism*, and compensates for the fact that the moon loses eleven days each year (that is to say, the moon is 11 days younger on January 1st each year) so that the solar and lunar years achieve parity. In this Old Norse paraphrase, Latin terminology is not translated. Thus we have: 'aureum numerum', 'epactiss', and 'embolissmis'. The exception is 'saltus lune', to which has been added: 'þat kaullum ver tunglhoppun' ('which we call the leap moon').

This text is an Old Norse paraphrase from one of the most popular textbooks of computus of the Middle Ages.[90] The date at which Helpericus's *De computo* was composed is uncertain, it being common to copy computus handbooks and 'modernise' the worked examples, using the current date for the

[88] *AÍ* II, 92.

[89] An Old Norse table of lunations with Golden Numbers is preserved on 1812 II f. 23r. *AÍ* II, 259-60.

[90] Heplericus's *De computo* is edited in *PL*, vol. 137:17-48

annus praesens ('present year'). Faith Wallis observes that Helpericus's readers seemed to regard *De computo* as a condensed and simplified version of Bede's *De temporum ratione*; Helpericus's treatise often serves as an introduction to Bede's more accomplished and detailed composition.[91] It is interesting, therefore, to note that the excerpt from *De computo* in 1812 I immediately precedes a text attributed to Bede. Simek has shown that this text attributed to Bede is actually an Old Norse translation from William de Conches's *De philosophia mundi* (see below), though the false attribution might signal the compiler's awareness of the thematic similarities between Helpericus's and Bede's works.[92]

This note links cosmography to computus through a reminder of the disparity between the lunar and solar calendars. It is again a reminder of one of the fundamental rationales for astronomical enquiry, located in the disparity in the lunar and solar calendars. This context is similar to the Icelandic hemispherical world maps, which similarly accompany a note on the error in the Julian calendar and in the case of 732b other computus texts.

The Icelandic zonal map

Attention to the Icelandic zonal map's companion texts and diagrams demonstrates that it is important that it not be viewed in generic isolation. The map emerges as one stage in a complex visual exposition on the structure of the universe and its operations. The zonal map has much in common with the two planetary diagrams that accompany it. All show the earth in its cosmographical contexts. The difference between them is one of scale and focus; while the earth features as only a point in the two planetary diagrams, it is enlarged and shown in greater detail on the zonal map. While the two planetary diagrams concern circumsolar Mercury and Venus (f. 10v) and the superior planets (f. 11r), the

[91] This is the case in Oxford, St John's College MS 17, and several other manuscripts of English provenance. Faith Wallis, '10. Helpericus, *De Computo*, fols. 123r-135v: Overview,' *The Calendar and the Cloister: Oxford, St John's College MS17*, McGill University Library, Digital Collections Program, 2007. http://digital.library.mcgill.ca/ms-17 (accessed 20th September 2014)

[92] Sharpe has noted that the 'very instability' of notions of medieval authorship 'can be revealing about the text's reception.' Richard Sharpe, *Titulus: Identifying Medieval Latin Texts: An Evidence-Based Approach* (Turnhout: Brepols, 2003), 8.

zonal map concerns the earth and moon. Further, the material circumstances of their production are relevant: the zonal map shares a compass hole with the diagram of superior planetary motions overleaf, and its epicycles are clearly visible through the vellum. These diagrams were drawn by their scribe at the same time, and with the same apparatus, so it is appropriate that their connection is acknowledged and interpreted. When the zonal map is restored to its manuscript context, its role as a continuation of this scheme of planetary diagrams emerges.

The zonal map also complements the encyclopaedia's computistic interests, expressed most fully in its initial folios. The map features after an extract from Sacrobosco's *De anni ratione*, and immediately below an extract from Helpericus's *De computo*, which, like the note that accompanies the Icelandic hemispherical world maps, concerns the establishment of the Julian calendar. The abbreviated lunar cycle that surrounds the map is incomplete and poorly implemented, which might again indicate the handbook's rudimentary nature. However, world maps and computus texts both concern the immediate structure of the cosmos, and the implications of the sun and moon's motions for both the earth's climate and the calendar.

It was noted earlier in this chapter that the map's facsimiles have hitherto reproduced only the central zonal map, with the surrounding lunar scheme having been removed. However incomplete or abbreviated, this lunar scheme connects the map to a wider visual programme: that of the structure of the cosmos and the movement of its parts. The diagram clearly shows the movement of the moon around the earth and in relation to the sun. The sun (coloured red) is shown on the outermost circle on the left-hand-side of the diagram. This can be identified as the sun, despite its lack of an inscription, because the part of the moon at the bottom of the diagram that faces it is coloured red. This represents the half-moon at around five nights into the lunation. The lunar diagram might have been left incomplete because the scribe lacked the ability to complete it. Alternatively, the diagram might have been purposefully left incomplete when the structure of the encyclopaedia became apparent to the scribe as he produced the last diagram in this section of the manuscript, a diagram dedicated to the representation of the lunar month on folio 12v. It might be suggested that the scheme around the Icelandic zonal map was left incomplete to reduce overlap between the encyclopaedia's numerous diagrams; in their illustration of the lunar phases, the zonal map and diagram of the eclipses (described below) are equivalent, and would overlap considerably if the zonal map were complete.

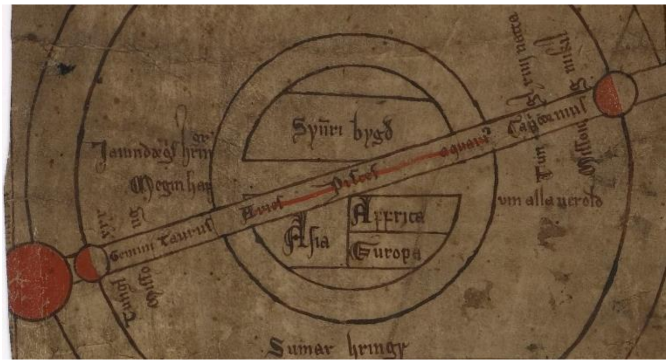

Figure 25: Details from the Icelandic zonal and hemispherical world maps show the sun and the part of the moon that faces it coloured red. The new moon is shown in both examples on the map's left, where the part of the moon that faces the earth is not shaded. The full moon is faded and no longer visible on the zonal map, which, however, adds representations of the moon at approximately five and eleven nights (top and bottom). These are the times at which the *meðaldagar* ('neap tides') occur. There are no inscriptions on the zonal map to identify these features.

William of Conches's De Philosophia mundi

The map's function emerges further through examination of the text written beneath it. This is an Old Norse text about the world's winds and oceans, attributed in its first line to the Venerable Bede. Kålund supported this attribution and said that it derived from *De natura rerum*, Ch. 39.[93] While references to Bede and his works abound in Icelandic encyclopaedics, this particular attribution is false. The text attributed to Bede was identified by Simek as an Old Norse paraphrase of the French scholastic philosopher William de Conches's *De philosophia mundi* (III.xiv-xv, *De refluxionibus Oceani* ('On the

93 *AÍ* II, 85.

Ocean Currents') and *De ortu ventorum* ('On the Origin of the Winds').[94] This misattribution has been well documented: William's treatise is edited under the name of Bede in *Patrologia Latina* vol. 90 and under the name of Honorius Augustodunensis in vol. 172. This text appears to have been influential in Iceland and has parallels in other Icelandic encyclopaedic manuscripts.[95] This text extends from the bottom of folio 11v to the top of folio 12v, where it meets a diagram of the eclipses.

The text describes the Cratesian quadripartition of the world by intersection of the equatorial and meridional oceans, described in the previous chapter (figure 10).

> Megin hafit sialft ligur um midia iordina, sem lindi ur austri i vestur ok svo aptr til austurs, enn retter arma sina ur austri ok vestri, adra til sudurs, en adra til nordurs, ok mætaz þeir adrir fyri nordan, en adrer fyri sunan iordina, ok skera þeir svo iordina i sundr i fiordunga.[96]
>
> (The ocean itself lies around the middle of the world and encircles it from east to west and back to the east, and reaches its arms out eastwards and westwards, and another to the south, and another to the north, and they meet each other in the north and in the south of the world, and thus divide the world into its four parts.)

These two arms of the ocean divide the world horizontally ('retter arma sina ur austri ok vestri') into a northern and southern hemisphere, and vertically ('adra til sudurs, en adra til nordurs') into an eastern and western hemisphere. This is shown pictorially on the Icelandic hemispherical and zonal maps. On the zonal map, the central inscription *megin haf* identifies the equatorial ocean, while the circle that encloses the map is the meridional ocean. The text continues to describe further the lay and disposition of these oceanic branches, with supplementary information on the effects of the conjunctions of the sun and moon on the tides. The Old Norse text appears to be losely based on the parallel chapter in *De philosophia mundi*, a free and independent translation that does

[94] Simek, *Altnordische Kosmographie*, 63-69.

[95] *AÍ* II, 85-86.

[96] Ibid., 85.

not adhere strictly to the original.

Two maps are associated with William's *De philosophia mundi*. Of the 120 or so extant manuscripts of this encyclopaedia, 67 contain at least one map.[97] The map, after Macrobius, accompanies the chapters on the ocean currents and the winds and shows a spherical earth with a small geographical nomenclature in the northern inhabitable region (see figure 26). This map bears a strong resemblance to the Icelandic zonal map: the oceans feature prominently on both, and both show the world divided by the equatorial ocean into northern and southern hemispheres. In order to identify the map's origins, it is productive to examine the original text of William's *De philosophia*.

> Praedicta Occidentalis refluxio ad Septentrionem vergens, cum juxta latera terrae tangens Africam, ad finem eius pervenerit, inter Calpem et Atlantem, usque juxta Hierusalem, Mediterraneum vocatur, diversa a diversis regionibus nomina accipiens. Qualiter vero ascendat et descendat si quis scire desiderat, et quae nomina, ex quibus regionibus sumpta mappam mundi consulat. Sed quia facilius illabitur animo subjecta descriptio, id quod diximus oculis subjiciamus: in posita sphaerula occidentalis refluxio ad septentrionem vergens, ex Atlante monte adjacente, Atlanticum mare vocatur, infra quam est Anglia, et vincinae insulae. Ex orientali refluxione ad septentrionem vergente nascitur Indicum mare. Similiter ex aliis refluxionibus ad austrum se vergentibus credendum est, maria nasci diversa. Sed hoc nostra attestione describi non debet, quia propter torridam zonam interjectam situs illarum nobis incognitus perseverat.[98]
>
> (The aforementioned western current that inclines towards the north, with the sides of the earth almost touching Africa, it has reached to its end between the Calpe Mountains [Gibraltar] and the Atlas Mountains, nearly as far as Jerusalem, is called the Mediterranean Sea, and takes different names in different regions. If anyone desires to know in what manner it ascends and descends, and which names it takes from such regions, consult a *mappamundi*. And because the accompanying diagram sinks into the mind more easily, let us place under the eye what we have said: into the given sphere the western current inclining towards the north, adjacent to the Atlas Mountains, is called the Atlantic Ocean, in which is England and its neighbouring islands. The Indian Ocean is born from the eastern current that inclines towards the north. Similarly, we must believe that from the other currents inclining south that other seas are born. But this ought not to be described in our testimony, because their locations remains unknown on account of the intermediate torrid zone.)

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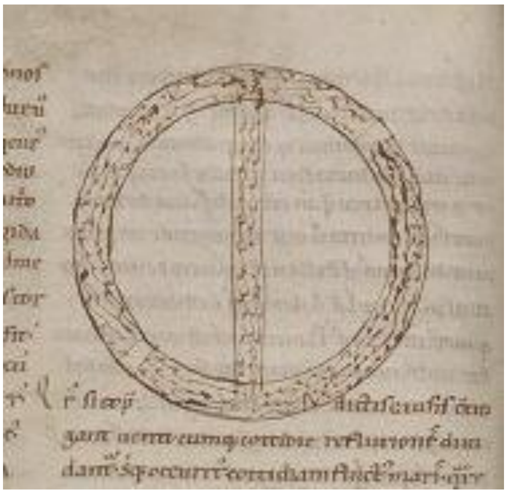
[97] Destombes, *Mappemondes*, 97.

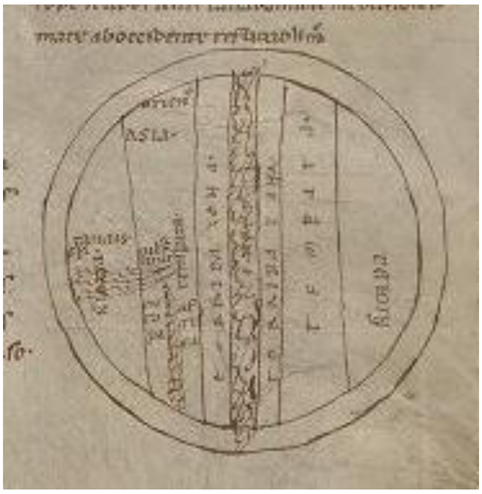
[98] William of Conches, *De philosophia*, III.xiv.

William, like Macrobius, acknowledges that a diagram can overcome the difficulties inherent to written geographical descriptions and explicitly enjoins the examination of a *mappamundi*. The purpose of this map is to illustrate the lay and disposition of the world's oceans.

Although the Old Norse text does not reference a world map, the map retains its function as an illustration of the quadripartition of the globe and the relative positions of the oceans. The map therefore sustains relationships with both its companion texts on folio 11v: it depicts the lunar month, described in the extract from Helpericus's *De computo*, and it shows the quadripartition of the earth, described in this paraphrase from William's *De philosophia mundi*.

Figure 26: Three maps in a manuscript of William of Conches's *De philosophia mundi*. The map on the left accompanies III.xiv on folio 13r. The map bottom left appears at the end of III.xx overleaf on folio 13v. The zonal map with geographical nomenclature below appears on folio 15r (Philadelphia, University of Penn, LJS 384), *c.* 1150.





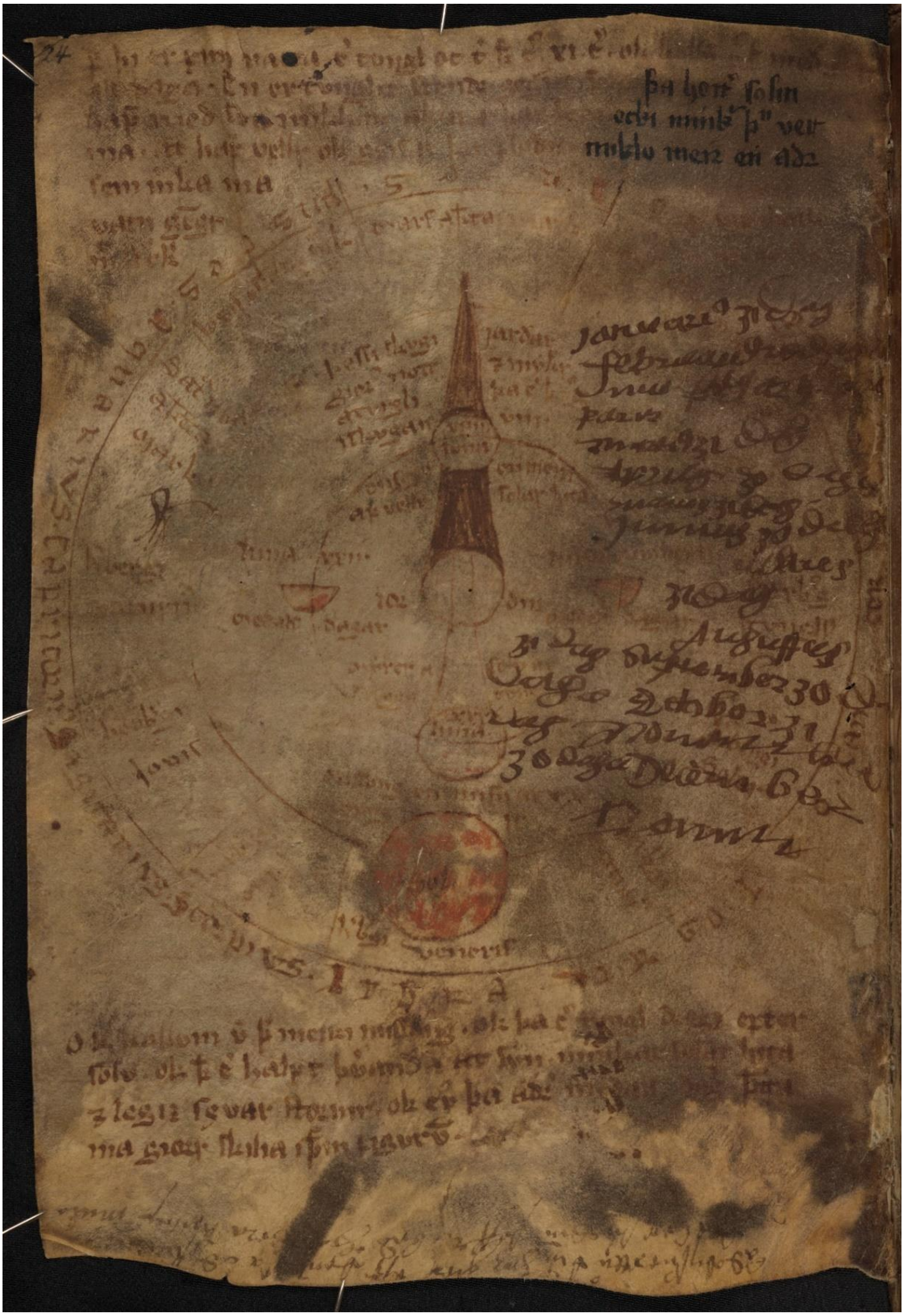


Figure 27: Folio 12v contains the conclusion of the Old Norse translation of William's *De philosophia mundi* with a diagram of the eclipses (Reykjavík, Stofnun Árna Magnússonar, GkS 1812 I 4to, f.12v) 1315-c.1400.

The eclipses

The Old Norse paraphrase of William's *De philosophia mundi* (III.xiv-xv) spans folios 11v-12r, and connects two circular diagrams: the Icelandic zonal map on folio 11v and a diagram of the lunar eclipses on folio 12v. At the top of folio 12v begins an Old Norse text about the monthly variation in the tides, with reference to the spring tides (*missong*) and neap tides (*meðaldagar*).[99] The text is similar to the tidal note that accompanies the Icelandic hemipsherical world maps. The most striking similarity between the tidal note and this text is the directive on which it ends: 'þetta ma giorr skilia i þessi figurv' ('you can understand this in this diagram'), which formalises its connection with the diagram below.

Unlike the others in 1812 I, this diagram has been reproduced in facsimile and its legends transcribed.[100] A number of verbal echoes exist between the diagram's Old Norse inscriptions and the accompanying text. The diagram shows the configurations of the sun and moon in relation to the earth described in the accompanying text as the causes for the spring and neap tides. The outer circle is inscribed with the names of the twelve signs of the zodiac and represents the ecliptic, the course taken by the sun around the earth. Into this circle has been drawn a large sphere representing the sun at the bottom of the diagram. The middle circle represents the course of the moon around the earth. Into this circle are drawn four representations of the moon at different points in the lunar month: at the top, the sun and moon are in opposition (they are opposite one another in the sky, and the moon is full); at the bottom, the sun and moon are in conjunction (they are in the same part of the sky, and the moon is new); on the left the half-moon is waxing; on the right the half-moon is waning. The dark cone shows the shadow cast upon the earth by the moon, and upon the moon by the earth, during the eclipses, when the sun and moon pass the ecliptic at the same time. Inscriptions on the diagram indicate how old the moon is when it is in these positions and indicates the occurrence of the neap tides at nine and 22 nights, and the springs and high springs at 30 and 0 nights.

[99] *AÍ* II, 89.

[100] Ibid., 89.

The diagram and the zonal map both illustrate tidal processes, but it is the hemispherical world map that shares in the greatest degree of functional similarity with the eclipse diagram. Both are employed in order to explain the generation of the tides and the influences exerted on them by the moon and sun. A number of inscriptions are common to both diagrams, they depict the same celestial arrangements in different ways, and illustrate functionally equivalent texts.

The presence of the eclipse diagram might retrospectively explain why the zone map's lunar-phase diagram has been abbreviated or left incomplete: this function has been transferred to the latter diagram. The compiler of the manuscript has not duplicated entirely two overlapping lunar schemes. The functional complementarity of the eclipse diagram and the zonal map presents a strong argument against the examination of these different diagrams in generic isolation. The zonal map must be seen in the wider context of 1812 I as a visual exposition on the structure of the cosmos. Furthermore, similairites between these diagrams and the Icelandic hemispherical world maps urge that consideration be given to diagrams of different types across different manuscripts, and that careful attention be directed towards the circumstances of their use.

Conclusion

This chapter has demonstrated that the Icelandic zonal map sustains a productive suite of relationships with its companion texts and diagrams. The aim of this section of the encyclopaedia is to provide an overview of planetary kinematics. This aim is prompted by the encyclopaedia's initial concern with computus, and how calendrical problems originate in the motions of the stars and planets. The zonal map is one step in a staged exposition of the structure of the cosmos and the physical parameters of its clocked processes: the orbits of the planets. The map follows on from two diagrams that show the earth in its more distant cosmographical contexts: amid the eccentric and epicyclic orbits of the inferior (f. 10v) and superior (f. 11r) planets. The zonal map and diagram of the eclipses narrow the exposition's focus, and show how the motions of planetary bodies intersect with the study of computus. Secondly, the zonal map shows the

Cratesian division of the globe by the intersection of the equatorial and meridional oceans, and its lunar scheme implies the effects of the moon upon them.

It is important to note that it is possible to understand these diagrams in terms more complete than those available to the scribes who produced them. The planetary diagrams in particular do not accompany the relevant sections from Sacrobosco's *Tractatus de sphaera*, or William's *Dragmaticon* that would have explained their visual arguments in any detail. It is not obvious how much information was available to the scribe that produced these diagrams, or how far he was familiar with their conventions. The diagrams' inscriptions provide the only insight into how well their visual arguments were understood. The legends that describe forward (*greiðir göngu sína*) and retrograde (*vendir sik aptr*) motion are accurate, but offer slender evidence that the eccentric epicycles were fully understood. Written descriptions of the eccentric epicycle are found nowhere in Icelandic encyclopaedias.

The foregoing discussion enables us to characterise this encyclopaedia as an elementary introduction to the structure of the physical universe that accompanies practical verses that aid memorisation of basic calendrical principles. Despite the technical nature of its sources, it is not an advanced treatise on cosmology or mathematical astronomy. The texts and diagrams do not provide the apparatus needed to establish or verify the cosmographical doctrines therein. The encyclopaedia appears to be intended for a public of non-specialists, for whom it provides access to literature translated from Arabic in the twelfth and thirteenth centuries. Its diagrams, the zonal map among them, probably derive from popular astronomical handbooks that were in wide circulation. This raises the question of whether the encyclopaedia preserves the structure and contents of its exemplar, or whether its configuration of texts and diagrams is original. This question can be asked of both 1812 I and 732b. The presence of most of the texts contained in 732b elsewhere in Icelandic encyclopaedias implies that its compiler freely and independently adapted his sources, perhaps following the general structure of an original compilation but not every detail. For instance, the introductory text preserved across folios 10v and 11r appears twice in this single encyclopaedia, and its duplication would seem to imply the combination and recombination of texts across different contexts to produce different effects in the service of different intellectual programmes.

The Icelandic zonal and hemispherical world maps have a formal and contextual affinity, and their study has illuminated not only the roles played by these kinds of maps in Icelandic intellectual culture, but the roles played by these encyclopaedic compilations more generally. In the three chapters that follow, our attention turns to two maps of a very different type. These maps are principally maps of the inhabited world, or ecumene, whose representation on the zonal and hemispherical world maps is schematic.

The two Viðey maps

Reykjavík, Stofnun Árna Magnússonar, GkS 1812 III 4to, ff. 5v-6r and 6v.

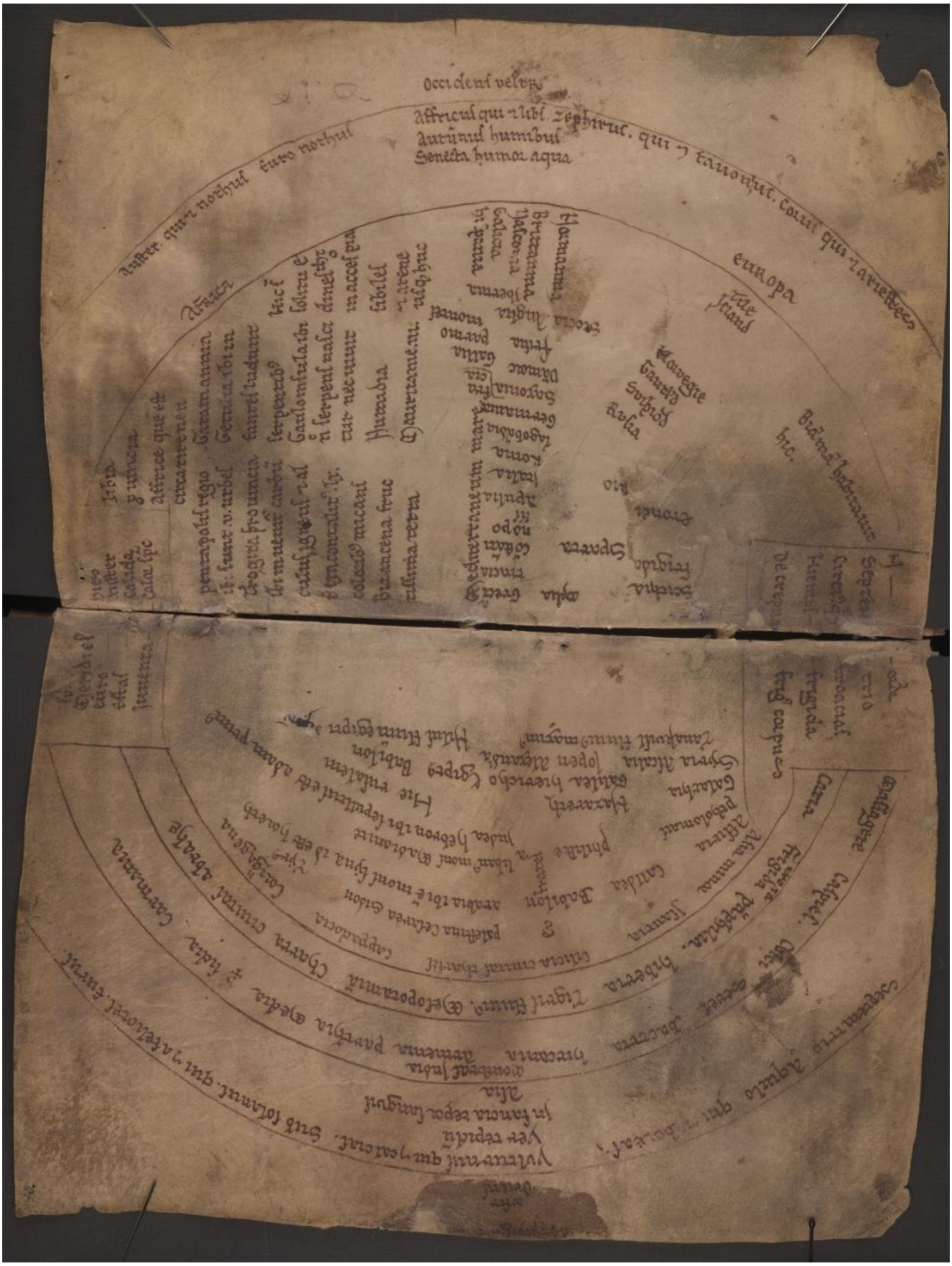


Figure 28: The larger Viðey map (Reykjavík, Stofnun Árna Magnússonar, GkS 1812 III 4to, ff. 5v-6r) *c*. 1225-50.

Figure 29: The smaller Viðey map (Reykjavík, Stofnun Árna Magnússonar, GkS 1812 III 4to, f. 6v) *c.* 1225-50.

III. The two Viðey maps

The manuscript in Reykjavík's Stofnun Árna Magnússonar with the shelf mark GkS 1812 4to contains three of the five maps that survive from medieval Iceland. This manuscript is a compilation that is not made up of regular gatherings. The zonal map is preserved on folio 11v, in a section dated 1315-*c.* 1400 (GkS 1812 I 4to); the other two maps are preserved on folios 5v-6r and folio 6v, in a section dated *c.* 1225-50 (GkS 1812 III 4to). The two folios that comprise folios 5r-6v, and accommodate the two maps, have been inserted into the abundantly illustrated section of the encyclopaedia that accommodates the zonal map. These inserted folios contain three items: a register of forty highborn Icelandic priests attributed to the renowned scholar Ari Þorgilsson (1067–1148) and dated 1143, a detailed double-page world map (figure 28), and a simple schematic T-O map (figure 29). These two maps, one complex and variegated; the other simple and iconic, are the focus of the three chapters that follow.

These two maps are the earliest witnesses to the cartographic culture of medieval Iceland. They are unlike others in the Icelandic corpus in that they are primarily representations of the ecumene, while the Icelandic hemispherical (chapter 1) and zonal maps (chapter 2) are visual expositions on the structure of the universe and its processes.[1] The detailed double-page map contains an extensive geographical nomenclature, with more than 100 geographical legends that mark the locations of countries, regions, cities, rivers, mountains, and peoples. This map has a circular frame that correlates the four cardinal points with other important fours, namely the four principal winds, the four seasons, the four ages of man, and the four elements of the human body. The smaller map is a more schematic T-O map amid a diagram that shows, in addition to the important fours disposed around the larger map, the twelve months of the year, and the twelve signs of the zodiac.

There is no small degree of overlap between these two maps. Both show the ecumene divided into the three continents, and both schematise the four cardinal points and their associated phenomena in the natural world. They differ in the degree to which they place emphasis on the ecumene, whose

[1] The term *ecumene* has a wide range of connotations. Their applicability to the two Viðey maps will be examined in chapter 4.

representation is more schematic on the smaller T-O map. The larger map is expressive of the relationships between European polities, its European place-names arranged in a geographically suggestive way. On the smaller map, the central T-O names only the three continents. The maps have not previously been examined together, and the relationship between them has remained unanalysed.

No proper names have developed to distinguish between these maps and others in the Icelandic corpus. The maps considered in chapters 1 and 2 can be identified with relatively well-defined map genres: the hemispherical world map and the zonal map, and their names follow from these generic identifiers. However, while the maps of 1812 III are not *sui generis*, they do not have exact cartographic parallels or clear associations with known authors. The larger map has been referred to in its slender literature variously as: the 'planisphère,'[2] 'veraldar kringlan,'[3] the 'mappamundi,'[4] the 'Icelandic Mappa Mundi,'[5] the 'Große Mappa mundi,'[6] and the 'Icelandic Map.'[7] These names do not adequately distinguish the map from others in the Icelandic corpus, not least the smaller map preserved in the same manuscript fragment. Because this section of the manuscript appears to be associated with the Augustinian monastery at Viðey (see chapter 2), I suggest that these two maps be referred to collectively as the 'Viðey maps,' and individually as the 'larger Viðey map' and 'smaller Viðey map.' The practice of naming maps for the centres that produced or held them has precedent: for example, the map in Oxford, St John's College, MS 17, on f. 6r produced at Thorney Abbey is commonly known as the Thorney map. For convenience of reference, the large non-schematic tripartite world map (GkS

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2 Rafn, *Antiquités Russes*, 392-94.

3 *DI* I, 182.

4 *AÍ* III, 72.

5 Omeljan Pritsak, *The Origin of Rus'*, vol. 1: *Old Scandinavian Sources other than the Sagas* (Cambridge MA: Harvard University Press, 1982), 514-16.

6 Simek, *Altnordische Kosmographie*; Rudolf Simek, 'Skandinavische Mappae Mundi in der europäischen Tradition,' *Ein Weltbild vor Columbus: Die Ebstorfer Weltkarte*, ed. Hartmut Kugler *et al.* (Weinheim: VCH, 1991), 167-184, 178.

7 Chekin, *Northern Eurasia*, 70; and subsequently Alfred Hiatt, '*Beowulf* off the map,' *Anglo-Saxon England* 38 (2009), 11-40, 22.

1812 III ff. 5v-6r) will be referred to in this thesis as the larger Viðey map, and the small schematic T-O map (GkS 1812 III f. 6v) as the smaller Viðey map.

The relationships between the two Viðey maps, and the items they accompany in 1812 III, have hitherto remained unknown. In Simek's *Altnordische Kosmographie*, more than 90 pages separate facsimile reproductions of these two maps. Furthermore, in the only article-length study on the Icelandic world maps, the first and last maps described are the smaller and larger Viðey maps respectively,[8] without it being mentioned that these maps were drawn on the recto and verso of the same folio. On the contrary, Simek wrongly attributes the map in his discussion (though not in the caption that accompanies the map facsimile) to folio 11v.[9] Similar foliation errors in Simek's *Altnordische Kosmographie* confused the map's most recent commentator, Leonid S. Chekin, who questioned whether the small T-O map described by Simek was indeed one map or two.[10] Chekin did not examine the manuscript in which these maps are bound, and there are a number of errors in his description of 1812 III that can be traced to errors in earlier accounts. Kålund erroneously identified the second fragment of 1812 III as folios 34r-36v.[11] However, this second fragment of 1812 III is a bifolium that spans folios 35r-36v and does not include folios 34r-34v. Chekin's reported 'astronomical fragments' actually belong to 1812 IV.[12] Additionally, Chekin states that 'a list of Icelandic bishops' is preserved on folio 5r. However, this list of bishops is an addition to the folio dated to the 1480s; the folio originally contained only the list of forty highborn Icelandic priests.

This chapter introduces the two Viðey maps together, and is intended as a touchstone for the two chapters that follow. It reviews the former editions and commentaries on the two Viðey maps, and then describes, in broad strokes, these maps' main formal characteristics, and the genres to which they have been attributed. Two observations emerge from this overview. Firstly, it is shown that

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[8] Simek, 'Skandinavische Mappae Mundi,' 170, 178.

[9] Ibid., 170. Folio 11v actually accommodates the zonal map.

[10] Chekin, *Northern Eurasia*, 69-70.

[11] *AÍ* II, ccx.

[12] Chekin, *Northern Eurasia*, 70.

these commentaries focus on the maps as vehicles for the geographical information available to Icelanders in the thirteenth century, with little attention directed to the ways in which the maps present or reshape this information. Secondly, the manuscript context of these maps remain unknown. These observations guide the chapters that follow.

Previous editions and commentaries

The larger Viðey map
(Reykjavík, Stofnun Árna Magnússonar, GkS 1812 III 4to, ff. 5v-6r) c. 1225-50

I. Rafn, *Antiquités Russes* II (1852), 392-94 (transcription and drawn facsimile)
II. Kålund, *Alfræði Íslensk* III (1916-18), 71-72 (transcription and photographic monochrome facsimile)
III. Destombes, *Mappemondes* (1963), 175 (description)
IV. Haraldur Sigurðsson, *Kortasaga Íslands* (1971), 54 (partial monochrome facsimile)
V. Pritsak, *The Origin of Rus'* I (1981), 514-16 (transcription with photographic colour facsimile)
VI. Simek, *Altnordische Kosmographie* (1990), 419-23 (transcription with photographic monochrome facsimile)
VII. von den Brincken, *Fines Terrae* (1992), 128-29 (photographic monochrome facsimile)
VIII. Chekin, *Northern Eurasia* (2006), 69-71 (transcription of Eurasian legends with photographic monochrome facsimile)

Rafn's *Antiquités Russes* II contains the earliest printed reproductions of the Viðey maps. The larger Viðey map has been reoriented in facsimile to place east at the top, though the commentary notes that the original has south at the top. Rafn transcribes the cardinal points and their associated fours from the map's frame separately from the map's geographical contents.[13] Rafn thought this map was contemporary with the oldest part of this manuscript (GkS 1812 IV), and dated it *c*. 1150.[14]

[13] Rafn, *Antiquités Russes*, 392-94.

[14] Ibid., 392.

In *Alfræði Íslenzk* II Kålund identified the map with the part of the manuscript designated GkS 1812 III, and dated it on palaeographic grounds to *c.* 1225-50.[15] Kålund's dating has been accepted by all modern commentators except for Omeljan Pritsak, who notes but does not resolve the discrepancy between Rafn and Kålund's dates. The map is indeed preserved in the section 1812 III and is dateable to *c.* 1225-50 (see the description of this manuscript in chapter 2). Kålund transcribed the map's legends in *Alfræði Íslenzk* III, with a monochrome photographic facsimile on the rear flyleaf.[16] The legends from the map's frame are again transcribed separately from the map's geographical contents.

Destombes provides a brief description of the map's contents. The map is grouped with those maps produced by 'auteurs divers et anonymes' ('diverse and anonymous authors') for which clear sources and parallels cannot be readily identified.[17] Destombes dates the map more broadly than has been customary in the Scandinavian literature to the thirteenth century. The attendant description is perfunctory. Destombes states that the map features a nomenclature of seventy names (when there are in fact more than 100) presented in columns (only the map's African legends are thus presented). Destombes states that the map features amid a perimeter of winds, but makes no mention of other fours assembled around its perimeter.

Haraldur Sigurðsson's *Kortasaga Íslands* (1971) features a partial facsimile of one folio (6r) of the map, presumably for its European and Icelandic details.[18] The map has been reoriented to place North at the top, so that the inscriptions *Thule* and *Iceland*, at the head of the map's European quadrant, can be read the right way up.

