

14 • Islamic Charting in the Mediterranean

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INTRODUCTION

The evidence of sea charts, ship design, and navigational terminology and practice suggests a great deal of interaction between the marine traditions of Islamic and Christian states bordering the Mediterranean. This chapter examines the corpus of Arabic and Turkish portolan charts dating from the fourteenth to the seventeenth centuries, focusing on their relation to their European counterparts. As in volume 1 of this *History*, the term “portolan” is reserved for a text of sailing directions; “portolan chart” and “portolan atlas” are used for its cartographic representations. All the charts discussed in this period are manuscript; unlike their Western counterparts, there is no record that any traditional Islamic charts were printed.

The extant cartographic record can only hint at the interplay between the diverse cultures of two faiths that surrounded the Mediterranean. No examples of Ottoman Turkish portolans earlier than 906/1500 are known to have existed, but we have four charts from this early period made in the Maghreb. After a brief discussion of these artifacts, I will analyze the work of Pīrī Reʿīs and the charts of both the Ottoman portolan atlases and the al-Sharafī al-Şifāqī family made at the height of Turkish naval power in the mid-sixteenth century (see appendix 14.1 for a full listing of these charts).¹ This record suggests that chartmaking centers may have existed in North Africa, in the vicinity of Tunis and Tripoli, and certainly at the Ottoman capital of Istanbul and its surrounding coastal region. While the corpus of maps continues to grow in number, the subject merits further research.

The record also reveals that Islamic chartmaking was heavily influenced by European models, but the exact nature of this relationship is undetermined. There was more involved than the mechanical copying of coastal outlines and the adaptation of place-names to Arabic or Turkish. But whether this signifies the existence of a “charting tradition” or a “school of chartmakers” in these cultures is far from clear. The voluminous literature on these charts has tended to be somewhat nationalistic from both the Islamic and the Western viewpoints. The latter has tended to stress an almost complete reliance on Italian and Catalan models, while the former has

stressed the independence of the Islamic tradition. As I will show, there is truth in both assertions, depending on which charts are being discussed. All we can say with certainty is that chartmakers of North Africa and Ottoman Turkey worked in relative independence of each other, even if their maps were derived from or influenced by the same European sources.

ARAB PORTOLAN CHARTS

Four marine charts are grouped together for discussion in this section because they are in Arabic and all closely follow the content, format, and style of Italian and Catalan portolan charts. They are not direct copies, however, since all show the addition of considerable Arabic toponymy. Three of the charts were prepared in the Maghreb and are earlier than A.D. 1500, therefore representing the earliest extant examples of Islamic marine mapping. Circumstances regarding the origin of the fourth chart are uncertain.

The earliest of the extant charts in Arabic, the “Maghreb chart,” has been dated by Vernet Ginés to about 730/1330 (fig. 14.1), on the grounds of a higher density of place-names in England and Ireland than is found on thirteenth-century charts, though it probably predated the Angelino Dulcert chart of A.D. 1339.² At first impres-

1. For a general background to the Ottoman navy, see İsmail Hakkı Uzunçarşılı, “Bahriyya: The Ottoman Navy,” in *The Encyclopaedia of Islam*, new ed. (Leiden: E. J. Brill, 1960–), 1:947–49; Andrew C. Hess, “The Evolution of the Ottoman Seaborne Empire in the Age of Oceanic Discoveries, 1453–1525,” *American Historical Review* 75 (1970): 1892–1919; Colin H. Imber, “The Navy of Süleyman the Magnificent,” *Archivum Ottomanicum* 6 (1980): 211–82; and Kâtib Çelebi, *Tuhfetü'l-kibâr fi esfârî'l-bihâr* (Gift to the notables on the subject of naval campaigns), first published in 1141/1729; see the modern Turkish edition by Orhan Şaik Gökyay (Istanbul: Milli Eğitim, 1973) and a partial English translation, *The History of the Maritime Wars of the Turks*, trans. James Mitchell (London: Printed for the Oriental Translation Fund, 1831). An excellent general bibliography to the subject of Ottoman maritime cartography is found in Wilhelm Leitner, “Die türkische Kartographie des XVI. Jhs.—aus europäischer Sicht,” in *Proceedings of the Second International Congress on the History of Turkish and Islamic Science and Technology*, 28 April–2 May 1986, 3 vols. (Istanbul: İstanbul Teknik Üniversitesi, 1986), 1:285–305, esp. 293–98.

2. Milan, Biblioteca Ambrosiana, MS. S.P. II 259; see Juan Vernet Ginés, “The Maghreb Chart in the Biblioteca Ambrosiana,” *Imago*

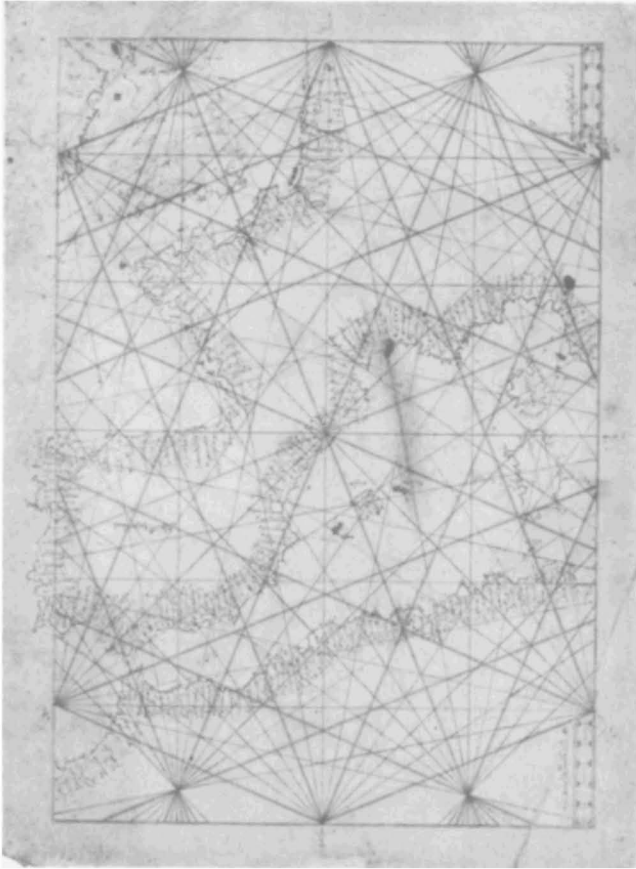


FIG. 14.1. THE MAGHREB CHART. This manuscript chart is drawn on paper in black and red ink with place-names in Maghribī script. The script cannot be used for precise paleographic dating, because little stylistic change took place during the thirteenth and fourteenth centuries when the chart is believed to have been made. There is reason to believe the chart was produced in either Granada or Morocco—probably the former. It covers an area approximately from 33° to 55°N and 10°W to 11°E.

Size of the image: 24 × 17 cm. By permission of the Biblioteca Ambrosiana, Milan (MS. S.P. II 259).

sion, in its simplicity and lack of decoration, the chart bears all the characteristics of an early Western portolan chart, with the familiar pattern of radiating rhumb lines, unnumbered scales, and names drawn perpendicular to the trend of the coastline. Only the Maghribī script appears to indicate its origin. The toponymy is of mixed derivation: Arabisms, Catalanisms, Italianisms, and Hispanisms are found for words such as “cape” and “gulf.” Of the 202 identifiable place-names (not including those on the North African coast, which are all Arab or Berber in origin), 48 may be considered of Arab origin. The long, prominent name in the middle of the Iberian Peninsula reads Wasaṭ Jazīrat al-Andalus (Center of the Peninsula al-Andalus) reflecting the earlier use of the name “Andalusia” to refer to the whole peninsula.

William Brice notes that the rhumb line arrangement is almost identical to the Angelino de Dalorto chart of A.D. 1325, suggesting that one was copied from the other and adding that the two may, of course, have been copied from a single common source.³ From the alignment of a northerly rhumb (one of sixteen) near the center of the chart, crossing Cape Nao in southeastern Spain and Beachy Head in southern England (both approximately on the same meridian), the rotation is about 13.7°. The average magnetic declination on the whole chart is about 6°. The legends state that each whole scale (labeled “house” in Arabic) represents 100 “miles”; from internal measurement, it may thus be calculated that the “mile” in use equaled about 1.9 statute miles.

A second example is a chart made by Ibrāhīm ibn Aḥmad al-Kātibī of Tunis in 816/1413–14. It covers the entire Mediterranean and includes a diagram of the lunar mansions (fig. 14.2). A red arabesque border and brilliant pigments used to color the Mediterranean islands and the mouths of the Nile and Danube rivers are prominent features of the chart. There are no flags and pennons, elaborate wind roses, or vignettes except for two small creatures (one appears to be a lion) represented on the tip of Scandinavia, which barely appears at the top of the chart. Place-names are written in red and black in *Maghribī* script. The city of Tunis, where the chart was made, is represented as a castle, alongside which is a golden symbol of the governing Hafsid dynasty. The circumstances of how this chart came to the Topkapı Sarayı library are not known, but some scholars believe it may have been there already at the time of Süleymān the Magnificent (r. 926–74/1520–66).⁴

Slightly more attention has been given to another chart from the fifteenth century by Ibrāhīm al-Mursī, dated 865/1461 (fig. 14.3).⁵ This chart, drawn on gazelle hide, is of the entire Mediterranean and Black Sea, with a calendar in the neck of the parchment at its eastern end. Its margins are decorated in an arabesque red-and-white

Mundi 16 (1962): 1–16, esp. 4. This chart is drawn on paper rather than vellum, unusual for charts of this early date, and it is possible that more information on the map’s origin could be gleaned by examining the paper.

3. William C. Brice, “Early Muslim Sea-Charts,” *Journal of the Royal Asiatic Society of Great Britain and Ireland*, [1977], 53–61.

4. Istanbul, Topkapı Sarayı Müzesi, H. 1823; see İbrahim Hakkı Konyalı, *Topkapı Sarayında Deri Üzerine Yapılmış Eski Haritalar* (Istanbul: Zaman Kitaphanesi, 1936), 258–61 and pl. 8, and Doğan Uçar, “Über eine Portolankarte im Topkapı-Museum zu Istanbul,” *Kartographische Nachrichten* 37 (1987): 222–28.

5. Istanbul, Deniz Müzesi, no. 882; see Ettore Rossi, “Una carta nautica araba inedita di Ibrāhīm al-Mursī datata 865 Egira = 1461 Dopo Cristo,” in *Compte Rendu du Congrès International de Géographie (11th International Congress, Cairo, 1925)*, 5 vols. (Cairo: L’Institut Français d’Archéologie Orientale du Caire, 1926), 5:90–95, and Doğan Uçar, *Mürsiyeli İbrahim Haritası* (Istanbul: Deniz Kuvvetleri Komutanlığı Hidrografi Neşriyatı, 1981).

