

6. The Problem of Relational Cardinality, the Sixteenth-Century Atlantic, and the Making of the Globe

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Abstract: How do ideas and practices of cardinality, global spatiality, and global space relate in making global governance possible? This is a problem at the core of ideas such as the international and the global that characterize the modern period from the sixteenth century onwards. This chapter explores, through a historical epistemological analysis of Juan de Escalante de Mendoza's *Itinerario de Navegacion*, how this was a problem of relationality. It involved shifting conceptions of ocean space, European spatial identity, as well as the standardization of wayfinding practices. The resulting cardinalization of space was as much the answer to a pressing logistical problem (the training of pilots) as it was one to the problem of governing novel global spaces.

Keywords: cardinality, sixteenth-century wayfinding, early modern globality, historical international relations, historical spatiality.

6.1. First Problem: Making the “Spacious Ocean”

The statement that the late fifteenth and early sixteenth centuries were the period in which global space was invented might at first appear insubstantial. To reflect upon the notion of space, however, permits an understanding of why this seminal moment changed the conception of global order and governance for what was later understood, in Europe, as modernity, and the kind of globalizing economy that followed. It opened up the possibility of beginning to think, around a century later, of the territorial nation-state system, and its allied ideas of sovereignty.

So, in retrospect, what was novel about the conception of global space that appeared in the late fifteenth and early sixteenth centuries? To begin with, it is necessary to emphasize that the transformation at hand, greatly influenced by Iberian-led oceanic ventures, had nothing to do with the myth of confirming the roundness of the earth. Indeed, this had been common knowledge since the time of Erathostenes.¹ Nor was it about getting to new lands for the first time, since the Iberians had no expectation of finding a new continent (although, as archaeological evidence has now shown, Nordic sailors had been there before). It was, instead, about materializing a physical maritime connection between two well-known areas of trade and governance, which can be roughly termed the West and the East; making such a connection operable through stable shipping routes; and being able to exercise power over the lands and peoples through which such links were to be made possible. The fact that a whole continent lay in between made the endeavor far more interesting.

If a new way of thinking about global space is to be theorized, a key issue was to render the known world amenable to trade, exchange, and governance, through the establishment of stable maritime routes. This was as much a physical and practical endeavor as it was an intellectual one, as will be shown. The transformation it brought about (as the Magellan-Elcano expedition of 1519–1521, and multiple others demonstrated) was not just one of scale, but one which demanded an active spirit of invention, creativity, resourcefulness, and deftness in combining and creating forms of knowledge, and negotiating the interactions of situated spatial empirical experience with higher-order theoretical reflections. The problem of cardinality in the sixteenth century, as will be discussed below, was at the core of this process.

The purpose of making global space was pragmatic. Forging a new connection with the East, this time maritime, to obtain precious commodities and sell them in European polities, was not only commercially desirable, but would obviate the role of the Ottoman in mediating the corresponding land-based routes. Opening up new spaces of navigation and creating new spatial links required, using today's terms, infrastructure and services, based on some form of normalized (disciplined) knowledge, standards, routines, protocols, and governance.

A (stable) route is an instance of governed space. It can be argued that the existence of a stable route is an effect of the complex coordination of agency and structures which require very precise forms of power, and the

1 Cf. Jeffrey B. Russell, *Inventing the Flat Earth: Columbus and Modern Historians*, rev. ed. (Westport, CT: Praeger, 1997).

operation of governance from a distance. As is well known in the literature,² space and governance are but intellectual categories that characterize ways of being-in-the-world with some form of order. This is important because it is in this respect that spaces need to be thought of as *created*, and governance needs to be conceived of as *made to happen*.

A critical reader might at this stage challenge the notion of spaces being “created” in these European maritime ventures, since many of the places being visited had been occupied by and known to local peoples well before explorers and conquerors arrived. Such an idea could be considered a Eurocentric view of global spatiality. The criticism would be fair if space were atemporal and universal, meaning that all people at all times had a similar or compatible conception of space. It is widely acknowledged by now that the term “space” (in the sense in which it is being used here) originates in the early modern period and was required for a very particular “Western” way of understanding being-in-the-world. It is interesting in this respect to observe, as John R. Gillis has noted, how such an endeavor of creating space could be viewed as a prerequisite for the formation of “European identity”—thus, the study of such ventures could shed light on the making of Europeanness in this period.³

For global space to be conceivable, however, a shift in the understanding of what an ocean meant was necessary. This implied a perceptual change from seeing the ocean as an obstacle, an “impenetrable swamp” of dangers and monsters, to one in which it was a space to be mastered, harnessed, and governed. To put it differently, for an idea of global space, the global had to be conceived of as a space for connectivity. It could be argued that this notion allowed Europeans to begin to see themselves as situated at the center of their world. In such a reframing of space, Europeans were no longer a people on the periphery of the Afro-Eurasian block, but possessed a frontier of their own to explore and claim.⁴ In that respect, the making of globality in the fifteenth and sixteenth centuries expresses a European conception of space that is globalized through colonization, and is in turn constitutive of European identity.

