

1. Decoding the Oceans: Rutter-Writing and the Emergence of Oceanic Rutters as a New Textual Genre

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Abstract: The emergence of oceanic rutters in the fifteenth and sixteenth centuries constituted a significant shift in the recording and transmission of maritime knowledge. Initially based on earlier traditions, these texts adapted to long-distance voyages by incorporating systematic observations of tides, currents, landmarks, and celestial navigation. While many remained unpublished, rutters circulated among elite scholarly networks, shaping cosmographical debates and influencing later navigational texts. This study examines how oceanic rutters were written, copied, translated, collected, organized, and preserved, highlighting their evolution from practical tools to valued cultural artifacts. Tracing the evolution of rutter writing, this chapter argues that they were essential instruments in redefining maritime space and globalization knowledge.

Keywords: circulation of knowledge, collecting practices, oral transmission, manuscript and printed traditions, textual genres, translation.

Introduction

In 1528, Robert Copland published the first English translation of Pierre Garcie's *Grand Routier de la Mer* in London.¹ This work was a classic of

1 It is possible that Pierre Garcie reworked original Portuguese nautical documents that were compiled in the late 1470s. See David Waters, *The Iberian Bases of the English Art of Navigation in the Sixteenth Century* (Coimbra: [Separata da Revista da Universidade de Coimbra 24], 1970), 7. José Malhão Pereira has recently discovered strong connections between Garcie's rutter and

Mediterranean navigational practices and was published during a time of great textual ferment, in which Atlantic coastal navigation was developing more detailed sailing directions, with a focus on tidal behavior.² The northern European *forma mentis* of this period was characterized by an emphasis on specific coastal areas, short-distance routes, and a “delimited” and “horizontal” space.³ However, deeper changes were already underway as European navigators also had access to newer written tools. Much of such vital navigational information circulated through handwritten texts coming from Iberia.

In the year 1533, John à Borough (Aborough, 1494–1570), a highly skilled and experienced sailor who frequently navigated between the West Countries, France, Ireland, and various ports in the Mediterranean, possessed a well-equipped collection of navigational materials including charts, maps, instruments, and texts. Borough was not an exception to the trend and had access to innovative navigational sources, his professional tools including at least two Iberian texts: a Portuguese book of *ephemerides* and a Spanish rutter.⁴

In the following decades, similar manuscript sources were acquired by André Thevet, the royal cosmographer of France (1516–1592). One such manuscript, the *Livro de marinharia de Manuel Álvares* (Manuel Álvares’s

the earliest Portuguese books of seamanship. See José Malhão Pereira, “Roteiros portugueses, séculos XVI a XVIII. Sua gênese e influência no estudo da hidrografia, da meteorologia e do magnetismo terrestre” (PhD diss., Universidade de Lisboa, 2017), 32, recently transformed into a book (Porto: Fronteira do Caos, 2022). On Pierre Garcie, see also the recent edition by Michel Bochaca and Laurence Moal, *Le Grand Routier de Pierre Garcie dit Ferrande. Instructions pour naviguer sur les mers du Ponant à la fin du Moyen Âge* (Rennes: Presses universitaires de Rennes, 2019).

2 David Waters, *The Rutters of the Sea: The Sailing Directions of Pierre Garcie: A Study of the First English and French Printed Sailing Directions with Facsimile Reproductions* (New Haven: Yale University Press, 1967).

3 On this topic, see Matthew Boyd Goldie, “An Early English Rutter: The Sea and Spatial Hermeneutics in the Fourteenth and Fifteenth Centuries,” *Speculum* 90, no. 3 (2015): 701–727 (especially 704), <https://www.jstor.org/stable/43577433>.

4 An inventory of items is included in the petition submitted to the High Court of Admiralty regarding the loss of two sea chests. According to Baldwin, the Portuguese book of *ephemerides* in question could be the *Repertório dos tempos* (Repertoire of Times), which was published by Valentim Fernandes in 1518. See R. C. D. Baldwin, “The Development and Interchange of Navigational Information and Technology between the Maritime Communities of Iberia, North-Western Europe and Asia, 1500–1620” (Master’s thesis, Durham University, 1980), 76. The Borough’s nautical instruments consisted of a Portuguese *balestilha* (cross-staff) and two Spanish compasses, as noted by Sarah Tyacke, “Chartmaking in England and its Context, 1500–1660,” in *History of Cartography*, ed. David Woodward, vol. 3, part 2 (Chicago: University of Chicago Press, 2007), 1738.

book of seamanship), currently housed in the National Maritime Museum, Greenwich, bears Thevet's ownership mark.⁵ This extensive collection of nautical materials was not the only maritime technical source to which Thevet had access. Thevet was known to be skilled in the practice of rutter-writing and had firsthand knowledge of a vast array of oceanic sailing directions.⁶

Iberian nautical writings were widely circulated, copied, read, and translated during this period. Another remarkable example is a navigational manual used by Francis Drake (1540?–1596) during his voyages. This manual, which was translated from Portuguese and Spanish to English, contained the descriptions of European and Brazilian sea routes, as well as a rutter for navigating the Strait of Magellan. However, Drake was not completely satisfied with simply appropriating the writings of the Iberian pilots. He aimed to extract more and more oceanic knowledge from Nuno da Silva and Alonso Sánchez Colchero, valuable prisoners under his control. To this end, Drake personally took extensive notes of his conversations with these experienced pilots, placing Iberian knowledge at the heart of a rich, multilingual tradition.⁷

Another significant example of manuscript dissemination can be found in the logbooks of João de Castro (1500–1548), a Portuguese viceroy and

5 The codex was previously owned by the historian Charles R. Boxer. See National Maritime Museum, Greenwich, *Roteiro de Nauegaçam daqui pera y India*, ms. P/31.

6 Prior to Hakluyt's publication, Thevet was familiar with Jean Alfonse de Saintonge's rutter and other travel accounts. On this topic, see P. E. H. Hair, "Some Minor Sources for Guinea, 1519–1559: Enciso and Alfonse/Fonteneau," *History in Africa* 3 (1976): 19–21; Roger Schlesinger and Arthur P. Stabler, *André Thevet's North America: A Sixteenth-Century View. An Edition–Translation* (Kingston: McGill–Queen's University Press, 1986) XXVII–XXIX. Nuno Vila-Santa has authored several works on the Portuguese policy of secrecy (*política do sigilo*) and the parallel, uncontrollable circulation of sensitive information. See, among others, his recent book: Nuno Vila-Santa, *Knowledge Exchanges between Portugal and Europe: Maritime Diplomacy, Espionage, and Nautical Science in the Early Modern World (15th–17th Centuries)* (Amsterdam: Amsterdam University Press, 2024).

7 For information on the manual that Drake translated into English, see Richard Boulind, "Drake's Navigational Skills," *The Mariner's Mirror* 54, no. 4 (1968): 349–371, <https://doi.org/10.1080/00253359.1968.10659458>. On Nuno da Silva, see the recent study by José María Moreno Madrid and David Salomoni, "Nuno Da Silva's *Third Relation*: An Unknown Report on Francis Drake's Voyage (1577–1580)," *Terrae Incognitae: The Journal of the Society for the History of Discoveries* 54, no. 1 (2022): 64–82, <https://doi.org/10.1080/00822884.2022.2048246>. Further examples of English translations of Spanish maritime texts can be found in the work of Christine Marie Petto, "Chart Making in England and France, and Charting in English Channel," in *Mapping and Charting in Early Modern England and France: Power, Patronage, and Production* (Lanham: Lexington Books, 2015), 80–85. See in particular the subchapter "Sixteenth-Century Sailing Directions in England and France."

governor. These texts, which were influenced by the mathematician Pedro Nunes (1502–1578), who served as Castro's "cosmographic advisor,"⁸ were renowned for their innovative approach to key nautical issues and included rigorous scientific discourses and systematic observations. Some scholars even considered Castro a pioneering author in the evolution of oceanic rutters as a genre.⁹ Castro's logbooks enjoyed far-reaching circulation until at least the early eighteenth century. Evidence of their influence can be seen in many texts. Simão de Oliveira included close readings of the *Roteiro de Lisboa a Goa* (Rutter from Lisbon to Goa, 1538) in his art of navigation, which was printed in Lisbon in 1606.¹⁰ Lengthy passages from the logbook were copied and adapted into instructional chapters on navigating the Indian Ocean. Oliveira used Castro's work almost verbatim, indicating a thorough knowledge of it.¹¹ In addition, the *Roteiro do Mar Roxo* (Rutter of the Red Sea, 1541) was translated into English and published by Samuel Purchas in his travel anthology in 1625, preceding any Portuguese publication.¹² Interestingly, Purchas acknowledged the exceptional nature of Castro's text, claiming that it provided "a more full intelligence of the Red Sea, than any other Rutter I have seen."¹³ This text continued to be translated into various languages until the mid-eighteenth century. As such cases

8 Bruno Almeida portrayed Pedro Nunes as a *consultor cosmográfico* (cosmographic advisor) for Castro's voyages. See Bruno Almeida, "A influência da obra de Pedro Nunes na náutica dos séculos XVI e XVII: um estudo de transmissão de conhecimento" (PhD diss., Universidade de Lisboa, 2011), 149.