Pritsak's *The Origin of Rus'* I features a description of the Icelandic map, with a colour facsimile and transcription of its text. Pritsak examines the map for its depiction of the eastern Baltic and inclusion of the place-names *Rusia* (Russia) and *Kio* (Kiev). Pritsak transcribes the map's geographical legends by

[15] *AÍ* II, ccxi-ccxii.

[16] *AÍ* III, 71-72.

[17] Destombes, *Mappemondes*, 175.

[18] Haraldur Sigurðsson, *Kortasaga Íslands*, 54.

continent.[19] Pritsak does not resolve the discrepancy between Rafn and Kålund's dating of the map, his brief section on the map entitled simply 'The Icelandic Mappa Mundi of about 1150 or 1250.'

Simek's *Altnordische Kosmographie* is the only commentary on the larger Viðey map to note that a copy of the map exists in a later paper manuscript that he dates *c.* 1500.[20] However, the manuscript to which Simek refers (Reykjavík, Stofnun Árna Magnússonar, AM 252 fol. f. 62r) was written by the scribe Ásgeir Jónsson in *c.* 1686-1707. The map's geographical legends and the legends from the map's frame are transcribed separately.[21] There are monochrome facsimiles of the 1812 III map and its apograph in AM 252.[22]

Chekin provides the most recent commentary on the larger Viðey map, and describes the arrangement of the map's European and Asian legends.[23] He also describes the fours assembled the map's frame. As noted previously, there are a number of errors in Chekin's description of the contents of 1812 III that can be traced to errors in earlier descriptions.

These editions have not concerned themselves with the relationship between the contents of the map and its overall cartographic form. The important fours assembled in the map's frame – the names of the four cardinal points and their associated natural phenomena, such as the four seasons and four ages of man – have not been mentioned in studies on the map's geographical contents. Studies have removed the map's geographical information from the frame that conditioned its reception. Anna Dorothee von den Brincken[24] and Chekin[25] both observe that there is no dominant textual orientation among the map's geographical legends, nor single angle from which to read them.

[19] Pritsak, *Origins of Rus'*, 1:514-15.

[20] Simek, *Altnordische Kosmographie*, 424.

[21] Ibid., 419-22.

[22] Ibid., 423-24.

[23] Chekin, *Northern Eurasia*, 69-71.

[24] Anna-Dorothee von den Brincken, *Finnes Terrae: Die Enden der Erde und der vierte Kontunent auf mittelalterlichen Weltkarten* (Hanover: Hahnsche Buchhandlung, 1992), 129.

[25] Chekin, *Northern Eurasia*, 69.

Otherwise, commentaries have drawn little attention to features of the map other than its geographical contents.

The smaller Viðey map
(Reykjavík, Stofnun Árna Magnússonar, GkS 1812 III 4to, f. 6v) c. 1225-50

Previous editions and commentaries

I. Rafn, *Antiquités Russes* II (1852), 391 (transcription and partial drawn facsimile)
II. Simek, *Altnordische Kosmographie* (1990), 508-9 (partial transcription and partial photographic monochrome facsimile)

Rafn reproduces the T-O at the centre of this diagram in facsimile, but omits the greater part of the diagram that encloses it. Rafn describes this diagram as a wind rose, a descriptor since taken up by Simek, but as chapter 5 will demonstrate this is a misnomer. The fours that surround this central T-O are elided in facsimile, but all its legends are transcribed.[26]

Simek again references this map alongside its apograph of *c.* 1686-1707. However, Simek only transcribes three of the map's legends: the names of the three continents.[27] A monochrome facsimile of the map shows the central T-O only, with south at the top.[28] The same map is reproduced also as a facsimile earlier in the same volume with different foliation.[29] The folio number provided in the caption to the earlier facsimile is the correct one. However, this error has caused Chekin to wonder whether there is one map of this type in 1812 III or two.[30]

Reproductions of the smaller Viðey map have been far less numerous than those of the larger Viðey map, despite the fact that they would have been encountered together by the medieval reader. Facsimile reproductions have been partial, and have tended to feature only the central medallion bearing the names

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[26] Rafn, *Antiquités Russes*, 391.

[27] Simek, *Altnordische Kosmographie*, 508.

[28] Ibid., 509.

[29] Ibid., 99.

[30] Chekin, *Northern Eurasia*, 70.

of the three continents. Previously, this map has been examined only as a vehicle for the transmission of the concept of the tripartite world, and has therefore appeared in two studies into the geographical knowledge of the medieval Scandinavians. This thesis is the first study to examine the inscriptions located in these maps' frames, and the relationship between these two maps.

Genre and relationships with other world maps

The larger Viðey map has no simple lineage that can be discerned through comparison with other European world maps. On the whole, few medieval maps survive and often only general families or groups can be recognised within the extant corpus.[31] However, while the map is without exact cartographic parallels it is not altogether *sui generis*. The map has been identified as an example of the non-schematic T-O map by Destombes,[32] Simek,[33] and von den Brincken.[34] Since the map does not belong to any group associated with a known author or tradition, Destombes, as noted, numbers it among those produced by anonymous authors.[35] Chekin refines this classification by placing it alongside maps that derive their geographical contents from diverse sources, the preponderance of their place-names not exclusively Lucanian or Sallustian in origin.[36] Within this group, Chekin identifies two sub-groups: one comprises three maps that contain geographical legends arranged abstractly or in lists, a pattern Chekin describes as the 'narrative organisation of place-names,'[37] while another comprises nine maps that contain geographical legends arranged in a geographically suggestive way, a pattern Chekin describes as the 'spatial organisation of place-names.'[38] Chekin places the larger Viðey map in the second

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[31] Patrick McGurk, 'Introduction,' *An Eleventh-Century Anglo-Saxon Illustrated Miscellany (British Library Cotton Tiberius B. V. Part 1)*, ed. Patrick McGurk *et al.* (Copenhagen: Rosenkilde and Bagger, 1983), 86.

[32] Destombes, *Mappemondes*, 175.

[33] Simek, 'Cosmology,' 110.

[34] von den Brincken, *Finnes Terrae*, 129.

[35] Destombes, *Mappemondes*, 175.

[36] Chekin's study records all western European and Byzantine maps from the eighth through to the thirteenth centuries that contain information about the Northern Eurasia. Chekin, *Northern Eurasia*, 9.

[37] Ibid., 59.

[38] Ibid., 63.

camp, but besides the general disposition of its place-names, the map bears little resemblance to the other eight maps in this group. Chiefly, the Icelandic map contains far more geographical inscriptions than other maps in this group: the map with the second most inscriptions, the Thorney map, contains around 55 geographical inscriptions, while the larger Viðey map contains around 105. Furthermore, the larger Viðey map is the only one in this group that spans two folios.

Although this map was unknown to them, two further map historians have proposed groupings in which the map's main characteristics can be recognised. In the first volume of the *History of Cartography*, David Woodward proposes that maps of the ecumene that show the three continents and contain a geographic nomenclature be designated 'non-schematic tripartite' world maps.[39] Evelyn Edson identifies a sub-group of maps that she describes as list maps, comprising a basic cartographic frame onto which a geographical nomenclature has been added, sometimes in a way that is geographically suggestive.[40]

This map is one of few double-page maps found in medieval European manuscripts.[41] The most common double-page maps in medieval manuscript books are those associated with Beatus of Lièbana's *Commentary on the Apocalypse* (written between 776 and 786). These maps illustrate the second book of Beatus's *Commentary* and show how the apostles had brought the Christian religion to the whole world.[42] While a number of the Beatus maps show the island of Thule, which appears also on the Icelandic map (see chapter 4), these maps otherwise bear little resemblance to the Icelandic map. Manuscripts of Ranulf Higden's *Polychronicon* from the latter half of the fourteenth century

[39] Woodward, 'Medieval *Mappaemundi*,' 295. The term tripartite can be misleading when used of these maps. There were a number of ways in which the world could be ordered and anatomised and, as the Viðey maps show, these were not mutually exclusive. In medieval geographical writings the world is more frequently described as quadripartite, the four divided between four points on the horizon: where the sun rises and sets on the summer solstice (NE and NW) and winter solstices (SE and SW). On the division of the world into its parts in the Middle Ages, see Suzanne Conklin Akbari, *Idols in the East: European Representations of Islam and the Orient, 1100-1450* (London: Cornell University Press, 2009), 19-27.

[40] Edson, *Time and Space*, 5-6; Evelyn Edson, 'World Maps and Easter Tables: Medieval Maps in Context,' *Imago Mundi* 48 (1996), 25-42, 30.

[41] Simek, 'Cosmology,' 110.

[42] Chekin, *Northern Eurasia*, 171.

are also associated with double-page maps.[43] This expansive format enabled the mapmaker to arrange inscriptions loosely and in a way that reflected his knowledge of world geography. An effect of the double-page format is that the map is inalienable from the other items preserved alongside it: no other leaves can be inserted between the items contained in this fragment without breaking up the double-page map and making it unreadable. Therefore, the larger Viðey map cannot be accessed independently from the list of forty Icelandic priests on folio 5r and the smaller map on folio 6v. The relationship between these three items is considered in Chapter 5.

Another uncommon feature of the larger map is its sparse use of outlines. The outermost circle extends across both halves of the map (on ff. 5v-6r) and encloses the names of the twelve winds that blow inwards from their points around the map's horizon. The four cardinal points, and other important fours, are named at the head of the four quarters of the world, these inscriptions accommodated by square inserts at the top and bottom of the map. These grouped inscriptions comprise the quadripartite frame through which the map's geographic contents are viewed (see Chapter 5). A further two outlines have been drawn in the eastern half of the map, and enclose two sequences of eastern Asian toponyms and ethnonyms. The outer of these begins with the people of the Massagetae and ends with Carmania.[44] The inner begins with Caria and ends

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43 Destombes, *Mappemondes*, 149-153.

44 This group of inscriptions includes a number of ethnonyms that appear also on the Hereford map (*c.* 1300), including the people of the Massagetae (an Iranian nomadic confederation) and the Seres (the Chinese). See Kline, *Maps of Medieval Thought*, 44-45. The Massagetae were known primarily through the *Histories* of Herodotus (1.215-6). There are two inscriptions that mention Seres on the English Hereford world map (*c.* 1300) which may have obtained its information from Pliny's *Historia Naturalis* (IV.54), Solinus's *Collectanea* (15.4,50.2-4), or Isidore's *Etymologiae* (19.22.14). The longer inscription on the Hereford map reads: 'Seres primi homines post deserta occurrunt – a quibus serica uestimenta mittuntur' ('the Chinese, the first men who come after the desert, export silk garments') while the shorter reads 'Seres civitas' ('City of the Seres'). See Scot D. Westrem, *The Hereford Map: A Transcription and Translation of the Legends with Commentary* (Turnhout: Brepols, 2001), 46-47. The degree to which these inscriptions on the Icelandic map express familiarity with the traditions from which they draw is unclear. It is possible that such inscriptions were desemanticised by time and distance, and held little meaning for the scribe that produced the map, or its later readers.

with Canaan, the city of Abraham.[45] While the place-names arranged in these circles are indeed neighbours, as indicated in written geographical descriptions such as Eusebius's *Onomasticon* and Isidore's *Etymologiae*, it is unclear whether or not these two outlines contribute meaningfully to the map's scheme. In the western half of the map there are no such outlines.

These outlines might be better understood through comparison with the smaller map. This smaller map, like the eastern half of the larger map, also contains a scheme of three concentric circles. In the case of the smaller map, however, these circles are complete and fully enclose the central T-O. These circles accommodate the different elements of the four-fold scheme: the outer circle contains the winds, months, and signs of the zodiac; the middle circle contains the seasons; and the inner circle contains the components of the human microcosm. On the larger Viðey map, there are three semi-circular outlines in the eastern half of the map, but only one circle extends into the map's western half. It might be that the mapmaker felt these circles were restrictive on the space available to arrange his geographical legends, and so abandoned this scheme. The result is that the cardinal directions and their related fours are clustered in the outer circle.

The Viðey maps must be examined in terms of the wider European cartographic output of the thirteenth century, which represents the apogee of map production in medieval Europe. Comparisons between the Icelandic maps and their European parallels in chapters 4 and 5 demonstrate that they are fully abreast of developments in European cartography. The Viðey maps were produced at around the same time as other, better known maps, such as the two English Psalter maps (London, British Library, Add. 28681, ff. 9r and 9v, *c.* 1250),[46] the maps produced by the Benedictine monk and chronicler Matthew

[45] This sequence includes the river Tigris, one of the four rivers that flow from Paradise. The River Nile appears in the terrestrial circle above the inscription Alexandria and beneath the inscriptions Egypt and Babylon: 'Nilus heit*ir* eþ*r* geon oðro nafni. hín fiorða a su e*r* fellr or paradiso. hon skilr asiam oc africam. h*on* fellr umhueruis egipta l*an*d. A egipta l*an*dí e*r* babilon in nyia. oc hofu - b*or*g su e*r* alexandría heit*ir*' ('The fourth river that flows out of Paradise is called the Nile, or by its other name Geon. It divides Asia and Africa, and flows through the whole of Egypt. In Egypt is Cairo [Babylon the New], and the capital city which is called Alexandria'). The map features two Babylons. In the Icelandic *Geographical Treatise* (see introduction, and chapter 1) Babylon the New was the name given to Cairo. The River Euphrates appears near the other Babylon, as per the description in the *Treatise* ('Eufrates fellur igegnu*m* babílon inafornu'). The fourth river, the Phishon or Ganges, is absent from the map.

[46] The Viðey maps are similar to the English Psalter maps in that both are paired maps drawn on the recto and verso of the same manuscript folio.

Paris,[47] and a number of decades before the Hereford map (1290s or *c.* 1300). Icelanders were not latecomers to map production but, possibly for reasons tied to their geographical location, were active participants in its development, as chapter 4 demonstrates. Further, it will be shown in chapter 5 that features of the map's quadripartite frame also find diagrammatic expression elsewhere at this time, and that maps and diagrams in European and insular manuscripts would continue to incorporate the devices featured on the Viðey maps well into the fourteenth century. As Kline has demonstrated, medieval world maps were not only cartographic documents, but also belonged to the larger category of cosmological *rotae*.[48] Cosmological *rotae* share in many of the formal characteristics of the Viðey maps and, as we saw in chapter 2, are sometimes preserved alongside them. The map's conceptual frame in particular can be compared with other diagrams, such as the wind diagram, the wheel of life, and the wheel of months. Comparisons with other world maps and diagrams in the following two chapters emphasise the modernity of the Icelandic Viðey maps in their thirteenth-century European context.

Despite the fact that these maps are preserved on the recto and verso of the same folio, and exhibit a considerable degree of overlap, the connections between them have not been studied. Why does this manuscript fragment contain two such similar maps? One explanation might be sought in their common ground. It seems likely that the contemporary reader's experience with maps was limited. The larger of these two maps presents an almost overwhelming amalgamation of text and image, and the irregularity of its contents makes it initially difficult for an inexperienced reader to discern its T-O framework or the structure of its quadripartite frame. The smaller T-O map preserved overleaf from the larger map is by far the clearer of the two. In its clear division of the three continents, and elucidation of the frame's quadripartite scheme, the smaller map does an exegetical service to the larger map, making its unevenly distributed contents easier to read. Thus we might suggest that the smaller map has a heuristic function that enables the important structural characteristics of the larger map to be apprehended at a glance or memorised.

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47 Naomi Reed Kline, *Maps of Medieval Thought: The Hereford Paradigm* (Woodbridge: Boydell, 2001), 81; Birkholz, *Two Maps*, iii.

48 Kline, *Medieval Thought*, 12.

The maps' sources

No extant map provides fully adequate parallels for these maps' contents. It is likely that the Icelandic maps are the result of a process of combination and recombination of information from various cartographic, written, and oral sources. Medieval mapmakers drew their information mostly from narrative geographical descriptions in the works of late antique and early medieval authors such as Orosius and Isidore.[49] The map's representation of Palestine draws on place-names found in the Bible. These place-names were compiled and described in Eusebius of Caesarea's (*c.* 260-340 CE) *Onomasticon*. The *Onomasticon* (otherwise called *On the place-names in Holy Scripture*) was translated into Latin by Jerome, and comprised an alphabetically-arranged gazetteer of scriptural place-names, with information on their geographical locations. Additionally, most of the map's Southern European inscriptions appear in Isidore's *Etymologiae* (especially book 14), and Orosius's *Historiae Adversus Paganos* (book 1). Although the majority of the map's place-names can be extracted from these gazetteers and treatises, there are many more place-names in them than feature on the map. Therefore, the impulses that governed the appropriation of these place-names onto the map, or the model that preceded it, must be understood.

It is probable that the larger Viðey map was copied from a European model no longer extant; many of its inscriptions are unattested in other medieval Icelandic writings. However, the map's vernacular inscriptions, those written in Old Norse, were almost certainly added after the arrival of its Latin exemplar in Iceland. The map is notable for a number of cartographic firsts that are probably locally-derived and not traditional, especially in its depiction of the North Atlantic, Scandinavia, and the Baltic Sea region. This map is tied with a map in a manuscript of Matthew Paris's *Chronica majora* (Cambridge, Corpus Christi College, MS 26 284) as the earliest map to show Sweden unambiguously.[50] The reference to the Bjarmar (OE *Beormas*) is also likely to be an Icelandic addition, since they feature in a number of Icelandic writings in addition to the Old English

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[49] Chekin, *Northern Eurasia*, 22.

[50] Leonid S. Chekin, 'Mappae Mundi and Scandinavia,' *Scandinavian Studies* 65 (1993), 487-520, 514.

Orosius.[51] The Bjarmar do not feature on any other medieval world map mentioned in Chekin's *Northern Eurasia*, but do feature on the *Carta Marina* (1539) of the Swedish cartographer Olaus Magnus, where they are placed in northern Finland. The vernacular place-name Iceland features prominently in the north-western corner of the map. However, Iceland features on a number of European maps that antedate this map, so it cannot be stated whether it can be adduced to an earlier stage in the map's history, or was added after its introduction to Iceland (see chapter 4). The map evidences the ability of an Icelandic mapmaker to collate information and organise it within a T-O frame. The map likely owes its distinctiveness to its lack of outlines, which facilitates the unrestricted addition (or omission) of inscriptions within the terrestrial circle.

Inscriptions on the map are written in a combination of Latin and the vernacular. There are five geographic inscriptions on the map that contain Old Norse. The legends *Island* (Iceland), *Suiþjoð* (Sweden), *Gautland* (Götaland), and *Danmorc* (Denmark) are written entirely in Old Norse, while *Biarmar habitatuit* [*sic*] *hic* (Bjarmar live here) and *Tanakvisl fluvius maximus* (Estuary of the Tanais, a great river) are macaronic, and comprise elements in both languages. Furthermore, the four cardinal directions arranged around the map's circumference (*suðr*/*meridies*, *vestr*/ *occidens*, *norðr*/ *septentrio*, and *austr*/ *oriens*) are written, or so it seems, in both Old Norse and Latin.[52] The language environment depicted on the map will be examined in greater detail in chapter 4.

[51] Alan S. C. Ross, *The 'Terfinnas' and 'Beormas' of Ohthere* (London: Viking Society for Northern Research, 1981).

[52] An interpretation of these apparently bilingual inscriptions, the only bilingual inscriptions on the map, will be ventured at the end of chapter 5.

The southern orientation

It was acknowledged in the previous chapters that the Icelandic hemispherical and zonal maps are oriented with south at the top. Unusually, among the corpus of extant European maps, both of the Viðey maps share this south orientation. The orientation of medieval maps was invested with meaning beyond showing the reader which way up the map was to be read. While examples of maps oriented with all four cardinal points at the top survive, the most common orientations were, in order of descending frequency: east, north, south, and west.[53] However, while it was common for maps whose function was to show the division of the earth into hemispheres or climatic zones to be drawn with north or south at the top, maps of the ecumene more commonly exhibit an eastern orientation, in order to venerate the holy places of Christianity.

All the world maps that survive from medieval Iceland are oriented with south at the top. This is all the more striking for the fact these maps are representative of distinct genres, each with its own tradition and conventions. This was noticed by Rafn, who sought to understand this peculiarity in terms of the models that might have been available to medieval Icelandic encyclopaedists. Rafn was aware that a south orientation was common among maps from the Islamic world,[54] but noted that these were unlikely to have exerted any influence on the Icelandic maps.[55] Rafn observed that only two maps in the *Atlas do Visconde de Santarém*, a compendium of lithographic reproductions of medieval European maps and navigational charts (the third edition of which was published in 1849) exhibited this orientation. The two maps Rafn identified were found in a Latin manuscript of the *Cosmographia* of Asaph the Jew from the fifteenth century (Paris, Bibliothèque Nationale de Paris, MS no. 4744) and a twelfth-century manuscript of Honorius Augustodunensis's *Imago mundi*.[56]

53 Woodward, 'Medieval *Mappaemundi*,' 336.

54 On the south orientation common to Islamic maps see Ahmet T. Karamustafa, 'Introduction to Islamic Maps,' *The History of Cartography* vol. 2, book 1: *Cartography in the Traditional Islamic and South Asian Societies*, ed. J. B. Harley and David Woodward (London: University of Chicago Press, 1992), 1-9.

55 Rafn, *Antiquités Russes*, 390.

56 On the influence of Honorius's *Imago Mundi* on Old Norse texts see Peter Springborg, 'Weltbild mit Löwe Die Imago Mundi von Honorius Augustodunensis in der altwestnordischen Textüberlieferung', *Cultura classica e cultura germanica septentrionale*, ed. Pietro Janni, Diego Poli, and Carlo Santini (Rome: Herder, 1988), 167-219.

Rafn believed an example of this second type, a zonal map, to be the most likely source for the south orientation common to the Icelandic maps.

An explanation for the unusual south orientation of maps in other contexts that might be applied to the Icelandic corpus has been postulated by Chekin. The northern orientation is most frequently encountered on those maps that can be traced back to classical Greek sources, and whose geometry was centred on the earth's axis and the climatic zones.[57] Similar to the larger Viðey map in form and orientation is the double-page Pseudo-Isidorian Vatican map (Vatican City, Biblioteca Apostolica Vaticana, Vat. Lat. 6018, ff. 63v-64r) probably produced in Italy between 762 and 777.[58] Chekin observes that this double-page map is also oriented with south at the top, and suggests that one of the models used in its composition was a hemispherical world map, which were commonly drawn with north or south at the top. Hemispherical world maps, as chapter 1 demonstrates, were certainly known in medieval Iceland. It is possible that the larger Viðey map was drawn with south at the top in analogy with other maps known to the mapmaker. The larger Viðey map contains two inscriptions that read *frigida*, one in Europe and one in Asia. In Europe, the inscription *frigida* has traditionally been associated with *Scythia* to form the compound legend *Scythia frigida* (Scythia the Cold). Chekin, however, favours an interpretation that sees *frigida* as a 'rudiment of zonal structure,' inherited from a hemispherical map that influenced it.[59] Since the inscription *frigida* also appears among the map's Asian inscriptions, this interpretation might appear favourable. However, an identification for the Asian *frigida* that has not been considered previously is *Phrygia*, an ancient country in east or central Asia Minor, which is among the provinces of Asia Minor mentioned in Isidore's *Etymologiae* (13.3.41). This country is rendered *Frigia* on the Hereford map, where it appears close to the legend *Scythia*.[60]

A third explanation for the south orientation of the Icelandic maps can be postulated through a comparison with another compendium that contains maps

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[57] Woodward, 'Medieval *Mappaemundi*,' 337.

[58] Chekin, *Northern Eurasia*, 126. See also Leonid S. Chekin, 'Easter Tables and the Pseudo-Isidorean Vatican Map', *Imago Mundi* 51 (1999), 13-23, 15.

[59] Chekin, *Northern Eurasia*, 70

[60] Westrem, *Hereford Map*, 142-43.

of several cartographic genres. The two maps in 1812 III are the only Icelandic maps that we know for certain were drawn with knowledge of one another. However, we might reasonably assume, based on the evidence that associates 1812 I and III with the Augustinian monastery at Viðey, that both maps in 1812 III would have been available to the scribe responsible for the small zone map in 1812 I. On this basis, the trio of different maps can be compared with manuscripts of the fifteenth-century chancellor of the University of Paris Pierre d'Ailly's *Imago Mundi*. This work similarly included a series of eight different diagrams that showed the earth anatomised in different ways: into two hemispheres, seven climatic zones, and three continents. All these different maps were oriented with north at the top, so that they could be more easily compared.[61] It is possible that the zonal map was oriented with south at the top in order to complement the maps of 1812 III for consistency in perspective, or in order to encourage the reader to compare these different models. The shared orientation of these maps illustrates the cohesion and continuity of various ways of representing the earth.

It is also conceivable that the south orientation developed in response to the particular geographical location of the Icelanders. From the Icelanders' vantage point all European polities must have appeared to lie southwards. This perspective might have been enacted by the map, which positions its viewer, in his relationship with the manuscript folio, closest to the north, and well positioned to look southwards from Iceland towards the European centre.

[61] Akbari, *Idols*, 25.

An approach to these maps

Two gaps in our knowledge about these maps emerge from the above observations. Firstly, commentaries have directed little attention towards these maps' formal features, their quadripartite frames, and the orientation and arrangement of their textual contents. Secondly, the manuscript context of these maps has remained unknown; there have been no investigations into their relationships with each other, or other items in 1812 III. These lacunae are redressed in the two chapters that follow.

Two chapters structure the following discussion of these maps. Each chapter compasses one of these maps' neglected formal characteristics, and describes its contribution to the maps' themes and purposes. Chapter 4 concerns these maps' geographical contents, with a particular focus on the construction of Europe on the larger Viðey map. Chapter 5 draws attention to the quadripartite frames that enclose the maps, and their relationship to the register of forty highborn Icelandic priests preserved alongside them.

Iceland in Europe
The depiction of Europe on the two Viðey maps

Europe on the Viðey maps

The two Viðey maps are principally representations of the ecumene, the world known and inhabited by the Roman Empire, the theatre of human history, and the realm to which Christian evangelism could – and should – aspire. The larger Viðey map contains an extensive geographical nomenclature, arranged into a tripartite or T-O framework. The three continents of the ecumene are divided by the intersection of the River Nile ('Nilus flum*en* egipti'), which divides Asia and Africa; the River Tanais ('Tanakvisl flum*us* maxim*us*'), which divides Europe and Asia; [1] and the Mediterranean Sea ('mediterraneum mare'), which divides Europe and Africa. These three waters are accorded particular prominence on the larger Viðey map, but are discerned more easily on the smaller Viðey map, on which they are depicted as double lines that divide the terrestrial circle into its three parts (figure 30). This tripartite framework confers order onto the otherwise irregular and asymmetrical arrangement of geographic inscriptions enclosed within the larger map's outlines, and 'naturally echoes the perfect number of the trinity.'[2] The smaller map appears to perform an exegetical service to the larger map, making clear the principles that guide the arrangement of its textually inscribed contents.

Figure 30: The tripartite framework is clear on the smaller T-O map, but inheres also to the larger Viðey map. It appears that the smaller map does an exegetical service to the larger map, making its T-O framework easier to discern (Reykjavík, Stofnun Árna Magnússonar, GkS 1812 III 4to, f. 6v) *c.* 1225-50.

[1] This legend was translated by Chekin as 'the great Tanakvisl river,' *Northern Eurasia*, 71. However, he does not note that this is a macaronic inscription. The Old Norse noun *kvísl* (estuary) has been combined with the form *Tana*, the ending of which resembles an Old Norse inflection, suggesting that the term *Tanais* has here been adapted into the morphological structures of Old Norse. The term *Tanakvísl* appears also in Snorri Sturlusson's *Ynglingasaga* (see the introduction to this thesis).

[2] Akbari, *Idols*, 26-7

This chapter foregrounds the geographical contents of the two Viðey maps, with a particular accent on their depiction of Europe. The first half of this chapter examines the graphic arrangement of the larger map's European inscriptions, and what these groupings suggest about the relationships between them. The literature on this map has not stressed enough the complexity of its geographical representation, or analysed the roles played by the arrangement and orientation of inscriptions in its construction. The second half of this chapter focuses specifically on Iceland, which the map presents as the focal point of Europe. In order to understand this act of cartographic self-portraiture, it proves necessary to consider the map alongside contemporary historical writings that mention Iceland and Thule. These analyses demontrate that the larger Viðey map is particularly expressive of the relationships between European polities.

In each of the larger Viðey map's three continental sectors, its geographical legends are arranged differently. The map's African legends are arranged in three columns, and in this respect the map resembles others whose inscriptions are built abstractly into a tripartite framework, such as the map on folio 19r of the *Liber Floridus* (figure 31). This map presents its inscriptions abstractly within a T-O framework, the inscription *Affrica habet provincias* ('the provinces in Africa') precedes a list of place-names that, like those on the Icelandic map, are not arranged geographically.[3]

In its European quadrant, the Viðey map's inscriptions adhere to the irregular contours of the lands and seas known to the mapmaker. Inscriptions are spaced irregularly, and are written on different planes of orientation. This is also the case, but to a lesser extent, in the Asian half of the map, in which the arrangement of inscriptions might reflect the mapmaker's knowledge of these lands gleaned from gazetteers, itineraries, and scripture. Relationships between the map's place-names are constructed through a combination of their placement on the map, and their orientation. In this way, five groups of European inscriptions can be discerned. These groupings are expressive of the contemporary geopolitical as well as topographical relationships between European polities. In the section that follows, I demonstrate that it is productive

3 Chekin, *Northern Eurasia*, 479

to examine the relationships not only between individual legends but between broader groups of inscriptions.

Figure 31: Inscriptions on this map are arranged into a traditional T-O framework but evince no further geographical arrangement. This is similar to the arrangement of African inscriptions on the larger Viðey map (Ghent, University of Ghent Library, MS 92, f. 19r) *c.* 1121.

Figure 32: Europe on the larger Viðey map, where the inscriptions are arranged in a geographically suggestive way (Reykjavík, Stofnun Árna Magnússonar, GkS 1812 III 4to, f. 6r) *c.* 1225-50.

European legends on the larger Viðey map (GkS 1812 III f. 6r)

I. Europe's western seaboard
Normannia | Britannia | Vasconia | Galicia | Hispania
Normandy | Brittany | Gascony | Galicia | Spain

II. The British Isles
Scocia | Anglia | Ibernia[4]
Scotland | England | Ireland

III. Mediterranean and Continental Europe
Grecia | Tracia | Constantinopolis | Apulia | Italia | Roma | Lagobardia | Germania
Greece | Thrace | Constantinople | Apulia | Italy | Rome | Lombardy | Germany

III. i. Northern extension
Saxonia | Da*n*morc | Frisia
Saxony | Denmark | Frisia
III. ii. Southern extension
Fracia[5] | Gallia | Parmo montes[6]
France | Gaul | Pyrenees[7]

IV. Northern Europe
Tile | Island | Norvegie | Gautl*and* | Suiþioð[8] | Rusia | Bia*r*ma*r* habitauit hic[9]
Thule | Iceland | Norway | Geatland | Sweden | Russia | Bjarmar live here

V. The Baltic and Eastern Europe
Scythia | frigida[10] | Misia | Sparta | eronei | Kio
Scythia | Cold | Moesia | Sparta | nomads | Kiev

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[4] Simek omits 'Ibernia' (Ireland). *Altnordische Kosmographie*, 419-23.

[5] Simek omits 'Fracia' (France). *Altnordische Kosmographie*, 419-23. Chekin has 'Francia' but the manuscript reads 'Fracia'. *Northern Eurasia*, 70.

[6] These mountains are named between Gaul and Spain and are probably the Pyrenees. Chekin thinks they might alternatively be the Apennines, given their proximity to Parma. He notes that the Apennines are named on the Ebstorf map as *Par… montes*. *Northern Eurasia*, 70, fn. 8.

[7] This legend, if it identifies Parma and not the Apennines (see note below), has become separated from the map's other Italian place-names in Group III.

[8] Simek omits 'Suiþioð' (Sweden). *Altnordische Kosmographie*, 419-23.

[9] The formula *hic habitant* ('live here') is not uncommon on medieval maps, and appears a number of times on the Hereford world map (*c.* 1300). See Westrem, *Hereford Map*, 75; 347. *Habitatuit* [*sic*] appears to be an error.

[10] On *frigida*, and its possible implication that a hemispherical or zonal map was among this map's sources, see chapter 3. Alternatively, this instance of *frigida* might pair with *Scythia* next to it.

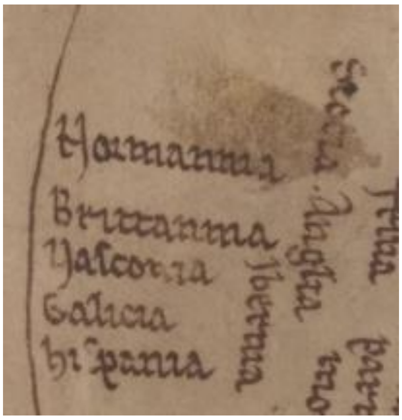

Figure 33: Europe's western seaboard (Group I) and the British Isles (Group II) on the larger Viðey map.

Group I (figure 33) comprises those inscriptions that designate Europe's western seaboard. These place-names are written north to south, and thus appear upside down to the reader who holds the map with south at the top. Normandy, Brittany, and Gascony were those lands that until 1204 (around 20 to 40 years before the map was drawn) had comprised the Continental reaches of the Angevin Empire, and its border with Muslim Spain. It is possible that the grouping of these provinces here reflects the mapmaker's awareness of their political relatedness, these regions having been under Plantagenet rule in the early thirteenth century. Political boundaries between the Continental reaches of the Angevin Empire and France was carefully marked on Matthew Paris's near contemporary (*c.* 1250) itinerary map: the border between them was prominently inscribed with the Anglo-Norman legend 'ci part lempire e le regne de france' ('here are distinguished the Empire and the kingdom of France').[11] These same territories are sharply distinguished on the Icelandic map by their cartographic placement and orientation: the Angevin territories are named in Groups I and II, while France and Gaul are shown in Group III. The cartographic distance that separates Normandy, Brittany, and Gascony from France and Gaul appears to reflect the familiarity of the mapmaker, or his sources, with the geopolitical distinctiveness of these regions in the twelfth and thirteenth centuries. A stronger case for the map's prioritisation of geopolitical over topographical representation can be made elsewhere.

[11] Miller, *Mappaemundi*, 3:88; Breen, 'Returning Home,' 69.

Group II comprises those legends that comprise the British Isles (figure 33). These inscriptions are clustered between Groups I and III, and are read at 90 degrees if the reader holds the map with south at the top. The placement of these inscriptions between the territories of Angevin rule, arranged in Group I, and those of France and Gaul, in Group III, emphasises the geopolitical distinctiveness of these two regions; the British Isles are inserted like a wedge between territories that were connected by land and might be expected to appear next to each other on a map. Their intrusion into this sequence of place-names shows how the map subordinates geographical realism to the demands of geopolitical representation.

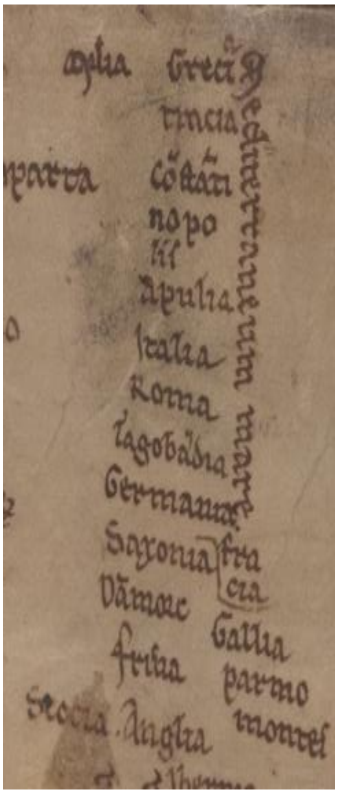

Figure 34: Continental and Mediterranean Europe (Group III) on the larger Viðey map. The sequence bears east to west and bifurcates after Germania into northern and southern extensions.

Group III comprises Continental Europe, and the lands on whose shores the Mediterranean Sea washes (figure 34). The sequence extends from the east, the lands of Greece, Thrace, and Constantinople, westwards towards Europe's western seaboard. This sequence bifurcates around Germany into two westward extensions. One group, which shows the positions of Saxony, Denmark, and Frisia, extends northwards and meets the British Isles in Group II. The other group extends southwards towards the mountains that mark the boundary with Spain on Europe's western seaboard, in Group I. A pen line, one of few drawn on the map, separates Germany and France. The place-names in Group III adhere to the space in the map's tripartite framework that is usually occupied by the body of the Mediterranean Sea. The inscription *Mediterraneum mare* has been written on a plane perpendicular to these Mediterranean place-names, and marks the boundary between Europe and Africa.