2 E.g., Henri Lefebvre, *The Production of Space*, trans. Donald Nicholson-Smith, 1st ed. (Oxford: Wiley-Blackwell, 1992); Michel Foucault, “Security, Territory and Population,” in *Ethics: Subjectivity and Truth*, ed. Paul Rabinow (New York: The New Press, 1997).

3 John R. Gillis, “Islands in the Making of an Atlantic Oceania, 1500–1800,” in *Seascapes: Maritime Histories, Littoral Cultures, and Transoceanic Exchanges*, ed. Jerry H. Bentley, Renate Bridenthal and Kären Wigen (Honolulu, HI: University of Hawaii Press, 2007), 21–37. <https://doi.org/10.1515/9780824864248>.

4 Gillis, *Islands in the Making*.

When exploring the epistemological details of how this happened, it is necessary to put aside for a moment imperial and decolonial narratives, important as they may be, and observe that spatial knowledge was never of a single kind. The making of global spatiality tells multiple stories of received, emerging, and created spatial *knowledges* in constant interoperability. The resulting account of the emerging spatial conception of globality highlights forms of syncretism pertaining both to cosmologies and governance.

At the crux of this European awareness and geopolitical confidence was the settlement of a long-standing rivalry in the understanding of space in the Eurasian world. Wright described how the classical Mediterranean model of land and sea, where “a single sea encircling a limited ecumenical body of land,” came to compete with a continental model, “in which seas were separated from each other by extensions of dry land.”⁵ Lewis showed how the coexistence of these models finally dissolved in favor of a “(modified) oceanic model, ... [with] the completion of the voyage of Magellan and Elcano.”⁶

When Iberian expeditions began to establish oceanic routes, they were already practicing a form of globality that assumed global space as a locus for connectivity. The tension thus arose not from spatial models, but from how novel spaces (and the forms of connectivity that resulted from their construction) should be ordered (governed). Jones has traced, for example, how a tension between the bureaucratic planning of oceanic voyages by the Casa de Contratación in Seville (for Spain), an entity established to manage all trade with the Americas, and the Casa da Índia (for Portugal), arose with the practice and experience of voyagers. The relationship between what he called “universal detached bureaucracy” and local “contingent sailor practice” affected the dynamics of how imperial control extended over areas of “uneven and limited physical control,” such as the oceans. While bureaucratic influence shaped the voyages to some degree, ultimately it was the sailors’ experience that produced the new vocabulary, and knowledge, required to apprehend this new global maritime space.⁷ In a similar vein, Brendecke has shown how the “epistemic setting” of governance in Castile’s

5 J. K. Wright, *The Geographical Lore of the Time of the Crusades* (New York: American Geographical Society, 1925), 19.

6 Martin W. Lewis, “Dividing the Ocean Sea,” *Geographical Review* 89, no. 2 (1999): 188–214, at 191, <https://doi.org/10.2307/216086>; see also J. H. Parry, *The Discovery of the Sea*, new ed. (Berkeley: University of California Press, 1981), ix.

7 Brian Patrick Jones, “Making the Ocean: Global Space, Sailor Practice, and Bureaucratic Archives in the Sixteenth-Century Spanish Maritime Empire” (PhD diss., University of Texas, Austin, 2014), <https://repositories.lib.utexas.edu/handle/2152/28409>.

courts and institutions was at odds with that of mariners and voyagers, literally at sea.⁸ When Pedro de Medina wrote in 1545 “that the ocean was spacious,” as noted by Jones,

he was articulating a change in the conception of oceanic space driven by the Iberian-led explorations. Where previous generations of Europeans had conceived of marine space being of two sorts—the space bounded by its connections to terrestrial ports and the space beyond—Medina imagined a single oceanic space that spanned these categories.⁹

This was the novel global space that concerns modern thought.

6.2. Second Problem: Cardinalizing Space

What, then, does cardinality have to do with the creation of global spatiality in the sixteenth century? To pose such a question implies accepting that cardinality did play a role in this transition, and that a particular form of global spatiality was birthed in the sixteenth century. These two premises are not simple and, if adopted, have significant consequences for the reading of global space in this period.

Let us take this in parts. Ideas of globality change in time and have shifting references. They relate to specific ways of being in the world; to living, with regard to location; to how life is organized and sustained; to the simultaneous existence of communities in other areas; and to an expectation that there is a world out there that may be subject to interaction and intervention.

In the context of this chapter, globality is taken to relate to an awareness of an imaginary of space that covers the globe. The idea of the globe, however, is not a transhistorical/cross-cultural constant—there are multiple historical accounts of the world as a globe going back to ancient civilizations, each with its own specificities. The particular idea of the globe arising in the late fifteenth and sixteenth centuries assumed the possibility of a circumnavigational space, which was officially confirmed by the completion of the Magellan-Elcano expedition. This quickly led to an understanding of space as a domain for potential intervention, where mastery of the art of

8 Arndt Brendecke, *The Empirical Empire: Spanish Colonial Rule and the Politics of Knowledge* (Berlin: Walter de Gruyter, 2016).

9 Jones, “Making the Ocean,” 181–182.

sailing, of harnessing the elements that make this form of oceanic navigation possible, is crucial.