9 For further insights, see the substantial contribution of Charles R. Boxer, "Portuguese roteiros, 1500–1700," *The Mariner's Mirror* 20, no. 2 (1934): 174–176. <https://doi.org/10.1080/00253359.1934.10655747>.

10 The first edition of the text is a nineteenth-century transcription by João de Andrade Corvo, *Roteiro de Lisboa a Goa, por Dom João de Castro* (Lisboa: Typ. da Academia Real das Sciencias, 1882). Full bibliographical information on all editions and translations of Castro's rutters can be found in Luana Giurgevich, "Roteiros portugueses dos séculos XV e XVI (Manuscritos)," *RUTTER Technical Notes Series* 7, no. 1 (April 30, 2021): 52, <https://doi.org/10.6084/m9.figshare.14529084>.

11 A good example is the chapter "Como se deve navegar do Cabo das Correntes para Moçambique" (How to Navigate from the Cape Correntes to Mozambique). See Simão de Oliveira, *Arte de navegar* (Em Lisboa: Por Pedro Crasbeeck, 1606), 155–156. Leonor Pedro has performed a comprehensive historical reconstruction of the sources used by Simão de Oliveira in his *Arte de navegar*. See Leonor Pedro and Luana Giurgevich, "Simão de Oliveira: A Forgotten Rutter (1606)," *RUTTER Technical Notes Series* (forthcoming 2025).

12 For an in-depth analysis of the circulation of Castro's manuscripts, see Roger Lee de Jesus, "As 'Tábuas dos Roteiros da Índia' de D. João de Castro da Biblioteca Geral da Universidade de Coimbra: novos dados," *Boletim da Biblioteca Geral da Universidade de Coimbra* 51 (2021): 75–116. On Samuel Purchas see, especially, 81–83, https://doi.org/10.14195/2184-7681_51_3.

13 Samuel Purchas, *Purchas his Pilgrimes in Five Bookes ... The Second Part* (London: Printed by William Stansby for Henric Fetherstone, 1625), 2:1122.

indicate, rutters and logbooks were progressively reaching and engaging a broader audience.¹⁴

While Purchas's activities fall neatly into a longstanding trend, it is surprising how quickly rutters gained new readers. Since the early 1500s, intellectuals in Central Europe were well apprised of recent Iberian maritime activities. Despite being based in landlocked Nuremberg, Johann Schöner (1477–1547) was up-to-date on the long-distance oceanic voyages of his time, and provided his audience with recent data derived from contemporary oceanic rutters. Schöner's comprehensive cosmographic treatise, *Luculentissima quaedam terrae totius descriptio*, published in 1515, translated sailing directions used by the naval fleets of Jorge de Aguiar and João de Sousa de Lima a few years earlier, between 1508 and 1513.¹⁵ These nautical and technical writings, both preserved and lost, represent some of the earliest written records addressing the new challenges of oceanic navigation.

With Vasco da Gama's expeditions, the Portuguese began to sail regularly to India, and the Cape of Good Hope marked the start of navigation across the waters of different oceans. A proliferation of writings followed almost immediately.¹⁶ Portuguese ships were crewed not only by sailors but also by soldiers, civil servants, merchants, and missionaries, all of whom recorded pieces of the newfound oceanic knowledge being accumulated through letters, travelogues, treatises, logbooks, rutters, charts, and other texts. Often, these non-professional agents directly influenced the course of navigation, contradicting the pilots, each with their own nautical charts in hand, eager to contribute to the oceanic voyage. All these elements contributed to the emergence, in the words of the Portuguese scholar Joaquim Barradas de Carvalho, of "a new literature" with "new authors," including both "navigation technicians," and authors that "do a bit of everything: and are simultaneously *roteiristas* (authors of rutters), geographers, cosmographers, and at times, historians and chroniclers."¹⁷ After the 1480s,¹⁸ rutter-writing became a sys-

14 The subject of translations is also covered in Giurgevich, "Roteiros portugueses," 64.

15 The only existing traces of these rutters are in Schöner's text. See Juan Gil, "Johann Schoener y los descubrimientos geográficos," in *Uma vida em História. Uma homenagem a António Borges Coelho*, ed. António Dias Farinha, José Nunes Carreira and Vítor Serrão (Lisboa: Caminho, 2001), 235–263. I am grateful to Professor Henrique Leitão for providing this information.

16 Rui Manuel Loureiro, "Indian Ocean, European Exploration," in *Literature of Travel and Exploration: An Encyclopedia. Volume one, A to F*, ed. Jennifer Speake (London: Routledge Taylor & Francis Group, 2013), 607.

17 Joaquim Barradas de Carvalho, *O Renascimento português: Em busca da sua especificidade* (Lisboa: Imprensa Nacional-Casa da Moeda, 1980), 17.

18 The first evidence of rutter-writing emerged during this period. For a comprehensive list of Portuguese manuscript rutters, see Giurgevich, "Roteiros portugueses," 1–158.

tematic practice in Iberia. The growing demand for detailed sailing directions was driven by the increasing complexity of long-distance navigation and the recognition of sea routes as a sign of global interconnectedness. On another level, rutter-writing gradually became standardized and highly regulated by the Iberian Crowns during the late sixteenth century and played a crucial role in the professionalization of Iberian pilots and cosmographers.¹⁹ The unprecedented oceanic expansion fostered close collaboration between “practical men” and “theoretical men,”²⁰ as evidenced in the writing practices of Portuguese cosmographer João Baptista Lavanha (ca. 1550–1624). In the 1595 dedication of the *Regimento náutico*, written under the auspices of King Philip II, Lavanha stated that he had altered the original text deposited in the Escorial, based on recent productive discussions with sailors. He felt the need to revise the text and eliminate “the most speculative [issues], less suited to their practice.”²¹ Lavanha’s collaboration with pilots was so deep-rooted that it challenged the conventional notion of rutter authorship. It is impossible to quantify Lavanha’s contribution in the production of rutter texts;²² he fits perfectly into the category of “new authors” (i.e., those authors that “do a bit of everything”) described by Barradas de Carvalho. Notably, the royal cosmographer was involved in the preparation of the posthumous edition of the final volume of Barros’s *Ásia* (printed in Madrid,

19 The Portuguese royal cosmographer, Manuel de Figueiredo, considered rutters to be a critical component in the evaluation of pilots and included them in his *Hydrographia, exame de pilotos*, which was first published in Lisbon in 1608 by Vicente Álvares. See Manuel de Figueiredo, *Hydrographia, exame de pilotos, no qual se contem as regras Que todo Piloto deve guardar em suas nauegações, assi no Sol, variação dagulha, como no cartear, co[m] algu[m]as regras da nauegação Leste, Oeste, com mais o Aureo numero, Epactas, Marès, & altura da Estrella Pollar. Com os Roteiros de Portugal pera a India, & Malaca, segu[n]do Vicente Rodriguez Piloto Mór, & agora nouamente pellos Pilotos modernos. Com mais os Roteiros do Brasil, Rio da Prata, Guiné, S. Thomè, & Angolla* (Em Lisboa: Impresso por Vicente Aluarez, Anno 1608).

20 The idea of an Iberian collaborative environment and the artisanal origins of modern science are discussed by Henrique Leitão and Antonio Sánchez, “Zilsel’s Thesis, Maritime Culture, and Iberian Science in Early Modern Europe,” *Journal of the History of Ideas* 78, no. 2 (2017): 191–210, <https://doi.org/10.1353/jhi.2017.0010>, and Antonio Sánchez, “Charts for an Empire: A Global Trading Zone in Early Modern Portuguese Nautical Cartography,” *Centaurus* 60, no. 3 (2018): 173–188, <https://doi.org/10.1111/1600-0498.12198>.