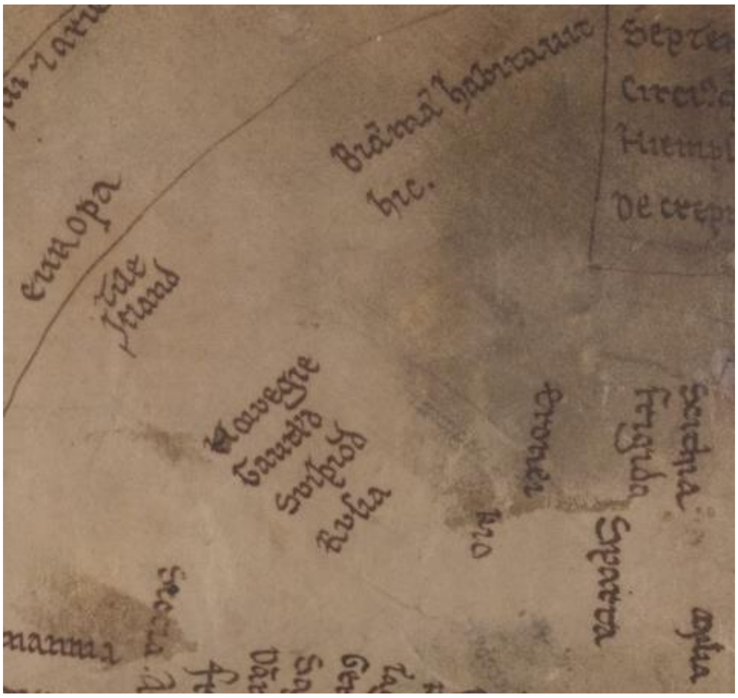

Figure 35: Northern Europe and the Baltic Regions (Groups IV and V) on the larger Viðey map.

Group IV comprises the map's Northern European inscriptions (figure 35). These are written on a plane that inclines at an angle of around forty-five degrees, and appear almost upside down when the reader holds the map with south at the top. The Scandinavian Peninsula features prominently. Denmark is not named alongside these territories, but features in the map's sequence of Continental European place-names in Group III, where it borders Saxony. The distance between Denmark and northern Scandinavia is described in Adam of Bremen's *Gesta Hammaburgensis ecclesiae pontificum* (*c.* 1075-1081).

Denmark is described as the first of the Scandinavian countries: 'transeuntibus insulas Danorum alter mundus aperitur in Sueoniam vel Nordmanniam' ('in going beyond the islands of the Danes there opens up another world in the direction of Sweden and Norway').[12] The Scandinavian territories, therefore, are figured as an 'alter mundus' ('another world') distinct from the European Continent, whose northernmost region is Denmark. The Danish inscription is one of few on the map to be written in Old Norse, and is connected to the Scandinavian territories, despite its placement in Continental Europe, through the linguistic contour that encompasses them. The use of the vernacular on the map, and what this seems to imply about the geolinguistic situation of thirteenth-century Scandinavia, receives more extensive treatment below. Russia also forms part of this group, and connects Sweden to the map's Baltic and Eastern European inscriptions in Group V. Also connected with these eastern regions is an inscription that marks the area where the *Bjarmar* dwell. In the sea beyond Norway and the Scandinavian Peninsula are the islands Thule and Iceland.[13] Iceland is granted disproportionate cartographic space on the map, as is common for the region where a map was produced. The complex relationship between Iceland and Thule is recounted in the latter half of this chapter.

Group V comprises those territories on whose shores the Baltic Sea laps, and regions connected to these territories by land (figure 35). They are read at ninety degrees when the reader holds the map with south at the top. Perhaps indicative of the mapmaker's tentative knowledge of the geography of this region, these toponyms and ethnonyms are loosely arranged, and form no clear linear sequence. Moesia and Sparta feature closest to the map's Mediterranean inscriptions, in the eastern part of Group III, especially Greece and Thrace. In the North are Scythia, Kiev, and an inscription that probably identifies the

[12] Adam of Bremen, *Gesta*, IV.21.

[13] Adam's *Gesta* is keen to credit the diocese of Hamburg-Bremen with the administration of the North Atlantic islands: 'Is habet ex adverso Nortmanniae insulas multas non ignobiles, quae nunc fere omnes Nortmannorum ditioni subiacent, ideoque non praetereundae sunt a nobis, quoniam Hammaburgensem parrochiam et ipsae respiciunt' ('the ocean off Norway contains many considerable islands, of which nearly all are now subject to the rule of the Norwegians and so are not to be overlooked by us because they also belong to the diocese of Hamburg') (IV.34).

nomads of the steppes.[14] This group corresponds, once again, with lands associated with one another in Adam's *Gesta*.

> 'Sinus', inquit, 'quidam ab occidentali occeano orientem versus porrigitur'. Sinus ille ab incolis appellatur Balticus, eo quod in modum baltei longo tractu per Scithicas regiones tendatur usque in Greciam, idemque mare Barbarum seu pelagus Scithicum vocatur a gentibus quas alluit barbaris.[15]
>
> ('There is a gulf', says [Einhard, in the *Vita Karoli*], 'that stretches from the Western [Atlantic] Ocean towards the east'... it extends a long distance through the Scythian regions even to Greece. It is also named the Barbarian Sea or Scythian Lake, from the barbarian peoples whose lands it laps.)

The map likely derives its information from multiple sources that, because of the absence of clear cartographic parallels, remain difficult to identify. The map can be compared with written geographical descriptions, but the degrees to which the Icelandic map draws from these traditions on the one hand, or informs them on the other, are difficult to discern.

From this examination of the map's European place-names, it becomes clear that the map has no dominant textual orientation. This has been observed by von den Brincken[16] and Chekin.[17] While the map is oriented with south at the top, its inscriptions are arranged differently in each continental sector, so that the map medium must be physically manipulated – turned through ninety degrees – if its inscriptions are to be read. The orientation of the map's inscriptions thus undermines some editorial strategies that separate groups of inscriptions along continental fault lines. It has become conventional in editions of this map's contents to reproduce its legends under continental headings. At times, however, the relationships between legends transcend these continental divides. For example, if the map is turned so that the Continental European and Mediterranean inscriptions in Group III can be read the right way up, we find that the map's Asian inscriptions are also brought into view by their shared orientation (see figure 36).

[14] Chekin, *Northern Eurasia*, 224.

[15] Adam of Bremen, *Gesta,* IV.10

[16] von den Brincken, *Finnes Terrae*, 129.

[17] Chekin, *Northern Eurasia*, 69.

The map's sequence of European place-names along the space on the T-O map generally occupied by the Mediterranean Sea appears to reflect the mapmaker's familiarity with, or even to enact, the sea-routes taken by pilgrims between these territories on their way to the Holy Lands. The perpendicular arrangement of these place-names along the *Mediterraneum mare* bears a striking similarity to the arrangement of coastal place-names on sea-charts, which are similarly aligned.[18] It is not easy to distinguish between land and sea on this map; the British Isles, as has already been mentioned, bisect territories with overland connections. This ambiguity might arise from the sea's role in connecting territories, not separating them, in the Norse thallasocracy, as well as the sea-routes taken by crusaders and pilgrims through the Mediterranean eastwards. The source used for the Mediterranean sequence of place-names might have been an itinerary, written or remembered, that detailed the journey from Western Europe towards the east. The putative influence of written itineraries on medieval maps has been discussed elsewhere, particularly the near-contemporary itinerary maps drawn by Matthew Paris, which can be compared with the Icelandic map.[19]

The larger Viðey map, as is common on medieval maps, dedicates disproportionate cartographic space to the better known parts of Asia centred on the Holy Lands.[20] When the reader holds the map with east at the top to contemplate its Holy Places, the European place-names become aligned into an itinerary that marks the route from Western Europe to these regions. In certain contexts of usage, the larger Viðey map can resemble Matthew's itinerary map, and enact a similar function in guiding the reader's eye onwards towards important sites of pilgrimage. [21] On Matthew's itinerary map, inscriptions are

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[18] The Viðey map antedates the earliest extant sea-chart, the *Carta Pisana* (c. 1290) by more than fifty years, and the earliest literary reference to a sea-chart being used aboard a ship by around thirty (see the introduction to this thesis). The Icelandic map arranges its Continental place-names in a way similar to the sea-chart, and probably represents a similar response to the practical arrangement of place-names in a linear order suggestive of travel. On the earliest sea-charts see Peter Whitfield, *The Charting of the Oceans: Ten Centuries of Maritime Maps* (Rohnert Park: Pomegranate Artbooks, 1996), 1-2; and Campbell, 'Portolan Charts,' 371-463.

[19] Similar suggestions have been made for the maps of Matthew Paris. Delano Smith and Kain, *English Maps*, 46.

[20] McGurk, *Illustrated Miscellany*, 83.

[21] Edson, *Time and Space*, 14; Daniel K. Connolly, *The Maps of Matthew Paris: Medieval Journeys through Space, Time, and Liturgy* (Woodbridge: The Boydell Press, 2009), 2.

written likewise to be read at different angles; Breen demonstrates that in using Matthew Paris's maps, 'the reader's bodily relationship to the codex comes into play' as he is required to negotiate his bodily position relative to the map to keep his eye on Jerusalem.[22] The Icelandic map's sequence of place-names lend themselves to a similar *peregrinatio in stabilitate*, or imagined pilgrimage, and enables the reader to scale imaginatively the route from Western Europe towards the Holy Lands.

In conclusion, the arrangement of the map's inscriptions enables us to speculate on the uses to which it might have been put by a community of readers. While the map exhibits no coherent system of projection that regulates the relative positions of its place-names and ethnonyms, the relationships between European inscriptions evidence the mapmaker's knowledge of the geography of these regions and, more importantly, their significance. Although the map's European place-names are unevenly distributed, they are not entirely naturalistic or geographical in their layout, as has been assumed previously. Chekin's assertion that this map exhibits a 'spatial arrangement of place-names'[23] is weakened when seen in these terms: spatial representation is frequently subordinated to the exigencies of geopolitical representation, and the particular requirements of crusade and contemplation. Such relationships have not hitherto been evident from modern editions, in which related inscriptions are reordered so that they appear remote.

[22] Breen, 'Returning Home,' 75.

[23] Chekin, *Northern Eurasia*, 63.

Figure 36: When the larger Viðey map's Mediterranean legends (left) are viewed right way up, they are brought into alignment with the map's Asian legends, including New Testament place-names such as Nazareth, Galilee, Jericho, and Jerusalem. This itinerary is reminiscent of those constructed by Matthew Paris (right), such as this example from Matthew's autograph manuscript of the *Chronica majora* (Cambridge, Corpus Christi College, MS. 26).

Iceland and Thule

On the larger Viðey map, Iceland and Thule feature at the *caput Europae*, immediately beneath the inscription *Europa* on the map's outline (figure 37). They are accorded disproportionate cartographic space, and stand alone in the North Atlantic, which separates them from the other territories on the Scandinavian Peninsula. The map presents Iceland as the focal point of Europe, and evidences that its maker was particularly interested in the relationships between Iceland and other European polities. This chapter concerns an act of cartographic self-portraiture, the only example that survives from medieval Iceland. It will emerge below that the relationship between Iceland and Thule suggested in the literary and cartographic evidence presents strong and conflicting arguments for the map's interpretation.

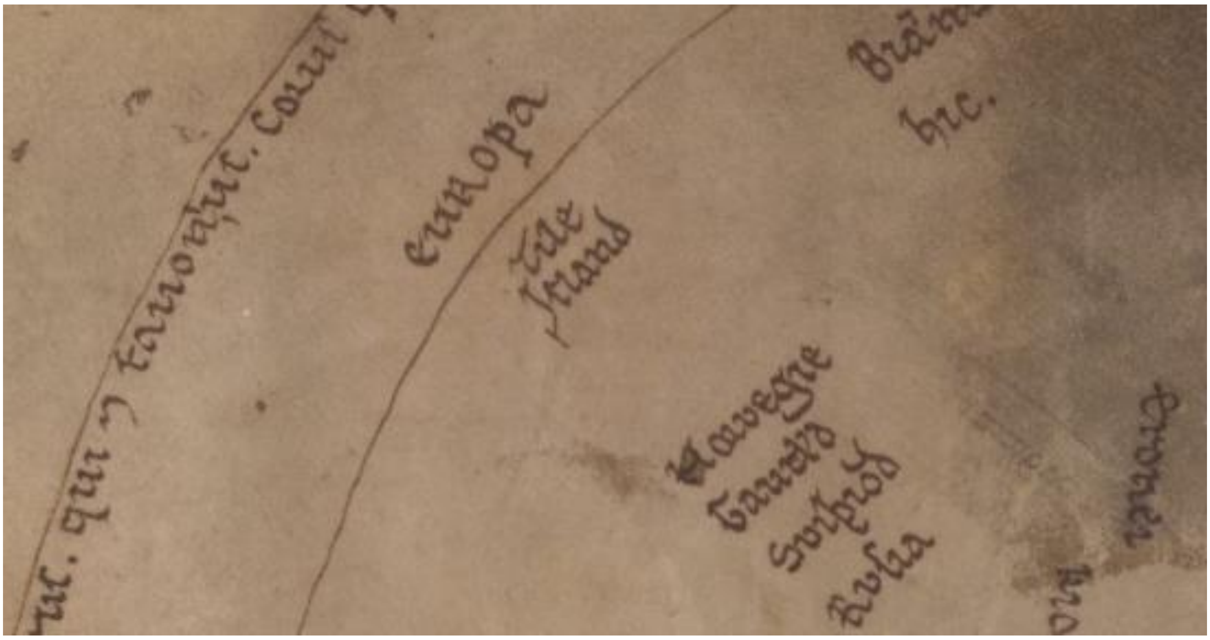

Figure 37: Thule and Iceland on the larger Viðey map occupy disproportionate cartographic space, and feature immediately beneath the inscription *Europa* at the head of the map's European quadrant.

Thule is an island described in Classical European literature and on medieval and Renaissance maps, located vaguely in the North Atlantic, and its appearance on the Icelandic world map presents an interpretative crux that has not yet been acknowledged. There are two traditions in which the appearance of the place-name *Thule* can be interpreted. On the one hand, the Icelandic *Landnámabók* ('Book of Settlements'), which stands at the head of the Icelandic literary tradition, states in its prologue that Thule is an alternative, earlier name for Iceland: 'ætla vitrir menn þat haft at Ísland sé Thile kallat' ('wise men think that Iceland is this Thule'). Since the Icelandic map makes sparse use of outlines, it is not clear whether these inscriptions adhere to one island or two, and we might suppose that map is a statement of their equivalence. On the other hand, other medieval world maps, since the Anglo-Saxon Cotton map (*c.* 1050), do not argue for the equivalence of these place-names, but show both islands as separate entities. These two traditions, one historiographical and the other cartographic, both provide a context in which the Icelandic map can be understood, but each has its own implications for the map's interpretation. This chapter concerns the relationship between these twinned inscriptions, *Iceland* and *Thule*, with reference to both their historiographical and cartographic parallels. Firstly, I contextualise the trope of their equivalence through an account of Thule's origins, and its early appearance in medieval historical writings. Secondly, I demonstrate that the Icelandic map is not unique in its double placement of the traditional place-name *Thule* and the vernacular place-name *Iceland*, both of which feature on earlier maps produced elsewhere in Europe. This approach yields to an examination of the phenomenon of diglossia on other medieval maps, in which the vernacular contributions to the larger Viðey map can be contextualised.

The origins of Thule

Thule was an island sighted and named by the Greek navigator and explorer Pytheas Massiliensis (of Marseille), who allegedly circumnavigated Britain between 325 and 320 BC).[24] In the fourth century BC, the dominant power in the Western Mediterranean was Carthage, and a Punic blockade barred access to the Atlantic Ocean and ensured that northern waters remained largely unknown to Mediterranean seafarers.[25] Pytheas sailed westward as Alexander (356-323 BC) pressed eastward. He sailed in order to determine the origins of northern trade goods, especially tin and amber, and his route is alleged to have coasted the Iberian Peninsula and France as far as Brittany, then on to Cornwall

[24] Pytheas's journey and his contributions to early medieval geographical knowledge are described in Þorvald Thoroddsen, *Landfræðissaga Íslands. Hugmyndir manna um Ísland, náttúruskoðun þess og rannsóknir, fyrr og síðar*, 4 vols. (Reykjavík: Ísafoldatprentsmiðja, 1892-1904), 1:2-6; Vincent H. de P. Cassidy, 'Voyage of an Island,' *Speculum* 38 (1963), 595-602, 595; and Haraldur Sigurðsson, *Kortasaga Íslands*, 23.

[25] Cassidy, 'Voyage,' 595.

and the western coasts of Britain as far as the western isles and Orkney. North of Orkney, Pytheas sighted, but did not approach, an island he named Thule. He is alleged to have written a treatise called *On the Ocean*, in which he recorded geographical and astronomical information about the countries he observed. This treatise is no longer extant, and only one direct citation from it is known: Geminus of Rhodes' astronomical treatise *Introduction to the Phenomena* (first century BC) cites Pytheas on the length of the solsticial day.[26] Pytheas's journey is better known through the accounts of later writers. Information about Pytheas's journey was known principally through paraphrases in book four of the *Geographica* of the Greek geographer and historian Strabo (64/63 BC–*c.* 24 AD), whose account was canonised for later antiquity and the Middle Ages by Pliny's *Historia Naturalis* (*c.* 77-79 AD), Solinus's *Collectanea rerum memorabilium* (third century AD), and Isidore's *Etymologiae* (early seventh century). These latter accounts were known to later prose writers such as Dicuil and Bede, who use the Classical place-name Thule in their writings.

When Thule is described in later literature its principal characteristics are its geographic position north of the British Isles, and the occurrence there of the midnight sun, an astronomical observation on the length of the solsticial day that places Thule near the Arctic Circle. Pytheas is the first known author to relate systematically the length of the solsticial day to a place's latitude.[27] The theoretical basis for this equation had arisen in the Hellenistic world out of the

[26] 'It seems that Pytheas of Massilia came also to these [far northern] regions. At least he says in his treatise *On the Ocean*: 'The Barbarians showed us the place where the sun sets. For it happened that in these parts the night becomes extremely short, sometimes two, sometimes three hours long, so that the sun rises a short while after sunset." James Evans and J. Lennart Berggren, *Geminos's Introduction to the Phenomena: A Translation and Study of a Hellenistic Survey of Astronomy* (Oxford: Princeton University Press, 2006), VI.

[27] Latitude was early associated with the length of the day. The late-antique geographer Pomponius Mela (d. 45 AD) also made observations on the length of the solsticial day in his *Pomponii melae de situ orbis* (Book 3), and Bede's *De natura rerum* (Ch. 47) is a study of the relationship between a place's latitude and the length of the solsticial day. Bede names dozens of place-names on eight parallels, one of which, the Scythian Circle, passes through the Rhiphaean Mountains, imagined mountains in the north of Scythia, and through Thule. Along this parallel 'the days are continued without interruption and alternately the nights.' This is from Pliny's *Historia Naturalis* (6.39). The imaginary Rhiphaei Mountains appear on the Hereford world map, see Westrem, *The Hereford Map*, 136-37. The parallels are not shown on the larger Viðey map, though the two legends that read *Frigia* might be the remnants of a zonal structure from an earlier map that did show climatic parallels (see above). On the association between latitude and the length of the day see Aubrey Diller, 'The Parallels on the Ptolemaic Maps,' *Isis* 33 (1941), 4-7, 4; and Thoroddsen, *Landfræðissaga Íslands*, 1:7.

study of geometry and experiments with three-dimensional models.[28] Pytheas, however, gathered astronomical data for the lands he visited, and was able to substantiate theories about the division of the spherical earth along lines of equal latitude, or parallels, the most important of which were the Equator, the Tropics of Cancer and Capricorn, and the Polar Circles, which feature prominently on the Icelandic hemispherical world map (see chapter 1).

In his discovery of Thule, Pytheas claimed to have found a land near the formerly hypothetical Arctic Circle. Strabo doubted Pytheas's claims about the far north and Thule, and cautions that Pytheas, an experienced navigator and geographer, would have been able to falsify his reports of northern regions based on the 'science of celestial phenomena and by mathematical theory.'[29] That is to say, Strabo cautions that Pytheas was a skilled mathematician who would have been able to extrapolate from his observations as far north as Britain to speculate about the astronomical conditions observed in lands further north.

It is unknown what island Pytheas actually sighted, or whether his account is genuine at all. However, Thule was frequently identified as Iceland by medieval scholars from the eleventh century onwards. These include Adam of Bremen in the *Gesta Hammaburgensis ecclesiae pontificum* (written *c.* 1075 and updated until as late as 1081), the anonymous authors of *Landnámabók* and the Norwegian *Historia Norwegiae* (1160-1175), and Saxo Grammaticus in the *Gesta Danorum* (*c.* 1200). These accounts inherited the place-name *Thule* from Roman literature, and attributed this place-name to the island of Iceland, discovered and named by its Norse discoverers in the ninth century. In order to understand the relationship between the place-names *Thule* and *Iceland* on the larger Viðey map, it is productive to consider their relationships, and the arguments made for their equivalence, in these works.

[28] Aujac, 'Foundations,' 136-42.

[29] Strabo, *Geographica*, Loeb Classical Library, ed. H.L. Jones (Cambridge, MA: Harvard University Press, 1924), IV. 5.

Iceland and Thule in historical writings

Dicuil's De mensura Orbis terrae *(c .825)*

Before the examples from the eleventh century are recounted, an earlier text that uses the place-name *Thule* should be addressed. The Irish monk Dicuil is sometimes credited as the first writer to use the term Thule to refer to Iceland.[30] Dicuil was a geographer and computist who wrote a geographical treatise entitled *De mensura Orbis terrae* (*c.* 825). In this treatise, Dicuil mentions Irish clerics who stay on an island he names *Thule* between the months of February and August.[31] Dicuil names Pytheas, and derives his information about Thule from Pliny, Solinus, and Isidore, all of whom he cites. The monks mentioned by Dicuil have been identified by some scholars with the hermits, or *papar*, mentioned in two twelfth-century histories: the Icelandic *Íslendingabók* and the Norwegian *Historia Norwegiae*. *Íslendingabók* describes the presence of hermits in Iceland before the arrival of the Norse, whose presence was inferred from the books, bells, and crosiers they left behind.[32] Dicuil's *Thule* has been widely accepted as a reference to Iceland. However, Dicuil wrote his treatise as many as fifty years before Iceland was settled by the Norse. This was before Iceland was properly Iceland, and his use of the traditional place-name does not reflect the same trope of appropriation adopted by later writers, who used the term not to describe a far-away island with no permanent inhabitants, but a European polity in its own right. The claim that Dicuil used the term *Thule* to refer to Iceland confuses terrain with territory; it assumes that the use of the traditional name *Thule* in other, later accounts was primarily an attempt to identify the island described by Pytheas with a newly discovered territory, which it was not. An interest in Pytheas's Thule did not motivate these later writers, whose appropriation of the antique place-name was not culturally disinterested. This will be demonstrated below.

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[30] This claim is made by Thoroddsen, *Landfræðissaga Íslands*, 10; Nansen, *Northern Mists*, 59-60; and Cassidy, 'Voyage,' 599.

[31] Dicuil, *Dicuili Liber de Mensura Orbis Terrae*, ed. C. A. Walckenaer (Paris: F. Didot, 1807), 28-9.

[32] Siân Grønlie, trans. *Íslendingabók, The Book of the Icelanders; Kristni Saga, The Story of the Conversion* (London: Viking Society for Northern Research, 2006), 4.

Adam of Bremen's Gesta Hammaburgensis ecclesiae pontificum *(c. 1075-81)*

The earliest writer to refer to Iceland, the European polity, as *Thule* is Adam of Bremen in the *Gesta Hammaburgensis ecclesiae pontificum* (*c.*1075-81). The *Gesta* comprises four volumes on the history of the archbishopric of Hamburg-Bremen, with the last book dedicated to a geographical description of those regions that belong to it. Adam obtained his information about Thule from Orosius's *Historiae adversus paganos* (written *c.* 416-17 AD) and Bede's *De temporum ratione* (written *c.* 725), which he cites verbatim.

> Insula Thyle, quae per infinitum a ceteris secreta, longe in medio sita est occeano inquiunt, nota habetur. De qua tam a Romanis scriptoribus quam a barbaris multa referuntur digna praedicari. Ultima, inquiunt, omnium Thyle, in qua aestivo solsticio, sole cancri signum transeunte … Item Beda scribit in Britannia aestate lucidas noctes haut dubie repromittere, ut in solstitio continui dies habeantur senis mensibus, noctesque e diverso ad brumam sole remoto. Quod fieri in insula Thyle, Pytheas Massiliensis scribit sex dierum navigatione in septentrionem a Britannia distante. Haec itaque Thyle nunc Island appellatur, a glacie quae occeanum astringit.[33]
>
> (About the island Thule, which is situated at an immense distance out in the Ocean far from all other islands, it is told that it is still rather unknown. However, both Roman writers as well as barbarians mention many things worth telling. Thule, they say, is the last of all islands in the Ocean. There is never night there at summer solstice when the sun passes through the Tropic of Cancer. Correspondingly, there is never daylight at midwinter solstice… Bede writes that the light nights in summer in Britain show that at summer solstice there will be continuous day for half a year and, by contrast, continuous night at midwinter solstice when the sun is far away. Pytheas from Marseille tells us that this is also the case in Thule, which lies six days' sailing from Britain. The said Thule is the island called Iceland because of its ice which makes the sea solid.)

Adam ostensibly connects Iceland and Thule through their shared geographical isolation in the North Atlantic, and the lengths of their solsticial days, which are indicative of their high latitudes. Adam describes Bede's observations in *De temporum ratione* that the bright summer nights in Britain indicate that at sufficiently high latitudes there will be continuous day and continuous night on the summer and winter solstices respectively, in support of his thesis that *Thule* and *Iceland* are two names for the same island.

[33] Adam of Bremen, *Gesta*, IV.36.

Landnámabók

In the corpus of Old Icelandic literature, there are only two places in which Iceland is associated with Thule: the twelfth-century *Landnámabók* ('Book of Settlements'), and the late thirteenth-century *Bretasögur*. The account in *Landnámabók* is better known, and contains the more detailed exposition on their equivalence.

> Í aldarfarsbók þeirri er Beda prestr heilagr gerði er getit eylands þess er Thile heitir ok á bókum er sagt at liggi sex dægra sigling í norðr frá Bretlandi; þar sagði hann eigi koma dag á vetur og eigi nótt á sumar, þá er dagr er sem lengstr. Til þess ætla vitrir menn þat haft at Ísland sé Thile kallat at þat er víða á landinu, er sól skín um nætr, þá er dagr er sem lengstr, en þat er víða um daga, er sól sér eigi, þá er nótt er sem lengst.[34]
>
> (In his book *De temporibus* the Venerable Priest Bede mentions an island called Thule, which in books is said to be six days' sail north of Britain. There, he said, there is no day in winter and no night in summer, when the day is at its longest. Therefore, wise men hold that Iceland is this Thule, because throughout the land the sun shines at night when the day is at its longest, and the sun is not seen by day when night is at its longest.)

There are multiple references to Thule in Bede's works. Bede obtained his information about Thule from Pliny's *Historia Naturalis,* Solinus's *Collectanea rerum memorabilium*, and Isidore's *Etymologiae*, which were all known in Iceland.[35] The prologue paraphrases *De temporibus* (Ch. 7), which describes Thule's location six days' sail to the north from Britain and the occurrence there of the midnight sun, according to Pytheas. Of course, Bede , like Dicuil, does not number among those 'vitrir menn' ('wise men') who identified Thule with Iceland: Iceland had not been settled by the Norse by the time *De temporibus* was written. However, the Icelandic author of *Landnámabók* appears keen to reference Bede in order to associate his nationally foundational prologue with a greater authority.[36] The implication that Bede associated these lands is historically impossible, or else, like those writers that claim Dicuil refered to Iceland as *Thule*, confuses terrain with territory.

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[34] Jakob Benediktsson, ed. *Íslendingabók* / *Landnámabók* vol. 1, Íslensk Fornrit 1 (Reykjavík: Hið Íslenska Fornrit Félag, 1968), 1:31.

[35] Clunies Ross and Simek, 'Encyclopaedic Literature,' 165.

[36] On Bede's reputation in Iceland and the accessibility of his works see Donald K. Fry, 'Bede,' *Medieval Scandinavia: An Encyclopaedia*, ed. Philip Pulsiano (London: Garland, 1993), 36-37.

Bretasögur *(late thirteenth century)*

In the thirteenth-century *Bretasögur*, the Old Norse translation of Geoffrey of Monmouth's *Historia Regum Britanniae* (*c.* 1139), Thule is also identified as Iceland.[37] Thule occasions only passing mention in the *Historia* and the Icelandic translator does not elaborate on the basis for the association between these islands: 'Malvasi*us* Tile k*onung*r. Þ*at* heit*ir* nv Isl*an*d' ('King Malvasius of Thule, which is now called Iceland').[38] This association is not discursive; the Icelandic translator provides no justification for this attribution, which might have developed under the influence of *Landnámabók*. It is notable that both *Landnámabók* and *Bretasögur* are preserved in *Hauksbók*, where they might be compared by a careful reader.

The Historia Norwegiae *(1160-75) and*
Saxo Grammaticus's Gesta Danorum *(*c. *1200)*

Two further historical works from medieval Scandinavia equate Iceland with Thule. In the anonymous *Historia Norwegiae*, Iceland is called by three names. Iceland is said to be an island 'que a Norwagensibus igitur Islandia, quod interpretatur glaciei terra, nuncupatur' ('named *Islandia* by the Norwegians, which means the *Land of Ice*'), presenting us with the Latinisation *Islandia*, and the Latin calque *Glaciei terra* ('Land of Ice'). Similarly, Greenland is not given a vernacular name *per se*, but is named by the calque *Virdis Terra*. The third name used in the *Historia Norwegiae* is the traditional name *Ultima Thule*. Iceland is said to be:

> Que ab Italis *ultima Tile* dicta est, nunc quam magna frequencia colonum culta, quondam uasta solitudo et usque ad tempus Haraldi Comati hominibus incognita.[39]

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[37] Manuscripts of the *Historia regum Britanniae* sometimes circulated with maps. A copy of the *Historia* dated *c.* 1400 (London, British Library, MS Harley 1808) includes a map of the British Isles (f. 9v) and an aerial plan of York (f. 45v). See Delano Smith and Kain, *English Maps*, 21, 180-81. The *Hauksbók* manuscript of the *Bretasögur* includes one of the three arial plans of Jerusalem extant in Icelandic manuscripts (see chapter 1). The presence of this map in *Hauksbók* is more commonly adduced to the influence of a large illustrated encyclopaedia such as the *Liber Floridus*, though manuscripts of the *Historia Regum Britanniae* might present another comparandum.

[38] Finnur Jónsson, ed. *Hauksbók*, 291.

[39] *Historia Norwegiae*, Ch. 8.

(That large island called by the Romans *Ultima Thule*, which today is inhabited by a great host of settlers, but which was once a vast wilderness and unknown to mankind right up to the days of Harald Fairhair.)

The basis for the association between them is not identified, such as we see in Adam's *Gesta* or the Icelandic *Landnámabók*; rather, *Thule* figures unproblematically as an earlier name for Iceland. The name *Ultima Thule* (farthest, or outermost Thule) first appears in Virgil's *Georgics* (1.30) and subsequently Servius's commentary on the *Georgics*,[40] and Seneca's *Medea*. It would be productive to examine the uses of the name *Ultima Thule* and its connotations in these works. In the *Georgics* (1.29-31), Virgil praises the Emperor Augustus as a god, and wonders whether he will take earth, sea, or sky as his domain in death:

An deus immensi venias maris ac tua nautae
Numina sola colant, tibi seruiat ultima Thule,
Teque sibi generum Tethys emat omnibus undis.[41]

(Or whether you come as a god of the wide sea, and sailors pay homage to your divine presence alone, Ultima Thule obey you, and Tethys bequeath all her waters to you, as her daughter's new bridegroom.)

Ultima Thule features in the *Georgics* not as a European political entity, or even definable geographical territory, but as a symbol for the ends of the earth. In Seneca's *Medea* (ll.375-379), *Ultima Thule* features similarly as a marker of extremity, an emblem of Roman imperial ambition and, as Romm puts it, 'the most distant region to which exploration and conquest could aspire':[42]

Venient annis saecula seris,
quibus Oceanus vincula rerum
laxet, et ingens pateat tellus
Tethysque novos detegat orbes
nec sit terris ultima Thule.[43]

(There will come an age in far-off years when Ocean shall unloose the bonds of things, when the whole broad earth shall be revealed, when

[40] These references are described in James S. Romm, *The Edges of the Earth in Ancient Thought: Geography, Exploration, and Fiction* (Princeton: Princeton university Press, 1992), 158; and Richard F. Burton, *Ultima Thule, or A Summer in Iceland* (London: William P. Nimmo, 1875), 2.

[41] Virgil, *Georgics*, ed. Arthur S. Way (London: Macmillan, 1912), 2-4.

[42] Romm, *Edges*, 157.

[43] Seneca, *Seneca VIII, Tragedies,* vol. 1, The Loeb Classical Library, ed. John G. Fitch (Cambridge, MA: Harvard University Press, 2002), 375.

Tethys shall disclose new worlds and Ultima Thule not be the limit of the lands.)

In both these literary witnesses, it is notable that farthest or *Ultima Thule* does not denote a European political entity; on the contrary, it is described as a region that lies beyond their influence, but will one day succumb to Romanisation and be assimilated into the Roman *Imperium*.

It is important to note that although the names of this island are explained in full in chapter 8 of the *Historia*, the initial association between Thule and Iceland occurs earlier in chapter 1, where a term derived from Thule is used without explanation. The Icelanders are mentioned early on in the *Historia* in relation to their discovery of Greenland, cited in the introduction to this thesis.

> Que patria a Telensibus reperta et inhabitata ac fide catholica roborata terminus est ad occasum Europa.[44]
>
> (This country [Greenland], discovered, settled, and confirmed in the Catholic faith by *Tilenses* [Icelanders] marks the western boundary of Europe.)

The word used for Icelanders is *Tilenses*, and this term appears without comment or explanation. Saxo's *Gesta Danorum* references Iceland and its people similarly, with the terms *Tylen* and *Tylenses* respectively. It is again the Icelanders, the Tylensians, who are mentioned first, as Saxo praises them for their literary and historical achievement in the kings' sagas: 'nec Tylensium industria silentio oblitteranda' ('lest the industry of the Icelanders be lost to oblivion').[45] The unexplained use of the term *Tilenses* to describe Icelanders in these two accounts suggests that the trope of Icelandic equivalence with Thule was widespread among Scandinavian writers.

Theodoricus's Historia de Antiquitate Regum Norwagiensium (*c.* 1180)

Alongside these examples might be named Theodoricus*'s Historia de Antiquitate Regum Norwagiensium* (Ch. 3), which acknowledges the trope of these place-names' equivalence but expresses doubt about its validity. Theodoricus attributes the discovery and settlement of Iceland to Norwegian traders, and attributes the name *Thule* to Iceland tentatively.

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[44] *Historia Norwegiae*, Ch. 1.

[45] Saxo Grammaticus, *Saxonis Gesta Danorum*, ed. J. Olrik and H. Ræder (Copenhagen: Levin & Munksgaard, 1931), 0.1.4.

> Finally they were driven to an exceedingly remote land, which some believe was the island of Thule; but since I do not known I neither affirm nor deny the truth of this matter.[46]

It seems here that Theodoricus is aware of the trope, but forgoes its use himself. Presented with multiple sources, some using the name *Iceland* and some using the name *Thule*, Theodoricus might have preferred to present both views without pronouncing on their validity.

The myth of Tilensian origins

These accounts demonstrate that Iceland was associated with the island of Thule by a number of Northern European scholars between the late eleventh and thirteenth century. For what reasons was this trope of equivalence cultivated in Scandinavian and Icelandic historical writings? What were the advantages of using the antique name *Thule* when a newer, vernacular term was available? I argue that this trope was not a culturally unmotivated attempt to identify the island that Pytheas and later Roman writers named as *Thule* with a modern territory, as modern scholars have attempted to do with Dicuil's Thule. Instead, the trope appears to be motivated by a desire to associate northern historical writings with Roman historiography, as an analysis of these examples demonstrates.

The strategic connotations of this trope are evident in Adam of Bremen's *Gesta*. Adam was keen to credit the diocese of Hamburg-Bremen with the Christianisation of the far north. Indeed, his rationale for describing these islands in his fourth book was, as cited earlier in this chapter, that 'the ocean off Norway contains many considerable islands, of which nearly all are now subject to the rule of the Norwegians and so are not to be overlooked by us because they also belong to the diocese of Hamburg' (IV.34). As we have seen from the use of the term in Virgil's *Georgics* and Seneca's *Medea*, Thule was not a geographical or political entity *per se*, but functioned as a *non plus ultra*, a synonym for the ends of the earth. When Adam uses the name Thule, therefore, he figures Iceland as the most distant region to which Christian evangelism could aspire. When Iceland becomes Thule, Adam is able to credit Hamburg-Bremen with taking Christianity to the very ends of the earth, in fulfilment of Christ's injunction to

[46] Theodoricus, *Theodoricus Monachus: The Ancient History of the Norwegian Kings*, trans. David McDougall and Ian McDougall (London: Viking Society for Northern Research, 1998), 6.

his apostles to do the same (for example, *Matthew* 28:19 and *Mark* 16:15). The appropriation of the place-name *Thule* has strategic value that enables Adam to emphasise the reach of his archdiocese.