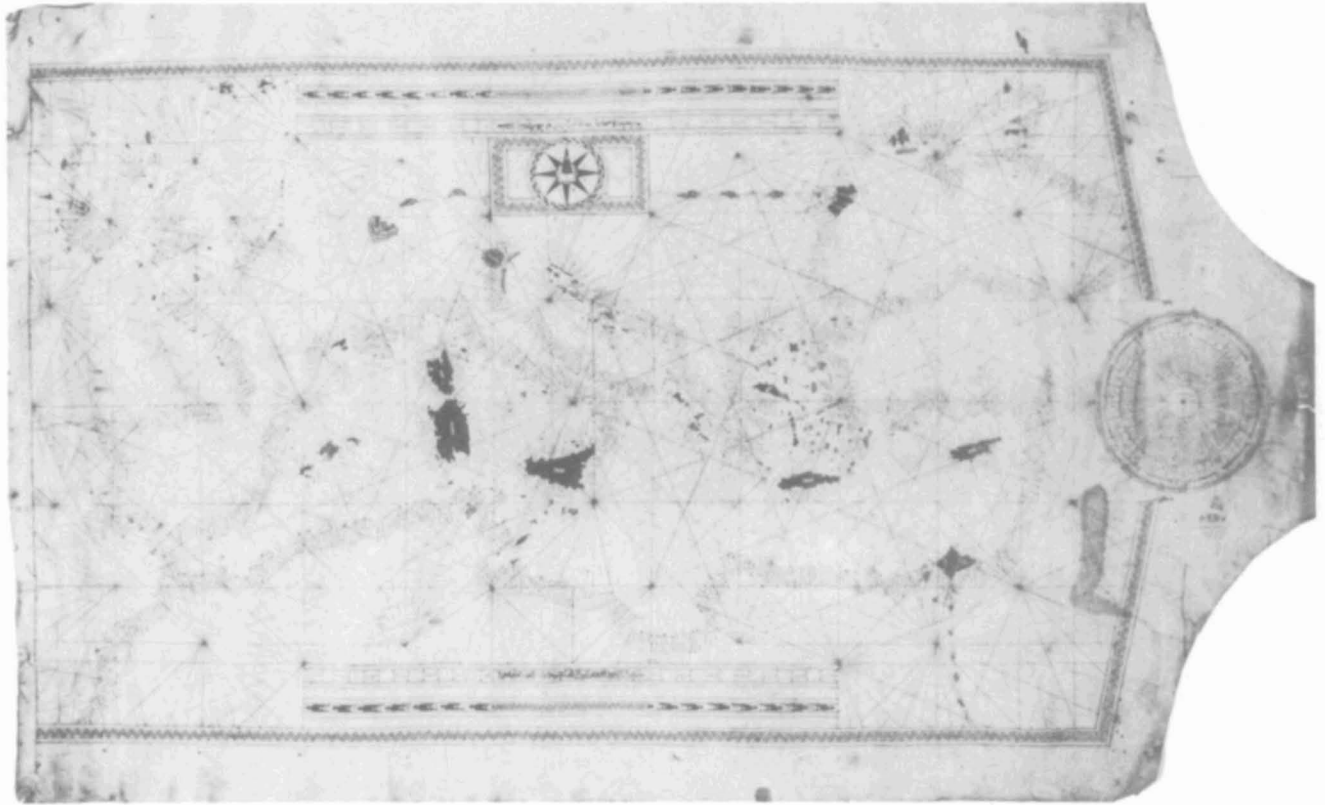


FIG. 14.2. THE AL-KĀTIBĪ CHART. Signed and dated by al-Katibī of Tunis in 816/1413–14, this chart of the Mediterranean and the Black Sea contains a lunar calendar in the neck of the vellum, two long, elaborate scales, and a single distinctive com-

pass rose top center with north highlighted. Size of the image: 54 × 88 cm. By permission of the Topkapı Sarayı Müzesi Kütüphanesi, Istanbul (H. 1823).

plaited border, and the place-names are written in Maghribī. A legend at the northern side of the chart reads in part: “I have made this [chart] in the city of Tripoli, may God protect it, on the 15th [of the venerated month] of Ramaḍān, in the year 865 [24 June 1461].” This is partially repeated on the southern border, where the maker identifies himself as the physician Ibrāhīm, originally from the city of Murcia in southern Spain. Among the Western charts it most closely resembles, Rossi lists several but singles out that of Albino da Canepa (A.D. 1480), with an almost identical representation of Venice and Genoa.⁶ He concludes that the main sources of the chart were Western but points out that considerable original additions to the toponymy of the Islamic territories have been made.

A final example of an Arab portolan chart does not fit well chronologically into this group, since it was probably drawn after the main period of Ottoman chartmaking had gathered momentum (fig. 14.4). This large chart is signed by Ḥājj Abū al-Ḥasan but is undated. The inclusion of the Cape of Good Hope and Madagascar in the southeast corner dates it as after 905/1499 (Vasco da Gama’s return from India), but the evidence of the flags

places it even later, in the reign of Süleymān the Magnificent.⁷ The coast of Scandinavia—with dense toponymy—has been straightened to fit the northern border and squares off the irregular shape of the vellum. In the south, similar license has been taken with a large part of the African continent, again bearing dozens of coastal place-names, which is diagrammatically fitted into the small space between the southern border of the chart and the irregular edge of the vellum.

PİRİ RE’İS

Indirect evidence suggests that charts and chartmaking were familiar to Ottoman mariners in the late fifteenth and early sixteenth centuries. During the reign of Sultan Bāyezīd II (r. 886–918/1481–1512), ambitious policies for the Ottoman navy (*baḥriye*) began to show notable success against the Venetians. Bāyezīd recruited Aegean

6. Rossi, “Carta nautica araba inedita,” 93 (note 5), and Tony Campbell, *The Earliest Printed Maps, 1472–1500* (London: British Library, 1987), 105.

7. Istanbul, Topkapı Sarayı Müzesi, H. 1822; see Konyalı, *Topkapı Sarayında*, 130–36 and pl. 2 (note 4).

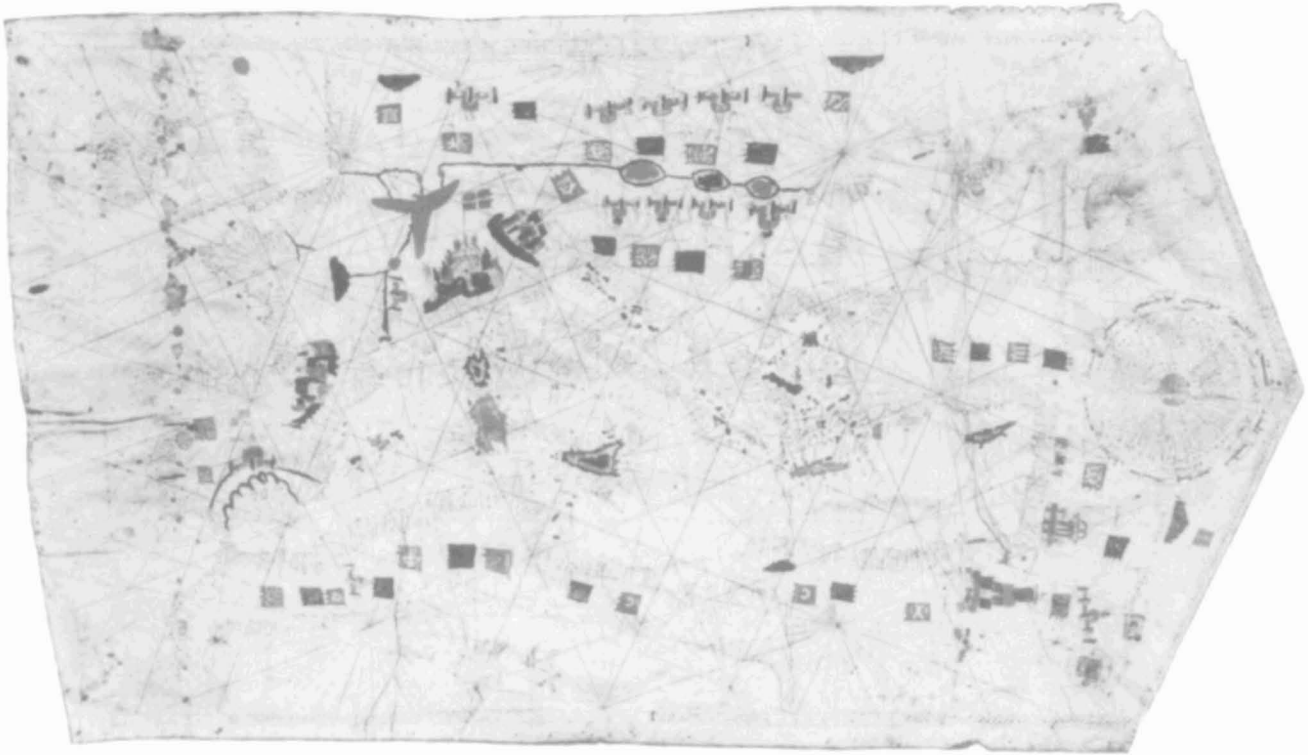


FIG. 14.3. THE AL-MURSĪ CHART. From legends on this chart, we learn that the physician Ibrāhīm al-Mursi made it in Tripoli in 865/1461. The Mediterranean islands are brightly colored in blue, red, green, and gold. The Danube River is prominently featured in green in the upper half of the chart, with three large islands and a string of brightly colored fortresses

along its banks. The geographical sources for this map are similar to those used on the Genoese chart by Albino da Canepa, with considerable additions in the Islamic territories. Size of the image: 48 × 89 cm. By permission of the Turkish Naval Forces from the collection of the Deniz Müzesi Komutanlığı, Istanbul (no. 882).

corsairs to serve as skippers on his ships, and with their expert skills the Ottoman sultan could claim supremacy in the eastern Mediterranean by 908/1503 with the capture of Korone, Methone, Navarino (Pylos), Lepanto (Naupaktos), and Durazzo (Durrës). As Brice and Imber have pointed out, the constant and increasing activities of the Turkish corsairs and official Ottoman fleets would have been difficult to accomplish without charts or sailing directions of some kind.⁸ However, in this early period it is difficult to firmly establish links between the Western portolans and portolan charts, made chiefly by the Italians and Catalans, and Ottoman naval activity associated with the making or use of maps.

The first direct evidence we have of Ottoman chart-making is several extant works by the naval captain Muḥyiddīn Pīrī Reʿīs (ca. 875–961/ca. 1470–1554). *Reʿīs* means captain in Turkish, but despite Pīrī Reʿīs's position and long experience in the Ottoman navy, almost no biographical information exists outside his own works, particularly the *Kitāb-i bahriye* (Book of maritime matters), a manual of sailing directions.⁹ His father's name was Hācī Meḥmed, and unconfirmed tradition has it that Pīrī Reʿīs was born at Gallipoli in the Dardanelles, which was then the most prominent Ottoman naval base. After

8. William C. Brice and Colin H. Imber, "Turkish Charts in the 'Portolan' Style," *Geographical Journal* 144 (1978): 528–29. At the great arsenals of Galata and Gallipoli, the imperial fleet was housed and repaired, specialized naval facilities were maintained, and experienced captains (*hāṣṣa reʿīs*), crews, and shipyard personnel were assembled. The Turks' principal competitors, both economically and militarily, were Italian city-states in the eastern Mediterranean and the Spanish Habsburgs in the west. As Ottoman naval power grew, a network of small flotillas protected interests in the Aegean, while the Levantine coast was the responsibility of fleets stationed at Alexandria and Rhodes. After the conquest of Egypt in 923/1517, the port of Suez gave direct Ottoman access to the Red Sea and the Indian Ocean, while corsairs in imperial employ controlled strategic ports along the North African coast. To support the Hungarian campaigns, several flotillas were maintained on the Danube.

9. Standard biographical sources include Paul Kahle, *Pīrī Reʿīs Bahriye: Das türkische Segelhandbuch für das Mittelländische Meer vom Jahre 1521*, 2 vols. (Berlin: Walter de Gruyter, 1926–27; idem, "Pīrī Reʿīs: The Turkish Sailor and Cartographer," *Journal of the Pakistan Historical Society* 4 (1956): 99–108; Abdūlhak Adnan Adivar, *La science chez les Turcs Ottomans* (Paris: G. P. Maisonneuve, 1939), 63–67, and the Turkish edition, *Osmanlı Türklerinde ilim*, 4th ed. (Istanbul: Remzi Kitabevi, 1982), 74–85; and Afetinan, *Life and Works of Pīrī Reis: The Oldest Map of America*, trans. Leman Yolaç and Engin Uzmen (Ankara: Turkish Historical Society, 1975). Other recent biographies and listings of literature are Klaus Kreiser, "Pīrī Reʿīs," in *Lexikon zur Geschichte der Kartographie*, 2 vols., ed. Ingrid Kretschmer, Johannes Dörfinger, and Franz Wawrik (Vienna: Franz Deuticke, 1986), 2:607–



FIG. 14.4. THE ḤĀJJ ABŪ AL-ḤASAN CHART. This richly ornamented chart is undated but can be assigned to the reign of Süleymān the Magnificent (mid-sixteenth century) from the evidence of the flags. In the neck of the vellum there is a prominent calendar including a compass rose with fleur-de-lis point-

ing east. Parts of the map have been distorted to fit the shape of the vellum.