Once such a view of the globe is adopted, there is no such thing as empty space. If the globe operates as a container for global space, what comes next is an understanding of its content, i.e., that which is contained, as either “continent,” or as medium to it. In other words, land and water. Water operates as the channel through which land could be reached. And land is the substance upon which human beings organize their permanent dwelling.

It is not surprising, then, that the term “continent” made its way into modern European languages in this very period. A continent, understood as “a continuous tract of land” appears in the mid-fifteenth century as a translation of the medieval Latin *terra continens*, continuous land, where the participle of *continere* refers to holding together and enclosing.¹⁰ The art of long-distance sailing was about reaching land surrounded by water. Simple as it seems, this was in fact a very complex matter, as is detailed across the chapters of this volume. It necessitates knowledge of phenomena that affect navigation at sea; logistical forethought to support voyages protracted in time; and of course, wayfinding, affected by winds, sea currents, and magnetic declination.

In their oceanic voyages, European mariners and explorers encountered entities that contemporary systems of knowledge could not readily make sense of. The Renaissance sailor was exposed to phenomena for which there was no adequate correspondence in the corpus of Western knowledge.¹¹ Resolution of this problem required breaking away from a medieval tradition through resemblance and recombination.¹² Novelty in this period begins to assume an understanding that involves what I have referred to elsewhere as “committing empirical acts in a pretension of originality,” “creating empirical spaces in an interest for invention,” and “empirical dexterity in the curiosity for the strange.”¹³ In simple terms, the Renaissance mariner

10 “Continent (n.),” *Etymonline: Online Etymology Dictionary*, https://www.etymonline.com/word/continent#etymonline_v_36302.

11 E.g., Anthony Grafton, April Shelford, and Nancy G. Siraisi, *New Worlds, Ancient Texts: The Power of Tradition and the Shock of Discovery* (Cambridge, MA: Harvard University Press, 1995).

12 Michael North, *Novelty: A History of the New*, new ed. (Chicago: University of Chicago Press, 2013); Luis Lobo-Guerrero, “Novelty and the Creation of the New World in Sixteenth-Century Spain,” in *Imaginaries of Connectivity: The Creation of Novel Spaces of Governance*, ed. Luis Lobo-Guerrero, Suvi Alt, and Maarten Meijer (London: Rowman & Littlefield, 2019); José Antonio Maravall, *Antiguos y modernos: La idea de progreso en el desarrollo inicial de una sociedad* (Madrid: Sociedad de Estudios y Publicaciones, 1966).

13 Lobo-Guerrero, “Novelty and the Creation of the New World in Sixteenth-Century Spain.”

and explorer were engaged in the “creation” of knowledge, an observation that should not be taken lightly.

This leads us to the second premise of the initial statement, that cardinality played a role in the genesis of global spatiality in the sixteenth century. If global space was contained, and the object of long-distance sailing was to reach land, directionality was a central aspect of this goal and of the creative process of space-making. Regardless of the fact that directionality has always played a role in navigation, the problem of “where to head to” (*la derrota*, in Spanish) begins to acquire particular characteristics. This can be problematized as a *referential issue* that relates to the constitution of standard practices (including procedures, references, conducts, and measurements). Such a framework allows for the circumscription of the process of creating global spatiality to a particular, if contentious and evolving, way of living in the world.

Literally speaking, cardinality refers to levels of primacy or importance. Like the cardinals of the Catholic church, cardinal means a constitutive entity. In a Catholic ecclesiastical order, cardinals vote to elect a pope. In mathematics, cardinal numbers are finite sets, commonly referred to as counting numbers (1, 2, 3 and so on). They are complete, exact quantities without variation, which stabilize an understanding of units.

Etymologically, the word cardinal derives from the Latin *cardo*, the street running from north to south through the center of a city. Its perpendicular line would have been the *decumanes*, with an east-west orientation.¹⁴ In this context, the role of cardinality was to impose a spatial urban order by serving as reference for locations within a city. This element of order is of paramount importance when we embark on an analysis of cardinality and space-making.

Geographically, cardinal points serve as stable references from which to understand position, and traditionally such a role was linked to cosmological and mythological dimensions. Societies have given them different names over time, and such names relate to the use to which cardinality has been put for practices such as agriculture and mobility, or religion and politics. In Chinese mythology, the four symbols, or images, that appear in the Chinese constellations along the ecliptic are the Black Tortoise of the north, the Vermilion Bird of the south, the Azure Dragon of the east, and the White Tiger of the west.¹⁵ Each creature has an association

14 Robert James Forbes, *Studies in Ancient Technology*, vol. 2 (Leiden: E. J. Brill, 1955), 163.

15 E.g., Laird Scranton, *China's Cosmological Prehistory: The Sophisticated Science Encoded in Civilization's Earliest Symbols* (Rochester, Vermont: Inner Traditions, 2014).

