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RENAISSANCE NORMANDY: A SEAWARD-LOOKING PROVINCE

The Spanish and Portuguese opened up the great ocean routes in the fifteenth and sixteenth centuries, to be followed in the seventeenth century by the English and Dutch, whose great merchant companies would dominate the seas. However, although France did not rank as a major naval power during this period—in part due to the relatively late date at which the main coastal provinces came under the direct rule of the Crown¹—from the fifteenth century on, French navigators were crossing the oceans and French merchants were sponsoring expeditions and setting up fleets that attempted to compete with those of other European nations. Normandy in particular was a center for the development of maritime trade: Rouen at the time was the third largest city in France (after Paris and Lyons), and 1517 saw François I found the city of Le Havre. Starting in 1480–1500, the Normans began to mount numerous trade expeditions to the Mediterranean, the African coast, India, and, soon after, the Americas. Struggling constantly with the Spanish and Portuguese, who wished to maintain trade with these distant lands for themselves, Norman—and especially Dieppe—ship-owners sent their vessels as far afield as the Moluccas, Brazil, and Newfoundland.

But in addition to mounting their own expeditions, the Normans also made a contribution to those of others. They provided some of the financing for Giovanni da Verazzano's voyages to Florida in 1524–26, for the Canadian voyages of Jacques Cartier (and, subsequently, Jean-François de La Rocque, sieur de Roberval) in 1534–42. Later, in 1586, the first French expedition to the White Sea was organized by merchants from Paris, Marseilles, and Normandy. In 1589, men from Dieppe accompanied Henri Lancelot Voisin, sieur de La Popelinière, on the first French expedition to Terra Australis, and Samuel de Champlain of Saintonge took Norman sailors with him on his voyages to New France at the beginning of the seventeenth century (a period when numerous merchant companies were founded, in Normandy and elsewhere, with the purpose of organizing and financing trading voyages).²

All of this activity did not raise France to the same level as the great maritime powers; and, aware of this, Cardinal

Richelieu assumed the title of “grand maître, chef et surintendant général de la navigation et commerce de France” in 1626, at the same time as he attempted to put the teaching of hydrography on a solid footing (in the Code Michau of 1629). He also set about collecting maps and commissioning surveys of the French coasts. One of the sustained results of these efforts was Georges Fournier's *Hydrographie*, a veritable encyclopedia of contemporary nautical science that faithfully reflects European techniques of navigation in the mid-seventeenth century.³

A SCHOOL OF MARINE CARTOGRAPHY

One of the results of the dynamism of Normandy as a maritime province was the emergence of a local school of marine cartography, which flourished from the end of the fifteenth century to the middle of the seventeenth. Here, the term “school” refers to a group of cartographers that were working together with the same techniques and sources and whose charts were similar to one another. Although there are no extant Norman charts dating from before 1542,⁴ there is evidence that cartographers and hydrographers were at work in Normandy from the very be-

1. Normandy in 1468, Aquitaine in 1472, Provence in 1481, and Brittany in 1532.

2. On Norman expeditions and voyages in the sixteenth and seventeenth centuries, see Charles de La Roncière, *Histoire de la marine française*, 6 vols. (Paris: E. Plon, Nourrit, 1899–1932), esp. vol. 3, *Les guerres d'Italie, liberté des mers*, and vol. 4, *En quête d'un empire colonial*, Richelieu, and Gérard Mauduech, *Normandie et Nouvelle France d'Amérique du Nord, 1508–1658* (Rouen: CRDP, 1978). On Champlain, see chapter 51 in this volume.

3. Georges Fournier, *Hydrographie contenant la théorie et la pratique de toutes les parties de la navigation* (Paris: Michel Soly, 1643). There is a second, almost identical, edition dated 1667, a facsimile of which was published in Grenoble in 1973, with introductory texts by Jean Boudriot, René-Charles Duval, Jacques Humbert, and René Mordacq.

4. The oldest extant example of Norman cartography is the Jean Rotz atlas titled “Boke of Idrography” (BL, Royal MS. 20 E IX). See also Wallis's facsimile of the Rotz atlas, *The Maps and Text of the Boke of Idrography Presented by Jean Rotz to Henry VIII*, ed. Helen Wallis, (Oxford: Oxford University Press for the Roxburghe Club, 1981), and Monique de La Roncière and Michel Mollat, *Les portulans: Cartes marines du XIIIe au XVIIe siècle* (Paris: Nathan, 1984), and the English edition: *Sea Charts of the Early Explorers: 13th to 17th Century* (New York: Thames and Hudson, 1984).

ginning of the century;⁵ and as long as the ports of the region remained active, its ship's pilots continued to produce treatises on navigation and works of marine cartography. In fact, the decline of Normandy as a center of maritime trade during the course of the seventeenth century also marked the end of the Norman predominance among French chartmakers, with the last known charts drawn by a Norman dating from 1635.⁶

NORMAN HYDROGRAPHERS AND CARTOGRAPHERS

The standing of Norman hydrographers was recognized by their contemporaries: several of them are mentioned in the *Les bibliothèques françaises*,⁷ and in his 1643 treatise, *Hydrographie*, Fournier, the last of the Norman hydrographers, paid tribute to his predecessors. Memory of their achievements continued to be kept alive, as one can see from the local chronicles of Dieppe.⁸ However, it was not until the early twentieth century, with the work of Anthiaume, that a comprehensive study was made of the Norman school of cartography.⁹ Subsequently, there have been specific studies on one particular cartographer or one particular work.¹⁰ Our current state of knowledge enables us to identify the Norman school as comprising eleven cartographers, who produced a total of thirty-one extant works—to which one must add a further six anonymous charts or atlases based on stylistic considerations (see appendix 52.1).¹¹

Generally we know very little about the men themselves, although we do know that most were from Dieppe (a city that was largely destroyed in 1694 as the result of naval bombardment by a joint English-Dutch fleet). Some of these cartographers are mentioned in the town chronicles, whereas some feature in other archive material; but—as is the case with Nicolas Desliens, Jean Cossin, Jacques de Vau de Claye, and Jean Dupont—there are figures who are known to us only through their extant work.¹²

Other cartographers have left greater records of themselves. Among the more famous of those working in the sixteenth century was Pierre Desceliers, considered by his fellow countrymen to be “the father of French hydrography”¹³—a title that may err on the side of hyperbole, even if Desceliers did leave three superb large manuscript world charts dated 1546 (fig. 52.1), 1550, and 1553.¹⁴ The signature to these works—together with further archive material unearthed by Anthiaume at the beginning of the century—indicates that Desceliers was a priest at Arques over the period 1537–53, and on the basis of a copper seal (now in the Dieppe Museum), he is also credited with becoming the first royal hydrographer in the 1560s.

The best known of Dieppe cartographers—or at least the one who figures in the most extant archive documents—is Jean Rotz (Roze). According to his own account, he was born into a family of Scottish origin in Dieppe around 1505; subsequently he became a ship's

master and in the 1530s undertook voyages to Guinea and Brazil. However, he also worked as a hydrographer; and when, for unknown reasons, in 1542 he passed into the service of the king of England—taking with him “his little crew and company of wife and children”¹⁵—he presented Henry VIII with a magnificent atlas¹⁶ and “Traicté des differences du compas aymanté.”¹⁷ While working as a hydrographer for the English Crown, he continued his activities as a merchant, and when, after the death of Henry VIII (8 January 1547), the position of French émigrés at the English court deteriorated, Rotz returned to France and made a number of long-distance trading voyages. Subsequently he played a role in Scottish affairs in 1559–60, but thereafter we have no further mention of him (the date of his death is unknown).

5. In 1529, Pierre Crignon mentions that Jean Parmentier drew up several charts. See the nineteenth-century edition of Jean Parmentier et al., *Discours de la navigation de Jean et Raoul Parmentier de Dieppe*, ed. Charles Henri Auguste Schefer (Paris: E. Leroux, 1883), IX.

6. This is an atlas by Jean Guérard, recently located in Istanbul by Thomas Goodrich; see appendix 52.1, no. 37.

7. The original edition of *Les bibliothèques françaises* was published in Paris and Lyons in 1584 and 1585. The work was reissued in 1772–73, with some errors and omissions. See François Grudé de La Croix du Maine and Antoine Du Verdier, *Les bibliothèques françaises*, 6 vols. (1772–73; reprinted Graz: Akademische Druck, 1969).

8. David Asseline, *Les antiquitez et chroniques de la ville de Dieppe*, 2 vols. (Dieppe: A. Marais, 1874) (a manuscript work dating from the end of the seventeenth century), and Jean-Antoine-Samson Desmarquets, *Mémoires chronologiques pour servir à l'histoire de Dieppe et à celle de la navigation française*, 2 vols. (1785; reprinted Lunery: Bertout, 1976).

9. Albert Anthiaume, *Cartes marines, constructions navales, voyages de découverte chez les Normands, 1500–1650*, 2 vols. (Paris: E. Dumont, 1916), and idem, *Evolution et enseignement de la science nautique en France, et principalement chez les Normands*, 2 vols. (Paris: E. Dumont, 1920).

10. Albert Anthiaume wrote on Desceliers, *Pierre Desceliers, père de l'hydrographie et de la cartographie françaises* (Rouen: Imprimerie Le Cerf, 1926), and on Le Testu, “Un pilote et cartographe havrais au XVI^e siècle, Guillaume Le Testu,” *Bulletin de Géographie Historique et Descriptive* (1911): 135–202. See also the Wallis edition of the *Boke of Idrography*, and La Roncière and Mollat, *Les portulans cartes marines, and Sea Charts*.

11. The thirty-one works include twenty-four charts, five atlases, and two treatises on hydrography illustrated with charts.