Size of the original: 74 × 100 cm. By permission of the Topkapı Sarayı Müzesi Kütüphanesi, İstanbul (H. 1822).

886/1481 he is believed to have sailed with his uncle Kemāl Reʿīs, the corsair who took part in the Ottoman capture of Euboea (874/1470) and who was later called to official service as an admiral in the Ottoman navy.¹⁰ From 892/1487 to at least 916/1510, while intermittently on voyages along the North African coast, Pīrī Reʿīs gathered notes for his *Kitāb-i bahriye*. The voyages from Tunisia were particularly important to his subsequent charting activities. Djerba was the base from which Kemāl Reʿīs and his nephew made numerous voyages to transport Islamic (and some Jewish) refugees from Spain. Taking part in the bombardment of Málaga in 892/1487, when he was only sixteen or seventeen, Pīrī Reʿīs came to know many of the western Mediterranean coasts and harbors intimately.

After his uncle's death in 917/1511, Pīrī Reʿīs left the navy and returned to Gallipoli. It was there that he began work on both a map of the world (completed 919/1513) and the notes for the *Kitāb-i bahriye*. In 923/1517 he

returned to active duty in the Ottoman navy and was given command of several ships in the campaign of Sultan Selīm I (r. 918–26/1512–20) against Mamluk Egypt. The

9; Sevim Tekeli, "Pīrī Rais (or Reʿīs), Muḥyī al-Dīn," in *Dictionary of Scientific Biography*, 16 vols., ed. Charles Coulston Gillispie (New York: Charles Scribner's Sons, 1970–80), 10:616–19; Franz Babinger, "Pīrī Muḥyī 'l-Dīn Reʿīs," in *The Encyclopaedia of Islam*, 1st ed., 4 vols. and suppl. (Leiden: E. J. Brill, 1913–38), 3:1070–71; Fuad Ezgü, "Pīrī Reis," in *Islām ansiklopedisi*, 13 vols. (İstanbul: Millî Eğitim, 1940–88), 9:561–65; and Konyalı, *Topkapı Sarayında*, 5–64 (note 4). For information on Pīrī Reʿīs's life derived from the *Kitāb-i bahriye*, see Svät Soucek, "A propos du livre d'instructions nautiques de Pīrī Reʿīs," *Revue des Etudes Islamiques* 41 (1973): 241–55, and idem, "Tunisia in the *Kitāb-i bahriye* by Pīrī Reis," *Archivum Ottomanicum* 5 (1973): 129–296.

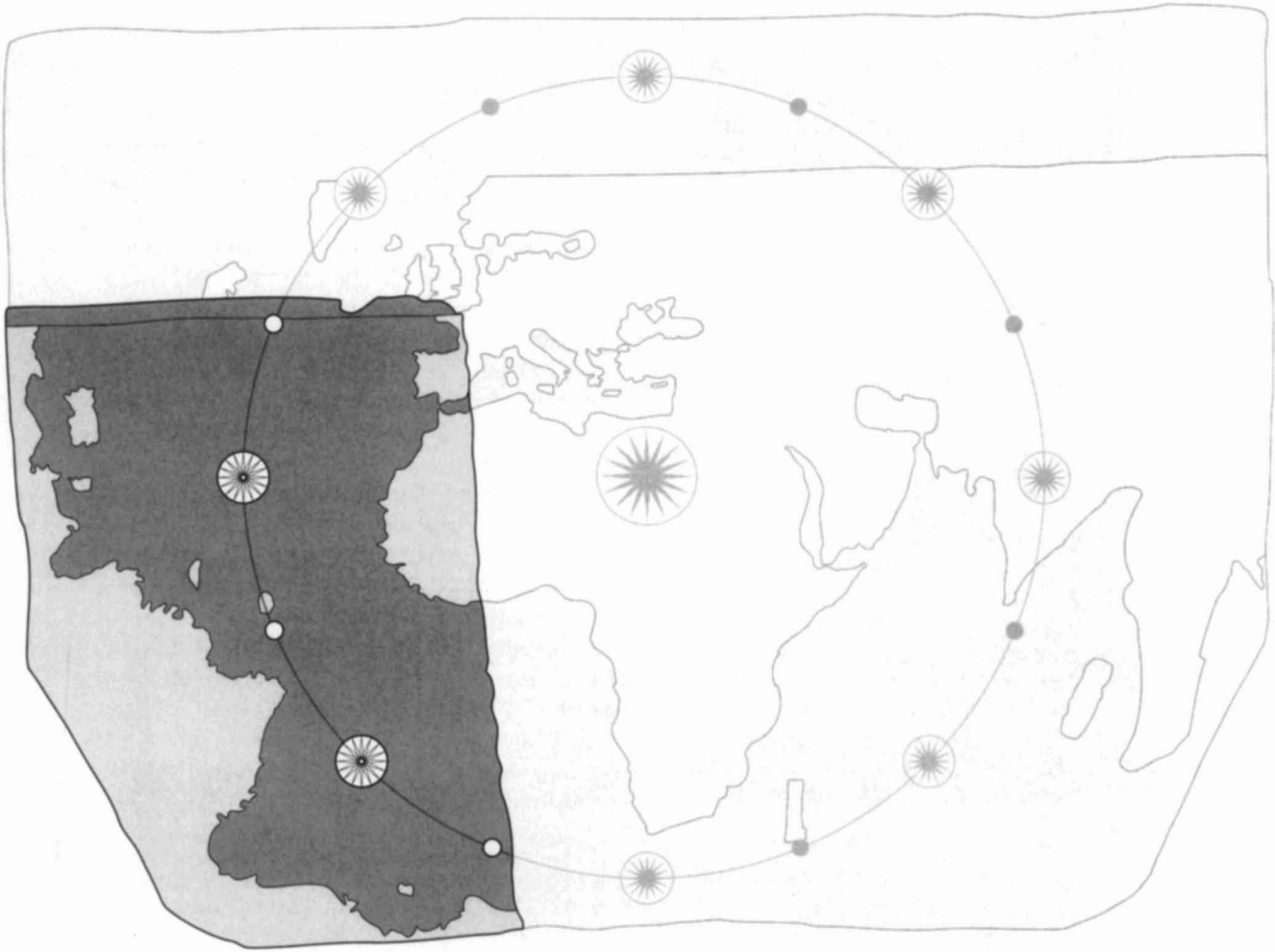
10. An Ottoman source suggests that Kemāl Reʿīs was a Turk originally from the Anatolian province of Karaman, and we may assume the same origin for Ḥācī Meḥmed, Pīrī Reʿīs's father. See Hans-Albrecht von Burski, *Kemāl Reʿīs: Ein Beitrag zur Geschichte der türkischen Flotte* (Bonn, 1928), 40–58, and Nejat Göyünç, "Kemāl Reʿīs," in *Encyclopaedia of Islam*, new ed., 4:881–82.



FIG. 14.5. ATLANTIC FRAGMENT FROM THE 1513 WORLD MAP OF PİRİ RE'İS. This is the only surviving fragment of a map of a large part of the known world drawn on several pieces of parchment. The circumstances surrounding its making as well as its sources are set out in its Arabic colophon (center left) and in the numerous legends in Turkish. In the long

legend inscribed on the South American mainland we are told that the sources included a copy of a map "of the Western Parts" by Columbus, apparently acquired from a Spanish prisoner.

Size of the original: 90 × 63 cm. By permission of the Topkapı Sarayı Müzesi Kütüphanesi, İstanbul (R. 1633 mük).



N.B. Reconstructed coastlines are generalized from a contemporaneous world map and are intended only as a conjectural indication of the possible geographical extent.

FIG. 14.6. POSSIBLE ARRANGEMENT AND EXTENT OF THE 1513 WORLD MAP. By superimposing the existing fragment (fig. 14.5) on the 1502 Cantino planisphere, it is possible to make a provisional reconstruction of the area covered by the remaining portion of Piri Re'is's whole map. The southern

and western edges of the fragment reflect the natural edges of the gazelle hide it was drawn on, and the northern edge is clearly meant to have been attached to an adjoining piece. The torn eastern edge of the parchment extended farther, but exactly how far is a conjectural matter.

first version of *Kitāb-i bahriye* appeared in 927/1521, and Piri Re'is hoped in vain that it would attract the attention of the new Sultan Süleymān. In 932/1526 he completed a second version of the *Kitāb-i bahriye*, still with the intent of gaining the sultan's favor. Sometime later he appears to have started work on another world map, although we know little about its content or even whether it was completed. Only the northwest corner of this planisphere has survived, signed in his hand and dated 935/1528.

Toward the end of his career he returned to Egypt, campaigned in the Red Sea, and was named Admiral of the Fleet of Egypt and India in 954/1547. He commanded an expedition against the Portuguese at Hormuz in 959/1552–53 that failed in its ultimate goal of taking

the citadel. He was called back to Cairo and executed in 961/1554 on the grounds of a debatable decision he had made as commander to avoid direct confrontation with Portuguese warships.¹¹

CHARTS OF THE NEW WORLD

In 919/1513, eight years before he completed the first version of the *Kitāb-i bahriye*, Piri Re'is produced the first and more famous of his two maps of the world. Only the Atlantic Ocean and the adjacent parts of the Old and

11. The exact date of his death has only recently become known through archival evidence; see Cengiz Orhonlu, "Hint Kaptanlığı ve Piri Reis," *Bellekten* (Türk Tarih Kurumu) 34 (1970): 234–54, esp. 246.

New World have survived from what was once a larger map (fig. 14.5).¹² It clearly shows the characteristics of a portolan chart in structure and style. The three-line Arabic colophon center left reads: “Composed by the poor Piri son of Hācī Meḥmed, known as paternal nephew of Kemāl Re’is, may God pardon them both, in the city of Gallipoli, in the month of Muḥarrem the sacred, year nine hundred and nineteen [March/April 1513].” There are many commentaries in Turkish. The longest, in the area of Brazil, describes the exploration of the Western Sea and Central America, focusing on the Columbus voyages. In a passage just below it, Piri Re’is recounts how he went about compiling the map:

This section explains how the present map was composed. No one has ever possessed such a map. This poor man [Piri Re’is] has constructed it with his own hands. Specifically, twenty maps and world maps—[the latter] are maps made at the time of Alexander the Great; they show the inhabited part of the world, and the Arabs call them *ca’feriye*¹³—eight such *ca’feriye*s, one Arab map of India, four maps recently made by the Portuguese that show Pakistan, India, and China drawn by means of mathematical projection, as well as a map of the Western Parts drawn by Columbus: [all these sources] have been brought to one scale, and the result is this map [*bir kıyās üzerine istihraç edip bu şekil hâşil oldu*].