21 See João Baptista Lavanha, *Regimento nautico* (Lisboa: Em casa de Simão Lopes, 1595), n.p. Interestingly, Lavanha’s work highlights the dichotomy between practical and theoretical knowledge, as represented by two distinct pieces advice to readers: *Ao speculativo matemático* (To the speculative mathematician) and *Ao práctico navegante* (To the practical navigator), while at the same time emphasizing the importance of intellectual training for pilots.

22 António José Duarte Costa Canas provides a clear and effective explanation of the problem related to textual attribution. See António José Duarte Costa Canas, “A obra náutica de João Baptista Lavanha (ca. 1550–1624)” (PhD diss., Universidade de Lisboa, 2011), 48–72.

1615),²³ an activity exemplifying the complex epistemological processes that these “new authors” were known for.

The initial section of this essay elucidates the definition of oceanic rutters, followed by an in-depth analysis of the application of rutter-writing to less technical ambits. Oceanic rutter-writing did not merely produce a crucial tool for long-distance navigation, but also ushered in a historical turning point, changing the way humanity understood the world and space. It thus represented a gateway to shared global knowledge in a manner far surpassing its antecedents.

The second section concerns the idea of shared knowledge, and delves into the contexts in which rutters came to be preserved. The appearance of rutters (in manuscript collections) and their systematic organization (in both manuscript and printed collections) provide valuable insights into the history of the transmission of such texts and their significance, painting a picture of the enduring flow of information at a global scale. While certain authors may have achieved substantial circulation from a numerical standpoint, it was the recognition of oceanic rutters (in their collective form) as a well-defined bibliographical object that represented a true shift in perception.

1.1. The Definition of the Oceanic Rutter

1.1.1. *Categories of Maritime Literature*

When considering textual genres, a multitude of specific criteria, patterns, cultural categories, and formal identifiers come to mind. Several scholars have attempted to clarify the meaning of these writings and have proposed different classification models for Iberian maritime literature, including rutters.²⁴ These classifications have been based on linguistic features and the functions of the texts, with some scholars focusing specifically on the

23 It is noteworthy that Lavanha's revisions of Barros's drafts included the addition of new visual materials. See Armando Cortesão and Avelino Teixeira da Mota, “João Baptista Lavanha, três cartas gravadas na *Quarta Década da Ásia*, 1615,” in *Portugaliae Monumenta Cartographica*, eds. Armando Cortesão and Avelino Teixeira da Mota (Lisboa: Imprensa Nacional-Casa da Moeda, 1987), 4:71–72. For an examination of Lavanha's meticulous editorial adjustments, see Rui Manuel Loureiro, “João Baptista Lavanha, cosmographe portugais, et la chronique d'Asie au début du XVIIe siècle,” *e–Spania* (October 28, 2017), OpenEdition Journals, <https://doi.org/10.4000/e-spania.27316>.

24 Among recent contributions, see the works of António Silva Ribeiro, *A hidrografia nos descobrimentos portugueses*, 3rd ed. (Mem Martins: Publicações Europa-América, 1994); Maria Armada Ramos Taveira, “Os roteiros portugueses do Atlântico de finais do século XV à primeira

scientific and nautical aspects of sixteenth-century travel literature.²⁵ Following the categories proposed by various scholars, the main technical genres include: *livros de construção naval* (shipbuilding books), *livros de marinharia* (seamanship manuals), *guias náuticos/regimentos* (nautical guides and rules), *cosmografias* (cosmographies, atlases, and geographical treatises), *repertórios dos tempos* (almanacs), *diários de bordo* (logbooks), *relações de naufrágios* (shipwreck accounts), and *roteiros de navegação* (nautical rutters).²⁶ However, these categories could be even more extensive, taking into consideration *artes de navegar* (navigation manuals), *exames dos pilotos* (examinations for pilot training), *navegações* (travel accounts of navigation), commercial writings, and other types. The need to distinguish between literary and technical aspects has sometimes led scholars to controversial interpretations. The distinction between rutters and logbooks, for instance, is often debated. Some scholars view logbook narratives as a specific stage in the production of rutters,²⁷ while others treat the two genres as identical. Still others argue they are distinct, each with its own unique characteristics.²⁸ Underlying these discussions are some generally accepted but limited definitions of the genres. A basic definition of a rutter acknowledges its primary purposes of specifying sea routes and providing detailed instructions to pilots, thus ensuring safe navigation.²⁹

The varying typologies suggested by scholars reflect the hybrid nature of maritime texts and the challenges posed by such materials. It is for these

década do século XVII. Elementos para o seu estudo" (Master's thesis, Universidade Nova de Lisboa, 1994); Malhão Pereira, "Roteiros portugueses, séculos XVI a XVIII."

25 See, especially, the categorization of João Rocha Pinto, *A viagem: memória e espaço. A literatura portuguesa de viagens: Os primitivos relatos de viagem ao Índico, 1497–1550* (Lisboa: Sá da Costa, 1989), 57.

26 This is a condensed summary of various genre classifications of early modern Portuguese travel literature. See, among others, Pinto, *A viagem: memória e espaço*; Abel Fontoura da Costa, *A marinharia dos descobrimentos* (Lisboa: Agência Geral do Ultramar, 1960), 409–474; Carvalho, *O Renascimento português*, 18–19; Ana Celeste Silva, "Pilotos e pilotagem nas navegações portuguesas. Da prática do mar à produção escrita (Do século XVI à primeira metade do século XVII)" (Master's thesis, Universidade de Lisboa, 2006), 173–208.

27 Margarita Zamora made distinctions between more traditional and less traditional rutters, interpreting logbook narratives as a less traditional form of rutter. See Margarita Zamora, *Reading Columbus* (Berkeley: University of California Press, 1993), 117.

28 As recently shown by Josiah Blackmore, *The Inner Sea: Maritime Literary Culture in Early Modern Portugal* (Chicago–London: The University of Chicago Press, 2022), 55–65.

29 A definition of nautical rutters within a strictly nautical context was suggested by Jorge Semedo de Matos, "Roteiros," in *Dicionário de história dos descobrimentos portugueses*, ed. Francisco Contento Domingues (Lisboa: Círculo de Leitores, 2016), 2:918–920.

reasons that the present chapter explores not only nautical rutters as such, but also other texts with similar features that may not fit the strict definition of a rutter but would have made sense for a sixteenth-century reader. Such a comprehensive approach is particularly apt for this period, when the definition of rutter was in constant evolution. It is not uncommon when perusing early modern rutters to encounter a shift from the usual style at a certain point; suddenly, the reader is met with the narration of a specific voyage, or with content more typical of a logbook. From a material perspective, the categories referred to in this chapter may consist of fragmented notes, original texts, or copies of specific rutters. They may be adaptations of original rutters to new textual contexts, or physical collections, or even diversified anthologies of texts. The utilization of all these categories aims to shed light on the processes of rutter-writing, rather than establish an inflexible typology into which all texts must fit.

1.1.2. *The Oceanic Rutter*

The use of “oceanic rutter” (*roteiro oceânico*) as a historical classification is not recent. In the late 1960s, Avelino Teixeira da Mota introduced the concept of “oceanic rutter” as a new textual genre.³⁰ But what does “oceanic” really mean? In proposing such nomenclature, Teixeira da Mota added a novel dimension to nautical rutters, shifting the focus from a purely technical representation of sea routes linking distant geographical locations to the expression of navigation as an epistemological experience. Luís de Albuquerque observed that oceanic rutters were not rigid and immutable texts,³¹ but were instead an adaptable genre that evolved over time. The organization of these texts into categories should consider their hybrid nature and their variations in content, form, and structure throughout the centuries.