12. For their extant works, see appendix 52.1.

13. Asseline, *Les antiquitez*, 2:325: “as for marine charts, I would say—along with Monsieur Dablon—that Monsieur des Cheliers, a priest at Arques, had the honor and glory of being the first in France to produce them.” However, one must be wary of historians who become panegyrists: they also credit Desceliers with being the first man to understand that the earth was round.

14. Appendix 52.1, nos. 5, 7, and 8; the 1553 was destroyed and is only known through a facsimile: Pierre Desceliers, *Die Weltkarte des Pierre Desceliers von 1553*, ed. Eugen Oberhammer (Vienna: [Geographische Gesellschaft in Wien], 1924).

15. See Wallis's introduction to the *Boke of Idrography*.

16. See appendix 52.1, no 1.

17. BL, Royal MS. 20.B.VII.



FIG. 52.1. PIERRE DESCELIERS, WORLD CHART, 1546. This, the earliest extant example of the giant manuscript world charts left by the Arques priest Pierre Desceliers, is typical of the early days of Norman cartography: there is no specific orientation, the landmasses are richly illuminated, and most place-names are Portuguese (although the names of landmasses and oceans are given in French). Note the presence of scales of latitude and longitude, which make it possible to es-

tablish that this was a rectangular plane chart (10 degrees of latitude = 80 mm; 10 degrees of longitude = 84 mm). Manuscript on parchment.

Size of the original: 128 × 254 cm (without frame: 119.5 × 244 cm). Reproduced by courtesy of the University Librarian and Director, John Rylands University Library, University of Manchester (Bibliotheca Lindesiana, French MS. 15).

Another notable sixteenth-century Norman cartographer was Guillaume Le Testu, “pilot in the Western Sea, native of the French city of Grace,” as he styled himself in his “Cosmographie universelle.”¹⁸ The main source of information on Le Testu is the work of a Franciscan monk, André Thevet, who took part in the same expeditions as the cartographer. He tells us that Le Testu made numerous voyages to America and Africa, including the crossing that took Nicolas Durand, chevalier de Ville-gagnon to Brazil in 1555 to establish a Protestant colony.¹⁹ Le Testu met his death on a crossing to Mexico in 1572, during a raid on a Spanish gold convoy.

The de Vaulx family, originally of Pont-Audemer, settled in Le Havre soon after François I founded the city in 1517 and produced two cartographers: Jacques and his younger brother Pierre.²⁰ Both brothers indicate in the signatures to their charts that they were ship’s pilots in the king’s navy. Jacques de Vaulx was the author of a manuscript work of hydrography titled “Les premières œuvres de Jacques de Vaulx,”²¹—which is, in effect, a compilation of contemporary works on nautical navigation—and of a chart of America that is dated 1584 (fig. 52.2). Pierre de Vaulx’s sole extant work is a chart of the Atlantic dated 1613.²² Richly illuminated, this work continues the tradition of such sixteenth-century Norman charts as

those produced by Desceliers. Jacques de Vaulx died around 1597, and his brother Pierre died around 1619.

The most learned of the Norman cartographers was undoubtedly Guillaume Le Vasseur. His extant works of hydrography are a single chart of the Atlantic dated 1601, and two treatises, one written around 1608, the other (with a world chart) around 1630.²³ However, we also have treatises he wrote on mathematical sines and on fortifications.²⁴ Like his predecessors, he too was a ship’s pilot: a register of payment dated 25 October 1629 lists him under the heading of “old pilots who, with their long ex-

18. See appendix 52.1, no. 10. The city of Le Havre’s full name in the sixteenth century was Le Havre de Grace.

19. Thevet discusses Le Testu in several works, most of which remain in manuscript form. See especially “Histoire d’Andre Thevet Angoumois, cosmographe du roy, de deux voyages par lui faits aux Indes australes et occidentales” (BNF, MSS. fr. 15454).

20. See Anthiaume, *Evolution et enseignement*. Most of the information Anthiaume gives on the de Vaulx brothers is taken from family archives.

21. Appendix 52.1, no. 18.

22. Appendix 52.1, no. 22.

23. See appendix 52.1, nos. 21 and 31. The 1608 treatise, without charts, is titled “Traicté de la geodographie ou art de naviguer” (BNF, Cartes et Plans, MS. fr. 19112).

24. BNF, MSS. fr. 19059–19063 and 19109.



FIG. 52.2. JACQUES DE VAULX, CHART OF THE COAST OF AMERICA, 1584. Originally this manuscript chart on parchment must have represented the whole of the Atlantic Ocean. The work of Jacques de Vaulx marks a turning point in Norman cartography, with giant world charts and richly il-

lustrated atlases giving way to more functional charts. Seventeenth-century Norman cartographers depicted the seas that they themselves sailed: all of them left a chart of the Atlantic. Size of the original: 81 × 58 cm. Photograph courtesy of the BNF (Cartes et Plans, Rés. Ge C 4052).

perience, will draw up descriptions of the coasts and the heights of the islands.”²⁵

Finally, there is Jean Guérard, the Norman cartographer who has left the most extant work: eight charts and an atlas actually bear his signature, and another unsigned atlas is also generally attributed to him.²⁶ Already a ship’s captain in the 1590s, he then became a pilot employed by the Western Navy at the beginning of the seventeenth century. He also worked for Richelieu: a navy statement of expenses in 1635 mentions that he received “the sum of five hundred livres for a voyage he has undertaken in the service of His Majesty in order to reconnoiter the coast, following the orders of My Lord the Cardinal.”²⁷ When he died, around 1640, no one took over from him, and thus his death marked the end of marine cartography in Normandy.

To complete the picture of nautical science in Normandy during this period, one should also mention the hydrographers whose extant work comprises treatises but no charts. Jean Du Val, a native of Dieppe, was the author of *Traité de la plaine sphère*, which is essentially concerned with questions of cosmography.²⁸ Toussaint de Bessard, a native of Putot-en-Auge, was a ship’s pilot and mathematician and published *Dialogue de la longitude est-ouest* in Rouen in 1574. Jean de Séville, physician, mathematician, geographer, and royal hydrographer in Rouen, was the author of *Compost manuel, calendrier et almanach perpetuel*, published in Rouen in 1586, and of a small work titled *La déclinaison du soleil par chacun an selon la reformation du calendrier*, published in the same city in 1595. And Jean Le Telier, ship’s pilot and hydrographer, published his *Voyage fait aux Indes orientales par Jean Le Telier, natif de Dieppe, reduict par luy en tables pour enseigner a trouver par la variation de l’ayant la longitude* in his native city in 1631. However, the most famous of all the Norman hydrographers was also the last: Georges Fournier, who was born in Caen in 1595 and began his novitiate as a Jesuit in Tournai in 1619. Later he taught belles lettres and mathematics in his home city and then in La Flèche. In the 1630s he became a chaplain in the king’s navy and traveled widely around the coasts of Asia, finally retiring to La Flèche, where he died in 1652. He published numerous scientific works, most notably his *Hydrographie* (first edition, 1643). That was the only contemporary work that brought together a vast array of knowledge drawn from both naval and merchant navigation in a single treatise; to a large extent it established the wide range that the term “hydrography” would have in the seventeenth and eighteenth centuries. In effect, Fournier provided an overview of hydrographical knowledge in mid-seventeenth-century Europe, including references to the most recent discoveries. His treatise was copied and reissued several times.

NEIGHBORING BRITTANY AND DISTANT MARSEILLES

The only other French province of the Atlantic/Channel seaboard to produce chartmakers was Brittany. However, these chartmakers—natives of Le Conquet, near Brest—are just as little known as their Norman counterparts.²⁹

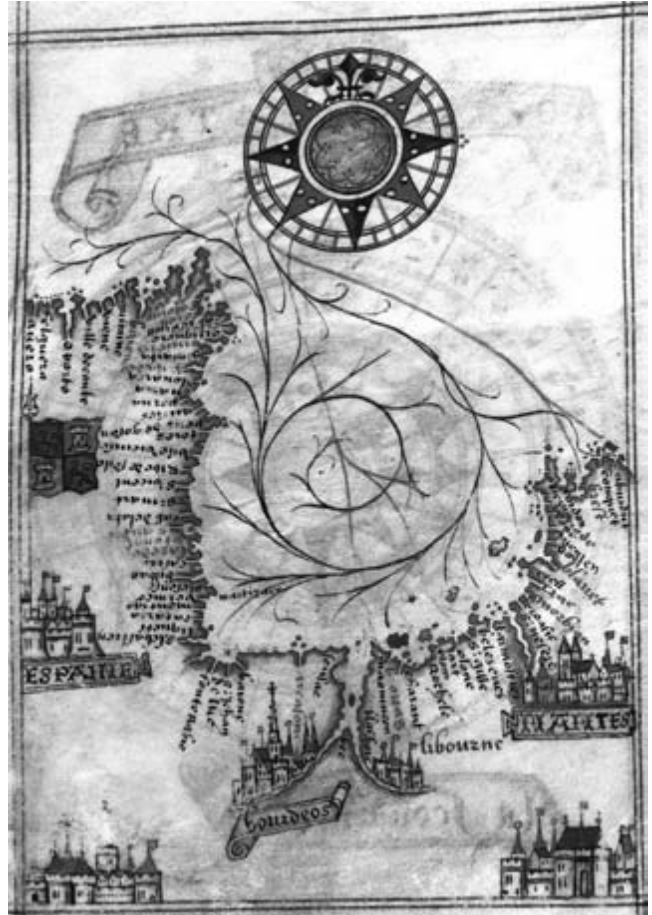


FIG. 52.3. GUILLAUME BROUSCON, PAGE FROM NAUTICAL GUIDE.

Photograph courtesy of the Huntington Library, San Marino (HM 46, fol. 5v).