Piri Re’is thus confirms that it was a world map compiled from some twenty Islamic and Western sources that he had gathered together, and these will be discussed below. The top border of the map, at which the drawing stops short of the edge of the vellum, seems to have been designed to fit into a northern sheet, and the curving shape of the southwestern part follows the natural neck and shoulder of the original deerskin or gazelle hide it was drawn on. The map has been torn longitudinally on its eastern edge. The line of separation runs along the eastern coast of Spain through West Africa and on through the southern Atlantic; there is even commentary in the Gulf of Guinea that has been cut short by this separation. A possible but admittedly conjectural reconstruction of the other parts of this map is given in figure 14.6. The size and extent of the whole chart shown there have been tentatively extrapolated from the five compass circles on the fragment. The center of the circle on which these wind roses lie can be plotted roughly in the Sahara Desert, at the approximate latitude of the Tropic of Cancer. Assuming that this large circle of wind roses lay in the center of the chart, the eastern and northern extent can be conjectured by superimposing the fragment on the 1502 Cantino planisphere.

In 923/1517, Piri Re’is presented the map to Selim I in Cairo after the latter’s conquest of Egypt. A passage in the *Kitāb-i bahriye* tells us about the event:

This poor man had previously constructed a map that displayed many more details of different kinds than maps hitherto in existence and even included recent maps of the Chinese and Indian seas that were until then unknown in the Ottoman Empire; and he presented this map to the late Sultan Selim Khan in Cairo, who graciously accepted it.¹⁴

Any use Sultan Selim made of the gift is not recorded, and the map fell into oblivion until 1929 when Gustav Adolf Deissmann, who was working in the Topkapı Sarayı Müzesi at the invitation of its director general, Halil Ethem Eldem, drew the surviving western portion to the attention of the German Orientalist Paul Kahle.

The discovery sparked worldwide interest that has endured owing to the map’s supposed connection with an earlier map Columbus made during his third voyage to the New World and sent to Spain in A.D. 1498.¹⁵ This original 1498 map is lost. However, we learn from the longest inscription on Piri Re’is’s chart that his uncle Kemāl Re’is had a Spanish slave who claimed to have accompanied Columbus on three of his voyages and who was a ready source of information about the New World.¹⁶ The same inscription states, “The coasts and islands [of the New World] on this map are taken from Colombo’s map.” Although it is never stated outright, we assume that this slave was the fortunate possessor of

12. Istanbul, Topkapı Sarayı Müzesi Kütüphanesi, R. 1633 mük. For a general description of the map, see Paul Kahle, *Die verschollene Columbus-Karte von 1498 in einer türkischen Weltkarte von 1513* (Berlin: Walter de Gruyter, 1933). I have not seen the English translation of this monograph (“The Lost Columbus Map of 1498 Discovered in a Turkish Map of the World of 1513”) that appeared in *Aligarh Muslim University Journal* (1935), but there is a shortened translation, “A Lost Map of Columbus,” in *Geographical Review* 23 (1933): 621–38. Further references may be found in Konyalı, *Topkapı Sarayında*, 64–129 (note 4); Adnan Adivar, *La science chez les Turcs Ottomans*, 59–62, and *Osmanlı Türklerinde ilim*, 74–77 (note 9); Charles H. Hapgood, *Maps of the Ancient Sea Kings: Evidence of Advanced Civilization in the Ice Age*, rev. ed. (New York: E. P. Dutton, 1979), 1–77; and Tekeli, “Piri Rais,” 616–19 (note 9).

13. The meaning of this term has remained unclear. It may be a reference to the seventh Abbasid caliph al-Ma’mūn (r. 198–218/813–33), in whose reign, according to the Turkish polyhistorian Muḥtafā ibn ‘Abdallāh Kātib Çelebi, one of the translations of Ptolemy’s *Geography* into Arabic was made. It is probably an echo of the Arabic name of Ptolemy’s *al-Jughrafiya*, owing to a graphic distortion easily made in the Arabic alphabet; see Konyalı, *Topkapı Sarayında*, 80–81 (note 4).

14. Piri Re’is, *Kitāb-i bahriye*; see *Kitāb-i bahriye*, Piri Reis, 4 vols., ed. Ertuğrul Zekai Ökte, trans. Vahit Çabuk, Tülây Duran, and Robert Bragner, Historical Research Foundation—Istanbul Research Center (Ankara: Ministry of Culture and Tourism of the Turkish Republic, 1988–), 1:42–43 (fol. 3a) (author’s translation).

15. Henry Vignaud, *Histoire critique de la grande entreprise de Christophe Colomb*, 2 vols. (Paris: H. Welter, 1911): 2:541–43.

16. We know that Kemāl Re’is captured several Spanish ships in a battle off the coast of Valencia in 907/1501. The slave was probably a prisoner from this engagement; see Piri Re’is, *Kitāb-i bahriye* (note 14).



FIG. 14.7. DETAIL OF THE CARIBBEAN FROM THE 1513 WORLD MAP. This section is thought to derive from a lost map of Columbus. It certainly reflects information before the voyage of Juan Díaz de Solís and Vicente Yáñez Pinzón in A.D. 1508–9. The large island in the center is Hispaniola, turned approximately ninety degrees; Cuba is represented as a wedge of land jutting out from the mainland and inclining southward, just as Columbus believed it to be. Top right is an illustration of the story of Saint Brendan, whose crew lit a fire on the back of a whale, mistaking it for an island. According to the legend on the map, this incident was taken from “ancient *mappae-mundi*.”

Size of the detail: ca. 39 × 29.5 cm. By permission of the Topkapı Sarayı Müzesi Kütüphanesi, Istanbul (R. 1633 mük).

a copy of the 1498 Columbus map, from which information was transferred onto Piri Re’is’s chart. The possibility that evidence of a lost map by Columbus should appear on an Ottoman map became a matter of pride for modern Turks (fig. 14.7). It played a definite role in Kemāl Atatürk’s two-pronged policy of encouraging the development of Turkish patriotism and of claiming for his country a rightful place in the framework of modern Western civilization.¹⁷ Almagià concludes, after comparing the place-names on the map with those associated with Columbus, that Kahle’s article might have been titled more appropriately “The imprint of Columbus on the Turkish map of 1513” and not “The missing map of Columbus of 1498 in a Turkish world map of 1513.”¹⁸

With regard to the other maps that Piri Re’is lists as sources, he probably acquired additional charts based on recent European exploration from ships captured by Turkish corsairs.¹⁹ In a legend in the southwest corner of his map, Piri Re’is states, “The Portuguese infidels have written it on their maps,” suggesting his source for the delineation of the South American coastline. The toponymy along the African coast is an interesting mixture of Portuguese and Turkish place-names. Piri Re’is may, in fact, have gathered a working collection of charts and other relevant materials during the years of his activity as a corsair as well as after he had “retired” to Gallipoli. The reference to maps of the inhabited world “made at the time of Alexander the Great” probably means those of Ptolemy. The four Portuguese maps showing India, Pakistan, and China “drawn by means of mathematical projection” could refer to either a coordinate structure or a rhumb line structure. However, Piri Re’is does not appear to have stirred much interest or attained recognition as a cartographer and expert in nautical science from the sultan or anyone else. Worse still, his tragic end in 961/1554 may also have caused an irretrievable dispersal of whatever interesting materials he possessed.

The sources of the Piri Re’is map of the Atlantic have been the subject of much speculation, the most improbable of which are those of Hapgood,²⁰ who argues that the map was constructed on a projection approximating the azimuthal equidistant centered on Cairo. This framework is used to account for the apparent shift in north orientation in various parts of the map, such as the Caribbean area and the coastline at the foot of the map, which he believes to represent Antarctica before it was covered by the ice cap. Here is not the place for a detailed critique of his arguments, overdue as that might be, but two brief observations need consideration. The first is

17. One of the results was Atatürk’s instruction to the Türk Tarih Kurumu (Turkish Historical Society) that a published facsimile of the map be made, together with a thorough analysis (in Turkish, German, French, English, and Italian) in an accompanying volume; see *Piri Reis Haritası*, intro. Yusuf Akçura (Istanbul: Devlet, 1935; slightly revised edition, Istanbul: Deniz Kuvvetleri Komutanlığı Hidrografi Neşriyatı, 1966).

18. Roberto Almagià, “Il mappamondo di Piri Reis e la carta di Colombo del 1498,” *Bollettino della Reale Società Geografica Italiana* 71 (1934): 442–49, esp. 449.

19. For a general discussion of Ottoman interest and sources regarding the New World, see Thomas D. Goodrich, *The Ottoman Turks and the New World: A Study of “Tarih-i Hind-i garbi” and Sixteenth-Century Ottoman Americana* (Wiesbaden: Otto Harrassowitz, 1990); see also idem, “Ottoman Americana: The Search for the Sources of the Sixteenth-Century *Tarih-i Hind-i garbi*,” *Bulletin of Research in the Humanities* 85 (1982): 269–94; Abbas Hamdani, “Ottoman Response to the Discovery of America and the New Route to India,” *Journal of the American Oriental Society* 101 (1981): 323–30; and Andrew C. Hess, “Piri Reis and the Ottoman Response to the Voyages of Discovery,” *Terrae Incognitae* 6 (1974): 19–37.

20. Hapgood, *Maps of the Ancient Sea Kings* (note 12).

that the map is drawn on a shoulder of animal hide and thus is naturally curved in one corner. The second is that it was not unusual for cartographers to adjust the orientation of a coastline to fit the surface available. For example, drastic changes of scale and orientation are present on the maritime chart of Ḥājj Abū al-Ḥasan (fig. 14.4), where the coastline of southern Africa is crammed in to fit the vellum.

A second map signed by Pīrī Reʿīs showing the Americas, dated 935/1528, is again a fragment of a larger map (plate 21). The view has been advanced that it was the first sheet of an unfinished world map.²¹ It is highly decorative and contains an elaborate border, compass roses, and two large scales, the graduation of which is explained in a note as ten miles to each small division and fifty miles to each large division. The map has been overshadowed by its more famous predecessor, but the representation of the Azores, the coasts of Greenland, Labrador, and Newfoundland, Florida, the Yucatán Peninsula, the West Indies, and the coastline between Honduras and Venezuela surely deserves further comparison with the Western planispheres of the same period.²²

KITĀB-I BAḤRĪYE

The *Kitāb-i baḥrīye* (Book of maritime [or naval] matters) is a volume of sailing directions divided into chapters, each chapter devoted to a specific location or region of the Mediterranean and accompanied by a chart. The work was produced in two versions: an earlier, shorter version (completed 927/1521) consisted of 130 chapters and charts; the later version was more extensive, with 210 charts (completed 932/1526). Both versions survive in a number of manuscripts by different copyists (appendix 14.2); none of the manuscripts has been identified as by Pīrī Reʿīs's own hand.²³ Also, the number of charts in the extant manuscripts varies owing to later copyists' inclusion of new charts and views unrelated to the chapters.

The text of both versions begins with a brief prose dedication and an explanation of why Pīrī Reʿīs composed the book: the enthronement of Sultan Süleymān in 926/1520 had prompted individuals to offer the monarch "presents from various branches of the sciences for his auspicious abode and felicitous court so that, finding a place in the world [of high society] thanks to the auspicious sovereign's unequalled favor, they might attain fame and honor."²⁴ The *Kitāb-i baḥrīye* was Pīrī Reʿīs's presentation. An introduction follows this opening statement. That of the second version, which is much longer and in verse, is of special interest because the author engages in a preparatory discussion of the art of navigation and chartmaking.²⁵ Pīrī Reʿīs emphasizes that this knowledge is necessary for the safety of the mariner. He

also notes that however indispensable a portolan chart may be, it lacks the flexibility of verbal expression that alone can describe all aspects and details of navigation:

Such knowledge cannot be known from maps; it must be explained.

Such things cannot be measured with dividers,
And that is why I have discoursed by writing at such length.²⁶

Pīrī Reʿīs discusses the knowledge of storms and winds, the compass, portolan charts, and astronomical navigation. He also describes the world's oceans, the lands surrounding them, and the European voyages of discovery, including the Portuguese penetration into the Indian Ocean and Columbus's discovery of the New World.