with a season and element, relates to an origin story, and plays a cultural role in the wider East Asian sphere.¹⁶ In Greek mythology the Anemoi were wind gods corresponding to a cardinal direction, with Boreas in the north, Notus in the south, Zephyrus in the west, and Eurus to the east.¹⁷ Homer and Hesiod distinguished between the benevolent seasonal winds just mentioned and the malignant and destructive storm winds produced by the monster Typhoeus.¹⁸ Benevolence represented order and stability, in contrast to the unpredictable violence of storms. In Nordic mythology, from which the cardinal names currently used in many parts of the world derive, these were represented by four dwarfs that upheld a heavenly dome: Nordri for north, Sudri for south, Austri for east, and Vestri for west.¹⁹

Geopolitically, however, cardinality relates to the instantiation of order in space and time. Within a given early modern Western cosmology, it participates in the formation of a global spatial idea of order and stability, if dynamic and complex, that provides societies with stable references for life and governance. Order here is understood with respect to the way of life it is meant to promote and protect. That is, it reflects the values that a society considers worthy of promotion and protection, and engenders a correspondence with customs deemed morally acceptable. It follows that the meaning and form of “order” is subject to change, as ways of living in the world undergo transformation. This applies to mundane everyday activities such as food production or mobility, and to territorial and religious organization.

That labels of Germanic origin were eventually adopted in the modern era to refer to cardinal points is an example of this. It signals a shift from a classical imaginary of space (the space that the ecumene of the Greco-Roman world acknowledged, and which persisted up to the Renaissance), to that of modern globality: that is, from a known world to one of discovery and invention, within a global space operating as a frontier. It signals the adaptation of geographical cultures to an emerging need for stable long-distance maritime travel.

16 Anthony Christie, *Chinese Mythology*, 2nd impr. (London: Hamlyn, 1973).

17 Kora Neuser, *Anemoi: Studien zur Darstellung der Winde und Windgottheiten in der Antike* (Rome: G. Bretschneider, 1982).

18 E.g., Homer, *The Iliad*, ed. Peter Jones (London: Penguin Classics, 1992), IX, 4–6.

19 Timothy R. Tangherlini, *Nordic Mythologies: Interpretations, Intersections, and Institutions* (Berkeley: North Pinehurst Press, 2014).

6.3. Third Problem: The Practice of Cardinalizing Space in the *Itinerario* of Escalante de Mendoza

The Iberian-led experiences of oceanic sailing and space-making in the late fifteenth and sixteenth centuries are full of empirical material from which details of how cardinality mattered for sailors of the time can be explored. I will focus on a sailing itinerary written for the purpose of textualizing expert practitioners' knowledge in the art of navigation. Such works may be interrogated epistemologically, asking what the practices they describe might reveal about their actors' understanding of the world they operated upon. They are not taken here as sources of truth and facts, but as sources from which we might uncover *how* truths and facts came to be understood. In other words, I approach the itinerary as a site from which to investigate the conditions of possibility for the thoughts they profess. In such way, they are ideal material for conducting historical-epistemological analyses that help us explore higher-order problems, such as the creation of space in the early modern period.

Let us examine this possibility through two passages in Juan de Escalante de Mendoza's 1575 *Itinerario de Navegación de los Mares y Tierras Occidentales* ("Sailing Itinerary of the Western Lands and Seas"; henceforth, *Itinerario*), a text which, as will be explained below, was intended to aid in the training of new pilots on the routes of the *Carrera de Indias* (connecting Seville with the Indies). It was written as a dialogue between an apprentice, Tristán, and the pilot of a ship sailing to the Indies in the second half of the sixteenth century.

The first excerpt I will highlight comes from a rather long (but substantial) quote that tackles the problem of cardinality towards the end of the sixteenth century. To a question from the apprentice, the pilot responds:

It is convenient, sir, that you understand the names we mariners give to the four angles or points of the world so that based on that, the part named Occident can be understood.

And it is thus that we, who navigate the roundness of lands and waters of the globe, always have our imagination partitioned in four equal parts for which we imagine a man who stands, with opened arms as in a cross, pointing with the right arm at the North Pole, which part we call Septentrional.

And the back given to the rhumb of *Leste*, which is the part from which the sun rises in the morning, above the horizon, and which we call Oriental. Pointing in the same way with the left arm towards the South Pole, where the sun is seen at midday, which we call Meridional.

Facing the west rhumb, which is where the sun sets at night and which we call Occidental ...

And this account and repartition, it must be observed, *relates to the horizon of whomever considers it*, because this man we imagine standing on land ... when walking or sailing on any of the thirty-two rhumbs of the compass, would change the name of one to the other, assigning seas and lands to different rhumbs than those assigned to them before he left the point of departure.

It would be as if we, who are at present at this port of Sanlúcar and have the Cape of Saint Vincent at our Occidental part, and for that reason we call it Occidental land, and if we went and sailed from here around that Occident until the Azores Islands, we find the Cape of Saint Vincent at the Orient, and so being we would call it Oriental land. And according to this example going or sailing on any of the other thirty-two rhumbs of the navigational needle.

And so that there is no confusion in what you come to write about these dialogues, we shall call Occident, in the discourse of our navigation, the seas and lands located within the eight fourths from southeast to northeast, *with respect to where we are now*.²⁰

This passage poses the problem of cardinality in relation to two dimensions which have weighty epistemological consequences. On the one hand, the situated experience of the observer, and on the other, an agreed-upon point of reference. This apparently banal distinction became especially meaningful during the sixteenth century, when mariners sailed as they were taught in their apprenticeship and navigational standards were not the norm. What is significant here is not that cardinal points change, but how mariners ought to employ them in their route making, route finding, and route marking.