The use of the term elsewhere might have similar strategic connotations that enable historical writers to associate their works with Roman historiography. The use of the name Thule in the *Historia Norwegiae* ('History of Norway') and *Gesta Danorum* ('Deeds of the Danes') demonstrates that their respective national histories are contiguous with, or can even enrich, Roman writings on the geography of the northern regions, which also describe Thule. In naming Iceland as *Thule*, the *Historia Norwegiae* and *Gesta Danorum* present themselves as successors to the antique tradition, and as witnesses to the fulfilment of the prophecies in Virgil's *Georgics* and Seneca's *Medea* that the world's remotest regions, even so far as Ultima Thule, would one day be assimilated into the Roman *Imperium*. The trope of equivalence is one of Romanisation; historical writers stake a claim to Thule in order to show that their works are consanguine with antique tradition.

These connotations position us to understand the appropriation of the name Thule in the Icelandic *Landnámabók* and *Bretasögur*. In these histories, the names *Thule* and *Iceland* are also co-opted in order to formalise a connection between Icelandic and Latin historical writings. Further, the myth of Tilensian origins endows Iceland with two things it sorely lacked: a human prehistory, and a presence in Roman historiography. Through their use of the traditional name *Thule*, medieval writers were able to write themselves into fellowship with the historical keynotes of the High Middle Ages, such as Pliny, Solinus, and Bede. Thus the newly available vernacular name did not replace the traditional one altogether, even in Iceland: this would have the undesirable effect of effacing the connections between contemporary historical writings and Roman historiography. The Icelandic historiographical endeavour enshrined in *Landnámabók* is figured as an extension of the Roman historical literature on Thule, not its replacement. The larger Viðey map's coupling of these place-names might thus be seen as an act of *translatio studii* that transfers authority from the antique tradition, enshrined in the earlier works of Bede and his Classical forebears, to the vernacular, native tradition of Icelandic historiography. Seen in these terms, the relationship between the place-names *Thule* and *Iceland* recalls the false etymologising in *Snorra Edda* and *Ynglingasaga*, through which Snorri attempted to show that Icelandic vernacular poetics and culture were derived from, and consanguine with, Roman cultural artefacts that originated in Troy.[47]

The larger Viðey map can thus be interpreted as a visual statement of Thule and Iceland's equivalence, along the same lines as the Icelandic *Landnámabók*. However, we should remember that the map draws also from an established cartographic tradition. It is to the cartographic evidence for the relationship between Iceland and Thule that we shall now turn.

Iceland and Thule on medieval maps

As already noted, a crucial difference in the relationship between Thule and Iceland emerges on consideration of early medieval maps. Contrary to the prevalence of narrative statements that equate Thule with Iceland, these two islands remain cartographically distinct. Regardless of whether or not the discovery of Iceland was also the rediscovery of Pytheas's Thule, the advent of Iceland in the late ninth century did not displace Thule on contemporary maps. Instead, Iceland became a double of Thule and both islands were drawn separately in the North Atlantic. Iceland appears on a large number of medieval maps. Chekin counts five maps produced in the period between the eighth and thirteenth centuries that show Iceland (the Anglo-Saxon or Cotton map, the Sawley map, the larger Viðey map, Gerald of Wales's map of Europe, and the Hereford map) while Haraldur Sigurðsson counts a further twenty-one from the fourteenth and fifteenth centuries.[48] Comparison between the Icelandic and other European maps demonstrates that the Icelandic map is not unique in its double placement of Iceland and Thule. This challenges the assumption that the double placement on the larger Viðey map is a statement of their equivalence along the same lines as the Icelandic *Landnámabók* and *Bretasögur*.

Anglo-Saxon or Cotton map (c. 1025-50)

The earliest attested appearance of the place-name *Iceland* on any written document is on the Anglo-Saxon or Cotton map (British Library, MS. Cotton Tiberius B. V. London, British Library, MS. Cotton Tiberius B. V., f. 56v),

[47] The Æsir, the Norse gods, were connected by means of a false etymology with Asia. Likewise, the Vanir, a sub-group of the gods, were said to have had their ancestral home near the Tanakvísl or Vanakvísl, the Tanais estuary. See the examples assembled in the introduction.

[48] Chekin, *Northern Eurasia*, 309; Haraldur Sigurðsson, *Kortasaga Íslands*, 1:44-45.

produced in England, possibly at Canterbury, and dated on palaeographic grounds to *c.* 1025-50 (figure 38). The Cotton map is an exceptionally detailed map of the world. Seventy-five of its 146 place-names are found in Orosius' *Cosmographia*, and others may derive from now-lost Roman administrative records and itineraries.[49] The map supplements the antique tradition with additions derived from tenth-century explorations of northern waters. Thus in the North Atlantic, traditional names like *Orcades insulae* have been combined with newly available information about territories such as the Isle of Man, Shetland, the Faroe Islands, and Iceland.[50] These islands also feature on the map prepared by the Arabic scholar Muhammad al-Idrisi at the court of the Norman king Roger II of Sicily in 1154.[51]

Histories of Icelandic cartography have noted that the Anglo-Saxon Cotton map contains the first documented occurrence of the place-name *Iceland*. However, it is seldom mentioned that this map, like the larger Viðey map, also includes the place-name *Tylen*.[52] Iceland appears near the Norwegian

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[49] Miller, *Mappaemundi*, 3:29-37. McGurk, *Illustrated Miscellany*, 86; Harvey, *Mappa Mundi*, 389.

[50] McGurk, *Illustrated Miscellany*, 81.

[51] See S. Maqbul Ahmad, 'Cartography of al-Sharif al-Idrisi,' *The History of Cartography* vol. 2, book 1: *Cartography in the Traditional Islamic and South Asian Societies*, ed. J. B. Harley and David Woodward (London: University of Chicago Press, 1992), 156-172.

[52] McGurk, *Illustrated Miscellany*, 85.

Peninsula, while Thule is shown separately, west of the British Isles in the bottom corner of the map.

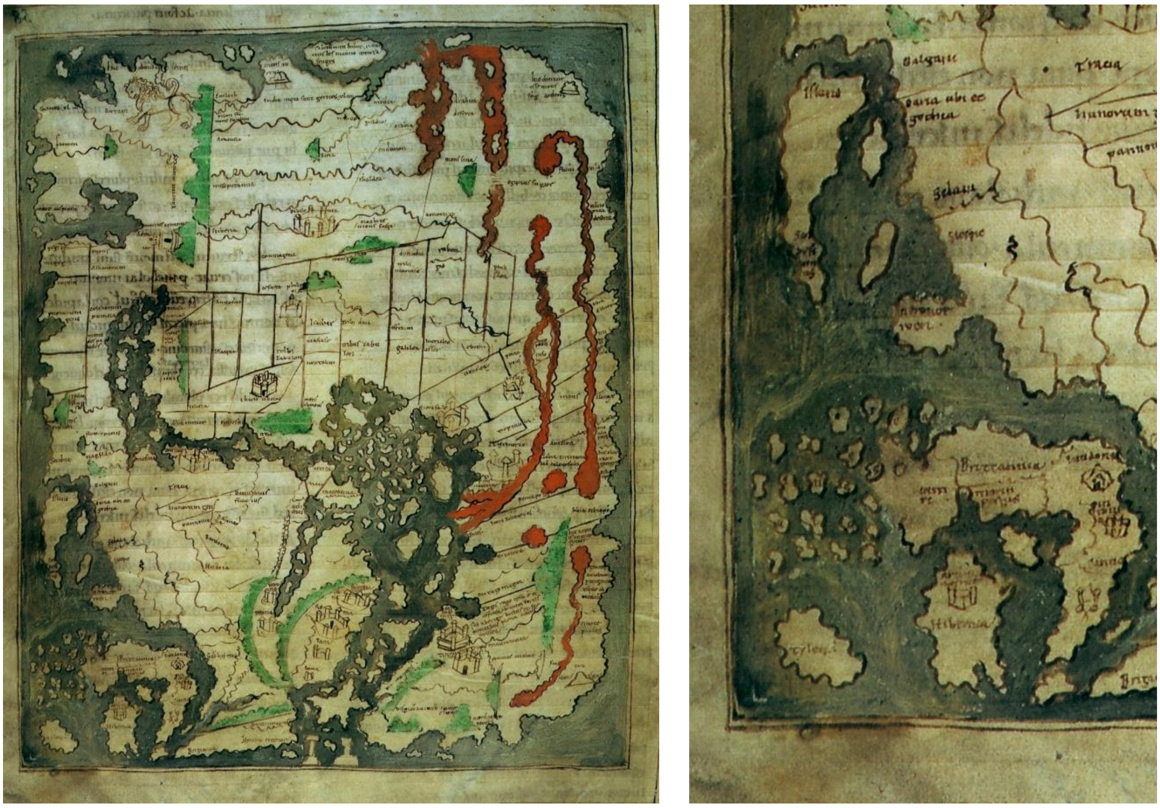

Figure 38: The Anglo-Saxon or Cotton map (London, British Library, MS. Cotton Tiberius B. V., f. 56v), c.1050. The detail to the right, excerpted from the map's bottom left corner, shows Island (top) and Tylen (bottom)

The Hereford map (1290s or c. 1300)

Both islands appear also on the English Hereford map, produced in the 1290s (or *c.*1300). The Hereford map measures 1.59 x 1.29-34m and contains, by Westrem's count, 1091 legends written predominantly in Latin, but with numerous incursions into two vernacular languages: English and Anglo-Norman.[53] This map shows three islands at the head of the Norwegian peninsula: *Farerie* (the Faroe Islands), the vernacular *Ysland* and the Latinate *Ultima*

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[53] Seed, *Companion*, 64. The map's legends are transcribed *in extenso* in Westrem, *Hereford Map*; See also Miller, *Mappaemundi*, vol. 4: *Die Herefordkarte* (Stuttgart: Roth, 1896).

Tile.[54] On the Hereford map, these islands are not plotted remotely, but side by side (figure 39).

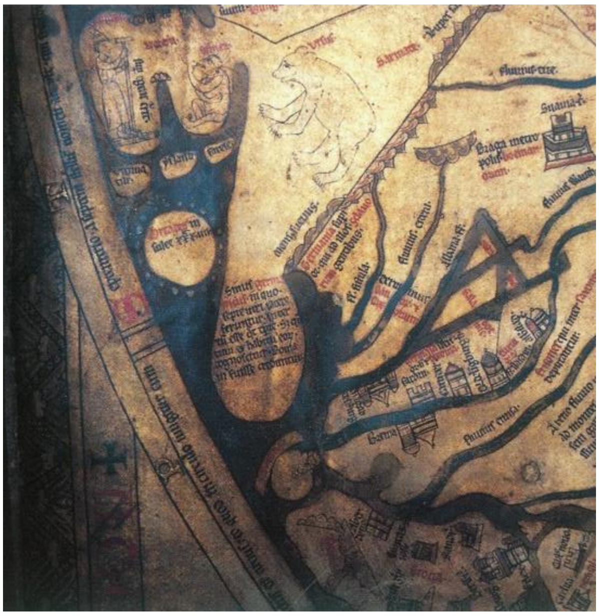

Figure 39: The islands of *Ultima Thule*, *Ysland* feature as part of a trio with *Farerei* (Faroe Islands) on the Hereford map, below the Norwegian Peninsula (decorated with an image usually interpreted as a skier) and above the *Orcades* (Orkney Islands).

Gerald of Wales's map of Europe (c. 1200)

There are also maps that show Iceland but not Thule. The English Sawley Map (produced *c.* 1110) shows a peninsular Iceland but no Thule.[55] Similar is a map of Europe preserved in Dublin, National Library of Ireland, MS 700, f. 48r (executed *c.* 1200, possibly at Lincoln) between Gerald of Wales's *Topographia Hibernica* and *Expugnatio Hibernica*.[56] Iceland features prominently on this map, while Thule is absent. The map follows Gerald's *Topographia*, in which Iceland and Thule are both described, but separately. Gerald describes the length of Thule's solsticial day (information that derives ultimately from Strabo's paraphrase of Pytheas), but does not connect this with any similar observations on the length of the day in Iceland. The map appears to reflect the uncertainty about Thule expressed in the accompanying text, and only plots the location of *Yslandia*.

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54 Westrem, *Hereford* Map, 194-95.

55 McGurk, *Illustrated Miscellany*, 81.

56 Delano Smith and Kain, *English Maps*, 15-16; Chekin, *Northern Eurasia*, 139; This map is examined in relation to the texts it accompanies in Thomas O'Loughlin, 'An early thirteenth-century map in Dublin: A window into the world of Giraldus Cambrensis,' *Imago Mundi* 51:1 (1999), 24-39.

Figure 40: Map of Europe preserved between texts of Gerald's *Topographia Hibernica* and *Expugnatio Hibernica* (Dublin, National Library of Ireland, MS 700, f. 48r) *c.* 1200.

The mapmaker's method

The cartographic evidence complicates the representation of these two islands on the larger Viðey map. Maps do not argue for the equivalence of these place-names, but show both islands as cartographic entities in their own rights. Therefore, there are two traditions in which this map can be understood: one historiographical, in which it was frequently argued that *Thule* and *Iceland* were synonyms, and one cartographic, in which they were distinct. The laconic visual grammar of the larger Viðey map, which makes sparse use of outlines, does not enable us to discern conclusively whether or not these apparently twinned inscriptions adhere to one island or two. However, we can elaborate on the likelihood of these propositions through comparison with the map's written and cartographic analogues. Of course, maps live by their reception, and multiple interpretations are available, despite a mapmaker's single-minded intentions.

The double placement of these islands on medieval maps perhaps originates in the uncertainty with which Strabo and his readers described Pytheas's voyage. Strabo was concerned that Pytheas had fabricated his observations on mathematical principles, and after the translation of Strabo's *Geographia* into Latin in the mid-fifteenth century, we might wonder how confidently a mapmaker would equate these two place-names with the *Geographia* at his elbow. Presented with two place-names, the mapmaker might have preferred to combine but not reconcile his sources. This can be seen on the map that accompanies Gerald's *Topographia Hibernica* and *Expugnatio Hibernica* (figure 40), where it is clear that while both terms were available to the mapmaker, he only made use of the one for which he had more certain information, Iceland. Likewise, the proximity of these islands on the Hereford map might be indicative of the mapmaker's knowledge of a connection between them, but an unwillingness to pronounce on their precise relationship, as in Theodoricus's *Historia*.

If we were to suppose briefly that the legend Thule on the larger Viðey map represented not Iceland but a different territory, what might it be? The place-name Thule attracted the attention of the map's first commentator, Rafn, who remarked that:

> Il est bien remarquable que ce géographe islandais qui adopte presque partout les dénominations de lieu créées par les anciens géographes latins, se souvenant de leur 'Ultima Thule' a donné ce nom aux contrées situées dans l'Amérique et découvertes par ses compatriotes. On se rappelle que ces pays qui sont le Groenland, le Helluland, le Markland, le Vinland, ont par les géographes du Nord été rapportés à notre partie du monde. En employant le nom de Tile pour des pays situés au-delà de l'Islande, l'auteur du planisphère révêle sa connaissance d'un pays plus éloigné.[57]
>
> (It is remarkable that this Icelandic geographer, who adopts almost all the place-names created by the old Latin geographers, remembered 'Ultima Thule' and gave that name to the lands situated in America and discovered by his countrymen. We remember that these lands, Greenland, Helluland, Markland, and Vinland, had been reported by northern geographers to our part of our world. By using the name of Tile for lands located beyond Iceland, the author of the planisphere reveals his knowledge of distant lands.)

This is a rather remarkable, but indefensible suggestion. If *Tile* did represent Greenland or North America, then the larger Viðey map would be the first known cartographic representation of these regions by more than two hundred years.[58]

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[57] Rafn, *Antiquités Russes*, 393.

[58] This claim appears to be unknown to Kirsten Seaver, but strengthens her argument that the controversial Vínland map is an early twentieth-century hoax. See Kirsten Seaver, *Maps, Myths, and Men: The Story of the Vinland Map* (Stanford: Stanford University Press, 2004). Rafn suggests that the earliest map to show America would emerge from the Norse voyages towards the North American continent in the late-ninth century. The Vínland map is accompanied by a confused prose account that conflates the two Vínland voyages of Þorfinnr Þórðarson and Leifr Eíriksson, information that could be derived second-hand from Rafn's volume. It seems to me that this statement in Rafn's account might have inspired the Vínland map hoax.

Greenland would otherwise not find cartographic expression until the publication of Claudius Clavus's *tabula moderna* in a Latin translation of Claudius Ptolemy's *Geographia*, published in 1424-27.[59]

It is highly unlikely that this map discloses any information about the Norse discovery of North America. As we have seen, the double placement of these islands on maps is traditional, and, as the Anglo-Saxon Cotton map demonstrates, it is entirely possible that the exemplar from which the Icelandic map was copied already incorporated both Latinate Thule and vernacular Iceland before it arrived in Iceland. The information on the map likely derives from multiple sources but, in the absence of any clear cartographic parallels, we can only speculate as to the map's history anterior to its reproduction in 1812 III. Thule and Iceland might both have been added to the map by an Icelandic mapmaker with a particular interest in describing the geography of his region. Alternatively, the map on which the Icelandic production was based might already have included either Iceland, Thule, or both. It is far easier to see traditional influences on the Icelandic map than information derived from observation: for example, the map gives no indication of knowledge about the Orkney or Faroe Islands, which were certainly known to the Icelandic mapmaker, or indeed any unambiguous indications of the lands associated with the Norse discovery of America. Finally, as *Landnámabók* and *Bretasögur* demonstrate, there is no evidence that Icelanders meant anything but Iceland when they wrote Thule.

Given the differences between the map's written and cartographic parallels, it is difficult to pronounce on the relationship between the legends *Island* and *Thule* on the Icelandic map. The map might be a visual statement of the equivalence of these place-names. The strength of this interpretation is that there are other examples of this trope of equivalence from medieval Iceland that are roughly contemporary with the map. However, this is the only map that survives from medieval Iceland to show the position of Iceland, and we do not

59 After Clavus, the north would not be mapped again until the Bavarian-born Jacob Ziegler published his maps of Scandinavia in 1530 and 1536. See William R. Mead, 'Scandinavian Renaissance Cartography,' *The History of Cartography*, vol. 3, part 2, *Cartography in the European Renaissance*, ed. David Woodward (London: University of Chicago Press, 2007), 1781-1805, esp. 1781-86. Halldór Hermansson, *Cartography of Iceland*, 14-20; Edward Lynam, 'Early Maps of Scandinavia and Iceland (Synopsis of a Lecture)', *Saga-Book* 11 (1928-36), 1-4, 3; Haraldur Sigurðsson, *Kortasaga Íslands*, 11.

know what forms other examples of Icelandic cartographic self-portraiture might have taken. On consideration of the cartographic evidence, another interpretation emerges. We might suggest that the double placement of these place-names on the Icelandic map is not a statement of their equivalence, but evidences an attempt made by the mapmaker to preserve the distinctiveness of his sources. The mapmaker has gathered information from multiple sources but, making no effort to harmonise them, has left them unassembled. The mapmaker therefore leaves the map open to interpretation and invites, but does not settle, speculation on the relationship between them.

Languages on the larger Viðey map

One further aspect of these twinned inscriptions that can shed light on their relationship remains to be addressed. The place-name *Ísland* is one of the map's few incursions into the vernacular. Although the map makes sparse use of outlines, the map's European inscriptions are nevertheless arranged to divide the continent into a number of distinct regions. One means by which cartographic areas are constructed is through the arrangement and orientation of place-names, as described earlier in this chapter. Another that has hitherto occasioned no mention is the languages in which they are written. The literature has not stressed enough the complexity of this map's depiction of Europe, and has not addressed at all the map's use of languages – Latin and Old Norse – to construct relationships between the European polities it shows. The following section examines *Iceland* and *Thule* in the context of the map's language environment. A fuller conclusion about the relationship between these dual inscriptions emerges from a consideration of their linguistic context.

The two Viðey maps are unlike other maps in the Icelandic corpus in that they are both principally depictions of the ecumene. The term ecumene (or *oikoumene*) originates in Herodotus's *Histories* and refers to the inhabitable or the civilised world known to the Greeks and Romans, in contradistinction to those regions at its fringes inhabited by barbarians.[60] Its Latin equivalent was *orbis terrarum*,[61] which Simek has suggested underlies the Old Norse term

[60] Peter Fibiger Bang and Dariusz Kołodziejczyk. "Elephant of India': Universal Empire through Time and across Cultures,' *Universal Empire: A Comparative Approach to Imperial Culture and Representation in Eurasian History*, ed. Peter Fibiger Bang and Dariusz Kołodziejczyk (Cambridge: Cambridge University Press, 2012), 1-40, 30-33.

[61] Chekin, *Northern Eurasia*, 21.

kringla heimsins, which opens the description of the ecumene at the start of *Ynglingasaga*.[62] Ecumene was coterminous with empire, and, when the term entered Christian theology, it became associated with the Christian commonwealth. Chekin defines this region as 'the territory where the drama of [the] salvation of humankind is played out.'[63] This definition is especially pertinent to the medieval world map, which frequently depicts scenes from soteriological history: past (scenes from the Incarnation), present (contemporary place-names evidencing the spread of Christianity to remote regions) and future (Doomsday). Romm defines the ecumene in similar terms, but emphasises the role of communication in shaping it:

> The *oikoumene* in its most essential meaning, can be defined as a region made coherent by the intercommunication of its inhabitants, such that, within the radius of this region, no tribe or race is completely cut off from the peoples beyond it.[64]

Romm's definition urges that we consider the ways in which communication between the world's inhabitants is visualised on the map, and the role of language in constructing it. While the preponderance of the map's inscriptions is written in Latin, there are ten incursions into the vernacular.

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[62] Simek, 'Snorri als Kosmograph,' 264.

[63] Chekin, *Northern Eurasia*, 21.

[64] Romm, *Edges*, 37.

Instances of Old Norse on the larger Viðey map

Vernacular legends

Island	Iceland
Danm*or*c	Denmark
Suiþioð	Sweden
Gautl*and*	Götaland

Macaronic (mixed-language) legends

Hic habitatuit [*sic*] Biarmar	Bjarmar live here
Tanakvisl flum*en* maxim*us*	The Tanais Estuary, a great river

Bilingual legends

Suðr Meridies	South
Vestr Occidens	West
Norðr Septentrio	North
Austr Oriens	East
Tile Island (?)	Iceland (?)

Vernacular legends on the larger Viðey map

The map contains only four legends written exclusively in the vernacular, for those place-names that designate Iceland, the provinces of Sweden, and Denmark. There are many other lands marked on the map for which there exist frequently used names in Old Norse. Given the general tendency for Latin texts to be circulated in Iceland in Old Norse translation, it is striking that vernacular place-names with a high degree of currency in Old Icelandic literature, such as *Miklagarðr* and *England*, do not appear on the larger Viðey map, which instead uses the less common *Constantinopolis* and *Anglia*. This is all the more surprising given that the other Icelandic maps, as shown in chapters 1 and 2, are abundantly vernacular; despite their points of reference in late-antique cosmographical treatises, their Latinate terminology is frequently calqued or else rendered into Old Norse. While the larger Viðey map presents no difficult vocabulary that must be rendered into a more readily understandable vernacular – such as the parallels of latitude, or opaque terminology that relates to the motions of the planets – there was nevertheless an established vernacular onomasticon that the mapmaker might have used, but chose not to. The elsewhere inexorable process of translation is markedly absent from the larger Viðey map.

The highly selective use of Old Norse on the map overlaps with the area in which Old Norse was the main language of communication. The map's vernacular contributions might be understood in terms of the Scandinavian language environment that it seeks to represent. The linguistic contour or isogloss marked by the use of Old Norse groups the inscriptions *Ísland*, *Gautland*, *Suiþioð*, and *Danmorc*, and reflects the linguistic homogeneity of the Old Norse cultural area. The term used for the Old Norse language in Old Icelandic texts is *dansk tunga* (the Danish tongue). Less common, but sometimes seen in texts from the thirteenth century is the term *norræna* (Norse).[65] The term *dansk tunga* is used infrequently, but across a wide range of registers. Its history is opaque.[66] A number of examples of the term *dansk tunga* have been discussed by Håkon Melberg and Ian McDougall.[67]

In Old Icelandic texts, languages frequently figure as both routes through space and as barriers to movement. Movement between linguistic boundaries appears in reference to pilgrimage from Scandinavia towards southern Europe. In *Knýtlinga saga* (1250s), an Icelandic history of the Danish kings from the tenth to the thirteenth century, it is written that King Cnut (*c*. 985 or 995 –1035) established a hostel along the pilgrimage route to Rome for the use of those who spoke the Danish tongue ('er þar kæmi af danskri tungu').[68] Likewise, in the same saga, King Eírikr Sveinsson the Good (r. 1095-1103) is said to have established a hostel on the road to the pilgrimage site at Borgo San Donnio so that all those

[65] Stefán Karlsson, *The Icelandic language* (London: Viking Society for Nothern Research, 2004), 9.

[66] The Norman historian Dudo of Saint-Quentin (c. 960-1026) uses the term *Dacisca lingua* ('Danish tongue, language') to refer to Old Norse in his *Historia Normannorum* (Ch. 11), written in the first quarter of the eleventh century, see Stephen Pax Leonard, *Language, Society and Identity in Early Iceland* (Oxford: Wiley-Blackwell, 2012), 121-22. This term is contemporary with the earliest appearance of the term *dansk tunga* in Old Norse, which appears in strophe 15 of the *Víkingavísur* composed by the Icelandic skald Sighvatr Þórðarson in praise of King Ólafr Haraldson, *c*. 1015. See Håkon Melberg, *Origin of the Scandinavian Nations and Languages. An Introduction, I-II* (Halden: Eget Forlag, 1953), 17. The term might have developed with reference to Denmark because it is the first country going north where the language is spoken, and the last country going south where speakers of the language are understood.

[67] Ian McDougall, 'Foreigners and Foreign Languages in Medieval Iceland,' *Saga-Book* 22 (1986-89), 180–233, 212-213.

[68] Bjarni Guðnason, ed. *Danakonunga sögur*, Íslenzk fornrit 35 (Reykjavík: Hið Íslenska Fornrit Félag, 1968), 112.

pilgrims who spoke the Danish tongue should have enough free wine to drink ('allir pílagrímar, þeir er danska tungu mælti, skyldi ókeypis nógt vín drekka').[69] There is a similar and contemporary occurence of the term *dansk tunga* in the Prologue to *Heimskringla*, in which Snorri claims to have written histories of those kings and nobles who spoke 'á danska tungu,' and therefore, it is implied, ruled in the Old Norse cultural area.[70] Other examples of the phrase *dansk tunga* in Icelandic texts show that the term was used to refer explicitly to the geographical area over which Norse was spoken, as well as those with a shared linguistic identity.[71] Another such example appears in *Óláfs saga Tryggvasonar*, in the *Heimskringla* cycle, in which Óláfr is described as 'the most famous man of the Danish tongue' ('frægstr maðr var a dansca tungu'). These references expose the dual linguistic and territorial bearings of the phrase *dansk tunga*, and imply a shared identity predicated on language that is closely tied to geographical area.

The evidence of Old Icelandic literary texts suggests that the term *dansk tunga* was used as a marker of a common Scandinavian cultural identity. The phrase *á danska tunga* (in the Danish tongue) was often used to refer to the geographical area over which Old Norse was the dominant means of expression and the Old Norse cultural identity inhered. Stephen Pax Leonard has argued that these references often have more to do with 'the geographic origin of the speaker than any specific linguistic features';[72] *dansk tunga* was as much a geographical as it was a linguistic category.

Linguistic discontinuity is seen as a barrier to movement between Scandinavia and southern Europe in the twelfth-century *Leiðarvísir*, introduced in relation to its description of the Church of the Holy Sepulchre in chapter 2. This discontinuity occurs between the towns of Minden and Paderborn in Saxony, and is signalled by the phrase 'nu skiptazt tungur' ('now the languages change').[73] However, in his edition of the *Leiðarvísir*, Kålund suggested that the

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69 Bjarni Guðnason, ed. *Danakonunga sögur*, 123; see McDougall, 'Foreign Languages,' 213.

70 Bjarni Aðalbjarnarson, ed. *Heimskringla*, 1:3

71 Leonard, *Language*, 121.

72 Ibid., 128.

73 *AÍ* I, 18.

itinerary had been corrupted in transmission and that originally this break would have marked the entry into Saxony from Denmark.[74] This is a reasonable hypothesis, based on what we know about the languages of these regions, and finds support on the Icelandic map. The linguistic discontinuity described in the *Leiðarvísir* corresponds with the change in the language in which the legends *Danmorc* and *Saxonia* are written. It is notable that the map's Old Norse inscriptions are not grouped together, but are spread across two of the cartographic areas identified in the first half of this chapter.

The location of Denmark relative to northern Scandinavia and its European neighbours, particularly Saxony, has a number of historiographical and cartographic parallels. In Adam of Bremen's *Gesta*, Denmark is the first of the Scandinavian territories to be described, and marks the transition from Continental Europe into Scandinavia. As cited earlier, Adam tells us that 'in going beyond the islands of the Danes there opens up another world in the direction of Sweden and Norway' (IV). Denmark is the portal to the 'alter mundus' that is Scandinavia. In the *Leiðarvísir*, Denmark again features as a border territory and gateway to the Baltic Sea region: 'i gegnum Danmork gengr sior i austr-veg' ('Beyond Denmark the sea extends towards the eastern way [the Baltic Sea and Russia]').[75] The cartographic evidence supports this view of Denmark as a border territory. The boundary between Denmark and Saxony is particularly prominent on the Hereford map. A legend bisected by the river that marks this boundary reads:

> Term inus
> Dan o*rum* . et
> Sax onum[76]
>
> (The frontier between the Danes and the Saxons.)

Inscriptions marking boundaries are few on the Hereford map, which marks only three other *termina* or frontiers: *terminus Francie et Burgundie*, *terminus Europe*, and *terminus Affrice*.[77] Thus two of these boundaries, the European and African frontiers, mark fundamental categorical distinctions between

[74] *AÍ* I, 66.

[75] Ibid., 11.

[76] Westrem, *Hereford Map*, 222-23.

[77] Ibid., 286-87; 334-35; 370-71.

continents: the European terminus is located on Europe's western seaboard on the coast of the Iberian Peninsula; the African terminus borders the Mediterranean Sea. The others show important geopolitical frontiers in Europe at the time the map was drawn, and included the border between the Holy Roman Empire and the Danish possessions north of the River Elbe.[78] From the twelfth century, the boundary between Denmark and Saxony would also be significant as a diocesan boundary. With the establishment of the Nordic archdiocese at Lund in 1103, Scandinavia and the Northern Islands were separated from Hamburg-Bremen,[79] which, as we saw from Adam's *Gesta*, had previously been eager to associate itself with the Christianisation and ministry of Scandinavia and the Northern Islands.

Language, therefore, is an important means by which relationships between the map's regions are constructed. Ian McDougall observes that the term *dansk tunga* in Old Icelandic literature is 'hardly an expression of isolationism; rather, it is a recognition of the common cultural identity of the Scandinavian nations.'[80] Indeed, while Denmark is cartographically distant from the other Scandinavian territories shown on the map, its place among them is signalled by the common language in which they are inscribed onto the map. Conversely, the distinction between the languages in which the place-names *Danmorc* and *Saxonia* are written avers their political and diocesan distinctiveness, despite their cartographic proximity. On the Icelandic map, while Denmark and Saxony appear side by side in the same cartographic area, in group III, their distinctiveness is signalled through language. The use of Old Norse on the map for Denmark might be an indication that it belongs not to the Continental European archdiocese of Hamburg-Bremen, but to the Nordic archdiocese at Niðaróss (Trondheim). The use of the vernacular in these inscriptions endorses the definition of *dansk tunga* as a geographic area, and suggests that the mapmaker differentiated between territories on linguistic

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[78] See Kurt Villands Jensen, 'The Blue Baltic Border of Denmark in the High Middle Ages,' *Medieval Frontiers: Concepts and Practices*, ed. David Abulafia and Nora Berend (Aldershot: Ashgate, 2002), 173-83, 177-180 for an account of the relationships between the Danish kings and German emperors in the thirteenth century.

[79] Ibid., 178.

[80] McDougall, 'Foreign Languages,' 212-213.

grounds. The Icelandic mapmaker evidently chose to be selective in which lands and territories he plotted in the vernacular and those he plotted in Latin.

Macaronic legends on the larger Viðey map

The map also features two macaronic inscriptions written in a combination of Latin and Old Norse: *Biarmar habitauit* [*sic*] *hic* and *Tanakvisl flumen maximus*. These inscriptions are fully macaronic in that they combine Old Norse and Latinate vocabulary, with inflectional endings in both languages. Thus the *Bjarmar*, the Old English *Beormas*, retain an Old Norse plural ending although the rest of the inscription is written in Latin. The term *Tanakvísl*, combines *Tanais*, which has similarly been adapted to the inflectional system of Old Norse, and the Old Norse noun *kvísl* (estuary). The suggestion that the map's Latin contents were copied wholesale and that additions were made in Old Norse is weakened by these macaronic inscriptions, which show the mapmaker's proficiency in both languages.

Bilingual legends on the larger Viðey map

A possible context for the double *Thule-Iceland* inscription is the suite of bilingual inscriptions that comprise the names of the four cardinal directions on the map. There four cardinal points, written in Latin and Old Norse, are the only other instances of bilingualism on the map. As will be described in chapter 5 of this thesis, the structure of the map is profoundly quadripartite: with the four cardinal points, written in Old Norse and Latin, assembled alongside other cosmic and scriptural fours at the four corners of the map. Seen in the context of these other double inscriptions, the dual inscription *Thule-Iceland* might be considered a fifth orientational couplet that would help the map's Icelandic reader to find his place in the world. As Paxman has argued, 'we apply directions such as east and west only after we have oriented the sphere in relation to ourselves and a larger, mentally charted space.'[81] The home inscription enables the map's reader to locate himself in relation to the other European polities shown on the map, and is continguous with the other bilingual orientational markers around the map's perimeter.

[81] David B. Paxman, *Voyage into Language: Space and the Linguistic Encounter, 1500-1800* (Aldershot: Ashgate, 2003), 10.

There are other examples of bilingualism on diagrams in medieval Icelandic encyclopaedias. For example, a diagram of the planetary hours (Copenhagen, Arnamagnæan Institute, AM 732b 4to, f. 6r) identifies the theophoric elements in the Latin names of the planets with their Old Norse equivalents: *Hora Iovis þors* ('hour of Jupiter/Þórr') and *Hora Lune Oðens* ('hour of the Moon/Óðinn').[82] This example does not reflect simply the substitution of legendary figures from the Greco-Roman tradition for equivalents from northern mythology. On the contrary, the *interpretationes germanicae* do not replace, but stand alongside the Latinate originals; the copyist does not efface the relationship between the Icelandic production and the Latin original from which it derives. Similarly, we might identify *Thule* and *Iceland* as bilingual inscriptions that are suspended in literary apposition to one another; the vernacular modernisation does not displace the traditional term but draws its authority from it.

There is one other inscription on the larger Viðey map that identifies a single landmark by two names. In the Asian half of the map, the Biblical Mount Sinai is identified with the legend *Syna id est horeth* (Sinai, which is Horeb). The place-name Sinai is mentioned in *Exodus* 19, as the mountain atop which Moses was given the Ten Commandments by God. In *Deuteronomy* 1, this is said to have taken place on Mount Horeb. Eusebius in his *Onomasticon*, translated by Jerome, thought these two names belonged to the same mountain, a verdict the Icelandic map follows in identifying the Sinai and Horeb as synonyms.[83] If *Thule* and *Iceland* were synonyms, would the mapmaker not have used a similar formula to identify them as such?

As the language of ecclesiastical power and high culture, Latin was the medium through which elites communicated with one another across cultural

[82] *AÍ* II, 239-241. The theory of the planetary week has its origins in the works of the astrologers of Ptolemaic Egypt, and comes down into the Middle Ages through Greek astronomy. Each hour of the day was governed by one of the seven planets, in descending order of distance from the earth (see chapter 2 of this thesis). Each day is subject to the planet that governs the first hour of that day. Since the day consists of three cycles of these hourly attributions (3 x 7) plus 3 (a total of 24 hours), the order of the cycle of planetary days is: Saturn (Saturday), Sun (Sunday), Moon (Monday), Mars (Tuesday), Mercury (Wednesday), Jupiter (Thursday) and Venus (Friday). See Blackburn and Holford-Strevens, *Year*, 567.

[83] Eusebius, *Eusebii Pamphili Episcopi Caesariensis Onomasticon: Urbum et Locum Sacrae Scripturae. Graece cum Latina Hieronymi Interpretatione*, ed. F Larsow and G. Parthey (London: William Morgate, 1862), 375.

and geographic barriers.[84] The appearance of the Latinate *Thule* alongside the vernacular *Iceland* might thus aver the dual connectedness of Iceland to the Scandinavian territories, connected through their shared spoken language, and European Christendom, connected through their common use of Latin. The map frames Iceland in universal *Ecclesia* and Roman *Imperium*, but with an eye to its connections to the Scandinavian world.