Later, in 1992, Mariano Cuesta Domingo suggested a new way of examining cosmographical treatises of oceanic origin. He argued that such descriptions were “real charts and maps put into prose” (“son verdaderas cartas o mapas

30 Avelino Teixeira da Mota, “Evolução dos roteiros portugueses durante o século XVI,” *Revista da Universidade de Coimbra* 24 (1968), quoted from *Separata* (Lisboa: Junta de investigações do ultramar, 1969), 31. Other novel oceanic genres were also created, such as Francisco Faleiro’s nautical treatise, as discussed by Carmo Lacerda, “Entre Lisboa e Sevilha: Contribuições náuticas de Francisco Faleiro” (Master’s thesis, Universidade de Lisboa, 2021). See also chapter 2 of this volume by Carmo Lacerda “Sixteenth-Century Nautical Treatises: The Definition of a New Genre of Technical Literature.”

31 Luís de Albuquerque, *Le ‘Livro de Marinharia de Gaspar Moreira’* (Lisboa: Junta de Investigações do Ultramar, 1977), XVI.

puestos en prosa”).³² Subsequently, other scholars expanded this “textual cartography” to encompass new oceanic textual genres such as rutters and itineraries, linking them with an Iberian “vernacular production.”³³ The integration of visual, written, and memorized materials played a crucial role in fostering the growth of a shared oceanic textual tradition among diverse communities. Furthermore, the visual elements endemic to oceanic textual genres shed light on the prevalence of “code-switching” practices in early modern era. By code-switching practices, I refer to the simultaneous employment of multiple codes, including linguistic, numerical, instrumental, visual, memorized, and gestural. In the sixteenth century, a pilot was required to repeatedly alternate between such codes in the exercise of a diverse set of duties, such as handling an astrolabe, analyzing a nautical chart, and taking notes. Such code-switching formed part of a continuous process of knowledge translation.³⁴

Concurrently, the average reader of the time served as a “virtual witness” to oceanic navigation by having access to constantly evolving knowledge that was transformed from one code to another and transmitted through various agents, such as the pilot, cosmographer, cartographer, historian, writer, editor, and printer, among others.³⁵ Each of these individuals played a crucial role in constructing the image of the world. There was a growing number of individuals who became active contributors in shaping a global (oceanic) understanding of the world, many of whom only had indirect

32 Mariano Cuesta Domingo, “La cartografía ‘en prosa’ durante la época de los grandes descubrimientos americanos,” in *Congreso de Historia del Descubrimiento (1492–1556)*. *Actas*, ed. Real Academia de la Historia–Confederación Española de Cajas de Ahorros (Madrid: Real Academia de la Historia, 1992), 286.

33 See Zamora, *Reading Columbus*, 106–114; and on vernacular maritime literature: Antonio Sánchez, “Cartografía en lengua romance: *Las cartas de marear* en los regimientos y manuales españoles sobre el arte y la ciencia de navegar,” *Boletín de la Real Sociedad Geográfica* 146 (2010): 161–187.

34 It is also worth mentioning the continued use of hand gestures in a maritime context for specific calculations. For instance, a collection of seventeenth-century Spanish rutters includes an explanation of how to calculate the dominical letter using gestures, which were crucial for memorization. The method, “Modo de sacar la letra dominical de cualquier año por la mano,” is documented in the Museo Naval, Madrid, ms. 1202, p. 52, and has recently been published by Rodrigo Moreno Jeria and Jorge Ortiz Sotelo, *Un derrotero del Mar del Sur. El Pacífico Americano a fines del siglo XVII* (Santiago de Chile: Ediciones Biblioteca Nacional de Chile, 2018), 21.

35 Steven Shapin and Simon Shaffer introduced the idea of a “literary technology of virtual witnessing,” in which the reader is virtually guided to replicate scientific experiments. However, the context in which the term “virtual witnessing” is used here is distinct. See Steven Shapin and Simon Shaffer, *Leviathan and the Air-Pump: Hobbes, Boyle, and the Experimental Life* (Princeton: Princeton University Press, 1985), 60.

experience with long-distance voyages. The linguistic features present in oceanic rutters, such as the use of a didactic second-person singular or plural, along with visual/textual strategies, facilitated the virtual recreation of these voyages. The utilization of the “how-to format” and synthetic formulas in rutter-writing provided immediacy to the oceanic experience.

Recent studies (in particular the research of Gianna Pomata) have demonstrated that certain literary genres, such as recipe books, should be considered “epistemic genres,” or genres that are “intrinsically social” and actively engaged in scientific “community-building” processes.³⁶ As Pomata explains, the *Observationes* served as a novel form of medical writing, but the genre was confined to the *res publica medica*. The case of oceanic textual genres was somewhat different. Margaret Schotte regards the history of the early modern nautical logbook, spanning from Columbus to Cook, as a failure in terms of epistemic genre. This failure is attributed to the growing diversity of audiences, the deviation from the original purpose of the texts, and the interdisciplinary character of nautical logbooks.³⁷ Yet, despite Schotte’s assessment, it was precisely this adaptable nature that emerged as the oceanic genre’s true strength. By applying the concept of “epistemic genres” to oceanic genres, we recognize that the *res publica nautica* encompassed a broader community of readers and “experiencers” of the sea than might be expected. Oceanic rutters, as tools for a global community building effort, contributed to a flexible and rich narrative, shaping global readership during the early modern era.

1.1.3. *Oceanic Rutters in the “Textual Network”*

Across the early modern period, the experience of long-distance voyages was intertwined with a multitude of textual genres. A closer examination of oceanic rutters reveals their intersections with various categories of writing, in such a way that the same text could belong to two, three, or even more textual types. During the sixteenth and seventeenth centuries, the boundaries between textual genres were porous, as evidenced by the frequent overlap of forms and terminologies; the rutter was no exception,

36 Gianna Pomata, “Sharing Cases: The *Observationes* in Early Modern Medicine,” *Early Science and Medicine* 15 (2010): 197, <https://doi.org/10.1163/157338210x493932>. See also Gianna Pomata, “The Recipe and the Case: Epistemic Genres and the Dynamics of Cognitive Practices,” in *Wissenschaftsgeschichte und Geschichte des Wissens im Dialog / Connecting Science and Knowledge*, ed. K. von Greyerz, S. Flurbacher, and P. Senn (Göttingen: V&R unipress, 2013), 131–154.

37 Margaret Schotte, “Expert Records: Nautical Logbooks from Columbus to Cook,” *Information and Culture: A Journal of History* 48, no. 3 (August 2013): 281–322, <https://www.jstor.org/stable/43737467>.

occupying a position of ambiguity for many early modern authors and readers.³⁸ One example of this ambiguity is the anonymous account of the *Santo Alberto* shipwreck, dated to the late sixteenth century. While the text clearly follows the conventions of shipwreck literature, its introduction surprisingly emphasizes its practical value for navigation. The author explicitly states that the account was written “in the style of a rutter,” with the intention of serving as a guide for all those navigating the India Run.³⁹ In a similar vein, pilot Gaspar Ferreira Reimão (15??–1626) referred to his logbook as a rutter,⁴⁰ and the logbooks of João de Castro were regarded as rutters by both the author and his contemporaries.⁴¹ In 1606, Spanish cosmographer major Andrés Garcia de Céspedes (1560–1611) acknowledged the importance of Castro’s “rutters” as models for Spanish navigators, describing them as recounting each day of the journey from Lisbon to India, including the sea route and the position of the ship confirmed on board by the major pilot and by another figure, called the Doctor.⁴² Although the distinction between logbooks and sailing directions was not always salient to early modern writers, there is a significant difference between the two. The logbook narrative is marked by the passage of time, recorded day by day, with the “space-line” of the voyage defined by the navigational “time-line.” In contrast, contemporary rutters were characterized by their focus on the establishment and institutionalization of an oceanic route to be repeated, rather than a specific voyage. Thus, rutters were devoid of any

38 The nautical instructions of Vasco da Gama and the logbooks of João de Castro are among the most controversial texts, as demonstrated by the categorizations of Max Justo Guedes, “A Carreira da Índia—Evolução do seu roteiro,” *Navigator* 20 (1985): 1–36, and Matos, “Roteiros,” 918–920.

39 Glória de Santana Paula, “Um manuscrito anónimo do naufrágio da nau *Santo Alberto* (1593),” *Limite* 13, no. 1 (2019): 135–157 (especialmente 140–141) <https://revista-limite.unex.es/index.php/limite/article/view/1664>.

40 Gaspar Ferreira Reimão, “Diário da navegação da nau S. Pantaleão, da Índia para Portugal, no ano de 1596,” in *Diários de navegação da Carreira da Índia nos anos de 1595, 1596, 1597, 1600 e 1603*, ed. Quirino da Fonseca (Lisboa: Academia das Ciências, 1938), 284.