At a time when navigational routes were established not through maps, but by descriptions, mostly verbal and sometimes written, and when the role of apprenticeship and situated empirical experience mattered greatly, the location that counted was that of the observer who navigated. Mariners learned to find their way through knowledge of the environment, signs of nature, and the experience of others. It was only in the seventeenth century that geographical coordinates, in the style used by Mercator's projection, began to be used for navigation (and even then, mostly in official documents of governments and business).

20 Juan Escalante de Mendoza, *Itinerario de Navegacion de Los Mares y Tierras Occidentales 1575* (Madrid: Museo Naval, 1985), 65–66, emphasis added, translation mine.

The difference between a situated experience of location/sense of direction (e.g., taking one's bearing from a specific place), and one based on established reference points or lines (e.g., the Greenwich meridian) comes to the fore when setting standards on how and when routes are to be traveled. As a political scientist, I view this phenomenon as one of power relations, whereby routes become objects of governance for the purpose of efficiency, order, and, in this particular case, imperial control. This was precisely context in which Escalante de Mendoza wrote the excerpt above, and it justifies a deeper discussion of his background, to which I now turn.

Juan de Escalante de Mendoza (ca. 1545–?) was a captain in the *Carrera de Indias* (henceforth, *Carrera*), the Spanish commercial route established in the early sixteenth century linking Seville with the Americas through the Caribbean.²¹ Although he enjoyed a privileged upbringing, his training as a mariner was fairly typical of the period.²² Having been apprenticed by his uncle, a captain in Seville, he acquired his own ship by age eighteen, and acted as master, pilot, and later, captain of *naos* of the fleets in the *Carrera*. At the time of writing his *Itinerario* he was presumably a captain; by 1595 he was *Capitán General de la Armada y Flota de la Nueva España* ("General Commander of the Navy and Fleet of New Spain"),²³ a highly desirable post in the Spanish naval establishment.

The purpose of his *Itinerario* was to address an urgent practical problem within the fleets of the *Carrera*: the lack of uniformity and quality of knowledge among marine officers at a time of commercial and political expansion of the Iberian kingdoms. This was an era marked also by the development of two economic and political pivots in the Hispanic Americas: one in New Spain (Mexico), and the second in Lima (Peru), both driven by the production of silver. In response to the demands of the moment, a two-fleet system began to operate by 1536, which was reorganized by a *cédula real* in 1561 due to the operational problems it faced. The first fleet, that of New Spain, would concentrate on the routes between Seville and Veracruz, with a variant to Honduras and would depart from April to May. The second, that of *Tierra Firme*, would sail between Seville and Nombre de

21 Sergio Rodríguez, *La Carrera de Indias (La Ruta, Los Hombres, Las Mercancías) / La Huerta Grande* (Madrid: Esles de Cayon, 2012), <http://www.lahuertagrande.com/publicacion/la-carrera-de-indias-la-ruta-los-hombres-las-mercancias/>.

22 See Pablo E. Pérez Mallaina, *Spain's Men of the Sea: Daily Life on the Indies Fleets in the Sixteenth Century*, tr. Carla Rahn Phillips (Baltimore: Johns Hopkins University Press, 2005), <https://jhupbooks.press.jhu.edu/title/spains-men-sea>.

23 Escalante de Mendoza, *Itinerario de Navegacion de Los Mares y Tierras Occidentales 1575*, 10–11.

Dios/Portobello with departures in August, and would handle commerce with Peru across the Isthmus. Each fleet would be escorted by an armada (an armed naval escort), would winter in America, and would reconvene in Havana in March for a return voyage, escorted by the joint armadas in the form of a war fleet.²⁴

The fleet system, and the growing volume of vessels and cargo on the move (with its associated logistical, nautical, naval, and manpower needs), required some form of what today would be called standardization of knowledge, procedures, and practices. Escalante de Mendoza's contribution to the problem, as he notes at the start of the *Itinerario*, was to put his expertise in the service of the crown (and the Catholic faith) by providing a text that would help mitigate the ignorance, lack of experience, and risky behaviour of (mostly) masters, pilots, and captains.²⁵ He did so by means of a Socratic dialogue between an apprentice, Tristán, and a well-experienced pilot sailing from Seville to the Caribbean with the New Spain fleet. The pedagogical style chosen, in line with classical Greek and Latin texts, allowed him to use the curiosity of the student to seek answers he thought an apprentice would be required to know; and let the wisdom, knowledge, and experience of the master shine, whilst circumventing the problem of social class and rank that at times characterized the higher echelons of the command of the fleets. Rather than using the patronizing language of master to acolyte, Escalante de Mendoza fostered humility in the reader so that they might absorb the latest in cosmography, navigation, and a little of the art of war at sea—and did so in a way that would not insult a hierarchical order.