Diglossia on other medieval maps

In a study of the relationship between Latin and the vernacular elements on this map, we can again seek cartographic parallels. An examination of the distribution of languages on other maps will enable us to contextualise the Viðey map's vernacular contributions. Medieval maps frequently contain legends written in Latin and a range of European vernaculars, and their distribution awaits further research. However, remarks scattered across the literature on individual maps demonstrate that maps frequently thematise language choice, using different languages to represent different geographical regions, or to distinguish between different cartographic spaces. The Anglo-Saxon Cotton map (*c*. 1050), the maps of Matthew Paris (1250s), the Ebstorf map (thirteenth century), the Hereford map (*c*. 1300), and the Evesham map (*c*. 1390) all include legends written in Latin and at least one vernacular language. An examination of the relationships between languages on these maps can shed further light on the relationship between Old Norse and Latin on the Icelandic map, and illuminate Iceland and Thule.

The Anglo-Saxon Cotton map

There are five incursions into the vernacular on the Anglo-Saxon Cotton map: *Suðbryttas* (Brittany), *Neronorroen* (Norway), *Sleswic* (Sleswick), *Scridefinnas* (from the Old English *Orosius*, *Scridefinne*), and *Island*.[85] These legends all

[84] Bang and Kołodziejczyk, 'Elephant,' 33.

[85] Hiatt numbers *Tylen* also among the map's vernacular inscriptions, perhaps because of its later association with *Island*. Alfred Hiatt, 'From Hulle to Carthage: Maps, England, and the Sea', *The Sea and Englishness in the Middle Ages: Maritime Narratives, Identity, and Culture*, ed. Sebastian I. Sobecki (Cambride: D.S. Brewer, 2011), 133-57, 135-36. However, since the term is traditional and appears frequently in Latin historical literature, it has not been counted among the map's vernacular inscriptions here.

adhere to places in Northern Europe that would have been familiar to the mapmaker, and about which knowledge would have been in oral circulation.

The Hereford and Ebstorf maps

The Hereford map contains inscriptions written in three languages: English, Anglo-Norman, and Latin. The mapmaker, like the one responsible for the Icelandic map, had a choice to make between languages, and a survey of their distribution demonstrates that their use was systematic and focussed.

The Hereford map contains an especially detailed representation of the British Isles, in much the same way that Iceland and Scandinavia are emphasised on the larger Viðey map. While the preponderance of the map's inscriptions are written in Latin, approximately half of the map's eighty-one inscriptions on the British Isles are written in English. For example, the names of the cities *Edenburgh* (Edinburgh), *Snotingham* (Nottingham), *Hereford* (Hereford) and *Baþe* (Bath) are inscribed in the vernacular. However, Latin is the preferred language for the names of countries and cities with particular ecclesiastical significance, and therefore we have *Eboracum* (York) and *Ahrmaca civitas Sancti Patricii* (Armagh, city of Saint Patrick).[86] The influence of other European vernaculars, notably Old Norse, has also been detected on the Hereford map. The map renders Norway in the vernacularised form *Noreya*. It has been suggested that this form conflates the vernacular *Noregr* with the Old Norse toponymic element *–ey* (a place-name generic denoting an island), and reflects, perhaps, rumours of an insular Scandinavia cultivated by medieval geographical treatises.[87] Other place-names on the map that include the *–ey* place-name element are *Fareie* (the Faroe Islands) and *Lindeseya* (Lindsey, though here probably from its Old English cognate – *īg or īge*). These place-names cohabit with other vernacular English inscriptions on the map grouped around the British Isles. Hiatt has observed a general tendency for 'geographical description within the area(s) familiar to the makers and audience of the map to be linguistically mixed' as multiple place-names would have been available to them.[88] A similar distribution of English can be seen on the Evesham map

[86] Hiatt, 'Hulle to Carthage,' 142-43.

[87] Chekin, 'Scandinavia;' Westrem, *Hereford Map*, 192-3.

[88] Hiatt, 'Hulle to Carthage,' 143.

(College of Arms MS Muniments 18/19), which was created for the prior of Evesham Abbey *c.* 1390 and contains a particularly exaggerated depiction of the British Isles, occupying around one fifth of the map's total area.[89] The majority of this map's British inscriptions are written in English.[90]

The Hereford map contains inscriptions written in a second vernacular, Anglo-Norman French, and its use is once again marked by distinct spatial and functional parameters. The Hereford map features a pentagonal frame that surrounds the map's circular horizon. The Anglo-Norman inscriptions are restricted to this pentagonal frame, within which five of its fifteen inscriptions are written in Anglo-Norman.[91] An examination of these inscriptions creates fruitful ground for comparison with the vernacular inscriptions on the Icelandic map.

Two Anglo-Norman inscriptions are spoken by angels either side of the map's frame: one to the left and one to the right of the depiction of Christ in Judgement at the apex of the map. On the left an angel guides the faithful to heaven: 'Levez! Si vendres a joie pardurable' ('Arise! You shall come to joy everlasting');[92] while on the right an angel guides the sinful to hell: 'Levez! Si alez au fin de enfer estable' ('Arise! You are going to the fire established in hell').[93] These legends relate to the devotional and salvific uses to which the map might be put by a community of faithful readers. The third Anglo-Norman inscription appears near the top of the map's frame next to the *Virgo lactans*, and is spoken by the Virgin Mary: 'Veici, beu fiz, de deinz la quele chare priestes' ('See, dear son, my bosom, in which you took on flesh'). This legend reminds the reader of his debt to the Virgin, and similarly urges contemplation of the map's spiritual themes. A fourth legend speaks to the map's reader directly, in an inscription that has been taken as the map's motto: 'Passe avant' ('Go ahead'). This has been interpreted as an invitation to the map's reader to explore the map's contents. The fifth Anglo-Norman inscription is the much discussed donor inscription,

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[89] Peter Barber, 'The Evesham world map: A Late Medieval English View of God and the World,' *Imago Mundi* 47 (1995), 15-33; Delano Smith and Kain, *English Maps*, 41.

[90] Hiatt, 'Hulle to Carthage,' 144.

[91] Kline, *Medieval Thought*, 57.

[92] Translations from Anglo-Norman are taken from Westrem, *Hereford Map*.

which contains an injunction to the map's communities of owners, listeners, readers, and viewers, to pray for the soul of its patron, the clergyman Richard de Bello:[94]

> Tuz ki cest estoire ont
> ou oyront ou lirront ou veront
> prient a Jhesu en deyte.
> De Richard de Haldingham e de Lafford eyt pite
> Ki la fet e compasse
> Ke ioie en cel li seit donc.
>
> (Let all those who have this history – or who shall hear, or read, or see it – pray to Jesus in his divinity, to have pity on Richard of Haldingham and Lafford, who has made and planned it, to whom joy in heaven may be granted.)

The map's vernacular inscriptions are characterised in all instances by the use of the imperative mood: the Anglo-Norman inscriptions enjoin the reader to arise, to see, to go, and to take notice of the map's contents. The selective use of Anglo-Norman on the map provides a parallel for the distribution of Old Norse on the Icelandic map. On both maps, use of the vernacular is concentrated in the maps' frames. Four of the Icelandic map's ten vernacular legends – the orientational couplets *septentrio* / *norðr*, *oriens* / *austr*, *meridies* / *suðr*, and *occidens* / *vestr* – are disposed around the map's perimeter. These bilingual inscriptions do a similar service to the Icelandic map, explaining to the reader how to access and orient himself relative to its geographical contents. On both maps, the vernacular provides a framework of spiritual or spatial orientation that enables a community of readers to understand it.

Matthew Paris's maps (1250s)

The Benedictine monk and chronicler Matthew Paris (*c.* 1200-1259) from St Albans in Hertfordshire produced at least fifteen maps of six different areas. These include two maps of Palestine, a diagram of the Anglo-Saxon heptarchy, a map of the ancient British roads laid by King Belinus in Geoffrey of Monmouth's *Historia Regum Brittaniae*, a fragment of a *mappaemundi*, an itinerary map of

[94] Seed, *Companion*, 64.

the journey from London to Rome in four extant versions, and a map of Britain in four versions.[95]

Matthew produced linear strip maps based on written itineraries that show the route that connects cities and other important sites between London and the Holy Lands, as discussed earlier in this chapter (figure 36). These maps are preserved in four manuscripts, the most complete of which is preserved aside an autograph manuscript of the *Chronica majora* (Cambridge, Corpus Christi College, MS. 26). Distances are marked by the repeated inscription *journée*, the distance one can travel in a day.[96] The strip maps guide the reader in a boustrophedon manner for seven folios from London to Apulia,[97] and thus provided the means for imagined travel between these sites. Birkholz notes that these maps' 'spatial argument admits of no deflection or reversal but drives the eye and imagination insistently forward,' but argues that a religious contemplative function is not the only one available to them.[98] Birkholz connects these maps with Pope Innocent IV's offer of the Crown of Sicily to King Henry's brother, Richard of Cornwall, in 1252-53, which is described in the *Chronica majora* that these maps accompany. Birkholz sees these maps in the context of the crusades, and as visual support for the monarch's geopolitical aspirations further east.

Like the later Hereford map, Matthew's itinerary maps contain legends written in three languages: English, Anglo-Norman French, and Latin.[99] The distribution of these three languages tells us much about the nature of diglossia on medieval maps. The inscriptions on Matthew's map begin in English – the language of the crowd or *vulgus* – with the names of London's city gates, then advance into Anglo-Norman – the language of the aristocracy – for the European place-names, and culminate in the Holy Land in Latin.[100] Katharine Breen has

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95 Delano Smith and Kain, *English Maps*, 16. Miller, *Mappaemundi*, 3:68-93, on Matthew's linear itineraries see 84-90.

96 Ibid., 46, 150-51; Connolly, *Matthew Paris*, 6.

97 Ibid., 6.

98 Birkholz, *Two Maps*, 13.

99 Breen, 'Returning Home,' 64.

100 Breen discusses Matthew's own views on the three languages he uses through examination of the references to them scattered throughout his works. Ibid., 64, 90, n. 27.

argued that the use of English in naming local sites in England is 'determined by popular usage, rather than "higher," spiritual, historical, or etymological concerns.'[101] Changes in language are therefore constitutive of a hierarchy, in which different registers are allocated different functions in the cartographic economy.

This parallels the Icelandic map's selective use of the vernacular, which names territories familiar to the mapmaker and his audience. The Icelandic map frequently overlooks common vernacular place-names in favour of their Latin equivalents, such as *Contstantinopolis* and *Rusia*, whose vernacular equivalents, in these cases *Miklagarðr* and *Garðaríki*, have relatively high frequency in Old Icelandic literature. The sequential use of the three languages on Matthew's maps sheds light on the mixed-language format of the Icelandic map: distance from the Scandinavian world is marked by a general shift from vernacular to Latinate place-names. On Matthew's itinerary maps:

> The map reader's increasingly sophisticated ability to orient himself relative to Jerusalem is thus linked to increasingly sophisticated forms of literacy, and particularly to the salvific ordering of self and community produced by the mastery of Latin grammar.[102]

The use of Latin distinguishes those place-names whose usage is determined by higher or salvific concerns. This might be seen on the Icelandic map, particularly in similar contexts of usage, such as the imagined pilgrimage made possible by the common orientation of the map's Mediterranean and Palestinian legends. A Scandinavian itinerary can be traced through the vernacular *Danmorc*, the portal between Scandinavia and Continental Europe, towards the Mediterranean and the East.

The distribution of the vernacular on the Icelandic map is very similar to that on the above maps. The regions most commonly rendered in the vernacular were those familiar to the mapmaker and his audience, which usually included the place where the map was produced. However, as the Hereford map demonstrates, familiar places with particular ecclesiastical significance might be named in Latin in order to aver their importance, and signal their connectedness to the Church. This might explain why Norway, the site of the Nordic

[101] Ibid., 64.

[102] Breen, 'Returning Home,' 65.

archdiocese, is the only Scandinavian region to be named in Latin on the larger Viðey map, as *Norvegie*, and not Old Norse, *Noregr*. This Latinate incursion in a region otherwise rendered in Old Norse might reflect the presence of the Nordic archepiscopate at Niðaróss (established in 1153) and show its connection to western Christendom, a marker of its international ecclesiastical status among the Scandinavian territories.

Conclusion

This chapter has addressed the Viðey maps' geographical contents, with a particular focus on the uses to which they might have been put by a community of readers. This examination has been supported by comparisons between the Icelandic maps and their written and cartographic parallels. In the first part of this chapter, I demonstrated that the larger Viðey map sometimes prioritises geopolitical over topographical representation, and can in places be seen as a map of thirteenth-century European political relationships and boundaries. The second part of this chapter examined in detail an act of cartographic self-portraiture, the Icelandic map's representation of Iceland. A number of conclusions can be drawn from these analyses.

Iceland was equated with Thule by a number of medieval scholars, whose use of the traditional name *Thule* enabled them to connect their own historiographical endeavours to those of the historical keynotes of late antiquity and the High Middle Ages. The attribution of the name *Thule* to Iceland was not a culturally disinterested attempt to settle the identity of Pytheas's Thule, to promote a plausible candidate on purely geographical grounds. Whether or not the discovery of Iceland was the rediscovery of Pytheas's Thule, the appropriation of the name Thule enabled writers to claim for Iceland two things it lacked: a human prehistory, and a presence in Roman historical literature. The map, at first glance, might appear to be a statement of the continuity of these two literary cultures. However, it is by no means clear whether the map's *Thule* and *Iceland* are one island or two. Comparison between the map and its cartographic parallels urges caution. It is conventional for medieval maps to show both Iceland and Thule. This, I have suggested, might be interpreted as a reluctance to pronounce on the disparate written and oral sources available to mapmakers, and an attempt to leave them unassembled.

An examination of the distribution of languages across a number of medieval maps enables us to identify the use of the vernacular on the Icelandic map as conventional: mapmakers routinely named those places familiar to them and their audiences in the vernacular. Comparisons with the Hereford map and the maps of Matthew Paris demonstrate that language choice on medieval maps was endowed with particular significance. As mentioned previously, the inexorable process of translation, which characterises much of the Icelandic encyclopaedic canon, is largely absent from the larger Viðey map; the map and its legends are mostly Latinate productions. Why, then, did the mapmaker make these occasional incursions into the vernacular? I suggested that the use of the vernacular in the map's depiction of Scandinavia could be interpreted as a linguistic contour that groups the territories in which Old Norse was the dominant means of expression. This interpretation can perhaps be refined with reference to the first half of this chapter, in which I demonstrated that the larger Viðey map prioritises geopolitical over topographical representation. The vernacular adheres principally to those territories that belong to the Old Norse cultural area, the area that in Old Icelandic writings might have been called the *dansk tunga*. However, we might also suggest that the Old Norse language offered an exactitude of reference not available in Latin. Traditionally, the place-names used to designate Scandinavia on medieval maps are *Norwegie* and *Scanzia*, traditional Latinisations that were used as metonymies for the entire Scandinavian region.[103] These traditional, Latinate names do not allow for a representation of contemporary Scandinavia, and harshly diminish the political distinctiveness of its parts. Therefore, they are rejected: *Scanzia* is replaced by *Suiþioð* and *Gautland*, the better to show the distinctiveness of these regions. The Icelandic map includes *Norwegie*, but its sense is narrowed to include Norway, only; it does not represent the entirety of Scandinavia. Old Norse accommodates a more precise, contemporary rendering of thirteenth-century Europe, particularly in regard to the Scandinavian territories. Where Latin was enough, it was used; where its resources failed to accommodate an accurate representation of thirteenth-century Europe, it was not.

How do these observations reflect on the place-names *Iceland* and *Thule*, and the relationship between them? As we have seen from the connotations of

[103] See Chekin, 'Scandinavia,' 487-520.

the term *Thule* in Roman literature, *Thule* and *Iceland* were not perfect synonyms. Thule was characterised as a *non plus ultra*, carrying connotations of geographical extremism that could be capitalised upon by medieval historians who sought to enlarge or exaggerate their claims to the Christianisation and Romanisation of the far north. *Thule* does not carry connotations of polity or civilisation, lying as it does beyond their limits. In contrast, Iceland was a European political entity belonging to western Christendom. Perhaps in writing both *Thule* and *Iceland* on his map, the mapmaker was able to disentangle or separate these two sets of connotations. Iceland is not Thule: it is civilised, it is part of the ecumene, and it is European. Thule, which is plotted further from the centre of the map, is separate, and its connotations of isolation, disconnectedness, and geographical extremism do not characterise Iceland. Rather than a myth of Tilensian origins, the map creates a Tilensian other against which Icelandic European identity is constructed. The map thus evokes Thule in order to excise its connotations from its characterisation of Iceland.

The larger Viðey map's representation of Iceland is complex, and presents a number of possible interpretations. The map presents these interpretations as alternatives, but does not resolve the tensions between them. The map lives by its reception, and multiple interpretations are available to the map's different readers, and in different contexts of usage.

Forty Icelandic priests and a map of the world

The Viðey maps in context

The quadripartite frame

Editions of the Viðey maps routinely distinguish between their geographical legends, and those that fall outside the terrestrial circle and are accommodated by their frames. Assembled around these maps' perimeters are the names of the four cardinal points, the twelve winds, the four seasons, the four ages of man, and the four elements of the human body. These phenomena are sometimes referred to in modern scholarship as the 'physical and physiological fours,' or 'quaternities.'[1] Through the alignment of these fourfold schemes with the four cardinal points on their circumferences, these frames are at once representations of the observable horizon, the seasonal rhythms of a solar year, the measure of a human life, and the human body. That the map's frame could be made to stand for all of these things exemplified the symmetry and cohesion of the mapped ecumene and man's place within it. While the two Viðey maps are unalike in terms of scale and geographical detail, both share this quadripartite frame. On the larger Viðey map, a circle encloses the names of the twelve winds that blow inwards from their points around the map's horizon. At the four cardinal points, the map adds the names of the four cardinal points, and their associated natural phenomena. At the top and bottom of the map, square inserts have been drawn to accommodate these legends. The smaller Viðey map features a similar frame: the three circles that enclose the central T-O are divided into four segments, each centred on one of the four cardinal points. The cardinal points and their natural associations have been arranged into these four quadrants.

Commentaries on these quadripartite frames have been perfunctory. The fours from the larger Viðey map have been described briefly by Chekin,[2] and are transcribed, with numerous small errors, by Simek[3] and Kålund.[4] The inscriptions disposed around the smaller Viðey map have not been transcribed

[1] These terms have been used by J. A. Burrow, *The Ages of Man: A Study in Medieval Writing and Thought* (Oxford: Clarendon Press, 1988); and Jennifer O'Reilly, 'Patristic and Insular traditions of the evangelists: exegesis and iconography,' *Le Isole Britanniche e Roma in età Romanobarbarica*, eds. A. M. Luiselli Fadda and É. Ó Carragáin (Rome: Herder Editrice e Libreria, 1998), 49-94. For a detailed overview of these fours and their role in exegesis see Anna C. Esmeijer, *Divina Quaternitas: A Preliminary Study in the Method and Application of Visual Exegesis* (Assen: Gorcum, 1978).

[2] Chekin, *Northern Eurasia*, 69-71.

[3] Simek, *Altnordische Kosmographie*, 419-20.

[4] *AÍ* III, 71.

until now. In both printed facsimiles of the smaller map, the central T-O has been excerpted from the diagram in which it was embedded, so that the cardinal points and their associated fours cannot be seen.[5] Subsequently, Rafn and Simek both describe this diagram as a wind rose,[6] a designation that does not withstand close scrutiny. There has been no attempt to understand the traditions from which these schemes derive, or their relationship to other elements of the map's design.

The Viðey maps' quadripartite frameworks are the focus of this chapter. In the first half of this chapter, I examine the frames and the quadripartite schemes they accommodate, through comparison with a range of contemporary maps and diagrams. In the second half of this chapter, I restore the Viðey maps to their manuscript contexts, and demonstrate that this quadripartite scheme extends across the other items assembled in this manuscript. The headed sections below examine the traditions from which these schemes derive. The frames contain seven suites of inscriptions: I – V feature on both maps, while VI – VII feature on the smaller Viðey map, only.

I. the four cardinal points
II. the twelve winds
III. the four seasons and their qualities
IV. the four physical qualities
V. the human microcosm
    i. the four ages of man
    ii. the four elements of the human body
VI. the twelve months of the year
VII. the twelve signs of the zodiac

In medieval encyclopaedic literature, steeped in Aristotelian precepts and late-antique humorism, the natural universe was seen as fundamentally quadripartite.[7] These fours received extensive treatment in Biblical exegesis, in treatises on natural philosophy, and on cosmographical diagrams. The ubiquity of these fours in the natural world and in scripture averred the fundamental

[5] Rafn, *Antiquités Russes*, 391; Simek, *Altnordische Kosmographie*, 509. The smaller Viðey map (f. 6v) is reproduced in facsimile twice in *Altnordische Kosmographie*, on 509 (where it is erroneously assigned to GkS 1812 4to f. 11r) and 99 (where it is correctly assigned to f. 6v). The facsimile on 99 shows the complete diagram, including the fours.

[6] Rafn, *Antiquités Russes*, 391; Simek, *Altnordische Kosmographie*, 371, 384.

[7] Akbari, *Idols*, 26.

symmetry of creation. The significance of these fourfold schemes to the Viðey maps, and the register of forty Icelandic priests that accompanies them, has not hitherto been seen. I should stress that my purpose in describing these fours is not simply to gain a greater understanding of the map's geographical contents. Rather, I argue that these fours are in themselves constitutive of a wider intellectual programme in 1812 III that sustains comparison across all three items – the two maps and the register of forty Icelandic priests – contained in this manuscript.

I. The four cardinal points

Larger Viðey map

South	*Suðr Meridies*
West	*Vestr Occidens*
North	*Norðr Septentrio*
East	*Austr Oriens*

Smaller Viðey map

South	*Meridies*
West	*Occidens*
North	*Septentrio*
East	---[8]

In his *De natura rerum* (Ch. 10) Bede divides the world into four quarters, or regions, along two diameters that extend across the earth between four points on the horizon: those points at which the sun rises and sets on the summer (NE and NW) and winter solstices (SE and SW). [9] Diameters drawn between these four points on the horizon divide both the world and the solar year into four quarters, with the four cardinal points at their centres. Bede's account of the quadripartition of the world cites Pliny's *Historia Naturalis* verbatim:

> Climata, id est plagae mundi, sunt quattuor: orientalis ab exortu solstitiali ad brumalem, australis inde ad occasum brumalem, occidentalis ex hinc usque ad solstitialem, porro septentrionalis ab occasu solstitiali usque ad exortum eiusdem partis.[10]
>
> (There are four quarters, that is, regions, of the world: the eastern from sunrise at the summer solstice to sunrise on the winter solstice (NE - SE); the southern from there to sunset on the winter solstice (SE - SW); the western from there to sunset at the summer solstice (SW - NW); and then the northern from sunset at the summer solstice to sunrise of the same region (NW - NE).)[11]

The diameters drawn between these points on the horizon are a prominent feature on the smaller Viðey map, and on both maps, the four cardinal points

[8] This inscription has been destroyed by trimming.

[9] The sun rises due east and sets due west on two days per year: the spring and autumn equinoxes. The solstices are the turning points that mark the points on the horizon at which the world can be divided.

[10] Bede, *De natura rerum*, Ch. 10.·

[11] Parentheses my own.

feature at the head of each quarter of the world. The quadripartition of the world along lines that equate directional and temporal reference (‘from sunset at the summer solstice to sunrise of the same region’) is a theme of the map’s frame extended through the addition of the four seasons, and the four ages of man, which are described below.

The four cardinal points on the larger Viðey map are rendered in both Old Norse and Latin, and constitute four of the map’s ten incursions into the vernacular (see chapter 4). Given the scarcity of Old Norse on this map, it seems that the mapmaker used both languages in order to highlight its quadripartite structure.

II. The perimeter of winds

Both Viðey maps feature a perimeter of winds that blow inwards from their points around the horizon. In the Greco-Roman tradition, the winds were envisaged as a property of air, and therefore a sublunary atmospheric phenomenon.[12] Treatises about the winds and the directions from which they blew were inherited from classical antiquity, and elaborated by medieval anthologists of antique learning. The most widely available written accounts were those in Pliny's *Historia Naturalis* (II.47), Isidore's *De natura rerum* (37) and *Etymologiae* (XIII.xi), and Bede's *De natura rerum* (27). Although these accounts vary in the names they attribute to the winds, all describe four principal winds, and eight satellite winds. The four primary winds blew from the four cardinal directions, with satellite winds on either side of them. The principal winds are named in Isidore's *Etymologiae* as: *Subsolanus* from the east; *Auster* from the south; *Favonius* from the west; and *Septentrio* from the north (XIII.xi.2). Each of these winds bore two satellites: *Subsolanus* was accompanied by *Vulturnus* on its left (*sinister*) and *Eurus* on its right (*dexter*); *Auster* by *Euroauster* (*sinister*) and *Austroafricus* (*dexter*); *Favonius* by *Africus* (*sinister*) and *Corus* (*dexter*); and *Septentrio* by *Circius* (*sinister*) and *Aquilo* (*dexter*) (XIII.xi.3). In scientific and literary texts, the four principal winds were strongly associated with the cardinal directions from which they arose.[13]

Wind diagrams originated in Aristotle's *Meteorologica* (2.6), and are numerous and variable.[14] They frequently appear in medieval encyclopaedias and, through their inclusion in these volumes, became associated with diverse bodies of knowledge. For example, the influence of the winds on human wellbeing is often cited in medical treatises on the balance of the four humours. One such treatise in Oxford, St. John's MS 17, a manuscript which contains two wind diagrams, warns against certain treatments during the dog days (when the sun is in the constellation Sirius) while the winds *Subsolanus* or *Vulturnus*

[12] Barbara Obrist, 'Wind Diagrams and Medieval Cosmography,' *Speculum* 72 (1997), 33-84, 34.

[13] Ibid., 40.

[14] Ibid., 34

blow.[15] In the Norwegian *Konungs Skuggsjá*, the winds are described in its chapters on information useful for a merchant to know.[16]

Wind diagrams are frequently overlooked in studies of the medieval conception of the physical world, an oversight that extends to studies of the Icelandic material. Icelandic manuscripts from the thirteenth and fourteenth centuries preserve Latin and Old Norse treatises on the winds based on Isidore and Bede. Further, three schematisations of the winds are preserved in Icelandic manuscripts: the two Viðey maps, which incorporate perimeters of winds, and a single wind diagram preserved overleaf from the Icelandic hemispherical world map in 732b (see figure 42).[17]

The wind diagram's circular form is explained in Aristotle's *Meteorologica*. Aristotle describes the relative positions of the winds in his ten-wind system in diagrammatic terms.

> The treatment of their position must be followed with the help of a diagram. For the sake of clarity, we have drawn the circle of the horizon; that is why our figure is round. And it must be supposed to represent the section of the earth's surface in which we live; for the other section [i.e. the temperate region in the southern hemisphere] could be divided in a similar way.[18]

The circular wind diagram, and the circular frame of the medieval world map, symbolises the horizon, which is subsequently divided into segments between the points at which the various named winds rise.

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[15] The twelve winds appear on two diagrams in this volume: an Isidorian wind diagram on f. 40v and the Byrhtferth diagram on f. 7v, on which the four principal winds feature alongside other cosmic fours represented on the Icelandic world maps (see below). For a facsimile and commentary, see *The Calendar and the Cloister: Oxford, St John's College MS17*, McGill University Library, Digital Collections Program, 2007. http://digital.library.mcgill.ca/ms-17 (accessed 20th September 2014).

[16] L. M. Larson, ed. *The King's Mirror (Speculum Regale – Konungs Skuggsjá): Translated from the Old Norse with Introduction and Notes* (New York: The American-Scandinavian foundation, 1917), 86-92. It has been argued that the concord and peace visited on the winds by the warming sun is an allegory for kingship. On this interpretation see Sverre Bagge, *The Political Thought of the King's Mirror* (Odense: Odense University Press, 1987); and David Brégaint, 'Conquering Minds: *Konungs Skuggsjá* and the Annexation of Iceland in the Thirteenth Century,' *Scandinavian Studies* 84 (2012), 439-466, 447.

[17] For an edition and commentary on the text of the Icelandic wind diagram (AM 732b 4to f. 2r) see Kedwards, 'Wind Diagrams.'

[18] Aristotle, *Meteorologica*, 2.6.

The second main formal characteristic of the wind diagram is its quadripartition. The twelve winds are divided into four groups of three, with the principal winds at the head of each quarter. These four groups are clearly marked on the Icelandic wind diagram, which are distinguished by emboldened radials between these groups with the four principal winds at their centres (figure 41).[19] A wind diagram in the computus manuscript Oxford, St. John's College MS 17 (figure 41) likewise divides the winds into four groups centred on the cardinal points with broad foliate radials.

The perimeters of winds on medieval maps and diagrams are numerous and exhibit variations within which it is often difficult to trace lines of descent or development.[20] However, the names of the winds on the only extant Icelandic wind diagram appear to derive principally from Isidore's *De natura rerum* (Ch. 37) and Bede's *De natura rerum* (27.1-9) which follows the former's example. The Icelandic diagram's only departure from these works is the absence of the term *Aparctias*, which in *De natura rerum* is provided as an alternative name for *Septentrio*.[21]

The perimeter of winds is a common feature of medieval world maps.[22] On such maps, it is common for the four principal winds to be differentiated from their satellites by some means of decoration or ornament. On the English Psalter map (London, British Library, Add. 28681, f. 9r) produced *c.* 1250,[23] the twelve winds are spaced around the map's perimeter and are personified by twelve heads blowing in towards the map's centre (figure 43). The heads representing the four principal winds are coloured red, while the lesser satellite winds are blue.[24] On the Hereford map (*c.* 1300), the four principal winds are shown as small naked figures with grotesque faces, while the eight satellite winds are

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[19] Kedwards, 'Wind Diagrams.'

[20] Obrist, 'Wind Diagrams,' 43.

[21] Kedwards, 'Wind Diagrams.'

[22] For examples, see Ernst Kitzinger, 'World Map and Fortune's Wheel: A Medieval Mosaic Floor in Turin,' *Proceedings of the American Philosophical Society* 117 (1973), 344-373, 350; and Woodward, 'Medieval *Mappaemundi*,' 336.

[23] Miller, *Mappaemundi*, 3:37-43.

[24] The colour red was frequently used on medieval maps to highlight important features, see Ehrensvärd, 'Colour,' 127.

represented by open-mouthed dragon heads.[25] P. D. A. Harvey states that the Hereford map's connection with the works of Isidore is 'clear but imprecise,' since the descriptions of all the winds on the map are found in one or other of his two relevant works, but are in some cases differently named.[26]

[25] Westrem, *Hereford Map,* 12-19; Harvey, *Mappa Mundi*, 3.

[26] Obrist, 'Wind Diagrams,' 46.

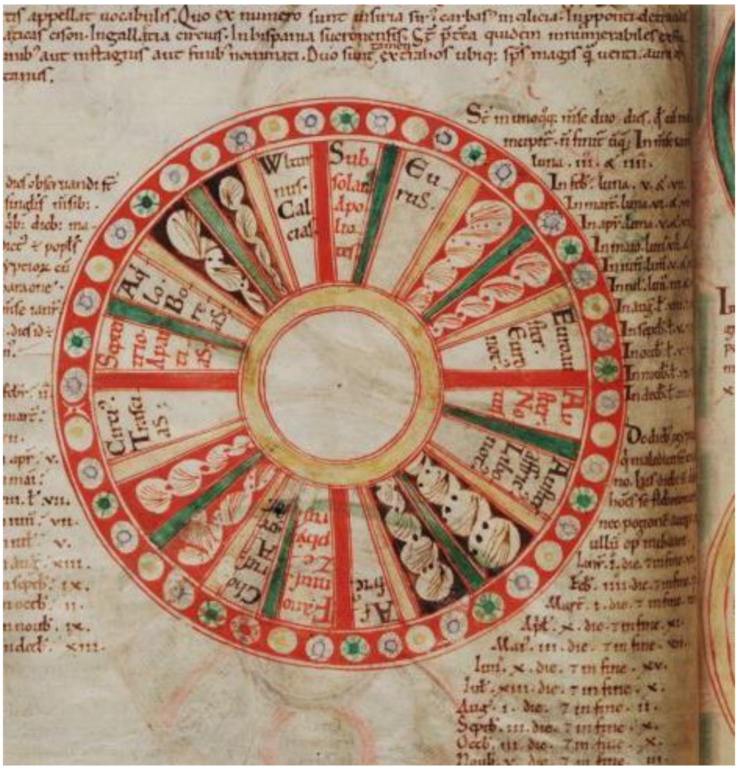

Figure 41: A wind diagram in Oxford, St. John's College MS 17 f. 40v (*c.* 1100). Broad foliate radials distinguish between the four principal winds and their satellites. *The Calendar and the Cloister: Oxford, St John's College MS17*. 2007. McGill University Library. Digital Collections Program. http://digital.library.mcgill.ca/ms-17 (accessed 18/09/14)

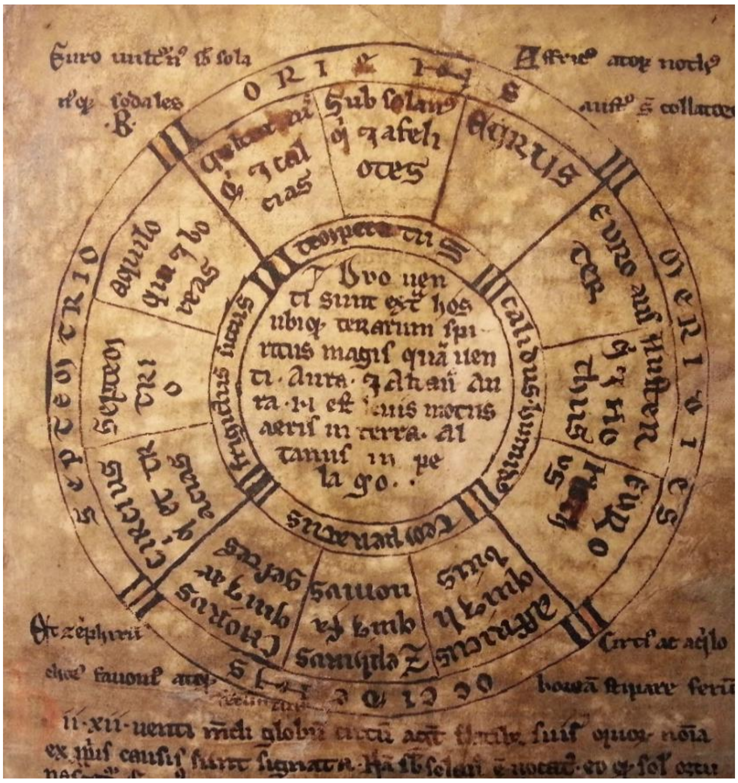

Figure 42: A wind diagram in Copenhagen, Arnamagnæan Institute, AM 732b 4to f. 2r (*c.* 1300-25). The four groups of winds are similarly demarcated through triple radials in the outer and inner circles.

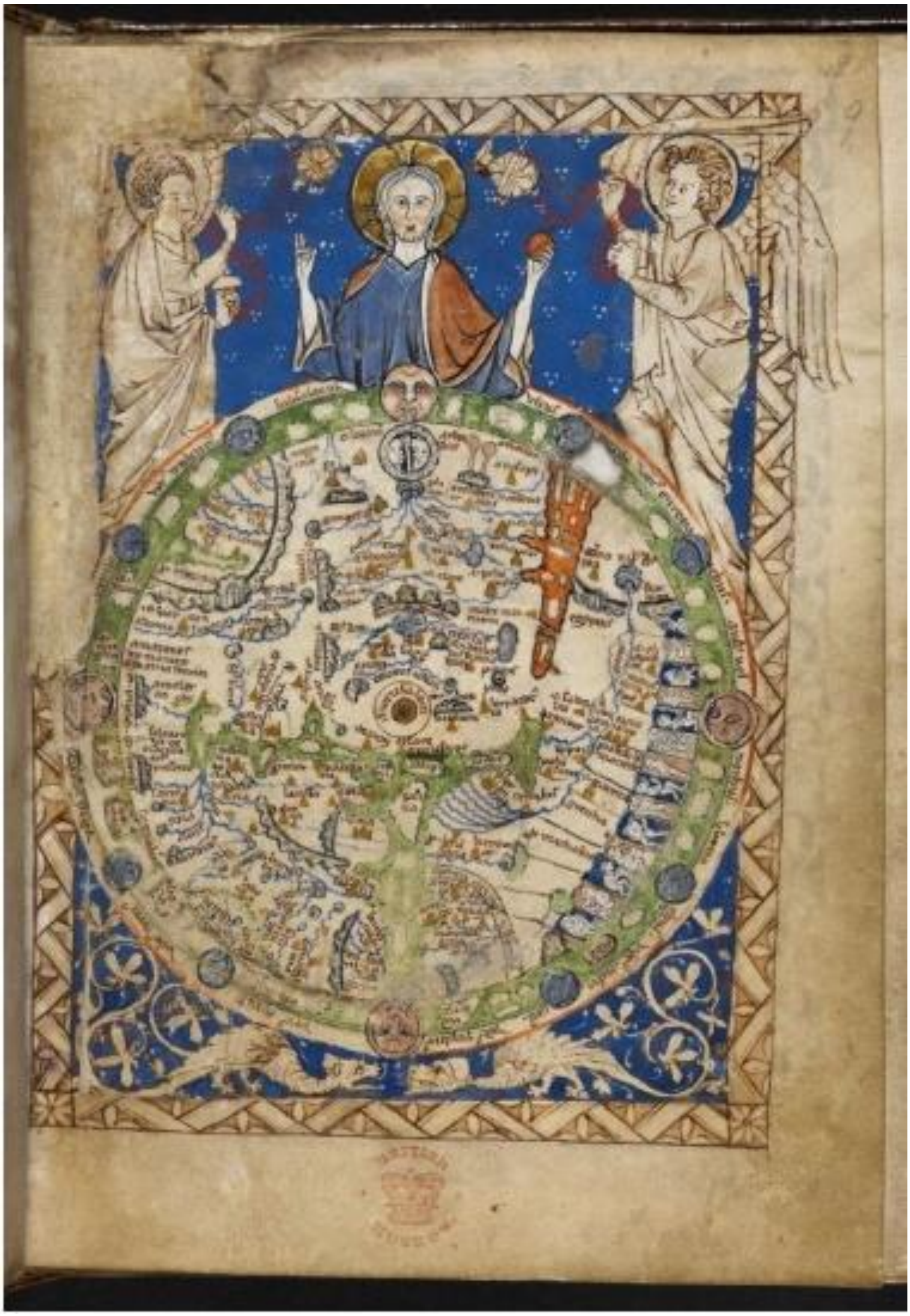

Figure 43: The English Psalter map (London, British Library, Add. 28681, f. 9r), c. 1250. The twelve winds, and the quadripartite scheme by which they are organised, are prominent features on the map's perimeter.