41 Dom João de Barros (ca. 1496–1570), who held the position of *feitor da Casa da Índia e Minas* (chief administrator of the Overseas Trades) appointed by the king, wrote about information obtained from the *Rutter of the Red Sea*. See João de Barros, *Segunda decada da Asia de Joa[m] de Barros dos feitos que os Portugueses fizeram no descobrime[n]to e co[n]quista dos mares e terras do oriente* (Lisboa: Impressa per Germão Galharde, 1553), 114r. Historian Charles Boxer reported that Sir Walter Raleigh purchased a copy of Castro’s rutter for a substantial sum in the early 1940s. See Boxer, “Portuguese roteiros, 1500–1700,” 175.

42 Andrés Garcia de Céspedes, *Regimiento de navegacion q[ue] mando haser El Rei nuestro Señor por orden de su Consejo Real de las Indias a Andres Garcia de Cespedes su cosmografo maior siendo Presidente en el dicho Consejo el conde de Lemos* (Madrid: Juan de la Cuesta, 1606).

contingency or unexpected event. Many rutters were written or re-written after multiple navigations, reflecting the accumulation of experience over several years by one or more experienced pilots.⁴³ Logbooks, navigations, and even shipwreck accounts traced a specific sea route, while rutters introduced a different understanding of a ship's path. Logbooks recorded the journey as a straight line, experienced with all its unexpected events, while oceanic rutters transformed the sea route into a "safe space."⁴⁴ Iberian sailors saw the oceanic space as a network of nodes, where known positions, dangers, resources for reprovisioning, and their identifiability guided the movement of the vessel. The primary concern for a pilot was to avoid dangerous shallows or to locate a specific island.⁴⁵ Because the aim of the rutter was to transmit the best possible sea route to future generations, it necessarily takes a form structurally distinct from a logbook. The sea route of rutters was represented by a series of alternatives to potential obstacles, and can be seen as a "broken linearity," with multiple options described. Rutters also allowed for alterations of trajectory, making them different from logbooks. In terms of structural features, rutter-writing introduced zigzagging sea routes, or even circular paths.⁴⁶ It was not, however, devoid of temporal awareness, as it organized time by means of reference to different seasons, monsoons, departure schedules, and other elements contributing to the development of a "narrative of navigational possibilities."

In *The Globe on Paper*, historian Giuseppe Marcocci reflects on how "the mobility of person and goods across different parts of the globe over the centuries generated the perception of a shared history of the world."⁴⁷ This phenomenon gave rise as well to a sense of interconnected narratives, linking the globe in a collective historical and geographical consciousness.

43 The compilations produced by pilots nominated for specific surveys do not fall into this category. An example of such a compilation is the rutter written by Manuel Mesquita Perestrelo, commissioned by King Sebastião (1557–1578). See *Roteiro da África do sul e sueste desde o Cabo da Boa Esperança até ao Cabo das Correntes (1576) por Manuel Mesquita Perestrelo*, ed. Abel Fontoura da Costa (Lisboa: Agência Geral das Colonias, 1939).

44 The concept of an oceanic safe space has been introduced by Brian Patrick Jones, see 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), 216, <https://repositories.lib.utexas.edu/handle/2152/28409>.

45 This aspect is well explained by Jones, "Making the Ocean," and Jorge Semedo de Matos, *Roteiros e rotas portuguesas no Oriente nos séculos XVI e XVII* (Lisboa, Centro Cultural de Macau-Fundação Jorge Álvares, 2018).

46 This idea is exemplified by the *torna-viagem* (homeward run) of the *Carreira da Índia* (India Run), first described in the rutter of Diogo Afonso.

47 Giuseppe Marcocci, *The Globe on Paper: Writing Histories of the World in Renaissance Europe and the Americas* (Oxford: Oxford University Press, 2020), 49.

In this ambiance, oceanic rutters (understood here not merely as tools, but as texts) played a central role. Prominent intellectuals quickly recognized the stylistic and narrative power of oceanic rutters (particularly chroniclers, as mentioned above), viewing oceanic rutters as an expeditious instrument for the historical interpretation of the world. João de Barros (ca. 1496–1570), the Portuguese official chronicler, declared that his work was composed “in the manner of a nautical rutter” (“à maneira de roteiro de navegar”), and that this was the only feasible method for providing a “universal” (global)⁴⁸ description of ports and lands throughout the Oriental world.⁴⁹ Interestingly, while writing his own “rutter,” Barros invited the reader, who had never witnessed the “profile of this Oriental coast,” to use their imagination and visualize the new spaces depicted through words by employing their left hand.⁵⁰ This enabled Barros to make navigation less virtual and more tangible. With a similar goal, the Jesuit Father Mestre Belchior Nunes Barreto (1520–1571) used the rutter as a writing tool in a letter he wrote from Macau on November 23, 1555. In this letter, he promised to draft the “rutter” of the voyage he made with other missionaries from Malacca to Macau.⁵¹ The technical content of rutters transcended textual boundaries, becoming ever more fluid in the process.

It is noteworthy that the term *roteiro* (rutter) appeared in the first volume of the travel collection of Giovanni Battista Ramusio (1485–1557),

48 According to Rui Manuel Loureiro, the *Décadas da Ásia* can be considered “a kind of global history *avant la lettre*.” See Loureiro, “João Baptista Lavanha, cosmographe portugais, et la chronique d’Asie.”

49 See in particular the introduction to the ninth book of the *Primeira decada* in João de Barros, *Asia de Joam de Barros dos factos que os Portugueses fizeram no descobrimento e conquista dos mares e terras do Oriente: Da primeira decada* (Lisboa: Impressa por Germão Galharde, 1552), 150v–106r. Josiah Blackmore has pointed out the similar narrative strategies used in Fernão Lopes de Castanheda’s historiographic writing. See Blackmore, *The Inner Sea*, 61–65.

50 Rui Manuel Loureiro has recently highlighted Barros’s innovative writing techniques, specifically the use of “narrative pauses,” that emphasized the description of geographical (and maritime) spaces. See Rui Manuel Loureiro, “Revisitando as *Décadas da Ásia*: Algumas observações sobre o projecto historiográfico de João de Barros,” *e–Spania* (June 30, 2018), OpenEdition Journals, <https://doi.org/10.4000/e-spania.27836>. On the reader’s awareness of new spaces through the use of hands, see Francisco Roque de Oliveira, “Lançando linhas imaginárias: metageografias da Ásia nas descrições geográficas e na cartografia portuguesa do século XVI,” *Scripta Nova. Revista electrónica de geografía y ciencias sociales* 20, no. 551 (2016): 5, <https://doi.org/10.1344/sn2016.20.17330>.

51 The expression *roteiro da nossa viagem* (“the rutter of our voyage”) is also used by Barreto in another letter related to a journey from Cochín to Malacca (December 3, 1554). See *Cartas que os Padres e Irmãos da Companhia de Jesus, que andão nos Reinos de Japão escreverão aos da mesma Companhia da Índia, e Europa, desde o ano de 1549 até o de 1566 ...* (Coimbra: António de Maris, 1570), 80 and 82.

in the report from Juan Gaitán, the pilot of the Ruy López de Villalobos's expedition. The Spanish pilot described how he was able to uncover the secrets of Portuguese navigation, but at the same time, expressed frustration about the lack of longitude information in the *derotteri* (rutters), the "books that the Portuguese used for navigation."⁵² While the first known definition of a *roteiro* (rutter) was given by Duarte Pacheco Pereira (1460–1533) in the *Esmeraldo de situ orbis* at the beginning of the sixteenth century (1505–1508),⁵³ the term acquired a broader meaning over time. By the end of the seventeenth century, the Portuguese physician João Curvo Semedo (1635–1719), who wrote popular pharmacopoeias, presented his recipe book as a rutter.⁵⁴

We have previously seen the close relationship between compendia of geography, cosmography, and history, and the new information obtained from oceanic rutters. Another example of this "crossing of genres"⁵⁵ can be seen in the *Roteiro Geral* (General Rutter) of Gabriel Soares de Sousa, written in 1587, a crucial text on Brazil with a great number of early modern copies.⁵⁶ Soares de Sousa's text encompasses a wide range of genres, from chronicles to sailing directions, ethnographical writings, administrative descriptions, and geographical treatises, highlighting the susceptibility of these varied modes to integration. When it comes to Soares de Sousa's work, the overlap between different discourses is evident even in the

52 The term "rutter" can also be found in its Spanish form *derrotero*, or Italianized form *derottero*. See "Relatione di Iuan Gaetan piloto castigliano del discoprimiento dell'Isole Molucche per la via dell'Indie Occidentali," in *Primo volume delle Navigazioni et Viaggi ...*, ed. Giovan Battista Ramusio (Venezia: Appresso gli eredi di Luc'Antonio Giunti, 1550), 406.