25. Cited in Anthiaume, *Cartes marines, constructions navales*, 1: 183. The register of payment is now in the Archives of the Navy Ministry.

26. Appendix 52.1, nos. 26–30 and 33–37.

27. BNF, MS. fr. 6409, fol. 179.

28. The treatise was published sometime between 1552 and 1572; the place of printing is not given.

29. Hubert Michéa, “Les cartographes du Conquet et le début de l’imprimerie: Guillaume Brouscon, une vie pleine de mystère,” *Bulletin de la Société Archéologique du Finistère* 115 (1986): 329–47, and Louis Dujardin-Troadec, *Les cartographes bretons du Conquet: La navigation en images, 1543–1650* (Brest: Imprimerie Commerciale et Administrative, 1966).

The only traces of the cartographers Guillaume Brouscon (fl. 1543–48) and Jean Troadec (fl. ca. 1576–1600) are the registers of baptisms and marriages and a dozen or so small books of woodcuts. These books, or nautical guides—summarizing in images the notions that would be useful to a ship's pilot—contained calendars and a series of dials for the calculation of tides as well as charts (fig. 52.3). With one exception,³⁰ these were small maps of European coastlines designed for coastal shipping and thus were more like route maps than marine charts proper. Hence, one cannot really talk about a school of cartography at Le Conquet. At the other end of France, in Marseilles, there was another school of marine cartography that developed during the course of the seventeenth century. However, less original in output than the Norman school, it would always limit itself to traditional representations of the Mediterranean.³¹

THE INFLUENCES ON CARTOGRAPHERS

The first Norman cartographers were directly influenced by the Portuguese. To see this, one has only to look at the number of Portuguese place-names that occur in sixteenth-century Norman charts (even in those covering Normandy itself). However, Portuguese influence went beyond the mere provision of place-names, and it can also be found in the way coastlines are drawn—for example, in the depiction of Scotland as an island (in the Vallard and the Lyons atlases) or in the depiction of the Mediterranean found in various atlases.

Pilots of Portuguese ships had been working in France since the beginning of the sixteenth century, and around 1538 François I appointed João Pacheco, “a Portuguese expert in maritime matters,” as his royal cosmographer.³² The country also saw the arrival of Portuguese cartographers, the most famous undoubtedly João Afonso. Historians have often been misled into considering Afonso as French because his name was rendered as Jean Fonteneau, known as Alfonse, and he was generally described as “of Saintonge.”³³ Certain of these Portuguese cartographers may well have worked in Normandy, passing on their knowledge, cartographic style, place-names, and coastal outlines to their Norman counterparts.³⁴

From the end of the sixteenth century on, Dutch influence was also felt in Normandy, particularly in the symbols used by hydrographers and in the cartographic rendition of the mainly North European regions frequented by Dutch ships. For example, Jean Guérard's 1628 account of Spitzberg³⁵ is very similar to that in maps by Willem Jansz. Blaeu—right down to the use of a spiral of dots to depict a land bank to the west of Norway.³⁶

However, Norman charts also contain features that are unique, particularly with regard to the coasts of North

America. For example, Labrador is shown as a large outcrop of land reaching eastward, ending in a point and separated from the rest of the continent by a deep indentation to the north of the St. Lawrence. Other unique features include the depiction of Newfoundland as an archipelago and the outline of the Bay of Norambegue on the southern coast of Nova Scotia.³⁷

The most original feature of Norman charts is to be found in their account of the Pacific Ocean, where they show a vast Jave-la-Grande reaching from the south of Indonesia to the Terra Australis (plate 62). The name is drawn from Marco Polo's “Java Major,” which is the actual island of Java itself (something that the Normans sometimes indicate as “Petite Jave”). The specific size and location of Jave-la-Grande (which is only to be found in Norman charts and on the world map of Guillaume Brouscon, the Breton mapmaker) has given rise to various theories—ranging from a claim that the Normans knew of Australia to the suggestion they were crudely copying the outline of Vietnam.³⁸ Our present knowledge of the available source material seems to support the idea that this large promontory was as fictional as the rest of Terra Australis. In fact, the Norman cartographers themselves refer to these regions as ones of “land not at all discovered,” and in his “Cosmographie universelle” Le Testu is even clearer on the matter when he says that he includes imaginary lands so as to alert navigators to

30. Guillaume Brouscon's 1543 world chart in the nautical guide is now in the Huntington Library, San Marino, California, HM 46. Due to the legible initials “G. B.,” this chart has sometimes been erroneously attributed to Giovanni Benedetto; in its style and outlines it is very close to Norman maritime charts.

31. See pp. 232–35 in this volume.

32. Luís de Matos, *Les Portugais en France au XVI^e siècle: Études et documents* (Coimbra: Por Ordem da Universidade, 1952), 18.

33. Matos, *Les Portugais en France au XVI^e siècle*, 35–77.

34. This is the theory put forward by Cortesão and Teixeira da Mota with regard to the three atlases that they describe as “Luso-French”—the three being The Hague, Vallard, and Rotz atlases. See Armando Cortesão and A. Teixeira da Mota, *Portugaliae monumenta cartographica*, 6 vols. (Lisbon: 1960; reprinted with an introduction and supplement by Alfredo Pinheiro Marques, Lisbon: Imprensa Nacional-Casa da Moeda, 1987), 5:132–36.

35. Appendix 52.1, no. 30.

36. F. C. Wieder, *The Dutch Discovery and Mapping of Spitsbergen (1596–1829)* (Amsterdam: Netherland Ministry of Foreign Affairs and Royal Dutch Geographical Society, 1919), esp. 36 and pl. 12.

37. On all these points, see Henry HARRISSE, *Découverte et évolution cartographique de Terre Neuve et des pays circonvoisins, 1497–1501–1769* (Paris: H. Welter, 1900), esp. 145–48.

38. On the different theories put forward, see particularly Roger Hervé, *Découverte fortuite de l'Australie et de la Nouvelle-Zélande par des navigateurs portugais et espagnols entre 1521 et 1528* (Paris: Bibliothèque Nationale, 1982), esp. 15–27, and W. A. R. Richardson, “What's In a Name?” in *The Mahogany Ship: Relic or Legend?* ed. Bill Potter (Warrnambool [Australia], 1987), 21–32.

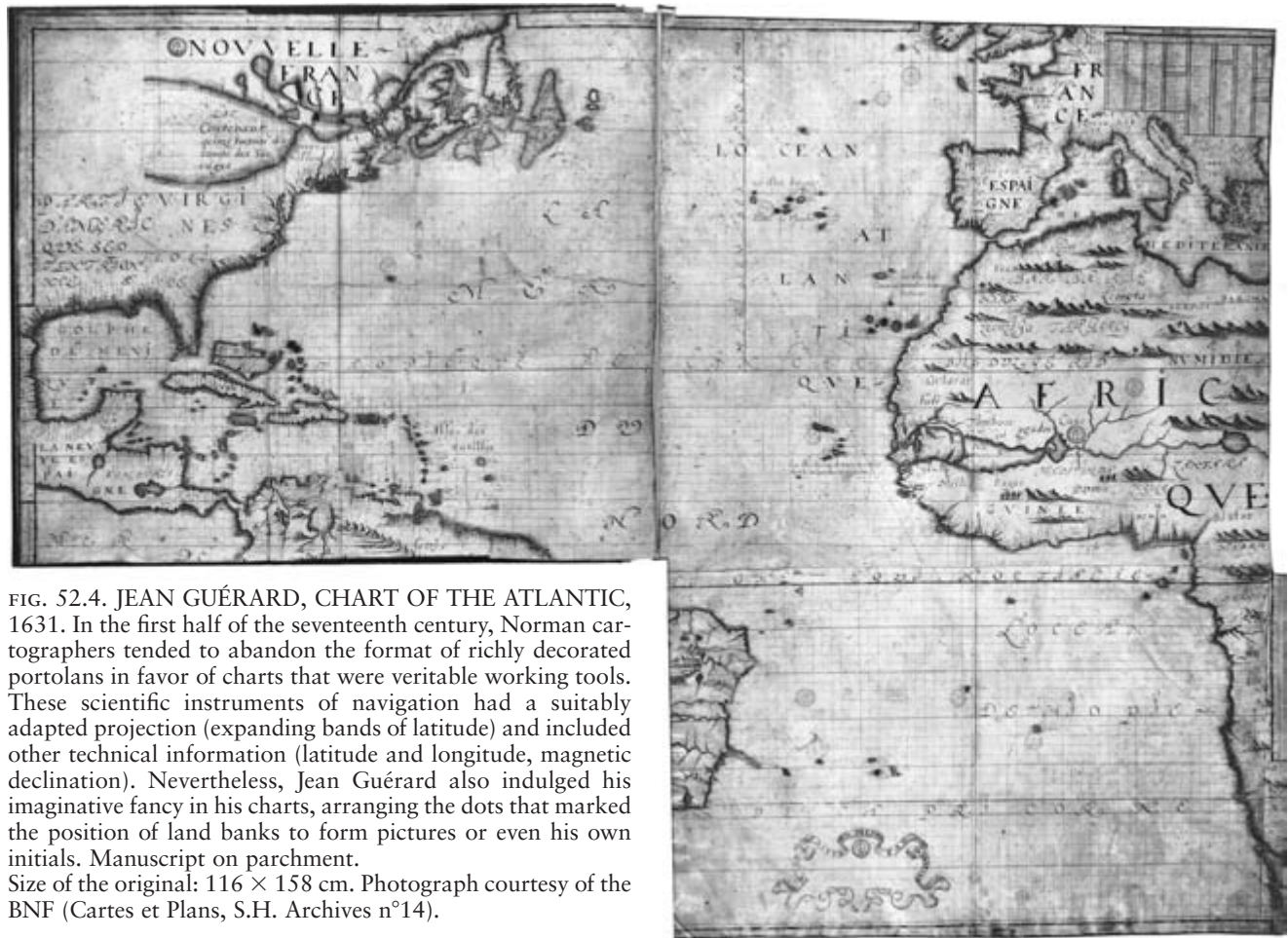


FIG. 52.4. JEAN GUÉRARD, CHART OF THE ATLANTIC, 1631. In the first half of the seventeenth century, Norman cartographers tended to abandon the format of richly decorated portolans in favor of charts that were veritable working tools. These scientific instruments of navigation had a suitably adapted projection (expanding bands of latitude) and included other technical information (latitude and longitude, magnetic declination). Nevertheless, Jean Guérard also indulged his imaginative fancy in his charts, arranging the dots that marked the position of land banks to form pictures or even his own initials. Manuscript on parchment. Size of the original: 116 × 158 cm. Photograph courtesy of the BNF (Cartes et Plans, S.H. Archives n°14).

the potential dangers that might lie ahead in these unknown seas.³⁹ Nevertheless, mystery remains—especially as some of the place-names on this imaginary coast are of Portuguese origin, but no known Portuguese map shows Jave-la-Grande as such.