The perimeter of winds on the larger Viðey map

On the larger Viðey map, the twelve winds are distributed evenly around the horizon. Their names are the same as those featured on the Icelandic wind diagram in 732b, and appear to derive from Isidore's *De natura rerum,* or Bede's work of the same name.

	Sinistral	**Cardinal**	**Dextral**
South	*Suðr Meridies*		
	Auster qui et Nothus	*Euroauster*	*Eurus*
West	*Occidens Vestr*		
	Zephyrus qui et Favonius	*Africus qui et Libs*	*Euronothus*
North	*Norðr Septentrio*		
	Septentrio	*Circius qui et Thracias*	*Corus qui et Argestes*
East	*Austr Oriens*		
	Subsolanus qui et Apeliotes	*Vulturnus qui et Calcias*	*Aquilo qui et Boreas*

It is productive to examine the order of the winds around the map's perimeter. As outlined above, encyclopaedists described three winds that rise from each quarter of the horizon: the principal winds rise from the four cardinal points, and their satellites to their left (*sinister*) and right (*dexter*). While the Icelandic map features three winds in each quarter, the perimeter of winds is not quite in alignment with the cardinal points, so that the four principal winds do not rise, as we would expect them to, from the cardinal points.

On the larger Viðey map, the cardinal winds have been misplaced so that the wind traditionally located to the right (*dexter*) of the cardinal wind occupies the cardinal position, and the principal winds (*Auster*/*Nothus*, *Zephyrus*/*Favonius*, *Septentrio*, and *Subsolanus*/*Apeliotes*) occupy the sinistral positions in the same quadrants. The winds are one place clockwise out of alignment.

This error might reveal something about the circumstances of the map's production and the nature of its sources. Wind diagrams were most commonly oriented, in accordance with the principles that govern the orientation of world maps, with east at the top.[27] Narrative descriptions of the four cardinal winds, such as Pliny's *Historia Naturalis* (II.47), Isidore's *Etymologiae* (XIII.xi.2), and *Konungs Skuggsjá* (Ch. 5) also typically begin with the eastern wind *Subsolanus* or *Apeliotes*.[28] Isidore's *De natura rerum* (Ch. 37) and Bede's work of the same name (Ch. 27) begin with the northern wind *Septentrio*, then proceed clockwise. The misalignment of the twelve winds might derive from an error on the part of the mapmaker in identifying the principal wind when copying his exemplar. The error is systematic and regular, the winds disposed one place clockwise out of alignment around the map's perimeter, and an error in adapting a written or diagrammatic source is easily conceivable. It might further be suggested that the orientation of the Icelandic map, with south at the top, contributed towards the likelihood of such an error; if the map was copied from an east-oriented exemplar, or took its information about the winds from an east-oriented wind diagram, the misalignment might have been introduced in the process of its reorientation. Whether the map's exemplar shared its south orientation or not, a twelve-wind system would be more difficult to copy and adapt to the quadripartite form of the map's frame than the other fours.

The perimeter of winds on the smaller Viðey map

The smaller Viðey map features an incomplete or abbreviated scheme of six winds. The quadripartite structure of this map's frame is similar to that of the larger map, but is made more explicit by the prominent diameters that divide the diagram into its four quarters. The diagram in which the small T-O map is embedded has been referred to as a wind diagram.[29] However, inspection of the scheme of winds on this small T-O map reveals this to be a misnomer.

[27] Obrist, 'Wind Diagrams,' 47.

[28] The winds are not cited by their classical names in *Konungs Skuggsjá*, rather the eight winds are identified by the directions from which they blow. The circular survey of the winds nonetheless might expose the influence of such treatises or diagrams.

[29] Simek, *Altnordische Kosmographie*, 371, 384.

	Sinistral	**Cardinal**	**Dextral**
South		*Meridies*	
	Favonius	*Subsolanus*	
West		*Occidens*	
	Nothus	*Zephyrus*	
North		*Septentrio*	
	Aquilo	*Boreas*	
East		Oriens	

The placement of the winds around the smaller Viðey map is incoherent. Four of these six winds are principal winds in the Isidorian and Bedan tradition. *Favonius* is placed to the left of *Subsolanus* in the southern quarter of the map, but is actually the west wind and an alternative name for *Zephyrus*. *Subsolanus* is placed due south on the map, but is actually the east wind. *Zephyrus* is placed due west on the map, and is indeed the west wind. *Nothus* is placed to the right of *Zephyrus* in the western quarter of the map, but is actually the south wind (an alternative name for *Auster*). *Boreas* is placed due north on the map, and while it is one of the northern winds, it is secondary to *Septentrio*. *Boreas* is one of the four principal winds. *Aquilo* is placed right of *Boreas* in the northern quarter of the map, but is actually an alternative name for *Boreas*. The only wind in its proper place is the west wind *Zephyrus*. However, the winds *Zephyrus* (in the map's western quarter) and *Favonius* (in the southern quarter) are in Bede's *De natura rerum* two alternative names for the same wind, and likewise *Boreas* and *Aquilo* (both in the map's northern quarter). The circle of winds on the smaller Viðey map exhibits no regularity in its error. The placement of the winds on the map corresponds with their placement on the wind diagram and on the larger map in only one instance, and this may well be accidental.

The continents on the smaller Viðey map are clearly oriented with south at the top, an orientation also made clear by the names of the cardinal points disposed around the map's perimeter: the legend *meridies* (south) is particularly prominent at the top of the diagram. However, the south orientation does not extend to the perimeter of winds. Immediately below the inscription *meridies* is marked the wind *Subsolanus*. In the *Etymologiae*, Isidore states that *Subsolanus* is so named 'quod sub ortu solis nascatur' ('because it arises beneath (*sub*) the rising sun (*sol*)') (XIII.xi.4). *Subsolanus* is therefore the east wind, which generally features at the top of the east-oriented wind diagram. The placement of *Subsolanus* on this map might support the thesis that the arrangement of the winds on the Icelandic maps stems from an imperfectly executed attempt to reorient an east-oriented original, or else to extract information about the names of the winds from an east-oriented wind diagram. It is possible that the mapmaker changed the orientation of the map's central T-O, cardinal points, and other fours consistently, but was unable to realign the perimeter of winds. The appearance of *Subsolanus* at the top of the map might be an indication of the orientation of its sources, since wind diagrams were conventionally oriented, like their cartographic cousins, with east at the top. There are no winds at all in the map's eastern quarter. Perhaps the mapmaker realised his mistake in placing the easterly winds in the map's southern quarter, and therefore abandoned the scheme.

This suggestion is weakened by the preponderance of errors elsewhere on this circle of winds; the placement of *Subsolanus* at the top of the map may well be accidental, and not derive from its placement on an east-oriented original. Indeed, errors in the placement of the winds on diagrams were widespread. Isidore's double names for the winds led to considerable confusion in later medieval attempts at schematisation and graphic representation.[30] Philip Pulsiano remarks that 'the tradition among Anglo-Saxon manuscripts reflects such widespread confusion... as to make it impossible for one to understand what comprised the correct division of the winds.'[31] Hollie Morgan likewise detects a number of errors made by an eleventh-century glossator of a wind diagram in an eleventh-century English learned miscellany, who attempted unsuccessfully to gloss the Isidorian names of the winds with the directions from which they hail in English.[32] Such confusions are evident on both of the Viðey maps. That these errors on the Viðey maps have not been noticed previously is easily explained. Little attention has been directed towards their frames in previous commentaries. Moreover, previous facsimiles of the smaller map have reproduced only the central T-O map, excerpted from the larger quadripartite framework in which it is embedded.

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[30] Philip Pulsiano, 'The Twelve-Spoked Wheel of the 'Summoner's Tale." *The Chaucer Review* 29 (1995), 382-389, 385.

[31] Ibid., 384.

[32] Hollie Morgan, 'Old English Items in London, British Library, MS Cotton Tiberius C. i.,' *New Medieval Literatures* 13 (2011), 137-147, 139-40.

III. The four seasons and their qualities

Larger Viðey map

South	*Estas Calida*	Hot Summer
West	*Autumnus Humibus*	Humid Autumn
North	*Hiemps Frigida*	Cold Winter
East	*Ver Tepidum*	Warm Spring

Smaller Viðey map

South	*Estas Calida*	Hot Summer
West	*Autumnus Humibus*	Humid Autumn
North	*Hiemps Frigida*	Cold Winter
East	*Ver Tepidum*	Warm Spring

The quadripartition of the world at the points on the horizon where the sun rises and sets on the summer and winter solstices enables the circular vista through which we view the map's geographical contents to represent both the circular horizon and the duration of the solar year. This conflation of spatial and temporal perspectives is strengthened by the placement of the names of the four seasons around the map's perimeter.[33] On the larger Viðey map, the names of the four seasons and their qualities are written beneath the names of the winds. On the smaller Viðey map, the seasons are named in the middle circle that encloses the central T-O map.

The seasons were linked with the four cardinal directions in Isidore's *Etymologiae* (V.xxxv.7-8) and Bede's *De natura rerum* (Ch. 8). The association between south and summer and north and winter is made on the basis of theories about the division of the earth into climatic zones: the extreme north (of the northern hemisphere) is uninhabitable due to the intense cold, and likewise the extreme south is uninhabitable due to the heat of the torrid zone, and thus winter becomes associated with the north and summer with the south.[34] Isidore connects the east (*oriens*) with spring on etymological grounds, because it is in

[33] These four seasons belong to the classical tradition. In the Germanic tradition there were two seasons (ON *misseri*, OE *misēre*) in a year: *vetr* (winter) and *sumar* (summer). The durations of these two seasons are described in the Icelandic computistical treatise *Rímbegla I. AÍ II*, 22.

[34] The division of the earth into climatic zones is depicted on the Icelandic hemispherical and zonal maps, see chapters 1 and 2 of this thesis.

spring that shoots spring (*oriri*) from the ground (V.xxxv.7-8). The west is linked to autumn by means of a physiological analogue: the transition from warm to cool brings illness in people and causes the leaves to fall. Thus summer (south) and winter (north) constitute one binary, constructed through the climatic antonyms hot and cold; and spring (east) and autumn (west) another, contrasting generation and corruption in living things.

Isidore and Bede emphasise the cyclical nature of the seasons, and seek to explain them as the result of a succession of changes driven by the annual cycle of the sun. Isidore explains that 'dicta sunt autem tempora a communionis temperamento, quod inuicem se humore, siccitate, calore et frigore temperent' ('they are called seasons (*tempus*) from the balance of qualities (*temperamentum*) that each shares, because each in turn blends (*temperare*) for itself the qualities of moisture, dryness, heat, and cold') (*Etymologiae*, V.xxxv.7-8). Bede similarly explains that the seasons are a result of the meeting of the four contraries (wet and dry, warm and cold): winter is cold and wet, spring is wet and warm, summer is warm and dry, and autumn is cold and dry (Ch. 8). The harmony of the year and the cycle of the seasons was frequently schematised in circular diagrams in manuscripts of Isidore's *Etymologiae* and Bede's *De natura rerum*.[35]

The seasons and their qualities appear in the same forms as on the Viðey maps on other diagrams. The same inscriptions feature on a diagram in a ninth-century manuscript of Bede's *De natura rerum* (Munich, Bayerische Staatsbibliothek, Clm. 210, f. 132v) (figure 44). The diagram shows the relationships between the four cardinal directions, the four seasons, the four elements, and the four material properties.[36] Like the Icelandic maps, this diagram is oriented with south at the top. Africa and Asia are shown to be of equivalent size, while Europe is represented as the transverse half of the inhabitable world. The cardinal directions are placed at the points of the inner square (with south at the top). The four elements (earth, water, air, and fire) are disposed in roundels at the spaces between the corners of the two squares, with

[35] See examples in Harry Bober, 'An Illustrated Medieval School-Book of Bede's *De natura rerum*,' *The Journal of the Walters Art Gallery* 20 (1957), 64-97; and Kline, *Medieval Thought*.

[36] Woodward, 'Medieval *Mappaemundi*,' 335.

the four contraries (hot, cold; wet, dry) between them. On the sides of the inner square are written the names and qualities of the seasons as they appear on the two Viðey maps.

The circle of seasons connects the Viðey maps to theories about the division of the earth into climatic zones: summer and winter are ascribed to south and north, in accordance with the division of the earth into climatic zones.[37] Spring and autumn are also dichotomised; contrasting growth and diminution in living things. The circular placement of the names of the seasons around the map's perimeter represents the passage of time and the impermanence of the physical world, a theme that finds further expression in the ages of man.

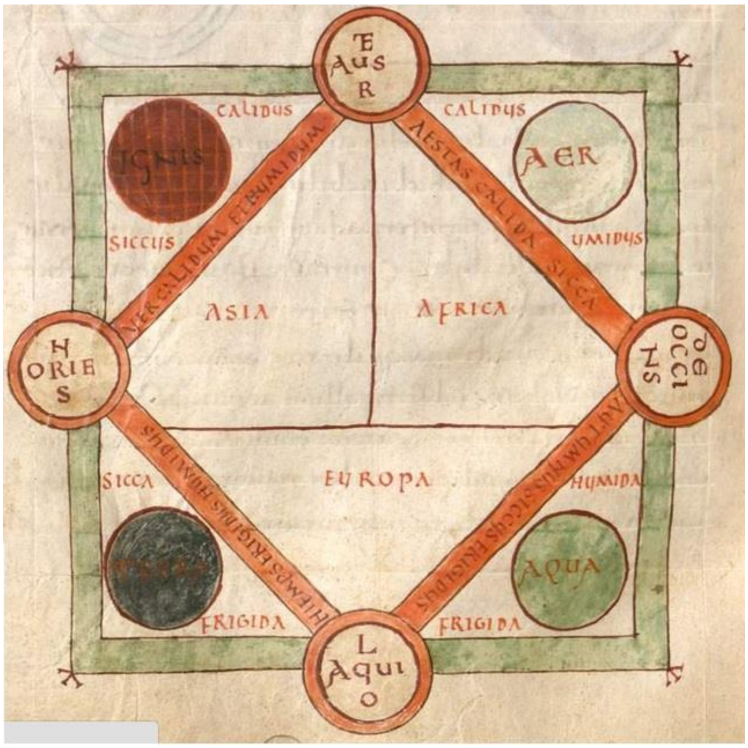

Figure 44: Diagram from a ninth century manuscript of Bede's *De natura rerum* that shows a number of prominent fours, including the four cardinal points, the four elements, the four contraries, and the four seasons and their qualities as they are found on the Viðey maps. Note that this diagram also incorporates a world map with south at the top (Munich, Bayerische Staatsbibliothek, Clm. 210, f. 132v).

37 Lewis, *Discarded Image*, 28.

IV. The four qualities

Larger Viðey map

South	*Calor*	Heat
West	*Humor*	Moisture
North	*Frigus*	Cold
East	*Tepor*	Warmth

Smaller Viðey map

South	*Calor*	Heat
West	*Humor*	Moisture
North	*Frigus*	Cold
East	*Tepor*	Warmth

This scheme of four qualities demonstreates that a fourfold scheme inheres also to the properties of physical matter. Heat (*calor*) and cold (*frigus*) are again paired with south and north, in parallel with the theory of the earth's climatic zones. The associations between east and warmth (*tepor*) and west and moisture (*humor*) seem also to accord with the accounts in Isidore's *Etymologiae* (V.xxxv.7-8) and Bede's *De natura rerum* (Ch. 8), in which east is associated with spring, and the quickening of life; and west is related to autumn, and the transition between heat (*calor*) and cold (*frigus*), that in Bede's *De natura rerum* (Ch. 8) affects physical ailment.

V. The Human Microcosm

i. The four ages of man

Larger Viðey map

South	*Iuuenta*	Youth
West	*Senecta*	Old Age
North	*Decrepita*	Decrepitude
East	*Infancia*	Infancy

Smaller Viðey map

South	*Iuuenta*	Youth
West	*Senecta*	Old Age
North	*Decrepita*	Decrepitude
East	*Infancia*	Infancy

The four ages of man extend the analogy between the four cardinal points and other temporal patterns in the map's frame: east is associated with spring and infancy (*infantia*), south with summer and youth (*iuventa*), west with autumn and old age (*senecta*), and north with winter and decrepitude (*decrepita*). These overlaps demonstrate that human life is in harmony with the principles that govern the cosmos, and the seasonal rhythms that measure man's time on earth.

The ways in which medieval authors divided the course of the human life into component periods or ages (*aetates hominum*) were numerous. Medieval physiologists tended to divide the human life into four component periods, analogous to the four humours, while astrologers tended to envisage seven stages, each under the patronage of a different planet. Common to all approaches was an attempt to 'integrate the life of man into the larger order of the natural world.'[38] This endeavour to harmonise the life of man with other rhythms of the natural world is exemplified by the Viðey maps: the groupings of four around the maps' perimeters enable their viewers to 'relate the ages of man to temporal patterns observable elsewhere – in the cycles of year, month, and day, and the linear time of history.'[39]

The source of the four ages of man in the forms in which they appear on the Icelandic maps is unclear. In Isidore's *Etymologiae* (XI.ii), human life is

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[38] Burrow, *Ages*, 2.

[39] Ibid., 2.

divided into six stages, as proposed by Augustine in analogy with six ages of the world.[40] However, only three of these stages manifest themselves on the Icelandic world maps. In Isidore's scheme, infancy (*infantia*) extends from birth to seven years; youth (*iuventus*) extends through twenty-eight to fifty years; and old age (*senectus*), upwards of seventy years. Decrepitude (*decrepitus*) is not a part of Isidore's scheme. Bede's *De temporum ratione* names four ages of man, but his terms, *infantia* (infancy), *puertia* (childhood), *adolescentia* (adolescence), and *senecta* (old age), differ from those exemplified on the Icelandic maps. The same ages of man that appear on the Viðey maps appear in a short geographical text edited by Simek in *Altnordische Kosmographie*. The text is preserved in a seventeenth-century encyclopaedic manuscript in Stofnun Árna Magnússonar with the shelf mark AM 193 III 8vo (on ff. 11r-11v). This text contains a brief account of the tripartition of the world into the three continents, its nations, and the number of languages spoken there. The text associates the four cardinal directions with the four seasons and the four ages of man in the same terms identified on the Viðey maps.[41] Its information is similar to that contained in a table of the fours (cardinal directions, winds, seasons, humours, and ages of man) in Sacrobosco's *De anni ratione*, in his chapter on the four seasons.[42] This treatise was known to an indeterminate degree in Iceland, but was excerpted and translated in 1812 I on folio 10v (see chapter 2).

It is easier to find diagrammatic parallels for the Viðey maps' ages of man. The ages of man were schematised on the so-called wheel of life, a circular diagram of the component periods of human life, with the names of the *aetates hominum* disposed around its circumference. The wheel of life is closely related to the wheel of fortune, a diagram framed around similar principles that uses the wheel to show the rise and fall of earthly fortune.[43] These diagrams were common in church mural decoration, which extended their audience beyond those familiar with manuscript books.[44]

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[40] Ibid., 203-4.

[41] Simek, *Altnordische Kosmographie*, 501.

[42] Sacrobosco, *De anni ratione*, 39.

[43] Kitzinger, 'World Map,' 350.

[44] Kline, *Medieval Thought*, 42.

The four ages of man that appear on the Icelandic world maps were excerpted for representation on a diagram in the English De Lisle Psalter, produced *c.* 1310 (figure 45). The diagram shows Christ at its centre, with ten roundels that enclose figural depictions of its ten ages of man, which include 'dying,' 'dead,' and 'entombed.'[45] Around this wheel are four additional figures alongside banderoles that identify them as representations of the four ages of man shown on the Icelandic maps. On the bottom left reclines a youthful figure identified as *infantia* (infancy); on the top left stands a crowned figure identified as *iuventus* (youth); on the top right stands *senectus* (old age); and on the bottom right reclines a figure identified as *decrepitus* (decrepitude). These four ages also feature on the Byrhtferth diagram, a particularly elaborate schematisation of the cosmic and temporal fours, preserved in Oxford, St John's, MS 17 (figure 47). This diagram features, alongside the four cardinal points (whose names are inscribed in Greek and Latin), the two solstices and two equinoxes, the four seasons, the four elements, and the twelve winds. Examples of the ages of man on medieval maps appear to be comparatively few. One example, however, is the fragmentary Duchy of Cornwall world map (late thirteenth century), on which four roundels at the bottom of the surviving corner shows the remnants of such a scheme along the bottom (western) boundary of the map's frame (figure 46).[46]

The four ages of man are an additional statement of impermanence and change that urges that the map's contents be viewed in their temporal contexts. A similar statement is inscribed on the frame to the Hereford map, in which four handles on the map's perimeter are inscribed with the letters *M O R S* (death). Through the four ages of man, the vista through which a viewer examines the map's contents is inscribed with a reminder of his own mortality: the sublunary world represented on the map turns with the cycle of birth, growth, decay, and death. The cyclical dispositions of these temporal patterns could also stand for the Christian doctrine of man's redemption; after death man is born once more into eternal life.

[45] This famous example is described in Burrow, *Ages*, 45-46; and its relationship to the Hereford Map discussed in Kline, *Medieval Thought*, 38.

[46] Harvey, *Mappa Mundi*, 33-34.

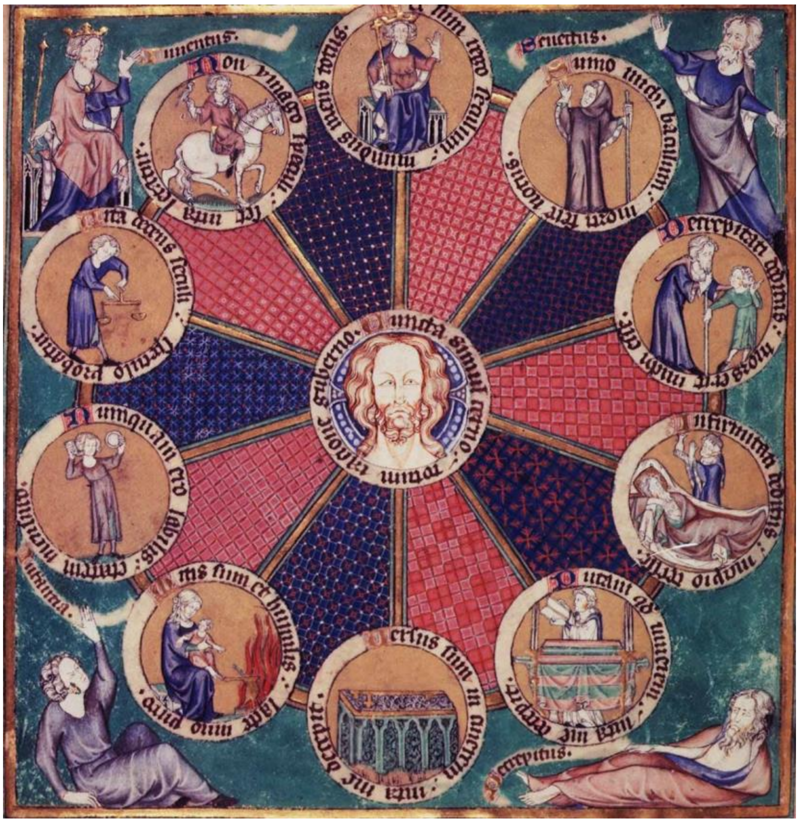

Figure 45: Wheel of life in the English De Lisle Psalter (London, British Library, MS Arundel 83 II, f. 126v), produced *c.* 1310. The four ages of man excerpted for figural representation in the diagram's four corners are those that appear on the Viðey maps.

Figure 46: The fragmentary Duchy of Cornwall world map (late thirteenth century). Only the lower right corner survives. A scheme of roundels, similar to those on the De Lisle psalter's Wheel of Life, along the bottom of the map, features the ages of man. The winds are also visible, as disembodied heads, blowing inwards.

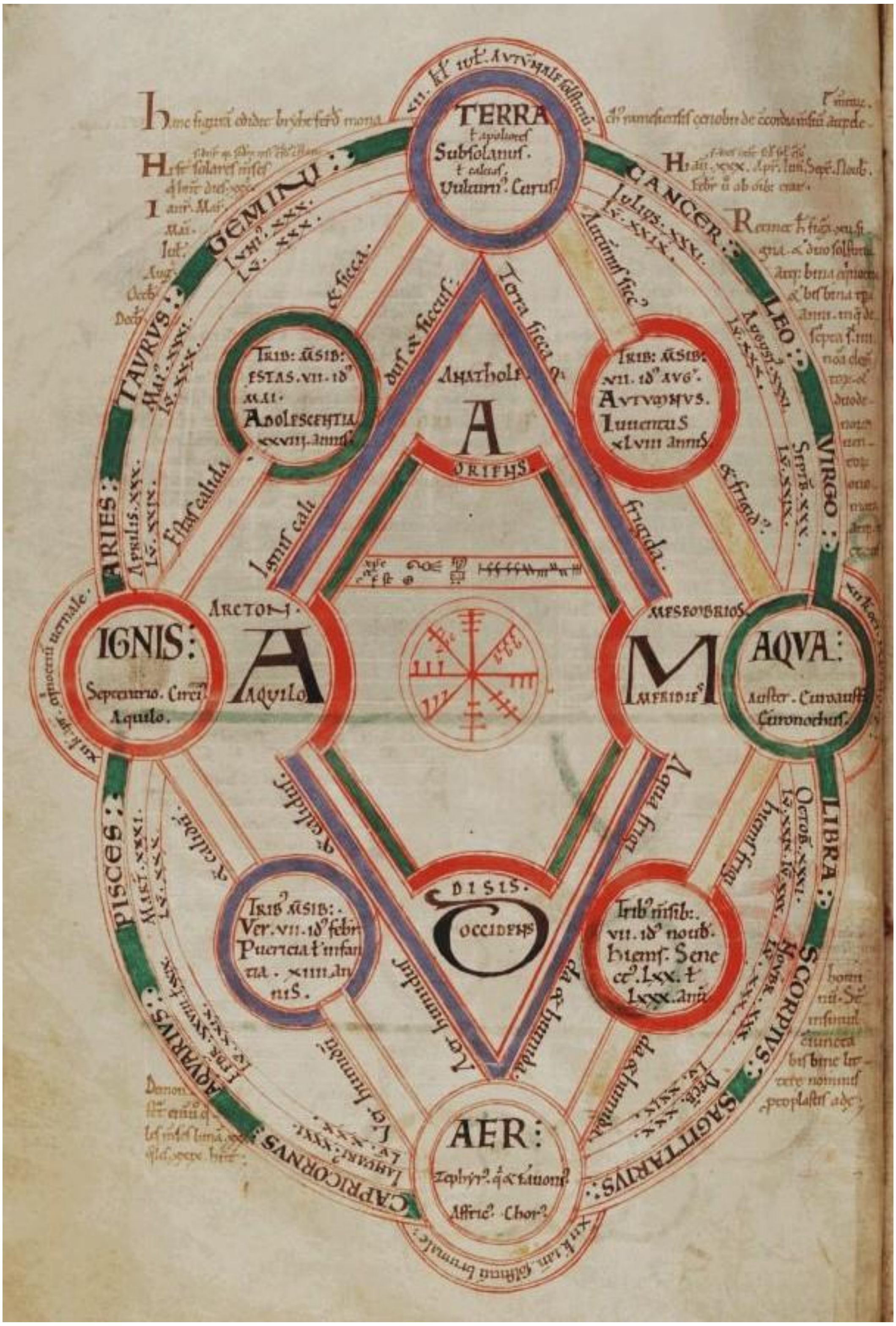

Figure 47: The Byrhtferth diagram in Oxford, St John's, MS 17 on folio 7v, produced *c.* 1100, is a particularly elaborate schematisation of the cosmic and temporal fours. It features the same ages of man featured on the Viðey maps. *The Calendar and the Cloister: Oxford, St John's College MS17*. 2007. McGill University Library. Digital Collections Program. http://digital.library.mcgill.ca/ms-17 (accessed 18/09/14).

ii. The four elements of the body

Larger Viðey map

South	*Spiritus*	Breath
West	*Aqua*	Water
North	*Corpus*	Flesh
East	*Sangvis*	Blood

Smaller Viðey map

South	*Ignis*	Fire (!)
West	*Aqua*	Water
North	*Corpus*	Flesh
East	*Sangvis*	Blood

Together with the four ages of man, the four elements of the human body represent the human microcosm, and shows its relation to the phenomena assembled in the maps' frames. The correspondence between these macrocosmic and microcosmic fours inscribes the map's perimeter with a reminder that the human life is in harmony with the principles that order the cosmos and the seasonal rhythms that measure time on earth.

There is again evidence on the smaller Viðey map that the schemes have not been understood or properly adapted from their exemplars. In the southern quadrant, the scribe has written *Ignis* instead of *Spiritus*, where he appears to have anticipated the scheme, which includes *Aqua*, to be the four classical elements. It is perhaps notable that this error appears in the south at the top of the diagram. Errors noted in the perimter of winds on the smaller Viðey map, which shows the eastern wind at the top, implied that the diagram might have been adapted from an east-oriented exemplar. Similarly, *Ignis* has been placed at the top of the diagram, and might be a misreading of *Sanguis*, associated with the east.

On the Viðey maps, the human body is correlated with other cosmic and temporal schemes, in a way reminiscent of the so-called *Annus-Mundus-Homo* (Year-World-Man) diagrams that frequently accompanied manuscripts of Isidore and Bede's encyclopaedic works (figure48). These diagrams featured constellations of macrocosmic and microcosmic fours that show the harmony of the year, the world, and man.[47] One such example appears in a late twelfth-century compendium of computistical texts (Baltimore, Walters Art Museum, MS W.73). This circular diagram, with east at the top, bears the central inscription 'ANNUS-MUNDUS-HOMO', and shows the four seasons at the four cardinal points, with the four contraries (hot, cold; wet, dry) represented as overlapping circles.

This anthropomorphic trope is elaborated on those maps that show the world transposed onto the body of Christ. The best known example of this is the now-destroyed Ebstorf map, on which Christ's head emerged at the *caput mundi* in the east (top), his hands in the north and south, and his feet in the west. Another example is the map in London, Lambeth Palace Library, 371, f. 9v, produced *c.* 1300.[48] This corporeal scheme reminds the viewer that 'the entire ecumene is, in a spiritual sense, contained within the body of Christ.' [49]

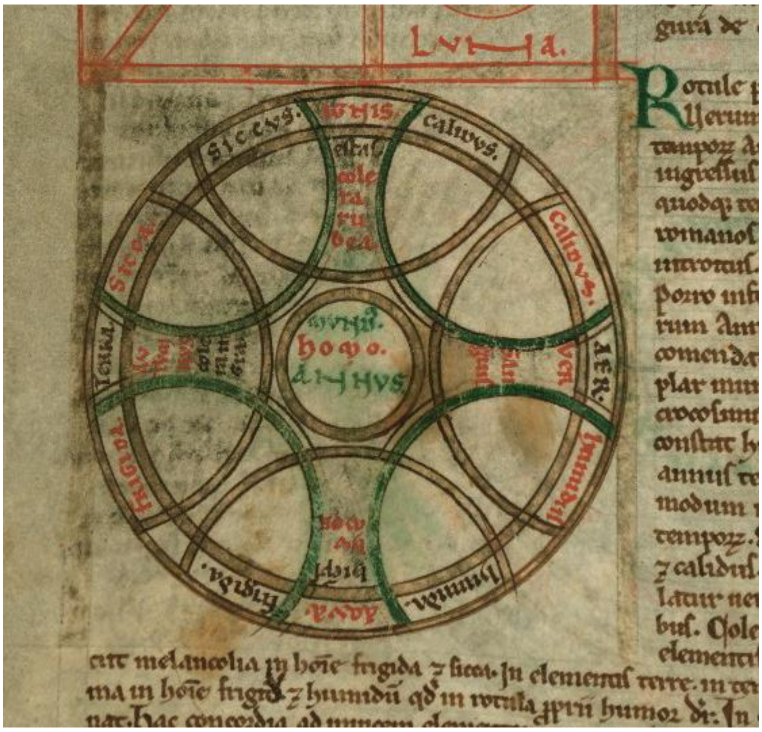

Figure 48: A so-called *Annus-Mundus-Homo* diagram, showing the seasons and the four contraries (Baltimore, Walters Art Museum, MS W. 73), late twelfth century.

[47] Bober, 'School-Book,' 79; Kline, *Medieval Thought*, 14.

[48] This map is reproduced in Chekin, *Northern Eurasia*, 371 [no. III.2.8].

[49] Akbari, *Idols*, 26.

Smaller Viðey map

South	*Maius*	*Iunius*	*Iulius*
West	*Augustus*	*Se---*	*October*
North	*November*	*December*	*Januarius*
East	*Februa--*	*---*[50]	*Aprilis*

The twelve months feature on the smaller Viðey map only. In the Isidorian tradition, there are three months per season: the first when the season is new; the second when it is mature; the third when it is in decline (*Etymologiae*, V.xxxv.2-3). Thus the summer months are May (when the season is new), June (when it is mature), and July (when it is in decline). Isidore describes the conception of the circular year thus: the 'orbit of the sun through the heavens [is] naturally also circular. It is called a year (*annus*) because it wheels back upon itself with the recurring months' (*Etymologiae*, V.xxxvi.1).

The twelve months were frequently shown in the form of a diagram in manuscripts of Isidore's *De natura rerum*, in the so-called circle of months (*rota mensium*).[51] The twelve months (and the number of days in each, in Roman numerals) also feature on the Byrhtferth diagram, beneath their associated signs of the zodiac. The months have been incorporated into the diagram that encloses the smaller Viðey map, bringing them into correspondence with the other temporal cycles (the seasons, and the ages of man) at the map's perimeter.

[50] Inscriptions destroyed by trimming.

[51] This type of diagram and its relationship to the Hereford Map is discussed by Kline, *Medieval Thought*, 14.

Smaller Viðey map

South	*Gemini*	*Cancer*	*Leo*
West	*Virgo*	---	*Scorpio*
North	*Sagittarius*	*Capricornus*	*Aquarius*
East	*Pisces*	---[52]	*Taurus*

The twelve signs of the zodiac feature only on the frame to the small T-O map, where they feature in the same circle as the abbreviated scheme of six winds. The belt of the zodiac occupies the portion of the celestial sphere (the convexity of the night sky upon which the planets are observed) 8-9° north and south of the ecliptic. The sun completes its revolution around the zodiac over the course of the solar year. Therefore, the zodiac complements three sets of quaternities on the smaller Viðey map: (i) the division of the world into its four parts between the solsticial risings and settings, (ii) the tetradic scheme of the four seasons, and (iii) the twelve months, in the map's representation of the solar year.

The frame that surrounds the small T-O map in particular avers the association between the horizon and a number of temporal patterns: the four seasons, the months, and the zodiac. Six of these twelve signs of the zodiac, those centred on the vernal equinox, feature on the Icelandic hemispherical world map (see chapter 1). The smaller Viðey map features all twelve signs. Their arrangement on the map is governed by the same principles that motivate the arrangement of the twelve months: both are dependent on the attribution of the four seasons to the four cardinal points. Unlike the perimeter of winds that shares this circle on the smaller Viðey map, the seasons and the signs of the zodiac are correctly placed.

[52] Inscriptions destroyed by trimming.

Time, space, and the Viðey maps' frames

Through their conceptual frames, the Viðey maps embody natural and divine order. These frames demonstrate that a quadripartite framework is consistent across multiple cosmic and temporal domains, in order to show the cohesion of creation and man's place within it. As the foregoing discussion demonstrates, the Viðey maps sustain comparison with numerous other contemporary maps and diagrams, whose relationships with the Viðey maps have not previously been seen.