In addition to this long introduction, the second version also has an epilogue in verse to inform the reader of the circumstances that led to its revision. Pīrī Reʿīs was the pilot of a ship that in 931/1524–25 took the grand vizier Ibrāhīm Paşa to Egypt to settle disturbances provoked by a rebellious governor. During this voyage, the mariner showed the vizier his *Kitāb-i baḥrīye* in its original form, which had failed to gain the sovereign's attention. Ibrāhīm Paşa advised Pīrī Reʿīs to make a more polished copy, worthier of its intended august recipient. This event was the genesis of the second version.

21. Istanbul, Topkapı Sarayı Müzesi Kütüphanesi, H. 1824. The opinion that this piece was one part of a world map is put forward in Thomas D. Goodrich, "Atlas-i hümayun: A Sixteenth-Century Ottoman Maritime Atlas Discovered in 1984," *Archivum Ottomanicum* 10 (1985): 83–101, esp. 85.

22. Hamid Sadi Selen, "Piri Reisin Şimalî Amerika Haritası, telifi 1528," *Belleten* (Türk Tarih Kurumu) 1 (1937): 515–18 (German translation, pp. 519–23). See also Erich Bräunlich, "Zwei türkische Weltkarten aus dem Zeitalter der grossen Entdeckungen," *Berichte über die Verhandlungen der Sächsischen Akademie der Wissenschaften zu Leipzig, Philologisch-Historische Klasse*, vol. 89, no. 1 (1937): 1–29, esp. 24–26.

23. Facsimile editions of the *Kitāb-i baḥrīye* are based on one of the best complete manuscripts of the 932/1526 version (Istanbul, Süleymaniye Kütüphanesi, Ayasofya 2612). It was first reproduced in facsimile by the Türk Tarih Kurumu: Pīrī Reʿīs, *Kitabı bahriye*, ed. Fevzi Kurtoğlu and Haydar Alpagut (Istanbul: Devlet, 1935). A recent facsimile of the same manuscript contains photographic reproductions of the folios, each reproduction faced by a columned page containing the transliterated text, a modern Turkish translation, and an English translation: *Kitab-ı bahriye, Piri Reis* (note 14).

24. Author's translation; see Pīrī Reʿīs, *Kitāb-i baḥrīye*, 1:38–47 (fols. 2a–4a), esp. 38–39 (fol. 2a) (note 14).

25. In part because of this long introduction in verse, there has been some question about the authorship of the second version. The poet Murādi implied he was a "ghost writer" of the *Kitāb-i baḥrīye* in his *Gazavat-ı Hayreddin Paşa* (Istanbul, Topkapı Sarayı Müzesi Kütüphanesi, R. 1291, fol. 292b). For a discussion of this controversy, see Hüseyin G. Yurdayın, "Kitāb-i bahriye'nin telifi meselesi," *Ankara Üniversitesi Dil ve Tarih-Coğrafya Fakültesi Dergisi* 10 (1952): 143–46.

26. Pīrī Reʿīs, *Kitāb-i baḥrīye*, 1:46–203 (fols. 4a–43a), esp. 48–49 (fol. 4b) (note 14).

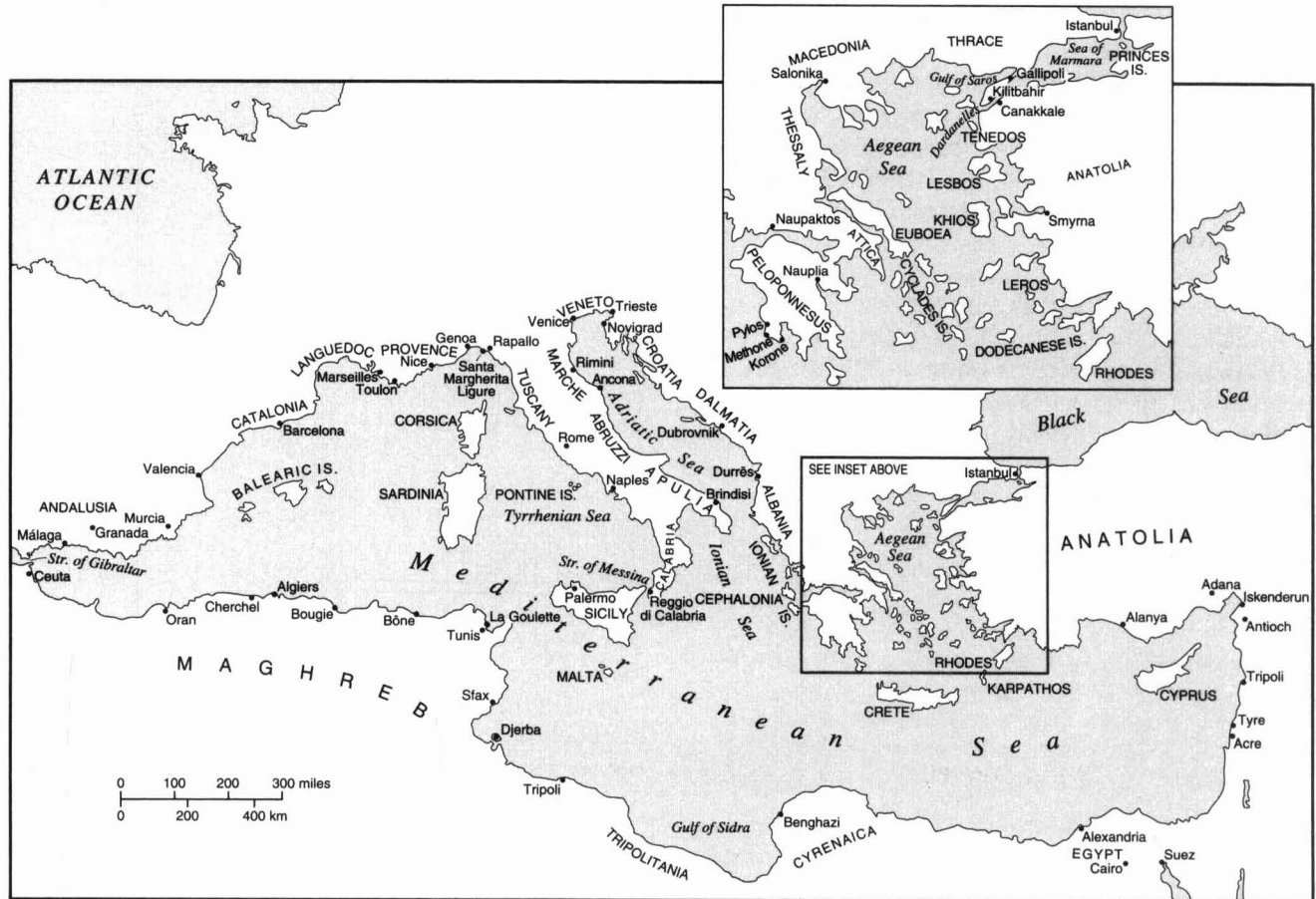


FIG. 14.8. REFERENCE MAP OF THE MEDITERRANEAN IN THE AGE OF SÜLEYMÂN.

A brief description with a few examples will better indicate the structure of the *Kitâb-i bahriye*. The description starts with the island of Bozca (Tenedos) in the first version, but with the Dardanelles fortresses of Kilitbahir and Çanakkale in the second (fig. 14.8). Both versions then proceed to describe the Aegean coasts and islands, chiefly those of the Anatolian side, as far as the island of Rhodes. Subsequently the description swerves westward to cover the coasts and islands of southern Greece, then the Adriatic coasts, and so forth, making a counterclockwise tour of the entire Mediterranean until it returns, with the island of Kerpe (Karpathos), to the Aegean. At this point it deals with the Aegean Islands that had been omitted in the early part of the book, and concludes with Kızıl Adalar (Princes Islands in the Sea of Marmara) in the first version and Magariz Körfezi (Gulf of Saros) in the second.

Pîri Re'is intended the book to address the needs of the sixteenth-century Ottoman war fleet, which relied heavily on the galley (*ķādırğa*) and the galliot (*ķālîte*).²⁷ These oar-powered boats were well adapted to the Mediterranean's deep coastal waters and many protected anchorages. His simple instructions would permit galley

skippers to navigate safely in a series of short voyages from one safe haven to another in the customary fashion of travel around the Mediterranean. Each chapter describes landmarks and the layout of harbors, warns of dangerous rocks, shoals, or reefs, and occasionally includes distances or depths. A characteristic passage describes entry into a port on Kifelonya (Cephalonia), one of the Ionian Islands:

On the south-southwestern side of this island, there is an excellent, spacious natural harbor called Tuzla Limani. Its landmark from the sea is a high, blunt cape facing southwest. This cape is called Kavuş San Sidiru, and there is a ruined church atop it. At the tip of this cape, there is a rock in the sea. Placing this cape to your southwest and proceeding eastward, you will see a small islet close to the shore. This islet marks the mouth of the harbor. One proceeds northward and enters the harbor.²⁸

27. Svat Soucek, "Certain Types of Ships in Ottoman-Turkish Terminology," *Turcica* 7 (1975): 233–49. For a sixteenth-century depiction of an Ottoman galley, see plate 20 in this volume.

28. Author's translation; see Pîri Re'is, *Kitâb-i bahriye*, 2:686–87 (fol. 160a) (note 14).

Several logistic limitations had to be anticipated by the galley skippers in planning each stage of the journey. The elongated form and low freeboard of the galleys that optimized oar propulsion also made them susceptible to being swamped in storms and strong winds.²⁹ Knowledge of sheltered anchorages along the coast was critical. The size of the galley's crew in relation to the vessel's storage capacity required frequent stops for provisions, limiting its cruising range. Most important was the supply of fresh water.³⁰ Sheltered bays, lagoons and peninsulas, wells and freshwater streams are all clearly depicted on the maps. Along with his colorful anecdotes and local histories in the text, Pīrī Re'īs described the winds and told where to find shelter and fresh water, such as on the island of Sakız (Khios) (fig. 14.9):

A creek flows here [on the northwest side of the island] among the pine trees, and on days of southerly winds it is possible to take on water. The place is exposed to northeasterly winds, however, and ships cannot always lie here. If a shelter is sought on these shores on days of strong northeasterly winds, one should round the western side of the cape situated on the northwestern side of this island and drop anchor about a mile along the shore at a spot covered from the northeast.³¹



FIG. 14.9. *KITĀB-I BAHRĪYE*: ISLAND OF KHIOS. The accompanying text explains how to take on water from a creek (shown flowing from a mountainside) under conditions of stiff northeasterly winds. A ship would shelter around the cape to the west and drop anchor about a mile along the shore. This is typical of the kind of navigation hints found in the work. Size of the original: 31.5 × 22 cm. By permission of the Topkapı Sarayı Müzesi Kütüphanesi, Istanbul (MS. H. 642, fol. 85a).