PROJECTION: RHUMBS AND LOXODROMES

Just like their counterparts in the rest of Europe, sixteenth-century Norman hydrographers included in their charts a network of rhumbs that corresponded to the thirty-two directions on the compass and were supposed to indicate lines of constant compass bearing. However, as their scales of latitude and occasional scales of longitude reveal, these works were all plane charts.

During the sixteenth century, mathematicians such as Pedro Nunes (Nuñez) investigated the question of the representation of loxodromes on a plane surface, revealing the mistakes sailors made and trying to resolve them (for

example, by the use of curved rhumbs).⁴⁰ As one can see from their treatises, Norman hydrographers were aware of these investigations, but continued to draw charts as plane charts with their traditional network of straight rhumbs.⁴¹ The first Norman cartographer to use expanding bands of latitude was Guillaume Le Vasseur in his 1601 chart of the Atlantic; he also gave a correct interpretation and account

39. “This land is part of the so-called Terra Australis that is unknown to us, because all that is passed off on this subject is nothing but the work of imagination and unfounded opinion.” Guillaume Le Testu, “Cosmographie universelle,” fol. 34.

40. Pedro Nunes, *Tratado da sphaera* (Lisbon, 1537).

41. Toussaint de Bessard, *Dialogue de la longitude est-ouest* (Rouen, 1574), 89, which mentions (and challenges the authority of) Oronce Fine and Gemma Frisius; or Jacques de Vaulx, “Premières œuvres” (1583), fol. 8, which reproduces a schema contained in Oronce Fine’s *L’Esphère du monde*, published in 1552.

of their use in his 1608 treatise on hydrography.⁴² Without going as far as Anthiaume—who credits him with being the inventor of “reduced” maps (*reduite*, applied at the time to maps using expanding bands of latitude)—one can well credit Le Vasseur with making this technique more widespread among Norman cartographers.

However, this type of projection was not necessarily the norm in seventeenth-century charts produced in the region. Pierre de Vaulx and Jean Dupont seemed to have been unaware of it, whereas Jean Guérard used it only for his world charts of 1625 and 1634 and his Atlantic chart (fig. 52.4), returning to plane charts for his representation of smaller regions.⁴³ Cartographers seem to have hesitated between the two types of projection: they were well aware of the interest in Mercator’s projection, but also knew that sailors preferred plane charts because it was easier to measure distances on them.

Although practical men, the Norman cartographers were also skilled mathematicians, as is evident by their use of more learned methods of cartographic projection. For example, in his 1542 atlas Jean Rotz includes a *map-pamundi* in globular—so-called Nicolosi—projection; Le Testu’s 1556 “Cosmographie universelle” reveals that he had mastered cordiform and stellate projections, as well as the perspective, globular, polar, and equatorial cases. Other examples include Jean Cossin’s chart, which uses a sinusoidal projection (later called the Sanson or Flamsteed projection); Jacques de Vaulx’s juggling with various aspects of stereographic projection in his “Premières œuvres”; and Guillaume Le Vasseur’s use of a four-band stellate projection in his 1630 treatise “Commencements de l’hydrographie.”

MAGNETIC DECLINATION

Working primarily as ship’s pilots, the Normans were well aware of the phenomenon of magnetic declination and its consequences for navigation. Like the Portuguese, they tried to counterbalance this phenomenon by the introduction of auxiliary scales of latitude in the region of Newfoundland.⁴⁴ The maps were drawn according to estimated lines of latitude, with the real latitudes being indicated on a second scale (fig. 52.5). However, this system was quickly abandoned, with cartographers preferring to indicate points on the map according to their real latitude and to measure magnetic declination in some other way to make the necessary adjustments when plotting a course. Yet it was not until Guillaume Le Vasseur’s 1601 map that a Norman cartographer corrected the traditional inclination in the depiction of the Mediterranean and North America. In effect, it was a long step from theoretical knowledge to the actual modification of practical tools and instruments.

Throughout the sixteenth century various theories

were put forward to explain the phenomenon of magnetic declination, a phenomenon that obviously was a cause of concern to the sailors of the day, as it meant they could not have complete faith in their compasses. Norman hydrographers took part in these debates and eventually adopted the same line as English cartographers, who had shown that the variation of the compass was an irregular phenomenon.⁴⁵ The result was that they indicated the values for magnetic declination at different places on their charts—see, for example, Jean Dupont’s 1625 chart of the Bay of Gascogne or Jean Guérard’s 1631 chart of the Atlantic. Dupont draws a needle to indicate the alignment of magnetic North, whereas Guérard prefers to give an indication in figures (undoubtedly the result of measurements he himself took during his various voyages).

THE PRODUCTION OF CHARTS

We know nothing about how medieval portolan charts were produced. There is no extant textual discussion of the matter before Martín Cortés’s 1551 *Arte de navegar*—and even that work only refers to copying an already existing chart.⁴⁶ Our ignorance of production procedures extends into the sixteenth century as well, when those procedures became even more complex thanks to the use of new projections. However, various Norman texts of the late sixteenth and seventeenth centuries deal with the subject of mapmaking, covering both plane charts and the new “reduced” works of cartography.

Part of Guillaume Le Vasseur’s “Geodrographie” is dedicated to the construction of charts using a network of rhumbs and a scale of latitude.⁴⁷ According to Le Vasseur, the cartographer must first trace out his rhumbs and then add his scale of latitude (bearing in mind the latitude of the end parts of the regions he wishes to map). Then he should add the scale of distance, and finally the actual drawing of

42. Le Vasseur clearly knew Edward Wright’s work, *Certaines Erreurs en Navigation* . . . (London: Valentine Sims, 1599).

43. For example, his 1633 chart of Central America (appendix 52.1, no. 34).

44. See, e.g., Jean Rotz and Guillaume Le Testu and in the Vallard atlas. See Désiré Gernez, “Les cartes avec échelle de latitudes auxiliaire pour la région de Terre-Neuve,” *Mededeelingen, Academie van Marine van België = Communications, Académie de Marine de Belgique* 6 (1952): 93–117.

45. The first was Robert Norman, *The Neue Attractive* (1581; reprinted Amsterdam: Theatrum Orbis Terrarum, 1974). On these issues, see David Watkins Waters, *The Art of Navigation in England in Elizabethan and Early Stuart Times* (London: Hollis and Carter, 1958), esp. pt. 2, and J. B. Hewson, *A History of the Practice of Navigation*, 2d rev. ed. (Glasgow: Brown, Son and Ferguson, 1983), esp. 51–55.

46. See pp. 1099–1101 in this volume and Tony Campbell, “Portolan Charts from the Late Thirteenth Century to 1500,” in *HC*, 1:370–458, esp. 390–91.

47. “De l’ordre que l’on a tenu a la description des premieres quartes,” in Le Vasseur, “Geodrographie,” fols. 85–86.