If these inscriptions have been viewed at all, it is in isolation from the maps' geographical contents. It is a mistake, however, to see these inscriptions as removed from the map's scheme of terrestrial representation. These fours all belong to the sublunary world, and are phenomena inherent to the world depicted inside the terrestrial circle. The nature of the sublunary world is impermanence and change. The four contraries that meet in the seasons combine also to make the four elements (earth, which is cold and dry; water, cold and moist; air, hot and moist; fire, hot and dry), which in turn combine to make infinite, unstable variety.[53] The diagram of planetary orbits, preserved alongside the hemispherical world map in both manuscripts, exemplifies this (figure 49). The representation of the earth at the centre of the seven planetary spheres is inscribed with the names of the four classical elements that compose all matter up to the lunar sphere, from which point all is composed of quintessence, or ether.[54] The fours disposed around the map's perimeter are not a structure observed from above, but one that is fundamental and intrinsic to what the map shows; the map's geographical contents are built out of them. Such order was found or discerned, not imposed; these quadripartite schemes were naturally, not humanly, constructed.

[53] Lewis, *Discarded Image*, 95.

[54] Ibid., 4.

Figure 49: A diagram showing the durations of the seven planets' orbits. The central medallion is inscribed with the names of the four sublunary or terrestrial elements (Copenhagen, Arnamagnæan Institute, AM 736 I 4to f. 1v).

On these maps, the representation of space is inseparable from the representation of time. The division of the observable horizon between the points at which the sun rises and sets on the solstices, and the attribution of each quarter of the map to one of the four seasons, bear witness to these twinned themes. Through the synchronisation of the four cardinal points with directional references (the circle of winds) and temporal references (the four seasons of the year, and the four ages of man) the map becomes a succinct visual statement of space and time.

The twinned themes of time and space emerge also in the maps' geographical contents. The geographical legends on the larger Viðey map are not synchronous: a number of the map's Asian inscriptions demonstrate the correspondence between the east, associated with spring and infancy, and an earlier stage in human history. The event-places of the Old Testament feature prominently in this part of the map: Hebron where Adam the first man is buried ('Hebron ibi supulltus est Adam prim*us*'); Mount Sinai or Horeb; and the cities of Chaldea and Jericho. The event-places of the New Testament are similarly attested in Jerusalem, Nazareth, Galilee, and Palestine. Further, the map names three of the four rivers that flow out of Paradise: the Tigris, the Nile and the

Euphrates.[55] Alessandro Scafi has argued that the presence of these rivers on medieval maps constitutes a direct reference to Paradise, 'providing an unequivocal clue to its existence, somewhere on the globe, unlocatable and inaccessible.'[56] Eden is not the only former place named on the map; the two Babylons are also shown. The newer Babylon is Cairo, which features adjacent to the River Nile ('Nilus flum*en* egipti'), Egypt, and Alexandria (figure 50).[57] The other Babylon appears next to the Euphrates.[58] In the Icelandic *Geographical Treatise*, it is described how this city no longer stands: 'in that part of the world is Babylon the Old and the Great. There had King Nebuchadnezzar dwelt, but it is now destroyed' ('þessum lut hei*ms* e*r* babilo*n* en forna oc en míkla. Ihen*ní* hafði nabugudunusor k*onun*gr uelldí en h*on* e*r* nu *sva* eydd'). Thus a number of the places whose locations are shown on the map no longer exist. As Akbari observes, 'the orient was a place of both geographical and temporal origins, with the earthly paradise located at once in the region furthest east and in the remotest past.'[59]

To trace a course through the map from east to west is to mark a trajectory from geographical and temporal remoteness to proximity. In the west, associated with autumn and old age, the geographical inscriptions have particular significance to the thirteenth century. The map names more than twenty modern European polities, including the lands of the Scandinavian Peninsula: Norway, Götaland, and Sweden, which is named on this map for the first time. Iceland and Thule are shown at the *caput Europae* and constitute an 'essential precursor to the end of the world – the diffusion of the Church over the entire world.'[60] This trajectory can be compared with the primeval westward

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[55] The fourth river, the Phishon or Ganges, appears to be absent from the map.

[56] Alessandro Scafi, 'Defining *mappaemundi*', *The Hereford World Map: Medieval World Maps and their Context*, ed. P. D. A. Harvey (London: British Library, 2006), 345-354, 351.

[57] The Icelandic *Geographical Treatise* gives the following account of the course of the Nile: 'Nilus heit*ir* eþ*r* geon oðro nafni. hín fiorða a su e*r* fellr or paradiso. hon skilr asiam oc africam. h*on* fellr umhueruis egipta l*an*d. A egipta l*an*dí e*r* babilon in nyia. oc hofu - b*or*g su e*r* alexandría heit*ir*' ('the fourth river that flows out of Paradise is called the Nile, or by its other name Geon. It divides Asia and Africa, and flows through the whole of Egypt. In Egypt is Cairo (Babylon the New), and the capital city which is called Alexandria').

[58] The River Euphrates appears near the other Babylon, as per its description in the *Treatise* ('Eufrates fellur igegnu*m* babílon inafornu').

[59] Akbari, *Idols*, 3.

[60] Scafi, 'Defining *Mappamundi*,' 348.

migrations of the *Æsir*, in *Snorra Edda* and *Ynglingasaga*, out of Asia and into Northern Europe.

The quadripartite schemes that frame the two Viðey maps enable a reader to discern order in their discontinuous and irregular geographical contents. These fours present a 'series of categories that could be used to make sense of the world, facilitate memorization of its properties, and analyse the relationship of the parts to the whole.'[61] An examination of the map's frame affords an insight into the means by which the maps' contents were organised, and will be seen in the second part of this chapter to relate to the other item preserved alongside the maps in this manuscript.

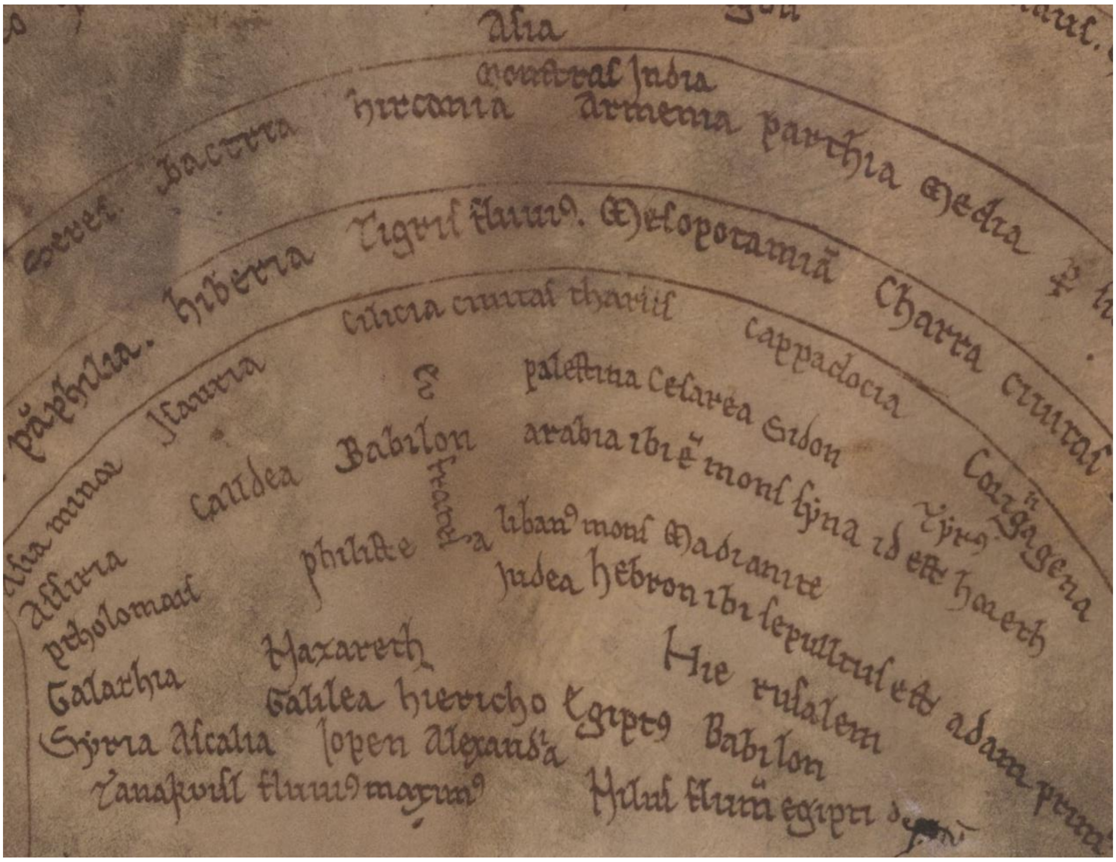

Figure 50: Asia on the larger Viðey map. The map's contents are not synchronous, but contain many references to the event-places of Old and New Testament history. Some of the places whose locations it shows no longer exist.

[61] Akbari, *Idols*, 20.

Forty Icelandic Priests

The fourfold frame is a prominent structural feature of both Viðey map that has been marginalised in previous studies of the maps as exclusively geographical artefacts. There has been no attempt made to relate the form of the map to its contents, either in terms of the graphic arrangement of its written inscriptions, addressed in the first half of this chapter, or the map's broader relationship with the other items preserved alongside it in its manuscript. That these two maps are preserved on the recto and verso of the same folio is undoubtedly significant, but has only occasionally remarked upon. Likewise, the one other item written alongside these two maps, and in the same hand – a register of forty highborn Icelandic priests allegedly compiled in 1143 – has been accorded no mention in previous commentaries on them.[62]

The restoration of the two Viðey maps to their manuscript context is the focus of the remainder of this chapter. The register of forty highborn Icelandic priests is not well known and despite strong affinities with the Viðey maps has been accorded no mention in their examination. Neither the maps nor the register have been examined in light of the other. The making of world maps was not an identifiably separate activity in the medieval period: most appear in manuscripts, and are written in the same hand as the texts alongside them.[63] Similarly, the hand responsible for the lettering on the monumental Hereford map has been detected in texts written in other manuscripts.[64] In 1812 III, the same scribe was responsible for both the maps and the register, and it is therefore appropriate that all elements of the manuscript's design are examined holistically.

It might also be appropriate to examine the Viðey maps in relation to the texts contained in the second bifolium written in this hand. However, suggestions as to the relationships between the maps and these items can only be made speculatively. It has been assumed that since these two fragments are

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[62] This register is sometimes called 'the Prestaskrá of 1143,' and is printed in the *Diplomatarium Islandicum*, volume 1 [no. 29], 183-190, edited by Jón Sigurðsson.

[63] Woodward, 'Medieval *Mappaemundi*,' 286.

[64] M. B. Parkes, 'The Hereford map: The handwriting and copying of the text,' *The Hereford World Map: Medieval World Maps and their Context*, ed. P. D. A. Harvey (London: British Library, 2006), 107-117, 107.

written in the same hand they must derive from the same manuscript. This is possible, but by no means necessary; the fragments could have been written by the same scribe but belong to two different manuscripts. The second bifolium contains the first two months from a calendar, in addition to a short time-reckoning treatise entitled *Bócarbót*.[65] The treatise describes the division of time into days, months, and years, in addition to the solar and lunar cycles and the intervals over which they acheive parity. Since all other maps from medieval Iceland are preserved in illustrated encyclopaedias, it might be supposed that the original context of the 1812 III maps was similar. This chapter, therefore, examines serially the items preserved in 1812 III in order to discern the scheme that dictated their selection and arrangement. I demonstrate that the co-preservation of these three items – two maps of the world and a register of forty Icelandic priests – is a deliberate feature of this intellectual programme.

[65] *Bócarbót* is preserved twice in 1812. The copy in 1812 III is the older of the two, the other on ff. 23r-23v of the present compilation is part of 1812 II (fourteenth-century, Norwegian?).

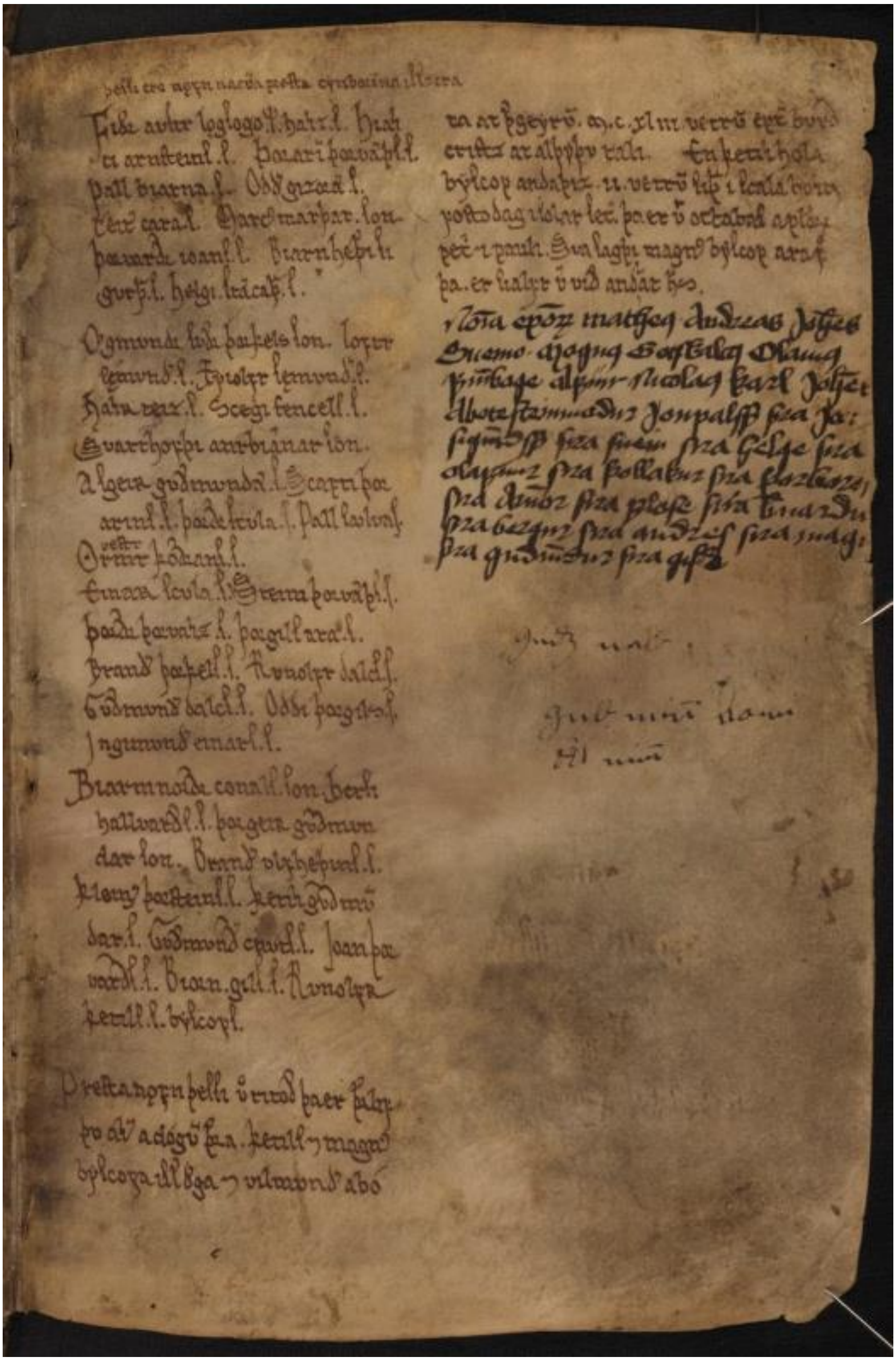

Figure 51: The only manuscript witness to the register of forty highborn Icelandic priests. The *titulus* is at the top of the left column. The register then comprises a circular survey of forty Icelandic priests' names through the eastern, southern, western, and northern Quarters. The coda begins at the bottom of the left column and concludes in the right column. Below, in a hand dated to the 1480s, is a list of Icelandic bishops that includes one abbot of Viðey. It is partly on this basis that 1812 III has been associated with the Augustinians at Viðey (Reykjavík, Stofnun Árna Magnússonar, GkS 1812 III 4to, f. 5r).

The register of forty highborn Icelandic priests

The register of forty highborn Icelandic priests survives in only one manuscript. As described in chapter 2 of this thesis, 1812 contains a wealth of diagrammatic and visual material, and the register appears to owe its inclusion in this encyclopaedia, and therefore its survival, to the two maps preserved overleaf. It seems that these two folios (ff. 5r-6v) were inserted into this compilation for their cartographic contents, to complement the maps and planetary diagrams assembled in the section of the manuscript (1812 I) into which these earlier folios have been embedded. It is productive to compare the register with the two Viðey maps. In this section, I describe the structure and contents of this register, and demonstrate its relevance to its companion maps.

The register is arranged in two columns. A line at the top of the folio reads 'þessi ero nöfn nacv*er*a presta cynbori*nn*a islenzcra' ('these are the names of some highborn Icelandic priests'). The list contains the names of forty priests, ten drawn from each administrative Quarter of Iceland. The first entry for each Quarter comprises the priest's forename (e.g. 'Fiðr'), followed by the cardinal direction from which that Quarter takes its name (e.g. 'austr'), and the priest's patronymic (e.g. 'hallz son'). It is noteworthy that only the first and last entries of the list contain any additional biographical information about the priests named. The first named priest is identified as a *lögsögumaðr* (lawspeaker): 'Fiðr avstr logsogo maðr hallz son' ('Finnr, Eastern Quarter, son of Hall, lawspeaker'); and the last is identified as the son of a bishop: 'Rvnolfr ketils son byscops' ('Rúnólfr son of Bishop Ketill'). These offices, and the Quarter division of Iceland, are described below.

The register is followed by a coda of nine half-lines, which contains important information about the date the register was compiled and the circumstances of its production.

> Presta nöfn þessi voro ritoð þa er þeir lifþv aller á dögvm þeirra ketils oc magnvs byscopa islendinga oc vilmvndar abóta at þingeyrvm m c xliii vetru*m* ept*ir* burð cristz at alþyðu tali. en Ketill hola byscop andaþiz . ii . vetrum siþar i scalaholltj fostodag i solar setr þa er var octabas apostolorvm petri et pauli. Sva sagþi magnvs byscop ara froþa er sialfr var við andlat hans.[66]

[66] *DI* I, 181.

> (These priests' names were written down while they all lived, in the days of Magnús and Ketill, bishops of the Icelanders, and Abbot Vilmundr of Þingeyrar, 1143 winters after the birth of Christ by the common reckoning. Bishop Ketill of Hólar died two winters later at Skálhólt, at sunset on a Friday when it was eight days after the feast of the apostles Peter and Paul. So said Bishop Magnús to Ari the wise when he himself [Bishop Magnús] was near the end of his life.)

The coda dates the preceding register to 1143, and names the two incumbent bishops of Skálhólt and Hólar (Iceland's two episcopal sees), the abbot of the Benedictine monastery at Þingeyrar, and the renowned scholar Ari Þorgilsson inn fróði (Ari the Wise) (b. 1067- d. 9th November 1148). The reigns of these bishops and tenure of Abbot Vilmundr Þórólfsson can be used to date the register: Ketill Þorsteinsson was bishop of Hólar between 1122 and 1145, and Magnús Einarsson was bishop at Skálhólt between 1133 and 1148. Vilmundr Þórólfsson was abbot at the Benedictine monastery at Þingeyrar in the diocese of Hólar from its consecration in 1133 until his death in 1148. Ari Þorgilsson is the most eminent of Icelandic historians, and authored the earliest known example of narrative prose in a Scandinavian language. This history is known as the *Libellus Islandorum*, or more commonly *Íslendingabók* ('the Book of Icelanders'), compiled between 1122 and 1133. [67] The coda identifies the preceding register as a work with a potentially complex editorial history. The register is identified as a second edition: it is said that the priests' names were written down in 1143 ('presta nöfn þessi voro ritoð ... m c liii vetru*m* ept*ir* burð cristz'), but the coda could not have been attached to the list since then because it mentions the deaths of Bishop Ketill Þorsteinsson (b. 1075–7 – 7th July 1145) and Bishop Magnús Einarsson (b. 1092 - 30th September 1148). [68] Secondly, it implies the involvement of a committee of learned persons its composition, which seems to have been initially compiled under the auspices of the two named bishops and abbot. [69] Further relationships between the register and Ari's other

[67] In the prologue to *Íslendingabók*, Ketill Þorsteinsson, mentioned in the coda, stands opposite Bishop Þorlákr Runólfsson, who was bishop of Skálhólt between 1118 and 1133. From the reigns of these, bishops it can be determined that *Íslendingabók* was composed by Ari between 1122 and 1133. Grønlie, *Íslendingabók*, 15.

[68] The prologue to Ari's *Íslendingabók* likewise identifies the work as a second edition, produced under the guidance of a committee of learned persons. There is a fragment resembling *Íslendingabók* Ch. 5, the account of Þorsteinn surtr's reform of the Icelandic civil calendar, in the section of 1812 dated *c.* 1200 (1812 IV, f. 25v). See Larsson, *Äldsta delen*, 7-8; *AÍ* II, 65-66.

[69] On the role of the learned committee in the composition of *Íslendingabók* see Pernille Hermann, 'Spatial and Temporal Perspectives in *Íslendingabók*: Historiography and Social Structures,' *Viking and Medieval Scandinavia* 1 (2005), 73-89, 73-74.

known work, *Íslendingabók*, can be identified. Although it is relatively formulaic, the line at the top of the register bears a strong resemblance to the lines that introduce the appendices in both extant manuscripts of *Íslendingabók*: compare the register's 'Þessi ero nöfn nacv*er*a presta cynbori*nn*a islenzcra' ('these are the names of certain highborn Icelandic priests') with *Íslendingabók*'s 'Þessi eru nöfn langfeðga Ynglinga ok Breiðfirðinga' ('these are the names of the ancestors of the Ynglings and the people of Breiðafjörðr').[70] Similarities between the coda and *Íslendingabók* endorse the coda's claim that Ari was involved in its composition.[71]

Jón Sigurðsson was confident in his view that Ari authored the register, and suggested that the coda's 'Ara fróða' had been adapted from the first person 'mér' at some stage in its transmission.[72] The coda was written in its present form after the deaths of the two named bishops, the last of whom died on 30th September 1148. If Ari authored the coda, as well as the register, he would have to have done so before he died on 9th November 1148. Patricia Pires Boulhosa considers the value of author attributions made to Ari elsewhere. A rubric in the Fríssbók manuscript of *Heimskringla* attributes the work to Ari, however this attribution has been disregarded because the reign of Magnús Erlingsson, which is narrated in the cycle, began in 1162, fourteen years after Ari's death.[73] Whether or not such author attributions are genuine, Boulhosa has argued that 'an attribution, as much as a prologue, adds meaning to the text to which it is attached.'[74] The conspicuous references to Ari in the coda is no doubt a significant feature of its design that warrants special attention to be directed

70 Jón Jóhannesson, ed. *Íslendingabók Ara Fróða, AM. 113a and 113b, fol.* (Reykjavík: Háskóli Íslands, 1956), xx.

71 Richard Sharpe observes that information about the composition and authorship of a work was often incorporated into the text's prologue or coda, 'where it would be less susceptible to omission or change' than it would in a standalone incipit or colophon, which is more susceptible to omission when the text is copied. The coda is certainly an important feature of the overall composition of the register and contains valuable information about its origins and composition. Sharpe, *Titulus*, 31.

72 *DÍ* I, 188.

73 Patricia Pires Boulhosa, *Icelanders and the Kings of Norway: Medieval Sagas and Legal Texts* (Leiden: Brill, 2005), 10-11.

74 Ibid., 12; cf. Sharpe, *Titulus*, 23.

towards its associations with the wider historiographical output of twelfth-century Iceland.

A further characteristic of Ari's historical method that can be seen in the coda is its combination of dating compositions through references to the reigns of bishops with dates 'at alþyðu tali' ('by the common reckoning'). The use of AD dating in *Íslendingabók* is described by Grønlie as the history's 'main debt to European learning.'[75] *Íslendingabók* supplies three AD dates: the settlement of Iceland in 870, the conversion to Christianity in 1000, and the death of Bishop Gizurr in 1120.[76] Since AD reckoning was not the only method of dating available, with most events dated relatively, Pernille Hermann has argued that the selective use of dates after the birth of Christ was a conscious attempt to synchronise Icelandic historical events with 'an international and worldwide perspective.'[77] Hermann argues that AD dates should be understood as references to the shared temporal perspective of Iceland and Western Christendom, and the date supplied by the coda should perhaps be seen in similar terms.

The Icelandic priesthood in the twelfth century

In order for the relationship between this document and the Viðey maps to be understood, it is first necessary to examine the nature of the priesthood in twelfth-century Iceland. Historians of the Icelandic Commonwealth have described the close association between ecclesiastical and secular power in the first two centuries of the Icelandic Church. [78] Orri Vésteinsson has argued that in the twelfth century Icelandic chieftains (*goðar*) assumed roles in the Church to strengthen their association with institutionalised power. The ecclesiastical identities secured by chieftains enabled them to lead their people spiritually, as

[75] Grønlie, *Íslengingabók*, xx.

[76] Hermann, 'Perspectives,' 76. The death of Pope Gregory I in 604 is mentioned in the chronology at the end of *Íslendingabók*, but this is outside its main historical purview and usually not mentioned.

[77] Ibid., 76; see also Grønlie, *Íslengingabók*, xx.

[78] Jón Viðar Sigurðsson, *Chieftains and Power in the Icelandic Commonwealth*, trans. Jean Lundskær-Nielsen (Odense: Odense University Press, 1999), 185; Jón Viðar Sigurðsson, 'Kings, Earls, and Chieftains. Rulers in Norway, Orkney and Iceland c.900-1300,' *Ideology and Power in the Viking and Middle Ages: Scandinavia, Iceland, Ireland, Orkney, and the Faeroes*, ed. Gro Steinsland, et al. (Leiden: Brill, 2011), 69-108, 91; Orri Vésteinsson, *The Christianisation of Iceland: Priests, Power, and Social Change 1000-1300* (Oxford: Oxford University Press, 2000), 193.

well as politically, and was a statement of their social and political pre-eminence.[79] In *Kristnisaga*, a history of the Christianisation of Iceland written in the early thirteenth century (and therefore roughly contemporary with the Viðey maps), it is written that in the days of Bishop Gizurr (d. 1118) it was the custom that 'most men of high rank were educated and ordained priests, even though they were chieftains' (Ch. 17). *Kristnisaga* proceeds to name ten men who are prominent examples of chieftain-priests, five of whom are named also in this register. Chieftain-priests named in both *Kristnisaga* and the register are: Hallr Teitsson from the Southern Quarter; Ingimundr Einarsson from the Western Quarter; and Ketill Guðmundarson (d. 1158) and Jón Þorvarðarsson (d. 1150) from the Northern Quarter. Ketill Þorsteinsson, bishop of Hólar, is named as a chieftain-priest in *Kristnisaga*, and as bishop in the register's coda. The renowned priest and scholar Sæmundr inn fróði (the Wise) is named as a prominent chieftain-priest in *Kristnisaga*, and his two sons Loptr and Eyjólfr Sæmundarson are named in the register.[80]

The close association between secular and ecclesiastical power was also observed by the author of the thirteenth-century history of the bishopric at Skálhólt, *Hungrvaka*, in which it is said of Bishop Gizurr (d. 1118) that 'var rétt at segja at hann var bæði konungr ok byskup yfir landinu meðan hann lifði' ('it was right to say that he was both a king and a bishop over the land while he lived').[81] This characterisation of the Icelandic priesthood seems to have been known further afield. Gerald of Wales notes in the *Topographia Hibernica* (*c.* 1187) that in Iceland 'their priest is their king, and their king is their priest. The bishop has the powers of both kingship and priesthood.'[82] This is the explicit statement of the incipit at the top of the folio, which states that the priests listed are 'cynborinna' ('highborn').

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[79] Orri Vésteinsson, *Christianisation*, 193.

[80] Grønlie describes this overlap, but omits Ketill Þorsteinsson, whose name appears in the coda. *Íslendingabók*, 71-72, fn. 106. It might be suggested that a work similar to the register was known to the author of *Kristnisaga*. In the final line of the paragraph naming these chieftain-priests, its author remarks: 'and many others, though their names are not written down [here]'.

[81] Ásdís Egilsdóttir, ed. *Biskupa sögur* vol. 2, Íslenzk Fornrit 16 (Reykjavík: Hið Íslenska Fornrit Félag, 2002), 16.

[82] Gerald of Wales, *Topographica Hibernica*, II.46.

The forty priests named in the register probably constituted no small proportion of the total number of clergymen of Iceland in 1143. Orri Vésteinsson estimates that the named priests probably amounted to more than ten percent of Iceland's clerical population. [83] Historians of the Icelandic Commonwealth have primarily been interested in the register for what it can add to our prosopography of the Icelandic priesthood in this period. Of the sixteen priests in the register that are known from other sources, thirteen were chieftains, at a time when there would have been around twenty-seven *goðorð* (chieftaincies) in the country as a whole. [84] Whether or not these men held *goðorð*, their careers and lineages, where known, indicate that all would likely have wielded power.[85]

The highborn priests known from other sources (such as the Icelandic annals, the *Biskupasögur*, and the *Sturlungasaga* compilation, written about Icelandic domestic affairs in the thirteenth century) have impressive lineages, and could claim descent from Iceland's primary colonists and other prominent men and women in the history of the Icelandic Commonwealth. There are many lines that connect men named in the register with other powerful and influential figures in early Icelandic history.[86] From the Southern Quarter hail both Loptr Sæmundarson and his brother Eyjólfr, sons of the renowned priest and scholar Sæmundr the Wise (1056-1133). One of these sons, Loptr, married Þóra, daughter of the Norwegian king Magnús III (r. 1093-1103). The son he had with Þóra was the famous chieftain Jón Loptsson (d. 1197), who was in turn the foster father of the statesman and literary magnate Snorri Sturluson (d. 1241). [87] Another priest named in the Southern Quarter who would have an illustrious career in the Church was Hallr Teitsson, the nephew of the famous Bishop Gizurr. Hallr was elected bishop of Skálhólt after Magnús Einarsson's death in 1149, but died in Utrecht on his way to Rome the year after in 1150. [88] Klængr

[83] Orri Vésteinsson, *Christianisation*, 188.

[84] Jón Viðar Sigurðsson, 'Chieftains,' 91.

[85] Orri Vésteinsson, *Christianisation*, 188.

[86] DI *I*, 188-194.

[87] *DI* I, 188.

[88] Ibid., 190.

Þorsteinsson, named among those priests in the Northern Quarter, was consecrated bishop in his place. Also connected with the Icelandic bishops are Runólfr and Guðmundr Dálksson from the Western Quarter, nephews of Bishop Ketill Þorsteinsson of Hólar. A priest of particular note from the Southern Quarter is Þorgils Arason, son of Ari Þorgilsson the Wise, who is named as the register's compiler. Ari Þorgilsson would have been at least 75 years old in 1143 and, by this time, would likely have passed on his *goðorð* to his son. [89] The exclusion of Ari from the survey has been taken as further evidence of his authorship, and might also demonstrate that the list was intended to show the current political climate in 1143, by which time Ari's role had diminished.

In summary, the Icelandic priesthood in the twelfth century was predominantly limited to the upper echelons of society, and its members belonged to the elite. It was not until the thirteenth century that priests were drawn from lower levels of society. Towards the end of the twelfth century, there was a sharp decline in the number of chieftain-priests, and in 1191 the dual role was prohibited by Bishop Eiríkr Ívarsson, who mandated that chieftains were only allowed to assume roles in the Church lesser than deacon.[90] In the thirteenth century, when the register and maps in 1812 III were produced, eldest sons and heirs were no longer customarily ordained, and aristocratic families no longer assumed ecclesiastical offices.[91] With the introduction of clerical celibacy between 1240 and 1270, the clergy began to 'assert themselves as an independent body.'[92] Importantly, at the time the register was written in 1812 III, a survey of highborn Icelandic priests could no longer have been produced.

The function of the register

The function of this register, both at the time of its composition after 1143 and at the time of its reproduction in 1812 III (*c.* 1225-50), is difficult to discern. Jón Sigurðsson notes that the priests' names were probably recorded in some informative order, but examines the structure of the register no further. He

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[89] Orri Vésteinsson, *Christianisation*, 188.

[90] Ibid., 190; Nordal, *Tools*, 20.

[91] Orri Vésteinsson, *Christianisation*, 192.

[92] E. Christiansen, Review of Orri Vésteinsson's *Christianisation of Iceland*, *The English Historical Review* 116 (2001), 932-933, 932.

suggests that the list was compiled to demonstrate that in the 1140s it had been customary for men of noble birth to attend schools and be ordained to the priesthood.[93] This would liken the register to other thirteenth-century histories, such as *Kristnisaga* and *Hungrvaka*, which described the close association between ecclesiastical and secular power in the preceding century. This is a plausible motive for the register's reproduction in the thirteenth century, but not for its alleged composition in 1143; historical interest cannot account for its original production. Jón Jóhannesson observed that its uses appear to be 'very limited,' but likewise examined the register no further.[94] The most recent scholar to engage with the register and its intended function is Orri Vésteinsson, who echoes the suggestion of Jón Sigurðsson that the aim of the list was to document the lineages of prominent families and to show their connections to the Church.[95] He also suggests that the list is an assertion of ecclesiastical power in the four administrative Quarters of Iceland.[96] This is an attractive hypothesis, and can be elaborated further. The observation that the register is organised by Quarter has been infrequently made, and the relevance of this structure to its wider context has not been analysed.

The structure of the register

Two organisational principles structure the register of highborn Icelandic priests. Ten priests are named from each of the four administrative Quarters of Iceland: the survey advances in a clockwise motion through *austr* (east), *suðr* (south), *vestr* (west), and *norðr* (north).[97] The Icelandic Commonwealth was characterised by a decentralised distribution of power, with no sovereign or executive authority.[98] Iceland was governed by a variable number of *goðar* (chieftains) who presided over the annual *alþingi* (the national assembly). The

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93 *DI* I, 184.

94 Jón Jóhannesson, *Íslendingabók*, xxii.

95 Orri Vésteinsson, *Christianisation*, 188.

96 Ibid., 188.

97 A register of the names of the fjords in Iceland headed 'Þessi eru fjarðanöfn á Íslandi' [these are the fjords' names in Iceland] is preserved in AM 415 4to, a learned miscellany that dates to the beginning of the fourteenth century. The list follows the same order as the register, beginning with the eastern fjords, then naming those in the south, west, and finally north. *AÍ* III, 4-5.

98 Stephen Pax Leonard, 'Social Structures and Identity in Early Iceland,' *Viking and Medieval Scandinavia* 6 (2010), 147-59, 148.

landnám (settlement) episodes in Old Norse historical writings, and most of the sagas of Icelanders, show that the settlement required the socialisation of the new geographical area. Clunies Ross has argued that in the settlement period, 'immigrant society was obliged to 'produce' its own social space in an entirely new environment.'[99] According to Ari's *Íslendingabók*, the cultivaion of Iceland into a new social space entailed the establishment of the *alþingi* (Ch. 3) the deternimation of the calendar (Ch. 4), the division of Iceland into administrative Quarters (Ch. 5), and the conversion to Christianity, and with it the establishment of a common law (Ch. 7).[100] The Quartering of Iceland and the establishment of the Quarter Courts for juridical and representative purposes in 965 marked the end of the Icelandic settlement period and the beginning of the Icelandic Commonwealth. The establishment of the Quarters is not described until Ch. 5 of *Íslendingabók*, but already in Ch. 2 each Quarter is given its own primary colonist: Hrollaugr, son of Earl Rögnvaldr in Mærr and half-brother of Rollo, settles in the East at Síða; Ketillbjörn the Old settles in the South at upper Mosfell; Auðr the Deep-minded, daughter of Ketill Flat-nose, settles in the West at Breiðafjörðr; and Helgi the Lean settles in the North at Eyjafjörðr. The primary colonists appear in multiple sagas.

Although Iceland was divided into Quarters for ostensibly juridical and representative purposes, these Quarters also appear to have carried considerable symbolic value. Leonard argues that the aim of *Íslendingabók* was to document the development of an Icelandic national identity, and that its Quartering in Ch. 5 formally acknowledges that Iceland has become one land that can be thus divided.[101] Iceland's conversion to Christianity through peaceful arbitration in *c.* 1000 exemplifies this: the lawspeaker Þorgeirr Þorkelsson makes the decision on behalf of the Icelanders to accept the new faith to maintain 'ein lög ok einn sið' ('one law and one custom') for all.[102] This 'affirmation of the need for nationally agreed laws' is enforced by the Quarter division of Iceland: the decentralised and balanced treatment of the four Quarters emphasises the

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99 Margaret Clunies Ross, 'Land-taking and text-making in medieval Iceland,' *Text and Territory: Geographical Imagination in the European Middle Ages*, ed. Sylvia Tomasch and Sealy Gilles (Philadelphia: University of Pennsylvania Press, 1998), 159-184, 159.

100 Hermann, 'Perspectives,' 74.

101 Leonard, 'Social Structures,' 150.

102 Jakon Benediktsson, ed. *Íslendingabók*, 1:17.

importance of the Commonwealth as a whole. [103] The Quartered structure of the register must carry a similar symbolic value: the selection of ten priests from each Quarter of Iceland is neither accidental nor representative of the actual number of priests who ministered in each Quarter.[104]

In addition to this quadripartite structure, the register is also bipolar. As noted previously, the only two names in the list furnished with any additional biographical information are the first and last names: the lawspeaker 'Fiðr avstr logsogo maðr hallz son' ('Finnr, Eastern Quarter, son of Hall, lawspeaker'); and the bishop's son 'Rvnolfr ketils son byscops' ('Rúnólfr son of Bishop Ketill'). The register is thus framed by two references to the most important institutions of the Icelandic Commonwealth: the office of lawspeaker (*lögsögumaðr*) and the Icelandic episcopate.[105] These two men, and their associated offices, will be examined in greater detail.