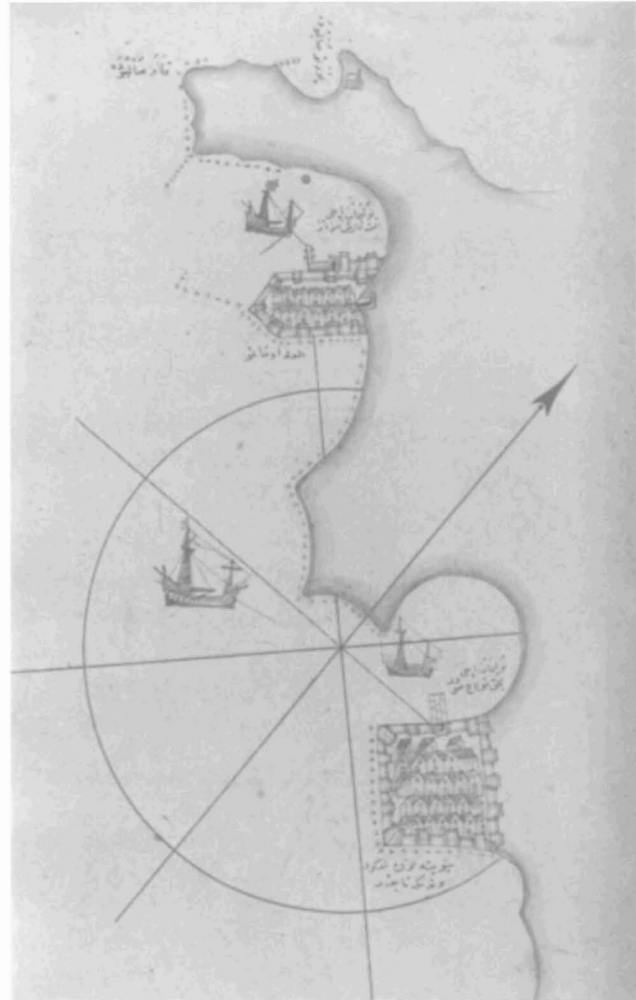


FIG. 14.10. *KITĀB-I BAHRĪYE*: PORT OF NOVIGRAD. This chart of the Venetian-held port (in the lower portion of the map) illustrates the schematic nature of the maps in the *Kitāb-i bahriye*.

Size of the original: 31.5 × 22 cm. By permission of the Topkapı Sarayı Müzesi Kütüphanesi, Istanbul (MS. H. 642, fol. 202b).

Finally, one must consider the style of warfare practiced in the Mediterranean at the time Pīrī Re'īs compiled his guide. The control of vital sea-lanes required control of the coasts from which galley fleets could carry out amphibious assaults and marshal land-based resources. Ottoman dominance in the eastern Mediterranean was achieved not by pitched naval battles but by the relentless capture of key ports and islands. Naval battles, when they

29. Imber, "Navy of Süleyman," 215–16 (note 1).

30. Some scholars generously estimate twenty days before galleys had to take on water, but records suggest that limit was only about eight or nine days; see John H. Pryor, *Geography, Technology, and War: Studies in the Maritime History of the Mediterranean, 649–1571* (Cambridge: Cambridge University Press, 1988), 83–85.

31. Author's translation; see Pīrī Re'īs, *Kitāb-i bahriye*, 1:362–65 (fols. 84a–b) (note 14).

did occur, usually took place in sight of land, and their outcome was often determined by superior maneuverability, not by destructive firepower. Therefore knowledge of local conditions and the ability to use them to one's advantage was essential. The closely forged relationship between a Mediterranean navy and the shoreline along which it operated was a very different situation from that which developed in the Atlantic and the Indian Ocean.³²

Many chapter headings of the *Kitāb-i bahriye* are devoted to castles and fortified ports. Pīrī Re'īs occasionally comments on their situation and state of repair and illustrates their generalized layout on the map (fig. 14.10):

Site-Nova [Novigrad], a town subject to Venedik [Venice], is in fact a cape. Situated on this cape, the town is a four-cornered fortress equipped with bastions and ramparts. On the northwestern side of the fortress there is a natural harbor whose depth is half a fathom; for that reason large ships lie outside, but some do put in and lie here after having tied the hawsers to the landing by the port's maritime gate and dropped anchor to the north.³³

The impassive tone, used in this case to describe a stronghold of archrival Venice, is maintained throughout the work. In fact, unless allegiances are stated explicitly, the details of an Ottoman safe haven or that of a competitor are virtually indistinguishable, as if a neutral observer were coming into port, not a captain in the Turkish fleet.

The changes to the second version of the *Kitāb-i bahriye* involved more than just supplementing the original 927/1521 version with more chapters. Although the chapters in the 932/1526 version maintain the general counterclockwise order around the Mediterranean, there is a certain amount of rearrangement and replacement. Maps and text are revised and may even conflict with those of the earlier version. In some cases a long stretch of coastline described in a single chapter in the first version is broken down into several chapters in the second version, each containing new details and new maps. Determining the changes, particularly the textual revisions, is difficult; the hand of the copyist undoubtedly played a part. Nevertheless, the section of the *Kitāb-i bahriye* that underwent the greatest revision is along the Gulf of Venice and the Italian coast of the Adriatic, but what sources were used and how they were obtained for the new maps of Venetian ports and strongholds has not been determined.³⁴ The maps of Egypt are also notable and were probably a result of the encouragement Pīrī Re'īs received from the grand vizier Ibrāhīm Paşa.³⁵

The second version documents the creation of a work intended explicitly for presentation, a function so characteristic of portolan charts in general. Accordingly, we may compare manuscripts of the first version, their plain style no doubt reflecting their practical function, with the

more elaborate charts of the second version, which are often beautiful specimens of the art of miniature painting meant to accompany a smoothly and exactly copied text. These were expensive artifacts produced by the imperial or private artisans of the Ottoman book arts. The first version, unencumbered by redundant stories (from the point of view of Mediterranean sailors) about the world's oceans or Columbus, or by elaborate representations of port cities, continued to be copied by the practical men of the Ottoman navy and the imperial arsenal. Some of these copies contain annotations, suggesting that they were actually put to use.³⁶ Figures 14.11 through 14.13 and plate 22 provide comparisons between the two versions.

The difference between the practical and presentational purposes of the two versions had distinctively Ottoman consequences. One is that the copyists of the first version often identify themselves and the place and date of the work's completion in the book's colophon, whereas those of the second remain anonymous in all known cases. This is in contrast to Western portolan charts, in which presentation copies usually mention the cartographer's or the workshop's name, whereas working charts often remained anonymous. The root of this "Turkish inversion" may lie in the attitude of Muslims toward the practical side of everyday life, which is so closely integrated into the spiritual world. Much as in the case of Pīrī Re'īs, the scribe of the Ottoman arsenal often appealed to the users of his work to recite a *fātiḥah* (the first sura of the Qur'ān) on behalf of his soul as a means of thanks. This probably was their only reward, in contrast to the miniaturists on the payroll of the imperial workshops that produced decorative manuscripts. They, like so many other Muslim artisans, were satisfied

32. John Francis Guilmartin, Jr., *Gunpowder and Galleys: Changing Technology and Mediterranean Warfare at Sea in the Sixteenth Century* (Cambridge: Cambridge University Press, 1974), 57.

33. Author's translation; see Pīrī Re'īs, *Kitāb-i bahriye*, 2:860–61 (fol. 203b) (note 14).

34. This becomes evident from comparing the two versions of the *Kitāb-i bahriye*; for example, a first version with 137 maps (London, British Library, Or. 4131) and a second version with 223 maps (Istanbul, Süleymaniye Kütüphanesi, Ayasofya 2612). For the Aegean Islands and the coasts of Anatolia, the Peloponnesus, and Albania there is only slight reordering and a few added maps. When one reaches Dubrovnik there is a discrepancy of only five chapters/maps between the two versions (fifty-eight in the 1521; sixty-three in the 1526). However, at Venice this discrepancy becomes thirty-one (sixty-one in the 1521; ninety-two in the 1526) and at Brindisi, approaching the heel of the Italian "boot," the gap becomes forty-seven, and at Sicily, fifty-five.

35. On this occasion Pīrī Re'īs mapped the Rosetta branch of the Nile and the main river above the delta as far as Cairo; see Afetinan, *Life and Works of Piri Reis*, 14 (note 9).

36. For example, in a copy at the Topkapı Sarayı Müzesi Kütüphanesi (B. 337), the chart of Djerba contains the written annotation "Turgut Re'īs has fled through this strait" next to a breach in the bridge linking the island with the mainland. This refers to an incident between the Turkish corsair and the admiral Andrea Doria in ca. 960/1552.

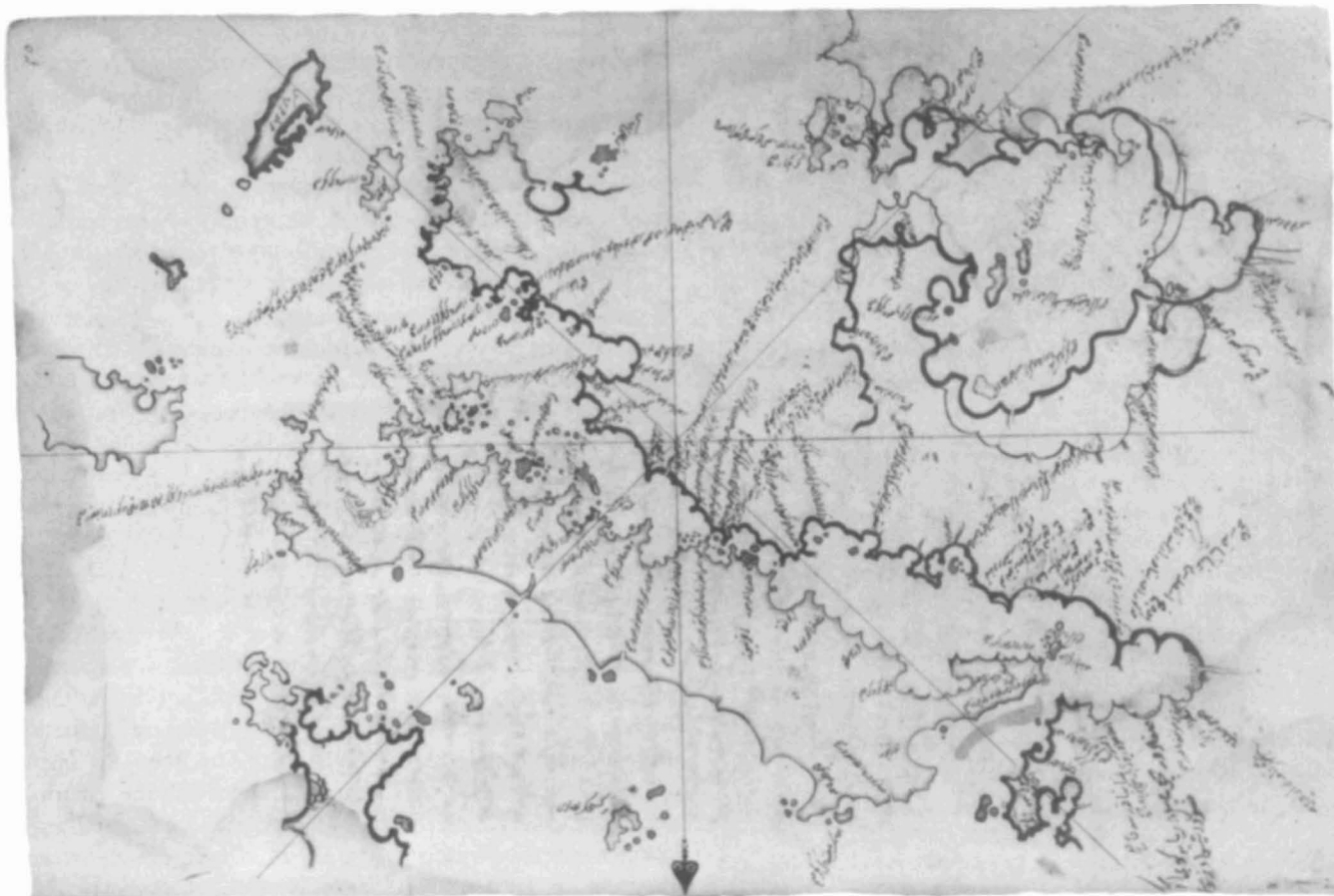


FIG. 14.11. VERSION 1 OF THE *KITĀB-I BAHRĪYE*: ISLAND OF EUBOEA. The maps of the first version were intended primarily as working documents. This detail of Euboea was probably derived from the *isolario* of Bartolommeo dalli Sonetti. Delineated in the upper right corner is an extension of the Thessalian coast north of Euboea that would otherwise be off the map's lower right corner: the Gulf of Volos (Pagasitikós

Kópos), the hook-shaped Magnesia Peninsula, and the Strait of Trikkeri. A revision (thin line) to the original delineation (bold line) provides a better representation of the small bay where the port of Volos is situated.