53 The very first definition of a rutter can be found in the *Esmeraldo de situ orbis* written by Duarte Pacheco Pereira (1505–1508). See the recent digital edition of this text produced by the RUTTER Project: Duarte Pacheco Pereira, *Esmeraldo de situ orbis*, RUTTER Project Edition Digital Collection no. 1 (Lisbon: ERC RUTTER Project, University of Lisbon, 2022), <https://doi:10.5281/zenodo.6498014>.

54 Benjamin Breen has underlined the importance of long-distance travels to the pharmacy profession in Curvo Semedo's work. See Benjamin Breen, "Semedo's Sixteen Secrets: Tracing Pharmaceutical Networks in the Portuguese Tropics," in *Empires of Knowledge: Scientific Networks in the Early Modern World*, ed. Paula Findlen (Abingdon: Routledge, 2018), 343. See João Curvo Semedo, *Polyanthea medicinal: Noticias galenicis, e chymicas* (Lisboa: Officina de Miguel Deslandes, 1697), 633.

55 Maria Antónia Coutinho and Florencia Miranda speak of the "crossing of genres" when a text is inscribed in more than one genre and there are "parameters associated with different genres." See Maria Antónia Coutinho and Florencia Miranda, "To Describe Genres: Problems and Strategies," in *Genre in a Changing World*, ed. Charles Bazerman, Adair Bonini and Débora Figueiredo (Fort Collins: The WAC Clearinghouse-Parlor Press, 2009), 44.

56 All extant copies of Soares de Sousa's rutters have been inventoried by Giurgevich, "Roteiros portugueses," 90–104.

ambiguity of the title: *Roteiro Geral* (General Rutter), *Notícia do Brasil* (News from Brazil), or even *Tratado descriptivo do Brasil* (Descriptive Treatise of Brazil). Thus, while pilots were certainly crucial agents in the dissemination of nautical knowledge, a substantial contribution came from non-pilot authors, such as Gabriel Soares de Sousa. Pilots were nevertheless privileged sources of information. As noted by historian of science Paula Findlen, conversations with well-informed individuals, such as pilots, were part of the *modus operandi* of the Jesuit Father José de Acosta (1540–1600), the author of the *Historia Natural y Moral de las Indias* (Natural and Moral History of the Indies) (1590).⁵⁷ Furthermore, Father Acosta sought to understand the technical aspects of navigation with the help of pilots, whom he referred to as “los maestros desta arte” (“the masters of this art”). For example, his lengthy discussion on the variation of the needle was based on the explanations of an anonymous but *muy diestro* (“very skilled”) Portuguese pilot.⁵⁸ Mediators like Gabriel Soares de Sousa and Duarte Pacheco Pereira raised critical problems of authorship and opened the way for the establishment of a specific subgenre of oceanic rutters that could be called “narrative rutters,” reflecting their joint navigational and literary features.⁵⁹

Of similar significance in the evolution of the oceanic rutter is the appearance of the “rutter of instruction”⁶⁰ (or “legal rutter”) subgenre. These sailing directions were provided in the form of legal instructions to ensure adherence to a specific sea route and were carried on board. Typically, they were brief and succinct, but in some cases, they offered valuable navigational information in greater detail. An exceptional example of a highly detailed

57 Paula Findlen has traced Jesuit networks and found that José de Acosta, a Jesuit Father, spoke extensively with pilots and even inspected their maps. See Paula Findlen, “How Information Travels: Jesuit Networks, Scientific Knowledge, and the Early Modern Republic of Letters, 1540–1640,” in Findlen, *Empires of Knowledge*, 61.

58 In addition to the Spanish pilots of Sarmiento de Gamboa’s expedition to the Strait of Magellan (Hernando de Lameroy y Gallego, and Hernando Alonso), Acosta mentioned a third informant, an anonymous Portuguese pilot. See José de Acosta, *Historia natural y moral de las Indias* (Sevilla: En casa de Juan de León, 1590), 64.

59 This subgenre of early modern rutters will be explored in chapter 5 of this volume, by Fabiano Bracht.

60 The collection of rutters belonging to the pilot major of the Casa de la Contratación in Seville has recently been fully transcribed by Carmo Lacerda and José María Moreno Madrid, “A Remarkable Collection of Rutters, 16th–18th Centuries: Derroteros que hacía el Piloto Mayor para que llevasen los jefes de las embarcaciones que iban a Indias.” *RUTTER Technical Notes Series* 6, no. 1 (March 29, 2021): 1–65, <https://doi.org/10.6084/m9.figshare.14333267>. For a definition of “rutter of instruction,” see especially 4–5.

rutter of instruction is the one carried on the ship *São Pantalião* in 1592.⁶¹ The rutter is organized into multiple chapters, highlighting important aspects of the sea route, such as navigation, sea currents, variation of the needle, geographical landmarks, and winds. This subgenre represents yet another example of the mutability of rutters, and their transcendence of the maritime context.⁶²

1.2. A Bibliographical Perspective: Oceanic Rutters as Collections

It is worth pausing at this point to address some chronological considerations, before approaching oceanic genres bibliographically. The present study examines the production of rutters, both in manuscript and in print, by Iberian authors, particularly Portuguese, from the late fifteenth to the mid-seventeenth century. The absence of documents from the early stages of rutter production (i.e., prior to 1480) does not imply that the practice was not yet established, or that navigational information was not being disseminated. Rather, this lack of evidence can be attributed to the inherent fragility of writing materials, the practical use of these texts for navigation, and their frequent updates. Analyzing the available corpus of rutters, it becomes clear that the surviving examples are in some way distinctive, and that their uniqueness was recognized by early modern collectors and readers alike.⁶³ Both the significance of maritime texts and their history (grounded in reading and book-making practices) are increasingly appreciated, permitting insights into the reception of oceanic technical genres.

61 Artur Teodoro de Matos, *Na rota da Índia. Estudos de história da expansão portuguesa* (Lisboa: Instituto Cultural de Macau, 1994), 163–184.

62 According to Charles R. Boxer, these two ports were considered occasional stops for refreshment and replenishment during the India Run. See Charles R. Boxer, “The Principal Ports of Call in the Carreira da Índia,” *Luso-Brazilian Review* 8, no. 1 (Summer 1971): 3–29, <https://www.jstor.org/stable/3512700>.

63 Comprehensive cataloguing of the early modern rutter corpus is currently underway as part of the RUTTER Project, with a portion of the results already available through its online resources (*RUTTER Technical Notes Series* and *Digital Editions*Beta*: <https://rutter-project.org/digital-editions/>, as well as the related website *A Sea of Books: RUTTER Virtual Library*: <https://www.aseaofbooks.org/>). While other inventories have been published, they are now outdated. A full publication in book format is expected in 2025: Luana Giurgevich, *Bibliotheca roteirística: Rotas oceânicas portuguesas dos séculos XV–XVIII* (Lisboa: Academia da Marinha, forthcoming 2025). Notable previous inventories include Fontoura da Costa, *A marinharia dos descobrimentos*, 409–474, and, particularly for charts and some rutters, Armando Cortesão and Avelino Teixeira da Mota, *Portugaliae Monumenta Cartographica*, 6 vols. (Lisboa: Imprensa Nacional da Moeda, 1960).