In sum, the *Itinerario* was intended to address a problem in the training of nautical officers and to create a commonality of knowledge that would allow for the safer operation of fleets in the *Carrera*. Although so intended, the text was found to be of such strategic relevance that authorities at the Council of the Indies, advising the king on all American matters, kept it unpublished to prevent enemies and competitors from using it. It was only published, as an antiquarian text, in 1880.

The text is here employed as a historical-epistemological source that allows a reflection on the problem of cardinality. Moreover, it constitutes a privileged epistemic source, given how Escalante de Mendoza blended practical situated knowledge of the profession and the routes with the

24 Pierre Chaunu, *Sevilla y América siglos XVI y XVII* (Sevilla: Universidad de Sevilla, 1983), esp. 196–197.

25 Escalante de Mendoza, *Itinerario de Navegacion de Los Mares y Tierras Occidentales 1575*, 20.

cosmographical science of the era. The question guiding this inquiry is not what cardinality meant, then, but how “practitioners” of navigation and the art of sailing understood it, empirically and theoretically, and what sets of beliefs, practices, knowledges, and disciplines participated in its construction.

To set up the epistemological site that could be explored in more detail in subsequent work, I will now highlight some salient aspects of this excerpt.

First, note the group identity underlying the statement. The pilot refers to “we mariners,” pointing to a group of people who practice navigation at sea with a particular collective consciousness. Throughout the *Itinerario*, mariners are depicted as members of a highly specialized profession, with a hierarchy of knowledge and practice, with levels of recognition and authority deriving from the institutions of the crown, with specific empirical and theoretical knowledge, with faith-related elements (such as particular saints they venerated), and with ways of disciplining members into a particular order. As a corporate body, the statement claims “their” way of giving “the four angles or points of the world” a name. In this case, for the purpose of understanding “the part named Occident.”

This leads to the second observation, regarding the “Occidental” alignment of the mariner’s imaginary. The pilot’s statement (“so that based on that, the part named Occident can be understood”) begs the question: why Occident and not Orient, or north, or south? The answer lies in a chief spatial concern of the Spanish enterprise of the time: to sail west to reach the East, as elaborated recently by Ricardo Padrón.²⁶ An occidental spatialization stamps the imaginary of the Hispanic mariner of the time—Occident is what the mariner “faces,” and all cardinal references are subordinate to that angle. There is of course much more to explore here; for the present, it is sufficient to note that an Occidental spatial imaginary is a radical shift from the easterly one found in the Middle Ages, and the southerly gaze of Indian Ocean and Chinese mariners of the time.

Third is the consciousness of navigating the roundness of the globe. By the time of the *Itinerario*, coinciding with Drake’s circumnavigation (and fifty years after Magellan and Elcano’s), a European mariner’s imaginary was already spatially global, and as such, required cardinal references to stabilize it. The Occident refers to a particular part of the world that had been geopolitically repartitioned and that constituted the frontier for imperial exploration and trade in competition with other regions of the world.

26 Ricardo Padrón, *The Indies of the Setting Sun: How Early Modern Spain Mapped the Far East as the Transpacific West* (Chicago: University of Chicago Press, 2020).

Fourth is the mariners' consciousness that theoretical and empirical knowledge operate together in the practice of navigation. When the pilot refers to the rhumbs of the compass, he is revealing how the science of cosmography has permeated his imaginary. When he states that the Occident is the area "within the eight quarters from southeast to northeast," he is using technical cosmographical terminology for the purpose of giving stable meaning to a label—a label important to the route and imperial practices which he serves. On the other hand, throughout the *Itinerario*, the pilot emphasizes the role of the senses in helping the mariner fix his location at sea. Thus, the pilot must derive information from *feeling* how the vessel sounds and moves in relation to the waves, currents, winds, and changes in pressure and temperature, and grasp how these and other sensory indications might signal imminent arrival in familiar places or regions.

Fifth, the legacy of cosmological sediments in the spatial imaginary of the mariner should not be overlooked. The use, for example, of terms such as Septentrional, Meridional, Oriental, and Occidental reveals a Greco-Roman heritage, albeit Christianized, that coexists with terms such as North and South (poles), and "the rhumb of *Leste*," betraying the permeation of a Nordic-Germanic cosmology into a contemporary oceanic spatial imaginary. The recourse to these mixed cardinal labels helps reveal the syncretic cultural character of cardinality in this period, a thesis that can be explored further, for example, in cartographical practices of the time.

Sixth, there is an embodied component to the spatial awareness of the mariner. The expression "we imagine a man who stands, with opened arms as in a cross, pointing with the right arm the North Pole, which part we call Septentrional" indicates how the body operates as metaphor for the physicality of space as understood by the mariner. The direction in which the "man" faces discloses a hierarchy of space rooted in the idea of Occident upon which the *Carrera de Indias* route is premised. After all, the man could have faced south, as in analogous instructions from most other contemporary sailing cultures. The adoption of Occident in this case signifies the new imperial spatial frontier, the direction that draws the body facing it. The "cross" element of the statement could be interpreted as well, in line with an observation I have made in relation to my analysis of the lines of Tordesillas and the Tropic of Cancer in the *Carta de Juan de la Cosa*, as a crusading element in an imperial redemption enterprise.²⁷

27 Luis Lobo-Guerrero, "Mapping the Invention of the Early 'Spanish' Empire," in *Mapping, Connectivity, and the Making of European Empires*, ed. Laura Lo Presti, Filipe dos Reis, and Luis Lobo-Guerrero (London: Rowman & Littlefield, 2021), 19–50.