Size of the original: 32.5 × 22.5 cm. By permission of the Bibliothèque Nationale, Paris (MS. Suppl. Turc 220).

with the wages they earned and did not aspire to further renown. The difference between the Islamic and European approach may be due to the nascent capitalism of the latter society, where charts were made to be marketed and sold to anyone who could afford the price. High-quality Turkish charts and manuscripts were made chiefly on commission for a limited audience. Who were the artists who drew and illuminated the second-version maps of the *Kitāb-i bahriye*? They were presumably part of an active group of miniaturists in Istanbul in the sixteenth and seventeenth centuries at the apogee of this form of Ottoman book art, including Naḳḳāş ʿOşmān, ʿAlī Çelebi, Meḥmed Beg, Velicān, Molla Kāsim, and Molla Tiflīsī or Nigāri (known also as Ḥaydar Reʿīs—a sailor as well as a poet and painter).³⁷

A significant aspect of several second-version manuscripts is that the text was dropped altogether from the

work, resulting in a pure maritime atlas of the Mediterranean, although in origin it was simply another copy of the *Kitāb-i bahriye*. These copies could easily be mistaken for a new and different work—an impression enhanced by the addition of maps of the Black Sea, which Piri Reʿīs does not seem to have known from his own experience and which is not mapped in the original work. The attribution of one of these copies of the *Kitāb-i bahriye* to a certain “Seyyid Nūḥ” has proved to be the result of a copyist adding a title page with the name of a fictitious author. This created a perfect illusion that no doubt misled his contemporaries, just as it has some mod-

37. The relationship between the “cartographic” styles of these miniaturists and their wider illustrative subjects is discussed in chapter 12. See also Esin Atlı, “The Art of the Book,” in *Turkish Art*, ed. Esin Atlı (Washington, D.C., and New York: Smithsonian Institution Press and Harry N. Abrams, 1980), 137–238.



FIG. 14.12. VERSION 1 OF THE *KITĀB-I BAHRĪYE*: CITY OF VENICE.

Size of the original: 30.6 × 21 cm. By permission of the Biblioteca Universitaria di Bologna (MS. 3613, fol. 72r).

ern scholars, who described the atlas under this authorship.³⁸

When we compare the *Kitāb-i bahriyye* (both versions) with western *isolarii*, portolans, and portolan charts, we find common traits as well as some important differences. The functional similarities of the *Kitāb-i bahriyye* to its Italian equivalents of sailing directions and charts are clear: both aim to offer a guide to the mariner. In style, the charts show some affinity to the *isolario*, introduced by Cristoforo Buondelmonte in A.D. 1420 and developed later by Bartolommeo dalli Sonetti and Benedetto Bordone. Each chart, for example, has its own system of wind roses with north indication and uses conventional signs, such as small dots for shallow water and crosses for submerged rocks.³⁹

The considerable differences have to do with the personal style of the Turkish author. Pīri Reʿīs is highly anecdotal about his early experiences in North Africa, and he justifies his charts more fully than do authors in comparable European works. He frequently reminds the reader that text and map will complement each other, as in his chapter describing a small port on Iliryus (Leros), one of the Dodecanese Islands:

One may enter the harbor from either side of this island [at the mouth of the harbor], but one should stay clear of the tips of the capes on the east and west of this island, for the sea there is foul. When required, look at the map.⁴⁰

The shortcomings of contemporary charts of the Mediterranean are also stressed when Pīri Reʿīs points out that only three place-names can be fitted into a space representing ten miles:

It is therefore impossible to include on the map a number of symbols, such as those showing cultivated and derelict places, harbours and waters, reefs and shoals in the sea, on what side of the aforementioned harbours they occur, for which winds the harbours are suitable and for which they are contrary, how many vessels they will contain, and so on.

If anyone objects, saying, "Is it not possible to put it on several parchments?" the answer is that the parchment would become so big as to be impossible to use on board ship. For this reason, cartographers draw on a parchment a map, which they can use for broad stretches of coast and large islands. But in confined spaces they will need a pilot.⁴¹

As for the sources of the *Kitāb-i bahriyye*, the representation of some parts of the Mediterranean reflects stronger Western influence than that of others. For example, it is probable that for the Aegean, Pīri Reʿīs had access to the printed *isolario* of Bartolommeo dalli Sonetti, published in Venice about A.D. 1485–86 (fig. 14.14).⁴² Gallois, in his detailed analysis of the cartography of Delos (one of the Cyclades), concludes that no feature on the island represented in the *Kitāb-i bahriyye*

38. For example, Franz Babinger, "Seyyid Nūh and His Turkish Sailing Handbook," *Imago Mundi* 12 (1955): 180–82, and Hans Joachim Kissling, *Der See-Atlas des Seyjid Nūh* (Munich: Rudolf Trofenik, 1966). See also the review of Kissling's book by Svat Soucek in *Archivum Ottomanicum* 1 (1969): 327–31, and idem, "The 'Ali Macar Reis Atlas' and the Deniz kitabı: Their Place in the Genre of Portolan Charts and Atlases," *Imago Mundi* 25 (1971): 17–27, esp. 26–27.

39. For a detailed study of Ottoman terms for cardinal points in the *Kitāb-i bahriyye*, see Karl Foy, "Die Windrose bei Osmanen und Griechen mit Benutzung der Bahriyye des Admirals Pīri-i-Reʿīs vom Jahre 1520 f.," *Mitteilungen des Seminars für Orientalische Sprachen an der Friedrich-Wilhelms-Universität zu Berlin* 11 (1908): 234–47. For a brief discussion of the *isolario* genre, see Elizabeth Clutton in P. D. A. Harvey, "Local and Regional Cartography in Medieval Europe," in *The History of Cartography*, ed. J. B. Harley and David Woodward (Chicago: University of Chicago Press, 1987–), 1:464–501, esp. 482–84.

40. Author's translation; see Pīri Reʿīs, *Kitāb-i bahriyye*, 1:426–27 (fol. 100a) (note 14).

41. Pīri Reʿīs, *Kitāb-i bahriyye*, 1:42–43 (fol. 3a) (note 14); this translation follows Brice and Imber, "Turkish Charts," 528 (note 8). Pīri Reʿīs also adds that the maps in his work will show sufficient detail to obviate the need for a pilot.

42. R. Herzog, "Ein türkisches Werk über das Ägäische Meer aus dem Jahre 1520," *Mitteilungen des Kaiserlich Deutschen Archäologischen Instituts, Athenische Abteilung* 27 (1902): 417–30 and pl. 15. On Bartolommeo dalli Sonetti, see Campbell, *Earliest Printed Maps*, 89–92 (note 6). In the introduction to the *Kitāb-i bahriyye* (1:198–99, [fol. 42a] [note 14]), Pīri Reʿīs refers to a mapmaker named Bortolomye, whom Leo Bagrow believed to be Bartolommeo dalli Sonetti; see his "Supplementary Notes to 'The Origin of Ptolemy's Geography,'" *Imago Mundi* 4 (1947): 71–72. However, this may also be a reference to Ptolemy (Baṭlāmīyūs in Arabic).

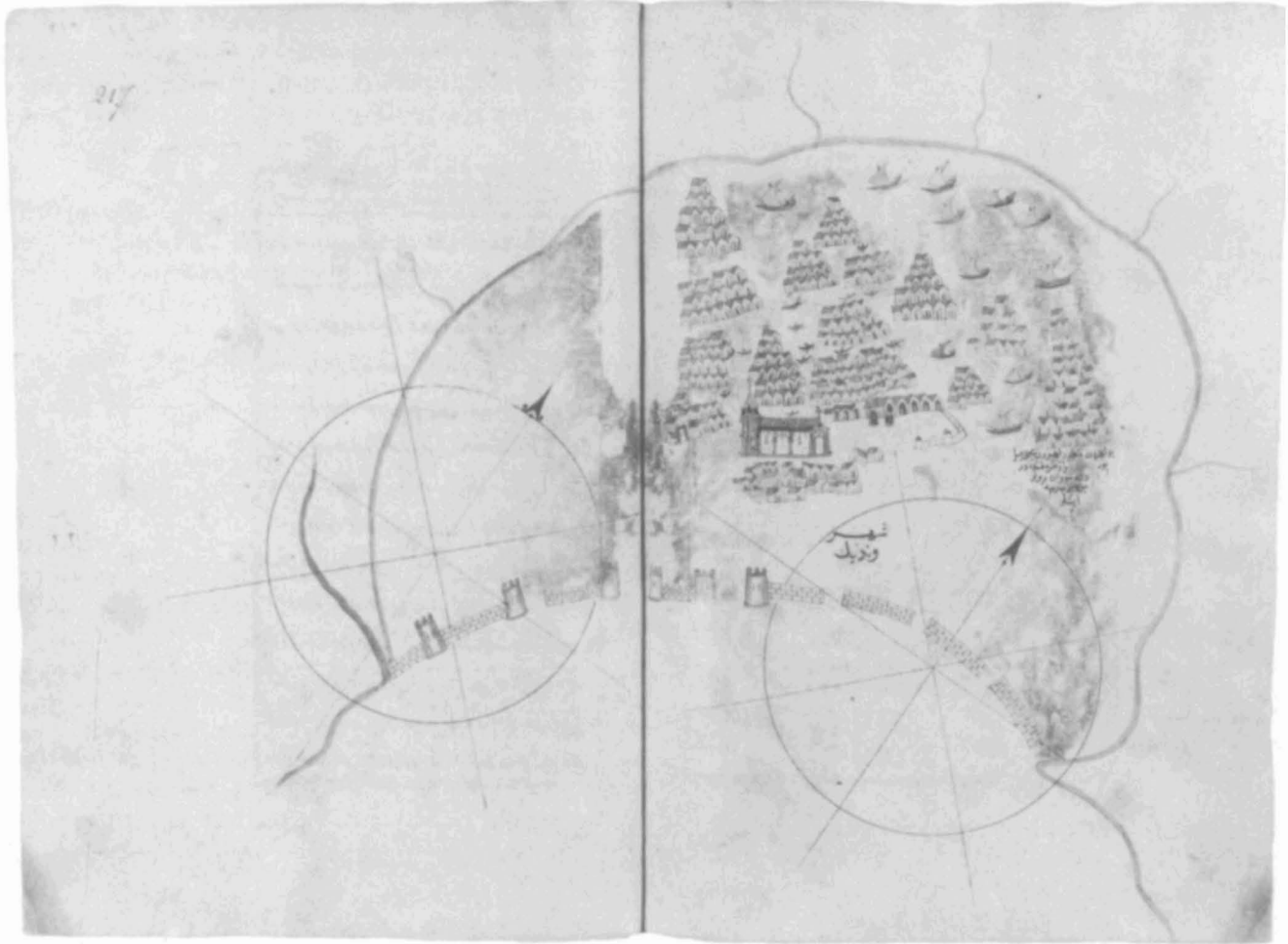


FIG. 14.13. VERSION 2 OF THE *KITĀB-I BAHRĪYE*: CITY OF VENICE. As with figure 14.11 and plate 22, the contrast between the two versions is revealed in these views of Venice. Far more detailed views of the city were in circulation by the 1520s, such as that by Jacopo de' Barbari, but though the huge reduction in size makes such comparison difficult, they were

not employed as a model by Piri Re'is. The campanile, the pillars in Piazza San Marco, and the Venetian arsenal are, however, prominently featured in the foreground of the city. Size of the original: 35 × 46 cm. By permission of the Bibliothèque Nationale, Paris (MS. Suppl. Turc 956, fols. 216v–217r).

is absent from the Bartolommeo *isolario*.⁴³ Brice compares the representation of Euboea and makes a convincing case that the Bartolommeo version was the source.⁴⁴

For the coasts of the Adriatic Sea, the Italian peninsula, Sicily, and France, for which there have been several toponymic studies but little attempt at tracing the sources of the *Kitāb-i bahriye*, one assumes that Piri Re'is followed models that came into his hands through booty or by purchase in neutral ports.⁴⁵ The A.D. 1500 view of Venice by Jacopo de' Barbari might have been a logical choice for the small view of Venice in the *Kitāb-i bahriye*, for example, but the corruption introduced by such extreme reduction renders any comparison difficult.