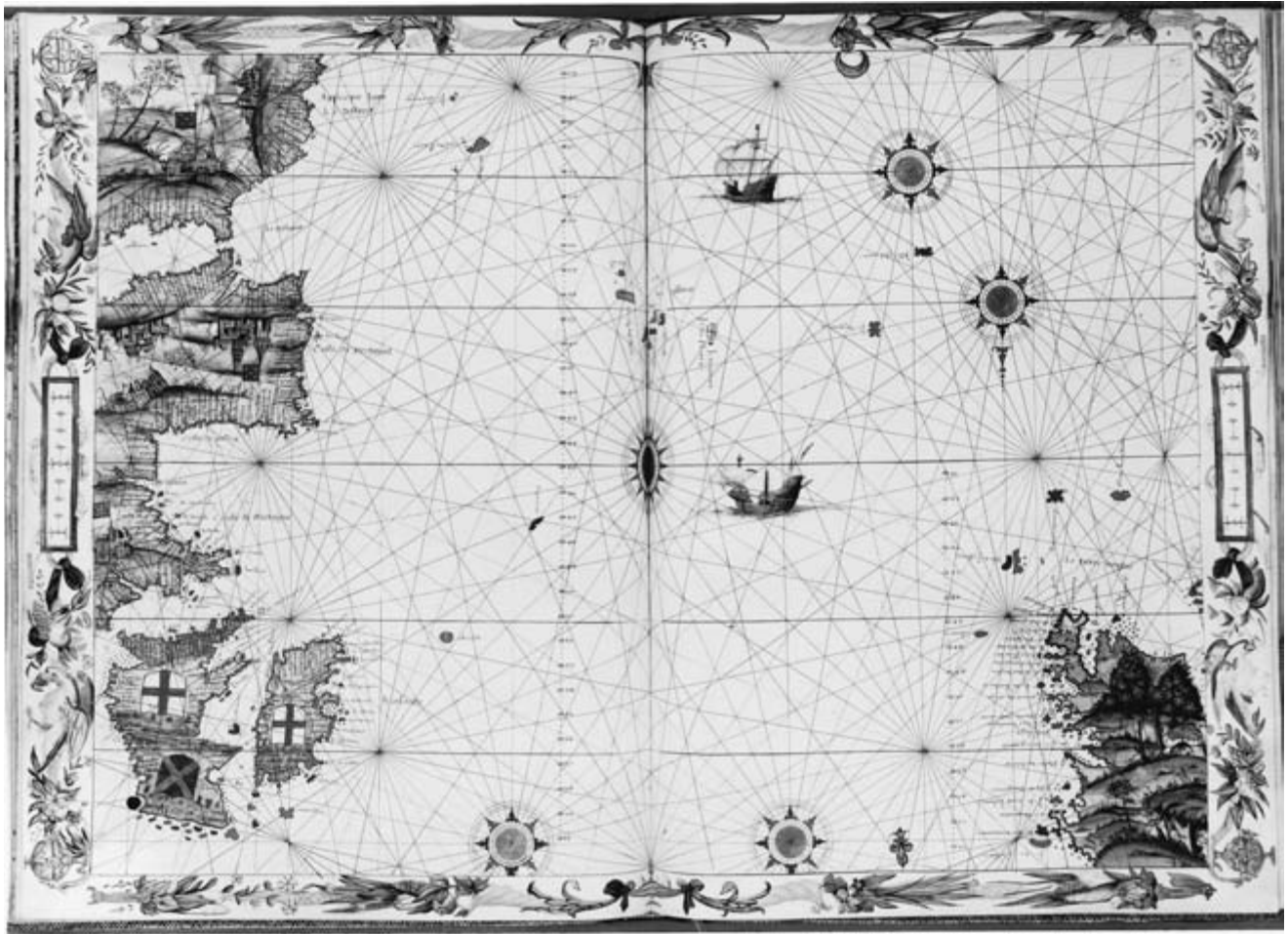


FIG. 52.5. CHART FROM THE HAGUE ATLAS. Dating from around 1545, this manuscript chart on parchment of the North Atlantic has two scales of latitude, separated by a shift of almost five degrees. One is the scale of real latitude, and the other indicates latitude as measured by a non-corrected com-

pass. This double scale of latitude is one of the first depictions of the sizeable magnetic declination in this area.

Size of the original: 43 × 62 cm (without frame: 39.5 × 54.5 cm). Photograph courtesy of the Koninklijke Bibliotheek, The Hague (MS. 129 A 24, fols. 21v-22).

the chart can begin: the cartographer must choose a point of reference and then add other points whose precise latitude and position with respect to (or distance from) that first point are known. Given the fragmentary knowledge of the period, each new point added could then, in its turn, serve as a point of reference.⁴⁸ But because geographical coordinates, or the relative distances between all the various points on the globe, were unknown at the time, Le Vasseur recommends indicating the main points on one's chart and then using a good "specific" (regional) map to copy the outline of the coast between the various points. After this stage, the coasts should be underlined in color, the islands painted in, and names and wind-roses added; the last should be "as small and delicate as possible, beautiful and placed as conveniently as possible so they do not obstruct the plotting of routes."⁴⁹

This arduous work produced a mastercopy of the chart, which then—using carbon or tracing paper—could be transferred to parchment as many times as needed. In his later *Hydrographie*, Fournier also mentions this use of carbon paper. No trace of such mastercopies remains; how-

48. The sources of this fragmented information might comprise route maps, ships' logs, accounts of voyages, personal notes, sketches, coastal surveys, or other maps. None of this material relating to Norman cartographers has come down to us, due to the fire that destroyed the city of Dieppe in 1694. However, in 1643 Georges Fournier wrote that "he had seen a large quantity at Dieppe, in the logs of old pilots, very simply depicted, with great care and circumspection; and there is no great port where there is not a large amount of similar material," Fournier, *Hydrographie*, 519.

49. Le Vasseur, "Geodrographie," fol. 86.

ever, evidence gleaned from the extant Norman charts themselves confirms its use. In the margins of certain charts, for example, one can see the pale continuation of coastal outlines in what looks like leadpoint.⁵⁰ Undoubtedly, these are lines left when tracing through carbon paper (as the cartographer could not see the border of the bottom sheet onto which he was copying, he traced the line a little too long).

This procedure is also undoubtedly the explanation for the various visible corrections in Desceliers's world charts. The first, traced out in 1546, does not show the Amazon River. The river does appear in the charts of 1550 and 1553; however, when one looks closely at the mouth of the river, one sees that it occurs in space that was originally occupied by an unbroken stretch of coastline. The cartographer has reproduced his original model using carbon paper, and then drawn in his corrections using a pen.

The practice of tracing is further confirmed by the existence of some manuscript Norman charts in several identical copies. Desceliers's world charts and the three copies of the Desliens world chart (1566, 1567, and 1568) are the most obvious examples of this practice, with the same scales and outlines. But one can also find very similar charts within atlases: for example, the charts of the Aegean and the Adriatic in the Vallard and Hague atlases resemble one another, as do numerous charts in the Le Testu and Pasterot atlases (fig. 52.6).⁵¹ (Within the latter atlas one even finds various copies of the same chart at different stages of completion—for example, two charts of the Newfoundland region, one of which has not been filled in with details and place-names.)

Norman hydrographers were also aware of the use of geographical coordinates in the construction of charts—a technique that Jacques de Vaulx outlines in his 1583 “Premières œuvres.” However, at the time it was very difficult to establish the longitude of a particular point (and almost impossible to do so on board ship). In effect, sixteenth-century charts (including those drawn by Jacques de Vaulx) never gave indications of longitude.

The appearance during the seventeenth century of charts with expanding bands of latitude and lines of longitude (plus the occasional omission of the network of rhumbs) reveals a definite development in mapmaking. The original framework on which the chart outline was traced was now much more complex than that for a plane chart with rhumbs: in effect, the cartographer had to trace one-, five-, or ten-degree parallels (according to the scale of accuracy required), gradually increasing the distance between the lines as they moved farther away from the equator (to maintain the true proportion between degrees of latitude and longitude). Despite the research into loxodromics and trigonometry that had been carried out by contemporary Dutch and English mathematicians,⁵² Norman hydrographers from Le Vasseur to Fournier rec-

ommended the use of graphic techniques both in drawing parallels and in establishing scales of length.

To establish scales of length in “reduced” maps, Le Vasseur recommended drawing five-degree parallels, marking in a line parallel to the first meridian, and then dividing the space between two parallels into seven equal parts, each of which would thus represent 12.5 leagues (the traditional division in Norman scales of distance).⁵³ Eight of these divisions, therefore, would make up one hundred leagues.

Fournier mentioned this method and also proposed two others. One involved tracing an oblique line at an angle of 29° to the meridians, as the secant of 29° is eight-sevenths of the unit formed by the distance between two parallels. So on this oblique line, the distance between two parallels five degrees apart would equal one hundred leagues. The second method consisted of drawing a series of straight segments representing one hundred leagues on the different parallels, whose length could either be calculated or measured from the drawing. The result was a trapezoid representation of scales of length. As for the drawing of coastlines, there was no great variation in method from one period to the other: the cartographer first plotted the principle points, whose coordinates were known, and then consulted other maps to trace out the connection between them.

THE USE OF CHARTS: PLOTTING POSITION

We have little evidence of the presence or use of charts on board ship; however, Jacques de Vaulx does state that “among all the instruments that are necessary to navigation there are charts, because without them one could not undertake long voyages.”⁵⁴ The ship's pilot used charts in what might be described as dead reckoning navigation. Starting from the latitude of departure, he would guess the distance traveled and thus estimate the position of the ship by following its course on the map. His estimate would be corrected from time to time by comparing it with an actual reading of position (when possible) or, at the very least, with a reading of latitude.

50. Most noticeably in the margins of the charts in the Le Testu atlas, nos. 8, 9, 32, 36, and 53.

51. On the curious Pasterot atlas, see Tony Campbell, “Egerton MS 1513: A Remarkable Display of Cartographic Invention,” *Imago Mundi* 48 (1996): 93–102. Campbell suggests that this atlas is actually a collection of unfinished charts that were intended for various different atlases.

52. See Raymond d'Hollander, “Historique de la loxodromie,” in *Géographie du monde au Moyen Âge et à la Renaissance*, ed. Monique Pelletier (Paris: Éditions du C.T.H.S., 1989), 133–48.

53. These are marine leagues—that is to say, one degree of latitude equals 17.5 leagues (which makes each league about 6,350 m).