Like other men named in the register, the lawspeaker Finnr Hallsson was of noble descent. Finnr's lineage can be traced through his maternal family to Iceland's very first colonist, Ingólfr of the settlement, through Eyvindr, the foster father of Steinuðr the Old, who was Ingólfr's cousin.[106] Steinuðr's settlement is described in *Landnámabók*, where it is stated that she was given a considerable tract of land by Ingólfr himself.[107] Lawspeaker was the sole government office of the Icelandic Commonwealth. The lawspeaker was essentially an elected office, but as Finnr's appointment demonstrates, one that naturally benefited from wealth and lineage. The role of the lawspeaker was to preside over the national assembly (*alþingi*), deliver official pronouncements, speak the entire law from

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[103] Leonard, 'Social Structures,' 150. See also Hermann, 'Perspectives,' 74.

[104] The householders in the four Quarters of Iceland were counted by Bishop Gizurr after the establishment of the Iceland's second Episcopal see, the northern diocese of Hólar in 1106 (*Íslendingabók* Ch. 10). Iceland's southern quarter was the most populous.

[105] The Icelandic Commonwealth is here defined as the period after the establishment of the *alþingi* in 930 up until Iceland's loss of independence to the Norwegian Crown in 1262-4. New constitutions were drafted in 1271 and 1281, and the chieftaincies were abolished. Jón Viðar Sigurðsson, *Chieftains*, 9.

[106] *DI* I, 187.

[107] On the importance of Steinuðr's endowment by Ingólfr see Christopher Callow, 'Putting Women in their Place? Gender, Landscape, and the Construction of *Landnámabók*,' *Viking and Medieval Scandinavia* 7 (2011), 7-28, 21-22.

memory, and offer legal advice.[108] Pernille Hermann has described the term of the lawspeaker as a 'national point of reference,' often used to date events relatively in Old Norse historical writings.[109] Finnr was lawspeaker for two terms between 1139 and 1145, and his inclusion at the beginning of this list (since all the priests are said in the coda to be living at the time it was composed) would likely have been understood as a reference to the date of its composition.

The last priest named in the list, Runólfr Ketilsson, was also of noble descent. His father, Bishop Ketill Þorsteinsson, could claim descent from Síðu-Hallr and the Síðumenn, prominent early advocates of Christianity in Iceland whose fortunes are described in a number of the *Íslendingasögur*. Runólfr composed a skaldic stanza in 1154 about the construction of the church at Skálhólt comissioned by Bishop Klængr (also named in the register, as a priest in the Northern Quarter), the only stanza featured in *Hungrvaka*.[110] This reference to the Icelandic episcopate in Runólfr's biographical note could also be used to date the composition of the list. A list of seven Icelandic bishops from Skálholt and Hólar appears below the register in a hand dated to the 1480s; the bishops were in office between 1440 and 1480.[111]

In summary, the register is structured by two organising principles. Firstly, the register exhibits a quadripartite structure conferred upon it by the Quarter divisions of Iceland. Secondly, an axis extends between the references to the office of lawspeaker, the sole government official of the Icelandic Commonwealth, and the Icelandic episcopate. Having considered the structures of both the Viðey maps and the register of forty Icelandic priests, we are in a position to examine the relationships between them. The remainder of this chapter elucidates the function of the Viðey maps with reference to their relationship with the register.

The maps and the register

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[108] Jón Jóhannesson, *A History of the Old Icelandic Commonwealth*, trans. Haraldur Bessason (University of Manitoba Press, 1974), 47-48; Grønlie, *Íslendingabók*, 19-20, fn. 34.

[109] Hermann, 'Perspectives,' 76.

[110] Ásdís Egilsdóttir, ed. *Biskupa sögur*, 36.

[111] *DI* I, 184; *AÍ* II, ccxii.

The list of forty priests' names maps on to the Icelandic administrative landscape through its use of the four Quarter scheme. Of course, the division of the list along these lines reflects the real geographical boundaries drawn between the administrative Quarters, and reified by the need to be associated with, and attend regularly, one of the Quarter Courts. These geographical and political boundaries would have been well known to Icelanders both when the list was allegedly composed in 1143 and at the time it was copied *c.* 1225-50. The Eastern Quarter extended from Helkunduheiði and Skoravíkurbjarg at Langanes to the Jökulsá River at Sólheimasandur; the Southern Quarter extended from Jökulsá to the Hvítá River; the Western Quarter extended from Hvítá to the Hrútafjarðará River; and the Northern Quarter completes the citcle between Hrútafjarðará and Helkunduheiði.[112] Through its survey of forty highborn priests in these four Quarters of Iceland, the register becomes a projection of both ecclesiastical and secular authority onto a geographical framework. Parallels between the structure of the register and the two maps with which it is associated emphasise their quadripartite divisions: the list has as its main structural principle the four cardinal points from which the Quarters take their names; the two Viðey maps likewise have prominent quadripartite schemes.

The four cardinal points provide the framework for both the register and the Viðey maps. On the larger Viðey map (ff. 5v-6r), the four cardinal points are named in both Latin and Old Norse and, as noted in chapter 4, are among the map's only incursions into the vernacular. The Old Norse names for the cardinal points echo the quadripartite scheme initiated by the register on the preceding folio (f. 5r). The quadripartition of the smaller Viðey map (f. 6v) is highlighted by its simple and iconic form: the important fours assembled on the map are divided by four radials that extend from its centre.

The number four is invested with symbolic significance in Christian literature that has its origins in antiquity.[113] Icelandic familiarity with the religious and Evangelistic associations of the number four is evident in *Óláfs saga Tryggvasonar* ('the saga of Óláfr Tryggvason') in *Heimskringla*. When King Haraldr Gormsson sends his magical scout on a reconaissance mission to Iceland in the form of a whale, the wizard finds that each Quarter of Iceland is

[112] Jón Jóhannesson, *History*, 50.

[113] Woodward, 'Medieval *Mappaemundi*,' 335.

under the protection of a guardian-wight (*landvættr*). In Vopnafjörðr in the Eastern Quarter, the land is defended by a dragon; in Eyjafjörðr in the Northern Quarter an eagle; in Breiðafjörðr in the Western Quarter a great bull; and in Reykjanes in the South a giant. This passage further evidences the mythologizing of the four Quarters, implied in twelfth-century historical writings.

> Haraldr konungr bauð kungum manni at fara í hamförum til Íslands ok freista hvat hann kynni segja honum. Sá fór í hvals líki. En er hann kom til landsins, þá fór hann vestr fyrir norðan landit; hann sá at fjöll öll ok hólar váru full af landvættum, sumt stórt en sumt smátt. En er hann kom fyrir Vápnafjörð, þá fór hann inn á fjörðinn ok ætlaði á land at ganga, þá fór ofan or dalnum dreki mikill, ok fylgðu honum margir ormar, pöddur ok eðlur, ok blésu eitri á hann, en hann lagðist í brott ok vestr fyrir land, alt fyrir Eyjafjörð. Fór hann inn eptir þeim firði; þar fór móti honum fugl svá mikill, at vængirnir tóku út fjöllin tveggja vegna, ok fjöldi annarra fugla, bæði stórir ok smáir. Braut fór hann þaðan ok vestr um landit ok svá suðr á Breiðafjörð ok stefndi þar inn á fjörðinn; þar fór á móti honum griðungr mikill, ok óð á sæinn út ok tók at gella ógurliga; fjöldi landvætta fylgði honum. Brott fór hann þaðan ok suðr um Reykjanes ok vildi ganga upp á Víkarsskeiði. Þar kom í móti honum bergrisi, ok hafði járnstaf í hendi, ok bar höfuð hans hæra en fjöllin, ok margir aðrir jötnar með honum. Þaðan fór hann austr með endilöngu landi, 'var þá ekki,' segir hann, 'nema sandar ok öræfi ok brim mikit fyrir utan, en haf svá mikit millum landanna,' segir hann, 'at ekki er þar fært langskipum'.[114]

> (King Haraldr told a wizard to go to Iceland in an assumed shape, and to see what he could learn there to tell him. He went in the shape of a whale. And when he came to the land he went by way of the north to the west side of Iceland, where he saw that all the mountains and hills were full of land-wights, some big and some small. And when he came to Vapnafjörðr he went down the fjord and intended to make land, a huge dragon, followed by snakes, frogs, and toads came down the valley towards him and blew poison at him. Then he turned to go westward around the land as far as Eyjafjörðr. He went into the fjord. Then a bird came against him, which was so large that its wings stretched over the mountains on either side of the fjord, and many birds, big and small, followed it. Then he swam farther west, and then south into Breiðafjörðr. When he came into the fjord a large grey bull came against him, wading into the sea, and bellowing fearfully, and he was followed by a crowd of land-spirits. From thence he went round by Reykjanes, and wanted to land at Vikarsskeið, but a mountain-giant came down against him with an iron staff in hand. He was a head higher than the mountains, and many other giants followed him. He then swam eastward along the land: 'there was nothing,' he said, 'but sand and skerries, and surf beyond them, and the ocean between the countries was so great,' he said 'that a longship could not cross it.')

[114] Bjarni Aðalbjarnarson, ed. *Heimskringla*, 271

The statement that the sea is so wide that no boat can cross it is not so much a statement of Icelandic isolationism as it is a statement of Icelandic invulnerability to foreign political encroachment; its geographical location affirms its political independence. This episode and its depiction of the Icelandic *landvættir* shows familiarity with Patristic traditions on the four gospels and their Evangelist authors. The four Evangelists were linked in exegesis to the so-called four living creatures, encountered in *Ezekiel* (1:10) and *Revelation* (4:7). In *Revelation* the four living creatures appear on judgement day:

> Et animal primum simile leoni et secundum animal simile vitulo et tertium animal habens faciem quasi hominis et quartum animal simile aquilae volanti.[115]
>
> (And the first living creature like a lion; and the second living creature like a calf; and the third living creature having a face like a man; and the fourth living creature like an eagle flying.)

The four Evangelists are not explicitly associated with the four living creatures in scripture, but were connected in exegesis, in word and image. The most influential patristic source for the equivalence of the four living creatures and the four Evangelists was Jerome's *Plures fuisse*, and the introduction to his commentary on Matthew's gospel (written 398).[116] Jerome uses the number four to defend the four canonical gospels against heretics who would alter their number with the addition of more spurious books, linking them explicitly to what O'Reilly describes as 'those other sets of four whose diverse components also form a unity: the four elements, the four seasons, the four cardinal virtues, the four directions or parts of the earth.'[117] O'Reilly demonstrates that 'the four living creatures were assimilated to existing cosmological concepts in which space, time and matter were seen as part of a fourfold ordering.'[118] These cosmic and temporal fours are prominent on the two Viðey maps.

As there are four Evangelists, there are four Quarters of Iceland. The references to the four Evangelists have been incorporated into *Óláfs saga Tryggvassonar* in order to show that the political institutions of the Icelandic

[115] *Revelation*, 4:7.

[116] O'Reilly, 'Evangelists,' 53.

[117] O'Reilly, 'Evangelists,' 57.

[118] Ibid., 54.

Commonwealth are divinely sanctioned and protected. On medieval world maps, the four corners of the world are often associated with the four Evangelists, and their animal avatars: Mark (the lion) in the East; [119] Matthew (the man) in the North; John (the eagle) in the West; and Luke (the ox) in the South.[120] In 1243, Henry III of England incorporated images of the four Evangelists into his Painted Chamber at Westminster, to complement a world map he had commissioned for those walls in 1236.[121] In the *Etymologiae* (VI.ii.40), Isidore explains how the number of Evangelists reflects their mission.

> Hi sunt quattuor Euangelistae, quos per Ezechielem (1: 10) Spiritus sanctus significauit in quattuor animalibus. Propterea autem quattuor animalia, quia per quattuor mundi partes fides Christianae religionis eorum praedicatione disseminata est.[122]
>
> (These are the four Evangelists, whom the Holy Spirit symbolised through Ezekiel (1:10) as four animals. The animals are four because, by their preaching, the faith of the Christian religion has been disseminated through the four corners of the world.)

The four corners of the world were associated with the Evangelists, whose mission it was to take Christianity to its four corners.

The symbolic associations of the four cardinal points are emphasised elsewhere in Old Icelandic literature. In the Old Norse *Elucidarius*, the student asks his master how Adam got his name. The master responds:

> At. iiii. otto*m* hei*ms* þ*at* es austr *oc* uestr norþr oc suþr. Enn at g*ri*ksco male a d a m callasc anatole disis artos mese*m*bria þat es se*m* g*ri*plor hende til nafns ada*ms*. E*nn* at þui toc h*ann* nafn at fioro*m* otto*m* hei*ms* at fvn h*an*s atte at co*m*a íallar hei*ms*.[123]
>
> (From the four compass points of the world, that is from East and West, North and South. In Greek these are called *Anatole*, *Dysis*, *Arktos*, *Mesembria*, and they form an acrostic of Adam's name. He got his name from the four corners of the world, since his kin was expected to spread out in all directions over the world.)

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[119] The Icelandic tradition has a dragon as the northern living creature, where we would expect the lion of St. Mark. I have not been able to find any other examples, in text or image, of the dragon.

[120] Woodward, 'Medieval *Mappaemundi*,' 336.

[121] Birkholz, *Two Maps*, 17.

[122] Isidore, *Etymologiae,* VI.ii.40.

[123] Firchow, ed. *Elucidarius*, I.64.

The four letters that make up Adam's name are shown graphically on the Byrhtferth diagram, where they are correlated with the four cardinal points, four seasons, and the four ages of man (see figure 47). The master's response shows the association between the four cardinal points and the expectation that Adam's kin would extend to the four corners of the world, and that the apostles would take Christianity to them (for example, *Matthew* 28:19 and *Mark* 16:15). Elsewhere in the *Elucidarius*, it is written that Christ was dead for forty hours in order to revive the four parts of the world, which had been befouled ten times over through of the violation of the Ten Commandments (I.156-157). The quadripartite division of the world is a point powerfully made.

Woodward has argued that, because of their manifold associations in natural philosophy, scripture, and exegesis, the cardinal points became more than a simple means of orientation, but 'mythical entities in their own right.'[124] The same could be said for the four Quarters of Iceland: in addition to the juridical and representative functions that are the officially cited reasons for their establishment, the Quarters became a more fundamental cornerstone of the distinctiveness of Icelandic social institutions. In *Óláfs saga Trygvasonar*, the four Quarters are sanctioned by their divine protectors modelled on the Evangelists; in *Íslendingabók*, they are sanctioned by the etiological narratives associated with their outstanding primary colonists. In these narratives, the Quarters of Iceland thus acquire mythical status.

Consideration of the shared spatial traits of the two Viðey maps and the register of forty Icelandic priests demonstrates that both can be considered geopolitical narratives. Geography is one of the main factors in the structure of the register, and the same quadripartite scheme inheres in the associated maps. The quadripartite frames that enclose the two maps demonstrate that a quadripartite scheme is consistent across multiple cosmic and temporal domains. The quadripartite framework common to the register of priests' names and the two world maps legitimises the main social institutions of the Icelandic Commonwealth (enshrined in the secular office of lawspeaker, and the Icelandic episcopate) by drawing parallels between an administrative map of Iceland and the world map. The register is an assertion of the similarity between Iceland and the rest of Christendom: the administrative Quarter divisions are shown to have

[124] Woodward, 'Medieval *Mappaemundi*,' 337.

universal significance because they appear to derive from, or even anticipate, the natural order of the world. It is important to note that in *Íslendingabók* each Quarter of Iceland has already been assigned a primary colonist before the establishment of the Quarters has been described.

The recurring theme of the four cardinal points across these three items show that the organisation of Icelandic social institutions is analagous with the natural order and symmetry of God's creation: the symbolic associations of the cardinal points extend beyond the four seasons, the four ages of man, and the four elements of the human body, to the four Quarters of Iceland. These fours are naturally, not humanly, constructed. It was argued above that the four cardinal points on the larger Viðey map comprised a formation of bilingual inscriptions, with one element in Latin and another in Old Norse. In light of the close relationship between the register and the larger Viðey map, it might be suggested that these legends are not bilingual at all: the Old Norse terms *austr*, *suðr*, *vestr*, and *norðr* do not refer to the four cardinal points, but to Iceland's four Quarters. It is important to note that the Quarters are referred to on the register not as *fjórðungar* (English *farthings*), the common word for Quarters, but by the names of the cardinal points alone. The forms in which these names appear on the register and on the larger Viðey map are identical.

One tentative condition on which the Viðey maps and the register of forty Icelandic priests' names can be associated further is presented in the coda's statement concerning Bishop Magnús Einarsson's role in its composition. In *Hungrvaka* it is written that Bishop Magnús Einarsson, the register's primary informant, was particularly accomplished in two areas: 'búnað ok farar' ('household management and travel').[125] *Hungrvaka* states that when Magnús was elected bishop, he crossed to Norway and then travelled south to Denmark, where he was consecrated as bishop by Archbishop Özurr, on the feast day of St Simon (28th October). He returned to Iceland via Sarpsborg in Norway. He is particularly well received on his return to Iceland for bringing tidings from Norway and the places he journeyed. That year he had the church as Skálhólt expanded and renovated. One aspect of the renovations at Skálhólt stands out: 'Magnús byskup lét tjalda kirkju *borða* þeim er hann hafði út haft, ok váru þat inar mestu gersemar' ('Bishop Magnús had the church hung with those *boards*

[125] Ásdís Egilsdóttir, ed. *Biskupa sögur*, 29.

which he had brought out [to Iceland], and they were the greatest of treasures').[126] The noun *borð* commonly translates as *board*, but appears more frequently in the *ONP* in compounds as *table* (Latin *tabula*). The noun *tabula* is occasionally used in medieval Latin to denote a map (e.g. the *Tabula Peutingeriana* and the *Tabula Rogeriana*). Wall-mounted maps, such as those at Hereford and Ebstorf, are known to have decorated the walls of medieval churches.[127] *Hungrvaka* supplies no indication of what these *borð* depicted, or whether they were indeed *tabulae* or wall-mounted maps. Bishop Magnús was celebrated as a traveller, and it the conjecture that his 'mestu gersemar' ('greatest treasures') were cartographic accessories to this reputation is tempting but not demonstrable.

Conclusion

There are two historical contexts in which we could place the register. In one respect the register is retrospective: copied in the second quarter of the thirteenth century and conspicuously dated to 1143. This date stands out because it could not have been the date the coda that accompanies the register was written, which must have been composed in or after 1148. The register can be interpreted in the context of twelfth-century writings about Icelandic ecclesiastical history, such as *Íslendingabók*, and the Christian Law Section of the Icelandic lawcode *Grágás*, written by the Bishops Ketill Þorsteinsson and Þorlákr Runólfsson at around the same time. These writings have been interpreted as attempts to entrench the national policies of Bishop Gizurr (d. 1118) and other Icelanders who had contributed to the strenghening of the Church in Iceland.[128] The register might be seen as a further attempt to entrench these national policies into a documentary tradition, extending the history of the Icelandic Church from the beginning into the middle of the twelfth century. Its particular accent on contemporaneity (all the priests were said to be alive at the time the list was written) and its conspicuous date identifies the register as a modern sequel to *Íslendingabók* that portrays a snapshot of the ecclesiastical and administrative landscape of Iceland in the 1140s. The register is also intelligible in its thirteenth-century context. Its reproduction in 1812 III is

[126] Ibid., 30.

[127] Edson, *Time and Space*, 7.

[128] Jón Jóhannesson, *Íslendingabók*, xvi.

contemporary with the Icelandic ecclesiastical histories *Kristnisaga* and *Hungrvaka*. All three are interested in the close association between secular and ecclesiastical power in Iceland in the preceding century.

The middle of the thirteenth century in Iceland can be seen as a period of increasing Norwegian encroachment on Icelandic independence that would culminate in Iceland's submission to the Norwegian crown 1262-64. From the 1220s, the relative stability of the Norwegian Crown allowed Norway to assert its presence in the North Atlantic. *Hákonar saga Hákonarsonar*, the saga of the Norwegian king Hákon Hákonarson (r. 1217-1263), states that Hákon's territorial aspirations had the support of the Church: Cardinal William of Sabina came to Norway in 1247, and observed that it was necessary for the Icelanders to submit to a king.[129] Iceland was already dependent on Norway in a number of areas before its eventual annexation: Iceland's lay and clerical elites were closely tied to those in Norway, many prominent Icelanders had joined the king's retinue in order to secure their status, and from 1238 onwards, Norwegians invested the two bishoprics of Iceland. By the middle of the thirteenth century, Hákon possessed most of the chieftaincies in the Northern Western, and Southern Quarters.[130] Theodore Andersson observes in the sagas of Icelanders composed *c.* 1220-60 'a will to identify what is peculiar to Icelandic institutions, Icelandic law, and Icelandic character.' [131] The register of forty highborn Icelandic priests, organised by administrative Quarter and framed by references to office of lawspeaker (which would be abolished after the submission to Norwegian rule) and the Icelandic episcopate, might serve as a reminder of Icelandic political independence at a time when Iceland was under increasing pressure to submit to Norway. Boulhosa argues that the Norwegian king exercised 'administrative and punitive power over Icelanders' earlier, and to a

[129] Þorleifur Hauksson *et al.*, ed. *Hákonar saga Hákonarsonar*, Íslenzk Fornrit 31 (Reykjavík: Hið Íslenzka Fornritfélag, 2013), 144. On William of Sabina's alleged support, see David Ashurst, 'The Ironies in Cardinal William of Sabina's Supposed Pronouncement on Icelandic Independence,' *Saga-Book* 31 (2007), 39-45; and Brégaint, 'Conquering Minds,' 441.

[130] Erika Sigurdson, 'The Church in Fourteenth-Century Iceland: Ecclesiastical Administration, Literacy, and the Formation of an Elite Clerical Identity' (PhD diss., University of Leeds, 2011), 16-18.

[131] Theodore M. Andersson, 'The King of Iceland,' *Speculum* 74 (1999): 923-934, 933.

greater degree, than is generally acknowledged.[132] It is arguable that the tensions between Iceland and Norway are imprinted on the two Viðey maps.

As chapters 4 and 5 demonstrated, the two Viðey maps are registers of Icelandic national identity, and can be compared with the products of other European cartographic cultures. In recent years, scholarship has brought to light the ways in which maps can be invested in secular interests, and enshrine national identities. Lavezzo has shown how maps produced in medieval England cultivated a trope of English geographical marginalism, in order to transform England's geographical isolation into a marker of exceptionalism.[133] Birkholz similarly calls attention to the importance of world maps in English political culture. He shows that maps commissioned for display at seats of royal power were used in thirteenth-century England to support the Crown's geopolitical ambitions.[134] We can detect similar impulses in Icelandic cartographic culture. The two Viðey maps are invested with secular interests, and articulate the relationships between Iceland and other European polities in the High Middle Ages.

The quadripartite scheme that underlies the Viðey maps can be detected in another, altogether more public attestation of order and power. The Cosmati pavement at Westminster Abbey was laid before the High Altar by Henry III in 1268, a couple of decades after the Viðey maps were produced (figure 52).[135] Its severely symmetrical form recalls its antecedents in cosmological diagrams such as the diagram incorporated into the ninth-century copy of Bede's *De natura rerum* (figure 44), the Byrhtferth diagram (figure 47), and the Viðey maps. An inscription incised into the marble and inlaid with brass reads 'SPERICUS ARCHETYPUM GLOBUS HIC MONSTRAT MACROCOSMUM' ('the spherical globe shows the archetypal macrocosm').[136] Birkholz demonstrates that maps 'detail the spatial duties and proper geopolitical aspirations of the Christian

[132] Boulhosa, *Icelanders*, 1.

[133] Lavezzo, *Angels*.

[134] Birkholz, *Two Maps*.

[135] On floor mosaics that represent the cosmos, see Fabio Barry, 'Walking on Water: Cosmic Floors in Antiquity and the Middle Ages,' *The Art Bulletin* 89:4 (2007), 627-56. On the Cosmetic pavement at Westminster and its imperialist nature see Paul Binski, 'The Cosmati Pavement at Westminster and the English Court Style,' *The Art Bulletin* 72:1 (1990), 6-34.

[136] Binski, 'Cosmati at Westminster,' 10.

monarch,' which might include the expansion of their own borders or the recovery of Jerusalem.[137] The association between the Viðey maps and the register of forty highborn Icelandic priests is emblematic of the devolved organisation of the Icelandic Church and the Icelandic Commonwealth: while the monumental Cosmati pavement provided a dramatic setting for the anointment of one executive authority, the Viðey maps legitimise the regime of the forty men named in the register.

[137] Birkholz, *Two Maps*, 14.

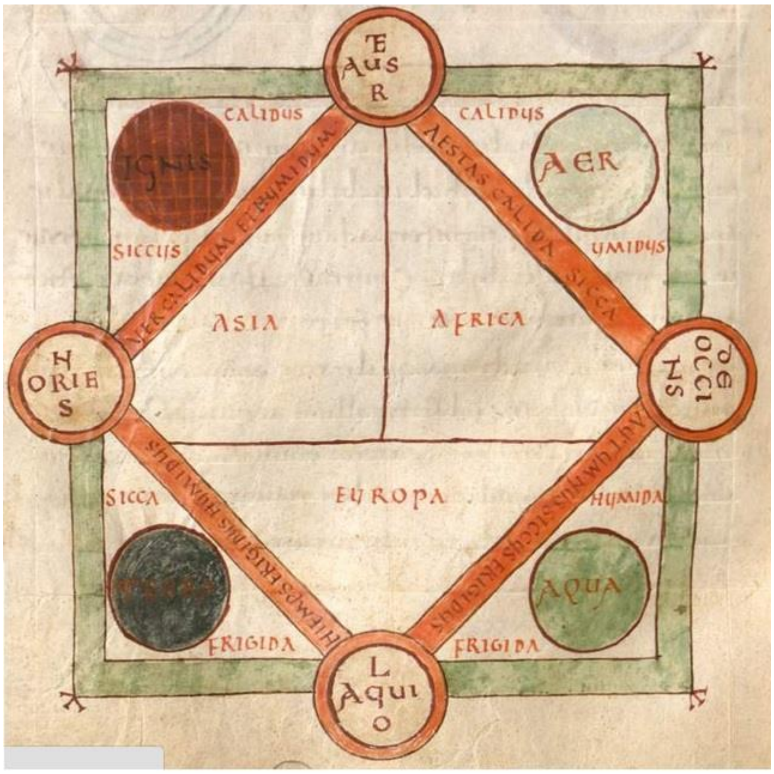

Figure 3: The Cosmati pavement at Westminster Abbey (7.58m square), before the High Altar, laid down by Henry III in 1268. The pavement's design can be compared with the diagram from Bede's *De natura rerum*, which correlates the four cardinal points with the important fours. On these grounds both can be compared with the Viđey maps.

On the larger Viðey map, Iceland is accorded more cartographic space than any other single inscription. This focus on Iceland might simply reflect a desired emphasis on the place where the map was produced. Alternatively, its cartographic isolation and the vacuum that separates it from the Scandinavian Peninsula could be seen as a statement of social and political remove. As the wizard reports to the Danish King Haraldr Gormsson in *Óláfs saga Tryggvassonar*: 'en haf svá mikit millum landanna, segir hann, at ekki er þar fœrt langskipum' ('and the sea between the countries [Denmark and Iceland] is so large', he said, 'that no ship can cross it'). The map frequently subordinates topographical to geopolitical representation, as demonstrated in chapter 4. Similarly, the map appears to emphasise Icelandic separateness from Scandinavia. The register is an image of an ordered and harmonious national polity that invites comparison with the ordered view of the cosmos in the two maps overleaf, all three ordered around the number four. The triptych arrangement of texts and maps in 1812 III, therefore, can be seen as an attempt to define and defend against Norwegian encroachment the distinctiveness of Icelandic social institutions, while demonstrating that the principles on which they are structured are continuous with those that structure the wider Church. The legitimacy of these Commonwealth institutions, administrative Quarters and lawspeakers, is enforced by a reminder of the 'self-evident quadripartite formation of the whole universe.'[138] The register of forty highborn Icelandic priests provides a counterpoint local perspective to the two world maps presented overleaf.

[138] O'Reilly, 'Evangelists,' 55.

Conclusion

While previous studies of the medieval Icelandic world maps have tended to be cursorily descriptive, couched in terms of the interpretation of the maps as representatives of the geographical consciousness of the medieval Icelanders, this thesis has directed attention towards their manuscript contexts. Rather than narrowly approaching the maps as vehicles for geographical information, the foregoing chapters have explored their relevance to other areas – the histories of science, literature, and the Icelandic Commonweath – in order to offer a new assessment of their cultural and political contexts. This thesis has therefore done two things. Firstly, it has redressed earlier neglect of the Icelandic maps' manuscript contexts. Secondly, and as a corollary to this, it has liberated the maps from the narrowly geographical frameworks in which they have previously been studied. Ultimately, this thesis has attempted to rehabilitate the Icelandic maps as sources for the cultural history of medieval Iceland, and to demonstrate that they connect with more textual worlds than has previously been supposed.

Chapters 1 and 2 addressed the Icelandic hemispherical and zonal maps. In chapter 1, we saw that the primary function of the hemispherical map was to illustrate the configurations of the sun and moon responsible for variations in tidal range. An Old Norse tidal note preserved alongside the map, in both manuscripts in which we find it, enjoins the reader to consult the map to clarify its description of tidal processes. This reference to the map affirms the need to examine maps in their manuscript contexts. We saw that in the manuscript AM 736 I 4to, the map accompanies a description of the three continents, and a counterpoint description of the environs of Jerusalem. In addition to the illustration of tidal processes, therefore, the map also contextualises its companion descriptions of the three continents, which it prominently depicts. In the manuscript AM 732b 4to, the map features alongside a number of metrological notes on the size of the earth, moon, and sun, and the distances between them. The map's focus is thus reoriented towards the physical structure of the universe, which it also depicts. The differences between these two versions of the same map demonstrate that its meaning is partially dependent on its context.

In chapter 2, we saw that the Icelandic zonal map similarly showed the structure of the ocean and the mechanisms responsible for the tides. I restored the map to its manuscript context, and showed, for the first time, that it belongs to an array of planetary diagrams that explain the structure of the cosmos and the motions of its parts.

While it is clear that these maps were didactic exercises, committed to the pursuit of scholarship, they were not culturally disinterested, or entirely free from the influence of the culture that produced them. On the contrary, the ostensibly scientific view of the cosmos presented by the hemispherical and zonal maps is motivated by singularly human and social interests. In addition to the tides, the motions of the sun and moon are responsible for the disparity between the lunisolar and calendar years, which was the fundamental concern of the computus. Both these maps are preserved alongside computistical and calendrical texts, whose aim was to synchronise local and universal time, and integrate Iceland into European Christendom. As we saw in chapter 1, astronomical phenomena such as the solstices were timed in relation to native saints' days, to endow universal observations on the calendar with a distinctively local frame of reference. Likewise in chapter 2, paraphrases from popular Latin computus manuals were combined with calculations made by named Icelandic computists. Therefore, the scientific view of the cosmos presented by these maps encapsulated the need to adjust the calendar, while showing a vision of the mapped unity of the ecumene to which Iceland belonged.

Icelandic identity was also foregrounded in the discussion of the two maps in the Icelandic encyclopaedia GkS 1812 III 4to. Chapter 3 was primarily orientational. Its aim was to reunite the two Viðey maps, which had not been examined together previously. Although these maps are preserved on the recto and verso of the same manuscript folio, their connection has not hitherto attracted commentary.

Chapter 4 addressed the representation of Europe on these maps. I argued that the smaller map does an exegetical service to the larger one, enabling its tripartite structure to be more easily discerned. An examination of the European legends on the larger map demonstrated that its mapmaker was interested in the political as well as abstractly territorial or spatial relationships between European polities. In Europe, we saw that places connected by land were frequently disjointed, in order to show their geopolitical distinctiveness. The second half of this chapter altered the lens to hone in on the map's depiction of Iceland. This map shows both Iceland and Thule. I demonstrated, through comparison with the map's written and cartographic parallels, that a range of interpretations are viable, but ultimately argued that the traditional place-name *Thule* was evoked in order to excise from Iceland connotations of remoteness: unlike Thule, Iceland was a European political entity, it was civilised, and it belonged to the ecumene.

Icelandic national identity was once again the focus of chapter 5. This chapter began with an examination of the cartographic frame that encloses both Viðey maps. This frame correlates the four cardinal points with their associated phenomena in the natural world, such as the twelve winds, the four seasons, and the four ages of man. These fourfold schemes have been given short shrift in previous studies of these maps, and distanced from their geographical contents in critical editions. The second half of this chapter, however, demonstrated that this fourfold scheme is a crucial element of the map's design, and extends to the register of forty highborn Icelandic priests preserved overleaf on the same manuscript folio. This register contains the names of forty priests, and assigns ten names to each administrative Quarter of Iceland. I argued that the register shows that the organisation of Icelandic social institutions mirrors the fourfold schemes inherent in nature, and tentatively concluded that the words *austr*, *norðr*, *vestr*, and *suðr* in larger map's frame refer not to the cardinal points, but to the four Quarters of Iceland.

This study has endeavoured to enrich the history of cartography with a new regional perspective. The maps addressed in this thesis have had little prominence in the few published studies on Icelandic cartographic history, whose coverages tend to begin later, or in the literature on medieval maps more generally. Moreover, this thesis calls particular attention to the secular uses to which maps were put, and particularly the ways in which they functioned in the political cultures that produced them. As we saw in chapters 4 and 5 especially, the Icelandic maps from the thirteenth century, like their English counterparts, are occasionally representative of secular governmental interests.

This study has also directed new attention towards Icelandic encyclopaedic collections. Traditionally, the Icelandic maps, and the encyclopaedic manuscripts that accomodate them, have been dismissed as Latin-derived and unoriginal, in the belief that they have little to do with

Icelandic culture or history. Icelandic scientific literature has previously found little purchase in Icelandic literary history. This omission is striking given that encyclopaedic fragments, such as the section of GkS 1812 4to dated *c.* 1200 (part IV), number among the earliest extant Icelandic manuscripts, and record some of the earliest prose writings in a Scandinavian language. In recent years, this view has come under scrutiny, and the Latinate literary culture of Iceland has received renewed attention.[1] The Icelandic encyclopaedic material remains poorly understood, and there is still much that is unknown about its sources, textual history, and reception. One area of the Icelandic encyclopaedia that awaits research is its language environment, which remains mostly uncharted.[2] This thesis contributes case studies into three Icelandic encyclopaedias, AM 736 I 4to, AM 732b 4to, and GkS 1812 (parts I and III) 4to, and the editorial policies that shaped them.

The relationship between Latin and the vernacular in medieval Iceland has been a keynote of this thesis. In chapters 1 and 2, I demonstrated that the inscriptions on the hemispherical and zonal maps are calques or loan translations from equivalent Latin inscriptions, which can be identified on other world maps in European encyclopaedias. In chapter 4 we saw that world maps frequently thematise language choice. I argued that the distribution of languages on the larger Viðey map was invested with particular significance, and that contributions in Old Norse were used to show the extent of the Old Norse cultural area, or to highlight the limitations of Latin in its representation of thirteenth-century Europe. A comparative study into the distribution of languages on medieval maps has yet to be written.

The literary output of the medieval Icelanders evidences a strong interest in the physical world and travel. A study into the influence of these maps at a literary level has yet to be done. The maps addressed in this thesis remain, on

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[1] For example, the studies cited in the introduction to this thesis, which have called attention to Icelandic Latin literary culture not simply as a starting point for writing in the vernacular, but as an integral part of Icelandic textual culture throughout the Middle Ages. See Jensson, 'Lost Latin Literature;' and Grønlie, 'Saint's Life.'

[2] Recent studies into the vernacularisation of scientific literature include: Rebecca Stephenson, 'Byrhtferth's Enchiridion: the Effectiveness of Hermeneutic Latin', *Conceptualising Multilingualism in England, c.800-c.1250*, ed. Elizabeth M. Tyler (Turnhout: Brepols, 2011), 121-44; Michèle Goyens *et al.*, ed. *Science Translated: Latin and Vernacular Translations of Scientific Treatises in Medieval Europe* (Leuven: Leuven University Press, 2008). These approaches have yet to be extended to the Icelandic material.

one level, a symptom of an interest in world geography that found expression in both word and image. This thesis has identified the kinds of maps available to medieval Icelanders, and permits a fuller investigation into the literary manifestations of cartographic culture, which were briefly examined in its introduction. This important corpus of surviving maps are eloquent witnesses to the culture that produced them.

Abbreviations

AÍ	*Alfræði Íslensk*, ed. Kristian Kålund (3 vols.)
DI	*Diplomatarium Islandicum, Íslenzkt fornbréfasafn*
PL	*Patrologia Latina*
ONP	*Ordbog over det norrøne prosasprog*

All Icelandic names in the bibliography are alphabetised under first names, not patronymics.

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