Bibliographical approaches to oceanic rutters that consider their geographical and historical context have a long tradition. During the seventeenth century, there were some attempts at compiling maritime bibliographies. One of the most interesting is Antonio de León Pinelo's *Epitome de la biblioteca oriental i occidental, nautica, i geografica* (Epitome of the Oriental and Occidental, Nautical, and Geographical *Bibliotheca*) published in 1629 (Madrid: Por Iuan Gonzalez, 1629), which gives a list of contemporary published books and manuscripts, including recent collections of Portuguese printed rutters. In his introduction (*Discurso apologético* [Apologetic Discourse]), León Pinelo emphasized the importance of texts such as “derroteros, viages, cartas y relaciones” (“rutters, voyages, letters, and relations”), and “colectores de libros de Indias” (“collectors of books on India”).⁶⁴

From very early on, oceanic rutters were seen as key components in a wider story, providing compelling epistemological insights that were validated and shared well beyond the community of scientific practitioners. Valentim Fernandes (ca. 1450–1518?), a German printer, translator, and informant who settled in Lisbon around 1490, played a crucial role in this regard. His codex (known as the *Manuscrito Valentim Fernandes* [Manuscript of Valentim Fernandes]) contained a collection of Portuguese sailing directions, significantly titled *Este livro é de rotear* (“This book Is for Navigation”). The collection brought together sailing directions and non-technical documents related to long-distance voyages. Fernandes's contribution to the field was unique in many ways, since very few works related to the Portuguese expansion and, specifically, navigational knowledge, were printed in the first half of the sixteenth century. Indeed, most belong to Fernandes's publications.⁶⁵ As such, Fernandes stood at the intersection of various textual genres, interested not only in travel literature per se, such as Marco Polo's voyages, but also in more technical and scientific works such as rutters, ephemerides, and regiments.⁶⁶

64 Antonio de León Pinelo, *Epitome de la biblioteca oriental i occidental, nautica, i geografica* ... (En Madrid: Por Iuan Gonzalez, Año de 1629). León Pinelo's work served as a reference and model for other authors, such as Nicolás Antonio, *Bibliothecae hispanae sive scriptorum hispanae gentis* ... (Roma: Ex Officina Nicolai Angeli Tinassi, 1672).

65 See, among others, Baldwin, “The Development and Interchange of Navigational Information,” 76–77. On Valentim Fernandes, see the study of Yvonne Hendrich, *Valentim Fernandes. Ein deutscher Buchdrucker in Portugal um die Wende vom 15. zum 16. Jahrhundert und sein Umkreis* (Frankfurt-am-Main: Peter Lang, 2007).

66 Valentim Fernandes published the *Regimento do astrolábio e do quadrante* in 1509, and the text can be found in the reprint of the *Histoire de la science nautique portugaise à l'époque des*

Until the end of the sixteenth century, Iberian oceanic sailing directions circulated mostly in manuscript form. Evidence of organization of these sailing directions into collections can be found in the so-called *livros de marinharia* (Portuguese books of seamanship), which were personal artefacts compiled by pilots themselves.⁶⁷ These collections took the form of long, disorganized notebooks embracing miscellaneous texts, concepts, and ideas that the pilots deemed relevant for their own use. While the *livro de marinharia* may appear chaotic in nature and could be defined as a nautical *zibaldone* (hotchpotch),⁶⁸ they reflected an internal organizational logic based on the collector's preferences. These books of seamanship were early attempts to collate texts containing both theoretical and practical nautical knowledge. It is worth bearing in mind that the education and training of pilots played a pivotal role in the transmission of oceanic knowledge. Books of seamanship, although formally idiosyncratic, are indirect witnesses to such processes. These compilations (most of which are anonymous) include myriad nautical texts, such as rules for astronomical navigation, pilot exams, questionnaires, logbooks, rutters, or even jotted notes, astronomical tables, calendars, coastal profiles, and maps. Since each seamanship book is the result of an individual's act of selection, not all of the aforementioned textual categories are necessarily included in any given book.⁶⁹ The presence of rutters within these compilations presents certain challenges, including uncertainty regarding authorship and the date of composition, as well as the constant updating of the sea routes information. For example, a single collection might bring together materials relating to different stages of the same sea route. It is noteworthy that oceanic rutters maintained their integrity and distinctiveness in such compilations of maritime technical texts.

One of the earliest examples of this type of collection is the *Livro de marinharia de João de Lisboa* ("João de Lisboa's Book of Seamanship"), which dates to the first decade of the sixteenth century. The *Suma de geographia*

grandes découvertes. Collection de documents ..., ed. Joaquim Bensaude, vol. 1 (Munich: Carl Kuhn, 1914).

67 The first reference to the category *livro de marinharia* as a specific technical maritime genre came from the 1903 edition of João de Lisboa's work. See João de Lisboa, *Livro de marinharia, Tratado da agulha de marear de João de Lisboa. Roteiros, sondas e 16 outros conhecimentos relativos à navegação*, ed. Jacinto Ignacio de Brito Rebelo (Lisboa: Libânio da Silva, 1903).

68 This definition is borrowed from the well-known work of Italian poet Giacomo Leopardi (1798–1837), *Zibaldone di pensieri*.

69 Historians have identified nine manuscripts with this connotation, with one of them not including navigational rutters. This is the case with the manuscript published by Luís de Matos, *Um livro de marinharia inédito* (Lisboa: Fundação Calouste Gulbenkian, 1969, Separata).

(“Compendium of Geography”) of Martín Fernández de Enciso (Seville, 1519), perhaps the first such manual to be printed in the Iberian Peninsula, is roughly contemporaneous. Martín Fernandez de Navarrete described the *Suma de geographia* as a *derrotero precioso* (“precious rutter”).⁷⁰ It is generally thought that Enciso drew primarily on Portuguese sources, particularly rutters, for his book. Some scholars even detect a relationship between certain chapters of Enciso’s book and André Pires’s book of seamanship, which was written around the same time.⁷¹ Again, maritime technical genres offer a glimpse into a complex network of knowledge exchange. As María Portuondo has noted, the *Suma de geographia* was “one of the first works to meld the different theoretical strands that made up the discipline of cosmography with practical aspects of navigation.”⁷²

During the sixteenth and seventeenth centuries, several compilations of travel narratives were published. Giovanni Battista Ramusio’s *Navigazioni e viaggi*, the three volumes of which were released in Venice between 1550 and 1559,⁷³ placed a significant emphasis on *navigazioni* (“navigations”), as reflected in the title. Many such travel collections recognized the significance of oceanic rutters, which were considered to contain valuable up-to-date information. Furthermore, the precise technical explications furnished by oceanic rutters served as symbols, lending authenticity to the long-distance voyages they described. The French scientist and diplomat Thévenot voiced such an opinion in his 1663 publication, *La relation de divers voyage curieux*, in which he stated that “the rutter” was “the most exact piece that has appeared in this genre” (“le routier est la piece la plus exacte qui ai paru en ce genre”).⁷⁴ Thévenot, for his part,

70 Martín Fernandez de Navarrete, *Biblioteca marítima española, obra póstuma*, vol. 2 (Madrid: Imprenta de la Viuda de Calero, 1851), 435.

71 Among others, see Hair, “Some Minor Sources for Guinea,” 37, and Thomas F. Glick, “Enciso, Martín Fernández de,” in *Diccionario histórico de la ciencia moderna en España*, ed. José María López Piñero et al., vol. 1 (Barcelona: Península, 1983).

72 On the Spanish navigation manual as a new textual genre, see María M. Portuondo, “Cosmography at the Casa, Consejo, and Corte during the Century of Discovery,” in *Science in the Spanish and Portuguese Empires, 1500–1800*, ed. Daniela Bleichmar, Paula De Vos, Kristin Huffine, and Kevin Sheehan (Stanford: Stanford University Press, 2009), 63.

73 The literature on Giovanni Battista Ramusio’s work is extensive. See especially the edition Giovanni Battista Ramusio, *Navigazioni e viaggi*, ed. Marica Milanese (Torino: Einaudi, 1978–1988). The Italian participation in the global expansion is well documented in the recent book edited by Guido Abbattista, *Global Perspectives in Modern Italian Culture: Knowledge and Representation of the World in Italy from the Sixteenth to the Early Nineteenth Century* (Abingdon: Routledge, 2021).

74 Melchisédech Thévenot, “Avis,” in *Relations de divers voyages curieux, qui n’ont point esté publiées, ou qui ont esté traduites d’Hacluyt, de Purchas, e d’autres voyageurs anglois, hollandois,*

included the Portuguese rutter of Aleixo da Mota in his collection, a text which had never before been published.⁷⁵ The authors of these general travel collections had a practical objective in including rutters in their works—the oceanic rutter as a textual genre continued to attract the attention of intellectuals, and was understood to communicate experiences directly and reliably. Indeed, earlier collections made little space for ostensibly captivating shipwreck narratives, instead focusing on the notion of “navigation” as a means of shaping the world, and highlighting its correlation to political matters.