54. De Vaulx, “Premières œuvres,” fol. 7v.

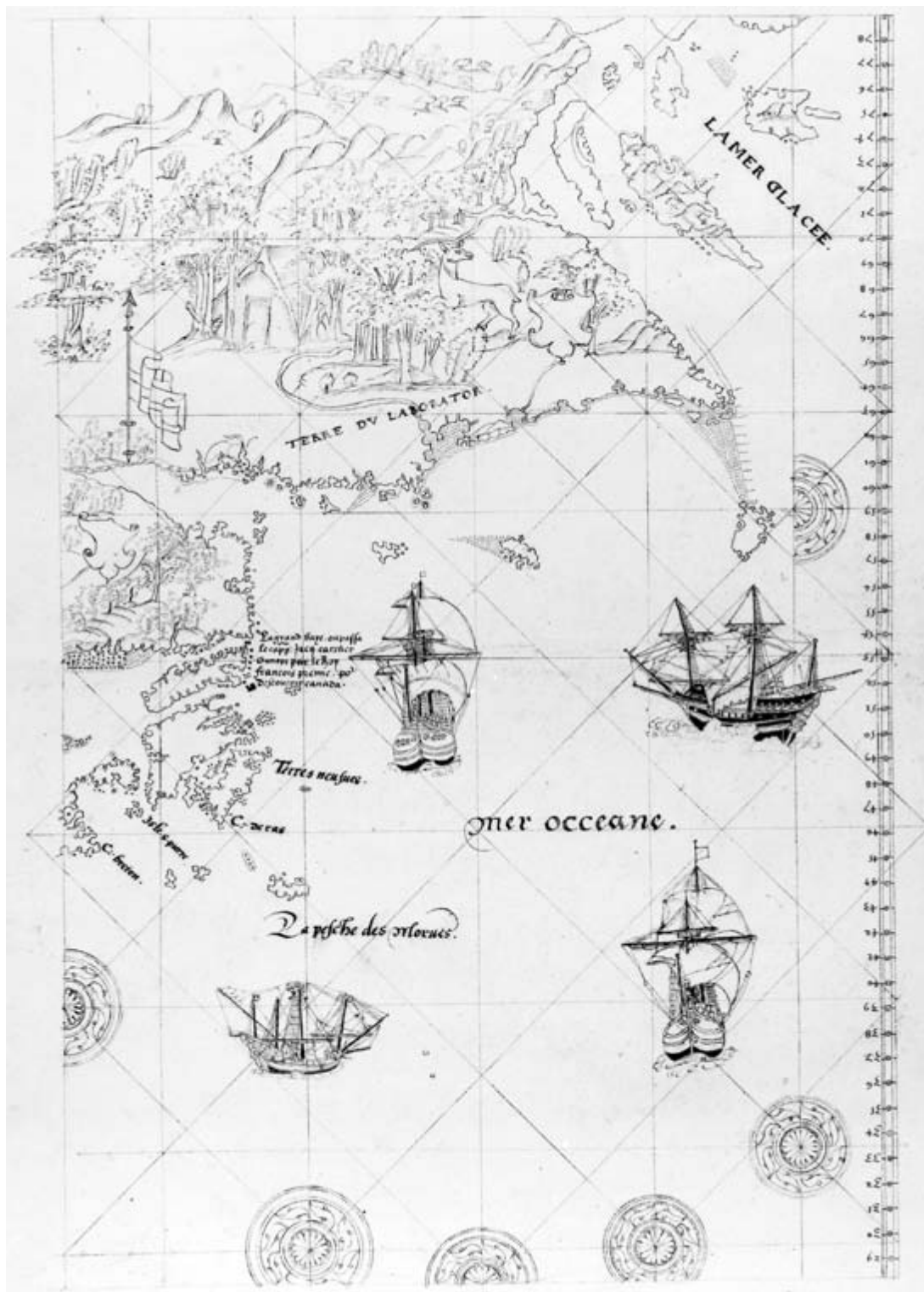


FIG. 52.6. NORTHEAST AMERICA FROM THE PASTEROT ATLAS, CA. 1587. One of the most curious of Norman atlases is the so-called “Livre de la marine du pilote Pasterot.” Named after one of its presumed owners, this atlas comprises seventy-eight charts. Only one, however, appears to be fully finished; the rest are incomplete, without scales, wind-

roses, illustrations, or—as in this case—names. Several charts of the same region (all at different stages of completion) are found in this atlas, together with no identifiable order in overall arrangement. Manuscript on paper. Size of the original: 56 × 40 cm. Photograph courtesy of the BL (Eg. MS. 1513, chart 7).

Various Norman treatises on navigation deal with the question of “plotting” charts—that is, the indication on the chart of the position of a vessel.⁵⁵ If a pilot changed course frequently, he used the direction and distance traveled to calculate his position. When the distances traveled were large (and therefore more difficult to estimate), the pilot used the route followed and the latitude as measured at his current position.

The chances of error in these operations were very great, given the imprecision of the measurements (of time, distance, latitude, and the like) and the effect of magnetic declination. What is more, on plane charts (the only ones in use in the sixteenth century, and still the most commonly used in the seventeenth), correct plotting of position was impossible, as the course followed was never represented by a straight line. However, in spite of all of this, charts were indispensable to the successful conclusion of long voyages. It does not seem that hydrographers were particularly disturbed by the handicap implicit in plane charts, because even those who analyzed the problems associated with such works and recommended the use of charts with expanding bands of latitude took plane charts as their model when explaining how a pilot should “plot” his position. Established practice seems to have won out over theoretical knowledge—even in the most learned of hydrographers.

THE USES OF NORMAN CHARTS

When one examines the extant works left by Norman cartographers, it is clear that they cannot have served as instruments of navigation because both charts and atlases are generally in excellent condition. What is more, both format and scale would have rendered most of them unsuitable for use at sea; the large size of the mid-sixteenth-century manuscript world charts, for example, would have made them cumbersome and awkward to consult while on board ship, and the smaller world charts, such as those by Desliens and Guérard, were to a scale too small to be of any practical use to a ship’s pilot (bearing in mind, of course, that if charts produced for practical use did not survive, the few extant charts we have are wholly unrepresentative, and we do not know what a chart for shipboard use would have looked like). The more specific atlases and charts would have been more satisfactory, being less cumbersome than the large charts but also to a more useful scale than the smaller works. However, it would have been very difficult to trace out a course on several different charts because there was no framework of parallels and meridians for the unequivocal identification of the same point on two different charts. Fournier recommended that a ship’s pilot take a chart that was at as large a scale as possible but that also included the points of departure and arrival. The pilot should also take various

more specific maps covering the different ports where the ship might take refuge in the event of storm or tempest.⁵⁶ The latter need might have been met by contemporary atlases.

Finally, another indication of the unsuitability of extant Norman charts for practical navigation is their degree of decoration.⁵⁷ True, most of this is found in inland areas and borders, and therefore would not interfere with a pilot’s work in plotting a course. However, the extent of illumination and decoration makes these Norman charts and atlases luxury items, destined for a library rather than the chart table of a ship’s pilot. Le Vasseur himself states that “all the universal maps serve more for decoration, like paintings, than for instruction and information.”⁵⁸

So the primary function of Norman charts was undoubtedly that of ornamentation. Nevertheless, they could also have had an informative function in revealing the face of the earth to those who were unfamiliar with its true appearance. To depict the earth in a world map or *mappamundi* was, in effect, to describe one’s own cosmography and to outline one’s philosophical view of the world. Thus, for example, the depiction of a large imaginary continent in the southern hemisphere might well have served to warn the pilots who ventured there that those seas “were not at all discovered,” but it also meant that one could give a harmonious account of the distribution of land masses over the earth’s surface.

Most extant Norman charts bear coats of arms or dedications to princes. Just like the authors of other scientific or literary works, hydrographers may have made such dedications to obtain some sort of financial reward, whereas in other cases the work may actually have been commissioned. Certainly, the dedicatees were not chosen at random; they were always figures who had some intellectual or practical interest in navigation. For example, Rotz dedicated his works to Henry VIII, and the arms of Henri II are found on several cartographic documents;⁵⁹ both monarchs were concerned with building up their respective navies. Several works are dedicated to admirals: Desceliers’s 1550 world chart bears the coat of arms of Claude d’Annebaut, Admiral of France from 1544 to 1552; Le Testu’s atlas is dedicated to Gaspard de Coligny, Admiral from 1553 to 1572, and his 1566 *mappamundi* bears the coat of arms of Coligny and of Vice-Admiral

55. Bessard, *Dialogue de longitude est-ouest*; Le Vasseur, “Geodrographie”; and Fournier, *Hydrographie*.

56. Fournier, *Hydrographie*, 549.

57. On the decoration of Norman charts, see Sarah Toulouse, “L’Hydrographie normande,” in *Couleurs de la Terre: Des mappemondes médiévales aux images satellites*, ed. Monique Pelletier (Paris: Seuil/Bibliothèque Nationale de France, 1998), 52–55.

58. Le Vasseur, “Geodrographie,” fol. 86v.

59. The Desceliers world charts, The Hague atlas, and the Harleian chart.

Charles de La Meilleraye; Jacques de Vaulx dedicated his “Premières œuvres” to Anne, duc de Joyeuse, appointed Admiral of the West in 1582; and Guérard’s 1634 world chart bears the coat of arms of Richelieu, grand master of French naval affairs from 1626.