And seventh, perhaps most importantly for the argument made in this chapter, is the problem of relational and referential cardinality in the mariner's spatial imaginary. The statement "this account and repartition, it must be observed, *relates to the horizon of whomever considers it*" indicates the mariner's consciousness of his position in the cardinality problem. Position matters in relation to the horizon considered by the observer, in this case, the situated mariner, who makes decisions with regard to navigation *in situ*. The mariner is cognizant, however, of a referential cardinality relevant to the totality of the enterprise and to the operation of the route and its further development. With his remark at the end of the excerpt ("we shall call Occident, in the discourse of our navigation, the seas and lands located within the eight quarters from southeast to northeast, *with respect to where we are now*"), the pilot makes sure that relational cardinality is not an anarchical spatial strategy. In giving credence and importance to the mariner's own horizon in a given location, he makes the imperial route, stabilized through a referential cardinality, possible.

6.4. Fourth Problem: Cardinality as an Art of Wayfinding

A second example that lends itself to such historical-epistemological analysis is a part of the *Itinerario* where Escalante de Mendoza alerts the reader to the contingent character of cardinality for navigation at sea.

In the following passage, the pilot reacts to the curiosity of his apprentice with regard to the problem of knowing, with relative certainty, one's location at sea, at a time (it bears repeating) prior to the use of longitudes or coordinates as "stable" points of reference for wayfinding and route-making. It relates to the combination of three elements that allow for the governance of a ship towards an intended destination.

Tristán: What certitude is there, sir, that the bearing is sure and certain, and that a ship follows the way pointed by its bow; because it seems to me that in many cases bearings could be wrong due to the bad government of the ship, or an erroneous or badly balanced or insufficiently magnetized needle, or because contrary currents and winds take the ship out of its intended rhumb and bearing.

Pilot: Of three guides, sir, must a mariner at sea make use to certify the way and navigation of a ship.

The first guide is the needle for navigation that always shows the same point with regard to the horizon, and in the same way shows the rhumb

and way towards which to govern the ship, and from which the desired altitude [with respect to the equinox] can be taken.

The second guide is the altitude that is taken of the sun or of the north, from which it can be known, with certainty, how much a man departs from the equatorial line to any of the parts of north or south, and from which it is possible to know if the intended sailing rhumb is correct.

The third is imagination, the fantasy that the good mariner should always employ in relation to knowledge and experience of the ship and all things nautical, tracing and encompassing the route followed by the ship, noting every day in his chart or regiment, comparing it with the altitude, direction, and rhumb through which it sails;

[...] and thus, nobody should sail without using these three guides: direction, altitude, and fantasy, since a bearing will be certain when all three concur, almost jointly, or at least those of direction and altitude; because fantasy serves as instrument so that no notable error is made, and altitude and direction serve as sufficient proof for the man to certify if the trace and fantasy of its understanding is true or false.²⁸

When reading the passage above in relation to the analysis offered of the previous excerpt, it might appear, at first, a contradiction to say that the mariner could exercise discretionary judgment when ascertaining his position at sea. When the pilot states that the “first guide is the needle for navigation that always shows a same point with regard to the horizon, and in the same way shows the rhumb and way towards which to govern the ship, and from which the desired altitude [with respect to the equinox] can be taken,” he is claiming that there is a stable point of reference for confirming direction (magnetic north), and a stable parallel line at the equinox from which to determine latitude. This he offers as a matter of fact, a fact that relies on an instrument (the compass) for establishing a continuous reference; instruments for finding the latitude of the vessel (the marine astrolabe and the cross-staff); and the instrument of the mariner's expertise. In other parts of the text he mentions how the compass should be prepared, maintained, and calibrated, indicating how the functionality of such instruments is the result of the agency of the mariner and the expert, rather than inherent in the tool. In sections devoted to the practice of finding latitude, either by reference to the sun or to the North Star, he takes pains to alert his interlocutor to the role the mariner plays in using the instrument,

²⁸ Escalante de Mendoza, *Itinerario de Navegacion de Los Mares y Tierras Occidentales* 1575, 204.

and how an erroneous interpretation of the observation could lead to false certainties. Where is there room for the discretion of the mariner if, in principle, what was needed to reach a destination was simply proper use of instruments and following a course until the desired latitude was reached?

The idea of contingency relates to how certain events or conditions are not always necessary or indispensable for something to be possible. It involves the consideration that there is leeway for discretion to do things differently (for example, variously interpreting results obtained from instruments designed to provide information about a particular phenomenon). It follows that the idea of contingency casts a given actor as a deciding subject, who exercises discretion at certain moments. The importance of contingency, when reflecting on cardinality, is that it showcases the awareness and agency of navigators in their activities. The sixteenth-century mariner is not merely a subject of power, or of cosmographical knowledge, but is an agent, who interprets specific contexts, makes decisions, creates opportunities, and employs resources in creative ways when needed.