The significance of rutter collecting is perhaps best illustrated by Jan Huygen van Linschoten (1563–1611), who visited India in 1584 and began publishing the accounts of his travels in 1595. Through his *Itinerario* (and especially a section entitled *Reys-gheschrift*), Linschoten brought Iberian rutters to a wider European audience, alerting readers to the existence of a specific corpus of trustworthy texts. Linschoten’s book was an immediate success, and was subsequently translated into several languages. While the majority of the rutters it contained were Portuguese in origin, Jan Huygen did not exclude Spanish sources,⁷⁶ suggesting that a global understanding of the Earth and its oceans was inherent in such selections. In like manner, Portuguese cosmographer Manuel de Figueiredo (1568–1622?) would later publish a substantial collection of classic Spanish sea routes in his *Hydrographia*.⁷⁷ The structure of the *Reys-gheschrift* suggests that Linschoten’s rutters derived from an assortment of Portuguese seamanship books. The type of information included (a list of places with their latitude, a regiment of leagues, a regiment on the deviation of the magnetic needle, and a set of

portugais, allemands, espagnols, et de quelques persans, arabes, et autres auteurs orientaux ... vol. 1 (A Paris: De l’Imprimerie de Jacques Langlois, 1663), n.p.

75 Aleixo da Mota’s rutter translation was first announced in 1663 and published the following year under the title “Routier pour la navigation des Indes Orientales, avec la description des isles, barres, entrées de ports, et basses ou bancs, dont la connoissance est necessaire aux pilotes,” in Thévenot, *Relations de divers voyages curieux ...* (A Paris: Chez Sebastien Cramoisy, et Sebastien Mabre Cramoisy, 1664), 2:1–60.

76 Nuno Vila-Santa has recently explored the connection between the Portuguese and Spanish rutters and their publication by Jan Huygen van Linschoten, highlighting the fact that Linschoten published sixty-three Portuguese rutters and four of Spanish origin. The author points out that the Spanish rutter described in chapter 63 is a sort of combination of several sea routes. See Nuno Vila-Santa, “Jan Huygen van Linschoten and the *Reys-gheschrift*: Updating Iberian Science for the Dutch Expansion,” *Historical Research* 94, no. 266 (November 2021): 738.

77 The various editions of Manuel de Figueiredo’s *Hydrographia* are described in Luana Giurgevich, “Bibliotheca roteirística: Edições impressas em Portugal dos séculos XVII e XVIII,” *RUTTER Technical Notes Series* 1, no. 1 (1 June 2020): 14–28, <https://doi.org/10.6084/m9.figshare.12417392>.

questions and answers for sailors) is akin to André Pires's book.⁷⁸ It may not be a coincidence that Enciso's *Suma de geographia* pulled materials from similar sources. The issue of authorship is more complicated in Linshoten's case, however, since additions were made by the *Itinerario's* editor, Cornelis Claesz (1551–1609). The *Reys-gheschrift* serves as a good example of a collaborative work,⁷⁹ a characteristic commonly observed in maritime technical literature of the early modern era. Oceanic rutters were at the forefront of this collective model of authorship.

Manuel de Figueiredo's *Hydrographia* is noteworthy in the ambit of textual transmission. A significant number of copies of the work survive, and their arrangement of nautical materials displays considerable variation across exemplars.⁸⁰ A given copy may contain a unique set of texts organized in a distinctive order, seemingly customized for a specific reader. As the first Portuguese printed collection of rutters, it adopted qualities associated with manuscript modes. This method of assembling both manuscript and printed texts into books is crucial to understanding the organization of nautical knowledge. Figueiredo's book, tailored to meet the needs of a particular owner, recalls the format of seamanship manuals.

The survival of certain manuscript collections of rutters to this day suggests that some were more likely to be preserved than others. Among those spared destruction are the compilations associated with royalty (the *piloto mayor* rutters), and those maintained by noble families (the rutters archived in the Castelo Melhor and Cadaval libraries).⁸¹ Merchant groups and religious institutions can also be credited with the safeguarding of

78 All these ideas are developed by Vila-Santa, "Jan Huygen van Linschoten and the *Reys-gheschrift*," 746.

79 See Vila-Santa, "Jan Huygen van Linschoten and the *Reys-gheschrift*," 754.

80 I consulted the extant copies conserved in the Ajuda Library (Biblioteca da Ajuda), in the Portuguese National Library, Lisbon (Biblioteca Nacional de Portugal), in the Spanish National Library (Biblioteca Nacional de España), and in the Biblioteca Pública de Évora.

81 On the pilot major see Lacerda and Moreno Madrid, "A Remarkable Collection of Rutters." The practice of aristocratic collectorship is explored in the recent contribution of Maria de Lurdes Rosa et alii, "O inventário dos documentos da Ilha da Madeira no arquivo da casa de Castelo Melhor: conteúdos, contextos e problemáticas," in *Herencia cultural y archivos de familia en los archipiélagos de la Macaronesia*, ed. Juan Ramón Núñez Pestano, Maria de Lurdes Rosa and Judit Gutiérrez de Armas (La Laguna: Instituto de Estudios Canarios-Instituto de Estudos Medievais-FSCH Universidade Nova de Lisboa, 2020), 145–162, while the rutters preserved by the Portuguese families Cadaval and Castelo Melhor have been studied and partially transcribed by several authors, including in the recent contribution by Jorge Semedo de Matos. See: Matos, *Roteiros e rotas portuguesas no Oriente nos séculos XVI e XVII*.

manuscript rutters.⁸² Many of these collections were primarily used for land-based reading, serving to sustain the historical memory of oceanic routes, prepare expeditions (whether religious, commercial, or military), and support voyage planning.

Final Remarks

Although oceanic rutters were technical texts not intended for print, and were at first designed for the exclusive use of a well-defined group of professionals, they enjoyed unprecedented levels of dissemination on the cusp of the early modern period and throughout the sixteenth century. They circulated in unexpected ways and reached individuals with diverse backgrounds, a phenomenon readily apparent in their substantial representation in libraries and archives across the world today. Written during the fifteenth and sixteenth centuries, these texts drew upon (but were not confined by) preexisting literary models. While this burgeoning genre incorporated elements from different sailing traditions (whether Mediterranean, Northern European, or Arabic), it was above all characterized by a concern with the practical difficulties of deep-sea voyages,⁸³ and long-distance navigation would profoundly shape the style, structure, function, and concept of nautical texts. In reaching readers beyond the milieu of pilots and mariners, however, the initial pragmatic purpose of such rutters would be enriched with new meanings. Some of these readers even became rutter translators, editors, and writers, further contributing to the dissemination of such texts.

This chapter has aimed to clarify the widespread circulation of oceanic rutters through the lenses of text-making processes and practices of collecting. Oceanic rutter-writing involved collaborative and systematic effort, culminating in the production and fruition of a global form of knowledge. As Emanuele Kanceff has commented, “The voyage does not exist when

82 Many examples could be given. A comprehensive investigation can be made by starting with Luana Giurgevich and Henrique Leitão, *Clavis bibliothecarum. Catálogos e inventários de livrarias de instituições religiosas em Portugal até 1834* (Lisboa: Secretariado Nacional para os Bens Culturais da Igreja, 2016).

83 The understanding of ocean tides in the thirteenth and fourteenth centuries can be traced back to the Atlantic European coast pilot books, as noted by José Manuel Malhão Pereira, “Roteiros portugueses, séculos XVI a XVIII,” 31. A synthesis of the discussions on the development of oceanic rutters from various ancient and medieval genres can be found in Taveira, “Os roteiros portugueses do Atlântico.”

there is nobody who reads it" ("Il viaggio non esiste se non c'è qualcuno che lo legge"),⁸⁴ a statement accurately capturing the dual impact of reading and traveling on the cultivation of novel collective perception of the world. Perhaps this is nowhere truer for the early modern period than in the case of oceanic rutters.

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84 Emanuele Kanceff, "Il viaggio e le sue letture: prolegomeni a un discorso di metodo," in *Questioni odeporiche. Modelli e momenti del viaggio adriatico*, ed. Giovanna Scianatico and Raffaele Ruggiero (Bari: Palomar, 2007), 65–76 (especialy 65).

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