These charts served princes and admirals in planning conquests and preparing expeditions; such a military role is particularly clear in the two extant charts by Jacques de Vau de Claye. Dated 1579, these show the coast of Brazil and the bay of Rio de Janeiro, and the information in their legends is predominantly military in character (for example, indicating where to raise troops and the best points of attack). What is more, the chart of the coast of Brazil bears the arms of Filippo Strozzi, which means the works must have been drawn up in view of the expedition to capture Rio planned by Catherine de’ Medici and Strozzi, who was her cousin.⁶⁰

Charts did not always reflect reality; they may have been an expression of political ambitions or dreams of conquest. Examples of this can be found in charts by Jacques de Vaulx (1584), Guillaume Le Vasseur (1601), and Pierre de Vaulx (1613). These contain such inscriptions as Nouvelle France (in North America) and La France antarctique (in South America), accompanied by the French coat of arms. There is no doubt that French navigators frequented such regions (the Normans were among the very first to do so), but projects of colonization remained just that, and all the various attempts made from 1584 to 1613 never established the sort of permanent settlement that the charts suggest.⁶¹

At the time, the primary aim of oceanic voyages and attempts at colonization was commercial development, which is reflected in the charts themselves. The features illustrated within the land masses and the commentaries that accompany the charts are often economic in character, describing the various products to be found in a particular region. The most striking examples of this focus are the numerous illustrations showing the redwood of Brazil, used for dyeing, or the gold mines of Central America. Indeed, the very choice of the regions to map was linked to the existing circuits of trade. For example, Norman shipping did not frequent the Mediterranean, and there is only one extant Norman chart that gives a detailed account of that sea—by Guérard, in 1633 (a work specifically commissioned by Richelieu).⁶² However, there were numerous Norman expeditions to Newfoundland, Brazil, and the coasts of West Africa—three regions that occur frequently in their charts of the Atlantic. Similarly, at the beginning

of the seventeenth century Norman navigators began to turn their interest to the far North, establishing a merchant company for trade with the region of Spitzberg,⁶³ and this shift is reflected in the work of Norman cartographers.⁶⁴ Finally, the very year in which Guérard drew a chart of Central America, 1633, was the year in which France was taking a keen interest in the Antilles.⁶⁵

CHARTS THAT REMAINED MANUSCRIPT WORKS

Although Norman cartographers did not innovate much, they followed current developments, and they kept up with the latest technical and geographical discoveries to incorporate them in their work. However, after 1635, Normandy produced no more charts. In part, this was due to the Wars of Religion, which had a particularly dire effect on this region and led to a decline in traffic through its ports (after 1630 the process accelerated, and Rouen, Dieppe, and Honfleur were supplanted by La Rochelle and Bordeaux). But the end of Norman cartography was also because the works produced had a very limited circulation. Norman charts remained manuscript works, and so were unable to compete with the printed atlases with which the Dutch began flooding the market at the end of the sixteenth century—works that could be acquired quickly and at less expense. It was not until the advent of Jean-Baptiste Colbert, at the end of the seventeenth century, that the teaching of hydrography in France was put on a solid basis, with marine cartography undergoing a renaissance most famously exemplified by the publication of the printed atlas *Le neptune françois*.⁶⁶

60. On this expedition, which took place in 1582, see La Roncière, *Histoire de la marine française*, 4:168–92.

61. There were Nicolas Durand, chevalier de Villegagnon’s sorties in the Rio region (1555–60), Jean Ribault and René Goulaine de Laudonnière’s expeditions to Florida (around 1562–65), Catherine de’ Medici’s and Filippo Strozzi’s plans for the reconquest of Rio (1579–82), Samuel de Champlain’s voyages to Nova Scotia at the beginning of the seventeenth century, and those that Daniel de La Touche de La Ravardière and François de Razilly undertook to Brazil in 1612. See La Roncière, *Histoire de la marine française*, vol. 4.

62. Appendix 52.1, no. 35.

63. La Roncière, *Histoire de la marine française*, 4:675–80.

64. Dupont’s chart of the Atlantic (1625) and Guérard’s chart of northern Europe and Spitzberg (1628) (appendix 52.1, nos. 24 and 30).

65. La Roncière, *Histoire de la marine française*, 4:649–67.

66. The first edition dates from 1693.

APPENDIX 52.1 NORMAN CHARTS AND ATLASES

Author, Date, Title	Format, Size (cm)	Description	Location
1. Jean Rotz, atlas, 1542, "The Boke of Idrography, John Rotz"	Manuscript on parchment, thirty-two folios, 59 × 39	The first six folios are a text on nautical science. The rest of the manuscript is an atlas of eleven regional charts, covering the whole world, and one world map. Put together, the regional charts would form a world map of 213.5 × 396.5 cm.	BL, MSS., Royal MS. 20.E.IX
2. Jean Rotz (attributed to), Channel chart, around 1542, unsigned, without location or date	Manuscript on paper, two sheets assembled, 44 × 91		BL, MSS., Cotton MS. Aug. I, vol. II, 65–66
3. Harleian chart, around 1545, anonymous, without location or date	Manuscript on parchment, six sheets assembled, 118 × 246	Chart representing all the lands of the world except the middle western coast of North America. The Pacific Ocean is not represented.	BL, Add. MS. 5413
4. The Hague Atlas, around 1545, anonymous, without location or date	Manuscript on parchment, thirty-eight folios, 62 × 43	Contains fourteen regional charts, representing Europe, Africa, and America, and some notions of nautical science (see fig. 52.5).	The Hague, Koninklijke Bibliotheek, MS. 129 A 24
5. Pierre Desceliers, world chart, 1546, "Faicte a Arques par [Pierre Desceliers, presbtre], 1546"	Manuscript on parchment, four sheets assembled, 128 × 254	Chart representing all the lands of the world except the middle western coast of North America. The Pacific Ocean is not represented (see fig. 52.1).	Manchester, John Rylands University Library, Bibliotheca Lindesiana, French MS. 15
6. The Vallard Atlas, 1547, anonymous, Dieppe	Manuscript on parchment, thirty-four folios, 39 × 28.5	The first four folios are a text on nautical science. The rest of the manuscript is an atlas of fifteen regional charts representing the whole world except northern Europe and Asia and the western coast of America (see plate 62).	San Marino, Huntington Library, MS. HM 29
7. Pierre Desceliers, world chart, 1546, "Faicte a Arques par Pierre Desceliers, presbtre, l'an 1550"	Manuscript on parchment, four sheets assembled, 139 × 219	Chart representing all the lands of the world except the middle western coast of North America. The Pacific Ocean is not represented.	BL, Add. MS. 24065
8. Pierre Desceliers, world chart, 1546, "Faicte a Arques par Pierre Desceliers, presbtre, 1553"	Manuscript on parchment, four sheets assembled, 126.5 × 210	Chart representing all the lands of the world except the middle western coast of North America. The Pacific Ocean is not represented.	Formerly owned by Hans Wilczek, in Kreuzenstein, Austria, where it was destroyed by a fire on 24 April 1915. A facsimile was made in 1901 by Eduard Sieger, Geographische Gesellschaft, Vienna.

APPENDIX 52.1 (*continued*)

Author, Date, Title	Format, Size (cm)	Description	Location
9. Nicolas Desliens (attributed to), atlas, around 1555, unsigned, without location or date	Manuscript on parchment, twelve folios, 32.5 × 26	Six charts covering the whole world except the western coast of North America.	New York, Pierpont Morgan Library, M 506
10. Guillaume Le Testu, atlas, around 1556, "Cosmographie universelle selon les navigateurs tant anciens que modernes, par Guillaume Le Testu, pillotte en la mer du Ponent de la ville françoise de Grace," Le Havre, 1555 (i.e., 1556)	Manuscript on paper, fifty-nine folios, 53.5 × 38	Six world maps and fifty regional charts covering the whole world.	Vincennes (France), Bibliothèque du Service Historique de l'Armée de Terre, Bibl. MS. 607
11. Nicolas Desliens, world chart, 1561, "Faicte a Dieppe par Nicolas Desliens, 1541" (sic for 1561)	Manuscript on parchment, one sheet, 57.5 × 104	Chart representing all the lands of the world. The Pacific Ocean is not represented. This chart was thought destroyed. Although it suffered water damage after the Dresden bombings in 1945, causing the colors to disappear and the parchment to crinkle, the chart does still exist. There is a facsimile, made in 1903 and slightly smaller (53 × 96.5 cm) than the original; see Viktor Hantzsch and Ludwig Schmidt, eds., <i>Kartographische Denkmäler zur Entdeckungsgeschichte von Amerika, Asien, Australien und Afrika</i> (Leipzig: W. Hiersmann, 1903), II–IV.	Dresden, Sächsische Landesbibliothek, Geogr. A 52 m
12. Nicolas Desliens, world chart, 1566, "A Dieppe, par Nicolas Desliens, 1566"	Manuscript on parchment, one sheet, 27 × 45	Chart representing all the lands of the world except the middle western coast of North America. The Pacific Ocean is not represented. A 1567 example of this chart, almost identical but slightly larger (28 × 46 cm) is kept in London, National Maritime Museum, MS. 35-9936C/P2 (G 201 : 1/51). It is also signed by Desliens. A third example made in 1568, unsigned (attributed to Pierre Hamon), 28.5 × 45 cm, is also kept in London, National Maritime Museum, MS. 35-9935C/P1 (G 201 : 1/52). It was found in the papers of Hamon, writing teacher of Charles IX, who was hanged in 1569. The attribution to Hamon was proposed by the Maggs Brothers sale catalog, comparing it with a map of France of 1568 bearing his signature (now at the Pierpont Morgan Library, M 980).	BNF, Cartes et Plans, Rés. Ge D 7895

APPENDIX 52.1 (*continued*)

Author, Date, Title	Format, Size (cm)	Description	Location
13. Guillaume Le Testu, world chart, 1566, "Ceste carte fut pourtraicte en toute perfection tant de latitude que longitude par moy, Guillaume Le Testu, pillotte royal natif de la ville françoise de Grace, [. . .] et fut achevé le 23 ^e jour de may 1566."	Manuscript on parchment, one sheet, 79 × 118	World chart in two hemispheres, leaving some regions undetermined (northern Europe, Labrador, California).	BNF, Cartes et Plans, Rés. Ge AA 625
14. Jean Cossin, world chart, 1570, "Carte cosmografique ou Universelle decription du monde avec le vrai traict des vens. Faict en Dieppe par Jehan Cossin, marinnier, en l'an 1570."	Manuscript on parchment, one sheet, 25.5 × 45	World chart.	BNF, Cartes et Plans, Rés. Ge D 7896
15. Jacques de Vau de Claye, chart of Brazil coast, 1579, "Jacques de Vau de Claye m'a fait en Dieppe l'an 1579."	Manuscript on parchment, one sheet, 45 × 59	Chart of the Brazil coast from equator to Rio Real.	BNF, Cartes et Plans, Rés. Ge D 13871
16. Jacques de Vau de Claye, chart of Rio de Janeiro bay, 1579, "Le vrai pourtraict de Genevre et du cap de Frie. Jacques de Vau de Claye" [Dieppe, 1579].	Manuscript on parchment, one sheet, 66.5 × 50	Chart of Rio de Janeiro bay (Guanabara Bay), from Cabo Frio to Pot a beure (Sugar Loaf Mountain).	BNF, Cartes et Plans, Rés. Ge C 5007
17. Lyons Atlas, around 1580, anonymous, without location or date	Manuscript on parchment, thirty-four folios, 38 × 29	One world map and eleven regional charts covering the whole world except the western coast of America and northern Asia.	Lyons, Bibliothèque Municipale, MS. 176
18. Jacques de Vaulx, treatise, 1583, "Les premières œuvres de Jacques de Vaulx, pillote en la marine, contenantz plusieurs demonstrances, reigles praticques, segrez et enseignemntz très necessaires pour bien et seurement naviguer par le monde . . .," Le Havre	Manuscript on parchment, thirty-four folios, 44.5 × 31.5	Ten charts, both world and regional.	BNF, Manuscripts, MS. fr. 150. Another example of this treatise, written in 1584 but almost identical, is kept under the call number MS. fr. 9175.