A key to comprehending the contingent agency of the mariner when ascertaining location is the pilot's third guide, that of imagination. For Escalante, imagination refers to the complex set of knowledge, experience, and discretion the mariner draws on when employing cardinality aboard. Imagination is not understood as dismissive of reality, but quite the opposite. Perhaps the best way to appreciate what he refers to here is by comparison to the present-day notion of "the imaginary."²⁹ An imaginary is not imagined ideas, but an empirical/intellectual space where the real is constituted and can be understood and interrogated. To give an example, an imaginary of sailing is not simply the result of the logical implementation of maneuvers in relation to navigational information and techniques. It involves these components, of course, but in careful interaction with, and reaction to, sensory data obtained from natural phenomena (such as winds, currents, waves, climate, and fauna), as well as awareness of economic, political, environmental, and social conditions that would make routes navigable, or not, at given times. It also incorporates the cosmology of the mariner, his belief systems and fears, his schooling and socialization, and the cultural context at hand. The training of the mariner, and his experience at sea, together with his discretion in acquiring and interpreting sensory information (remote or situated), become part of the imaginary of navigation. Assumed as such, an imaginary of navigation places the mariner as the central actor of the

29 Cf. Luis Lobo-Guerrero, Suvi Alt, and Maarten Meijer, eds., *Imaginaries of Connectivity: The Creation of Novel Spaces of Governance* (London: Rowman & Littlefield, 2019).

practice of sailing, an actor who is far from stable and predictable, and is highly adaptable to changing and emerging circumstances.

It is possible then to observe that when deciding on the right course to follow aboard a ship, a pilot employs relational cardinality as expressed in the quote above. To follow a route, however, is not a matter of merely following a fixed direction. It is instead the complex result of a relation between the mariner and his imaginary, the context (which was greatly influenced by natural elements), and the intended objective (to head towards a particular location). A mariner would have to react to shifting weather conditions and unpredictable situations, including the morale of the crew and the capacity to maintain navigability of the vessel, through mutable circumstances. Such an imaginary relates as much to acquired knowledge as to decisions made *in situ* based on the acumen of experience and specific contexts.

Conclusion: Referential Cardinality as Navigation

By now, two dimensions of cardinality have been shown to be at play in the work of Escalante de Mendoza. On the one hand, there is a cosmographical facet, which employs cardinal points as geographical references for wayfinding across the globe. This, as noted, has cosmological grounds. By the sixteenth century, Europeans relied on north, south, east, and west to constitute a grid of intelligibility that allowed for identifying sites on a global terrestrial space. With the inscription of a wind rose on any part of a visual representation (for example, on a sea chart), space is divided into rhumbs that indicate directions to be followed to reach destinations. However, the stability of such a grid of intelligibility was found to be affected by a phenomenon still poorly understood at the time: magnetic declination. Finding ways to account for the difference between the true north and magnetic north forced the mariner to use cardinal points as references, but not as absolute markers, for directionality.

On the other hand, mariners knew all along that what mattered for them was not what charts could show, with their problems of scale, projection, and accuracy, but what they experienced of their location. For them, the main interest was in knowing where they were in relation to their origin and destination. This seemingly banal concern required an advanced capacity for wayfinding that relied in part on instruments, but mostly, on the mariners' capacity to employ them, interpret the information they gathered from them, and combine such data with their situated expertise and experience at sea. Referential cardinality is connected with the capacity of the mariner to

bring all this to bear when wayfinding, permitting the recording (logging) of a trajectory in a systematic way.

Throughout the *Itinerario*, Escalante de Mendoza traces a constant negotiation of spatial empirical experience (acquired through apprenticing, training, studying, and long years of problem-solving at sea) with the higher-order theoretical reflections on space that came with cosmographical knowledge. Obedient to the teachings of the ancient geographers, and cognizant of the latest knowledge in relation to the use of instruments for establishing altitude, Escalante de Mendoza instructs his readers in the art of combining both, in a way that supports the operation of a commercial route of vital importance to the crown he served. In this way, he retains the pragmatism of cardinality for navigation, integrating the commercial, political, economic, cultural, and even religious dimensions of the enterprise, while reminding the reader of the presential character of the mariner in the sailing experience. In today's terms, this could be referred to as theoretically informed situated knowledge at the service of a state-centralized commercial venture in a context of an inter-imperial European competition (which some label mercantilism).

It should be noted that Escalante de Mendoza was not the first to make this observation in the intellectual context under which it developed. Already in 1545, Pedro de Medina (1493–1567) alluded to this phenomenon when mentioning *sutileza* (subtlety) as one of the three virtues of navigation.³⁰ For him, *sutileza* meant deftness in making small decisions; adapting to circumstances; employing knowledge and expertise; and being able to create opportunities when needed. What our author does is to explore this virtue in a pedagogical form that might allow an apprentice to acquire a foundation in the art of navigation. And art, it must be stated, is what navigation was all about.

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30 Pedro de Medina, *Arte de navegar* (Valladolid: Casa de Francisco Fernández de Cordova, 1545), Prohemio.

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