APPENDIX 52.1 (*continued*)

Author, Date, Title	Format, Size (cm)	Description	Location
19. Jacques de Vaulx, chart of the coasts of America, 1584, "Ceste carte a esté faicte par Jacques de Vaulx, pilote entreteu pour le roy en la Maryne, au Havre, 1584."	Manuscript on parchment, one sheet, 81 × 58	East coast from Labrador to about 42°S, west coast from the entrance of the California gulf (La Trinité) to Chile. This chart was originally the western part of an Atlantic chart (see fig. 52.2).	BNF, Cartes et Plans, Rés. Ge C 4052
20. Unsigned atlas known as the Pasterot Atlas, second half of the sixteenth century, anonymous, "Le livre de la marine du pilote Pasterot," ca. 1587	Manuscript on paper, seventy-nine folios, 56 × 40	Seventy-eight regional charts, some unfinished, covering the world except northern Europe and northern Asia. Some regions are represented several times: those charts might have been prepared to make several atlases, but being unfinished, were bound together in an incoherent order (see fig. 52.6).	BL, Eg. MS. 1513
21. Guillaume Le Vasseur, chart of the Atlantic, 1601, "1601, A Dieppe, par Guillaume Le Vasseur, le 12 de juillet"	Manuscript on parchment, one sheet, 74.5 × 99	European coasts from Hamburg to Cape Matapan, African coasts from Cyrene to Cape of Good Hope, eastern American coasts from Labrador to the Rio de la Plata, and western American coasts from Nicaragua to Concepción.	BNF, Cartes et Plans, S.H. Archives n°5
22. Pierre de Vaulx, chart of the Atlantic, 1613, "Ceste carte a esté faicte au havre de Grace par Pierre de Vaulx, pilote geographe pour le roi, l'an 1613."	Manuscript on parchment, one sheet, 68 × 95.5	European coasts from L'Escau (the Schelde River) to the Dalmatian coast, African coasts from Libya to Cape Fria (in Namibia), eastern American coasts from Labrador to Rio de Janeiro, and western American coasts from Acapulco to Anegade Point in Chile.	BNF, Cartes et Plans, S.H. Archives n°6
23. Jean Dupont, chart of the Northern Atlantic and of Arctic Ocean, 1625, "Faicte par Jean Dupont de Diepe, 1625"	Manuscript on parchment, one sheet, 58.5 × 60	European coasts from Kanen to Bordeaux, Great Britain and Ireland, northern coast of Iceland, coasts of Greenland and Spitzbergen.	BNF, Cartes et Plans, S.H. Archives n°8
24. Jean Dupont, chart of the Atlantic, 1625, "Par Jean Dupont de Diepe, 1625"	Manuscript on parchment, two sheets once assembled, 77 × 107	European coasts from Escaut (Schelde) to Genoa, African coasts from Tunis to Cape of Good Hope, eastern American coasts from the St. Lawrence to the Rio de la Plata.	BNF, Cartes et Plans, S.H. Archives n°9
25. Jean Dupont, chart of the Golfe de Gascogne, 1625, "Ce plan fait par Jan Dupont de Diepe, pillotte expérimenté en la marine, 1625"	Manuscript on parchment, one sheet, 73.5 × 56.5	Coasts of France from Pointe du Raz to Saint-Jean-de-Luz.	BNF, Cartes et Plans, S.H. Port. 48 Div. 0 pièce 1
26. Jean Guérard, world chart, 1625, "Nouvelle description hydrographique de tout le monde, carte faite en Dieppe par Jean Guérard l'an 1625"	Manuscript on parchment, one sheet, 51 × 75	World chart with a plan of Dieppe in the northwest corner.	BNF, Cartes et Plans, S.H. Archives n°10

APPENDIX 52.1 (*continued*)

Author, Date, Title	Format, Size (cm)	Description	Location
27. Jean Guérard, chart of the coasts of France, 1627, "Description hydrographique des costes, ports, havres et rades du royaume de France. Carte faite en Dieppe par Jean Guérard, 1627."	Manuscript on parchment, two sheets assembled, 135 × 80	Channel and Atlantic coasts: English coasts from the Thames to Cardiff, French and Spanish coasts from Boulogne to Navia.	BNF, Cartes et Plans, S.H. Archives n°11
28. Jean Guérard, chart of the coasts of France, 1627, "Description hydrographique de la France. Carte faite en Dieppe par Jean Guérard, 1627."	Manuscript on parchment, two sheets assembled, 119.5 × 80	Channel and Atlantic coasts: English coasts from London to Cornwall, French and Spanish coasts from Oostende to Ribadeo.	BNF, Cartes et Plans, S.H. Archives n°12
29. Jean Guérard (attributed to), atlas of the coasts of France, around 1627, unsigned, "Description generale de la coste maritime du royaume de France en la mer Occeane"	Manuscript on paper, seventeen folios, 38 × 30	Contains a general map and fourteen charts of the Channel and Atlantic coasts.	BL, Add. MS. 48021 A
30. Jean Guérard, chart of northern Europe, 1628, "Carte faite en Dieppe par Jean Guerard, l'an 1628"	Manuscript on parchment, two sheets assembled with two small pieces in the north, 86 × 118	Northern Europe coasts from Novaya Zemlya to Bergen in Norway, and the Spitzbergen. Details in seven cartouches: Kola River, Vardø, Kil'den Island, Arkhangelsk, and the like.	BNF, Cartes et Plans, S.H. Archives n°39
31. Guillaume Le Vasseur (attributed to), treatise, around 1630, unsigned, "Des commancemens de l'hydrographie ou Art de naviger"	Manuscript on parchment, twenty-two folios, 33 × 27.5	Treatise containing a world chart.	Two copies are known: Dieppe Public Library, MS. 294, and Harvard College Library, Department of Printing and Graphic Arts, MS. typ 33 (this example is identical but much smaller, 165 × 170 mm). It was first attributed to Guérard.

APPENDIX 52.1 (*continued*)

Author, Date, Title	Format, Size (cm)	Description	Location
32. Spitzbergen chart, around 1630, anonymous, without location or date	Manuscript on parchment, 46 × 63.5	Chart depicting the west coast of the Spitzbergen. It was probably part of an atlas and is very close to a lost Norman chart described by E. T. Hamy in “Les Français au Spitzberg au XVII ^e siècle,” <i>Bulletin de Géographie Historique et Descriptive</i> , 1895, 159–82, but it is definitely not the same. It was recently identified by William Frank, curator at the Huntington Library.	San Marino, Huntington Library, MS. HM 47
33. Jean Guérard, chart of the Atlantic, 1631, “Carte faite en Dieppe par Jean Guerard, 1631”	Manuscript on parchment, three sheets assembled, with a small piece in the southeast, 116 × 158 (A quarter of the chart, a fourth sheet to complete it, is missing.)	European coasts from Rotterdam to Constantinople, African coasts from Libya to the Cape of Good Hope, eastern American coasts from the St. Lawrence to Rio de Janeiro, and western American coasts from La Neuve Espagne (Guatemala) to the Panama gulf (see fig. 52.4).	BNF, Cartes et Plans, S.H. Archives n°14
34. Jean Guérard, chart of Central America, 1633, “Carte faite a Dieppe par Jean Guerard, 1633”	Manuscript on parchment, 100 × 75	Central America and the Antilles.	Dieppe, Château-Musée, Inv. 889.23.1
35. Jean Guérard, chart of the Mediterranean Sea, 1633, “Carte faite en Dieppe par Jean Guérard, 1633”	Manuscript on parchment, six sheets assembled, 86 × 212	The Mediterranean Sea and the Black Sea, and the Atlantic coasts from Ouessant (Île d’Ouessant) to Sainte Croix. Plans of nine harbors in cartouches (Marseille, Eres, Venice, Brindisi, Rovigno, San Pedro, Catarro, Gallipoli, Almería).	Paris, Service Hydrographique et Océanographique de la Marine, Port. 63, pièce 14
36. Jean Guérard, world chart, 1634, “Carte universelle hydrographique, faite par Jean Guerard, l’an 1634”	Manuscript on parchment, one sheet, 37 × 48	World chart.	BNF, Cartes et Plans, S.H. Archives n°15
37. Jean Guérard, atlas, 1635	Manuscript on parchment, four volumes, 35 × 48	Two volumes containing nine and fourteen charts, covering Europe, Asia, and Africa. One volume containing seven charts, covering western America. One volume containing seven charts, covering eastern America.	Istanbul, Harbiye, Askeri Müze, MSS. 1727 and 1828 Istanbul, Topkapi Sarayi Müzesi, Inv. A 3714 Vienna, Österreichische Nationalbibliothek, catalogue n° 7474