Along the North African coast, the originality of Piri Re'is's charts is without question. Mantran concludes

43. Lucien Gallois, *Cartographie de l'île de Délos*, Exploration Archéologique de Délos Faite par l'École Française d'Athènes, fasc. 3 (Paris: Fontemoing, 1910), 15–17.

44. Brice, "Sea-Charts," 56 (note 3).

45. Hans Joachim Kissling, "Zur historischen Topographie der Albanischen Küste," in *Dissertationes Albanicae: In honorem Josephi Valentini et Ernesti Koliqi septuagenariorum* (Munich: Rudolf Trofenik, 1971), 107–14; idem, "Die istrische Küste im See-Atlas des Piri-Re'is," in *Studia Slovenica Monacensia: In honorem Antonii Slodnjak septuagenarii* (Munich: Rudolf Trofenik, 1969), 43–52; Alessandro Bausani, "L'Italia nel *Kitāb-i bahriyye* di Piri Reis," *Il Veltro: Rivista della Civiltà Italiana* 23 (1979): 173–96; Eduard Sachau, "Sicilien nach dem türkischen Geographen Piri Reis," in *Centenario della nascita di Michele Amari*, 2 vols. (Palermo: Stabilimento Tipografico Virzi, 1910), 2:1–10; Robert Mantran, "La description des côtes méditerranéennes de la France dans le *Kitāb-i bahriye* de Piri Reis," *Revue de l'Occident Musulman et de la Méditerranée* 38 (1984): 69–78.



FIG. 14.14. *KITĀB-I BAĦRĪYE*: ATTICA. The representation of the islands and mainland of Attica was probably taken from Bartolommeo dalli Sonetti's *isolario*. This published work appears to have been a common source for other islands in the Aegean.

Size of the original: 29.3 × 20.4 cm. By permission of the British Library, London (MS. Or. 4131, fol. 56r).

that the chapters describing both the Algerian and the Egyptian coasts derive from direct observation.⁴⁶ Along the coast of the Levant, however, it appears that Piri Re'is again resorted to traditional sources and, with few exceptions, depended less on personal experience.⁴⁷

The Tunisian chapters, which have come under closest scrutiny,⁴⁸ are clearly one of the most original parts of the *Kitāb-i bahriyye*. Piri Re'is was most familiar with these coasts, and the personal reminiscences that fill these pages reveal that much of this section relied on his memory and notes. Thus as a primary source it is far more detailed than the Italian or Catalan sailing directions or charts of the period that have come down to us. The representation of Tunisia in the *Kitāb-i bahriyye* has been compared with four contemporary maritime sources: *Lo Compasso da navigare*,⁴⁹ a mid-fifteenth-century Italian

portolan,⁵⁰ a Greek portolan printed in 1573,⁵¹ and a printed Italian portolan of 1666.⁵² The conclusion is that Piri Re'is's maps are independent of any of these books of sailing directions and that there is no trace of other Western sources for this section of coast. The map of Djerba is singled out as clearly superior to that of the contemporary Italian cartographer Giacomo Gastaldi, whose map of the island fortress has been held up as unsurpassed until the British Admiralty chart of 1827 (fig. 14.15).⁵³

OTTOMAN PORTOLAN CHARTS AND ATLASES

This corpus consists of three extant portolan atlases, containing twenty-four charts in total, plus several single charts. These imitate directly the cartographic style of Italian atlases such as those by Battista Agnese, and in this respect they stand closer to Western influence than to a Turkish genre engendered by the *Kitāb-i bahriyye* of Piri Re'is. Their Ottoman identity rests in their descriptive legends in Turkish and in the way the regional charts in the atlases are placed in inverse order to the standard Agnese practice (table 14.1). There is also evidence that they were all manufactured in the Ottoman capital of Istanbul.

The first of these is the 975/1567 'Ali Mācār Re'is atlas, consisting of six portolan charts and one world map, all on double pages (figs. 14.16 and 14.17).⁵⁴ They

46. Robert Mantran, "La description des côtes de l'Algérie dans le *Kitāb-i bahriyye* de Piri Reis," *Revue de l'Occident Musulman et de la Méditerranée* 15–16 (1973): 159–68; idem, "La description des côtes de l'Égypte dans le *Kitāb-i bahriyye* de Piri Reis," *Annales Islamologiques* 17 (1981): 287–310.

47. For example, see U. Heyd, "A Turkish Description of the Coast of Palestine in the Early Sixteenth Century," *Israel Exploration Journal* 6 (1956): 201–16.

48. This involves eight chapters, describing the coast between Bougie and Tripoli; see Soucek, "Livres d'instructions nautiques," esp. 246–47 (note 9); idem, "Tunisia," (note 9); and Robert Mantran, "La description des côtes de la Tunisie dans le *Kitāb-i bahriyye* de Piri Reis," *Revue de l'Occident Musulman et de la Méditerranée* 24 (1977): 223–35. For additional information, see Emel Esin, "La géographie tunisienne de Piri Re'is: A la lumière des sources turques du Xe/XVIe siècle," *Les Cahiers de Tunisie* 29 (1981): 585–605.

49. Bacchisio R. Motzo, "Il *Compasso da navigare*: Opera italiana della metà del secolo XIII," *Annali della Facoltà di Lettere e Filosofia della Università di Cagliari* 8 (1938): 1–137.

50. Florence, Biblioteca Nazionale, Cod. Magliabecchianus Chartaeus XIII, 88.

51. The portolan of Démétrios Tagias; see Armand Delatte, ed., *Les portulans grecs* (Paris: Belles Lettres, 1947).

52. Venice, Biblioteca Querini-Stampaglia, Querini III 16.

53. Soucek, "Tunisia," 289–96 (note 9).

54. Istanbul, Topkapı Sarayı Müzesi Kütüphanesi, H. 644; see Soucek, "Ali Macar Reis Atlas," 17–25 (note 38); Fevzi Kurtoglu, *Türk süel alanında harita ve krokilere verilen değer ve Ali Macar Reis Atlası* (Istanbul: Sebat, 1935), 18–30; Konyalı, *Topkapı Sarayında*, 240–49 (note 4). The projection of the world map has been the object of a

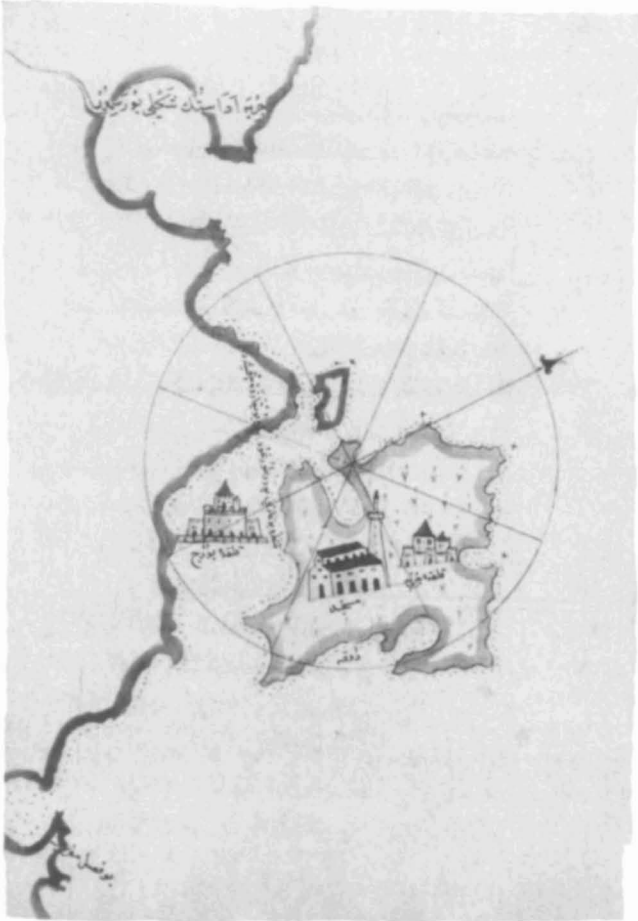


FIG. 14.15. *KITĀB-I BAḤRĪYE*: ISLAND OF DJERBA. The representation of North African ports and harbors, as in the case of Djerba, was derived from direct observation by Piri Reʿis rather than from any previously published *isolarii*. The view of Djerba is even more realistic than the map of the fortress by Giacomo Gastaldi that was regarded as a model of accuracy and detail from the sixteenth century to the eighteenth. Size of the original: 29.3 × 20.4 cm. By permission of the British Library, London (MS. Or. 4131, fol. 140v).

are drawn on parchment leaves and bound in leather in a small volume. The charts cover all the traditional areas of Western portolan atlases, from the Black Sea to the British Isles. On folio 4b, along the right margin of the page, there is the following statement in Arabic: “The humble ‘Alī Mācār Reʿis wrote it with the aid of the Lord of Decision [God] in the month of Şafer, year 975 [between 7 August and 4 September 1567].” ‘Alī Mācār’s name also appears on the inside cover: “This chart [or better, atlas]⁵⁵ is ‘Alī Mācār’s; do not leave it unnoticed!”

Despite these seemingly adequate clues, the authorship of the atlas remains elusive. Since the word *reʿis* can mean “captain,” it would thus be a professional epithet as part of the name. An ‘Alī Mācār Reʿis (Captain ‘Alī the Hungarian) is indeed listed in a roster of skippers of the sultan’s galleys (*hāşşa reʿisleri*) who received promotion in

979/1571.⁵⁶ Thus, as with Piri Reʿis, we have another example of an Ottoman sea captain who may have drawn maps. Another explanation could be that this captain simply added his name to an atlas made by someone else, possibly even by an Italian, that lacked an attribution. It may have been prepared originally for presentation to the sultan or simply to be sold in the markets of Turkey; it may have been captured elsewhere and brought to Istanbul as booty.

An intriguing twist to this question appears in a roster of the members of the Cemāʿat-i Naḳḳāşān-i Rūmiyān (Guild of Rumi painters, employed by the imperial palace) dated 965/1558, which lists an ‘Alī Mācār as one of the member painters.⁵⁷ Although the epithet “captain” is missing from the roster, the individual’s ethnic Hungarian origin stands out. (A similar origin for the name of the entire company of artists, Rūmī, which can mean “European,” raises further questions.) This distinctive name, coupled with the fact that the years 965/1558 and 975/1567 are close enough together, opens the possibility that we are dealing with the same person.

It is undeniable, however, that the ‘Alī Mācār Reʿis atlas follows the cartographic style of the Italian school, particularly the small atlases of Ottomano Freducci and Battista Agnese. The question is more complex with regard to decoration. There too the inspiration is Italian, but the place of manufacture may well have been Istanbul, and the cooperation of a Turkish mariner is entirely conceivable. At this time Turkish names were superseding local Arabic names or the international maritime lingua franca, as in the case of the Pontine Islands near Naples, for which Çatal ada is used for Palmarola and Selmanlar for Ponza. It has been suggested that the use of the word *kataba* (wrote) by ‘Alī Mācār Reʿis in relation to his signature in the atlas implies that, although he gives himself credit for writing the place-names in Turkish, he did not draw the charts, for which another verb *rasama*, “drew,”

special study: Doğan Uçar, “Ali Macar Reis Atlası,” in *Proceedings of the Second International Congress on the History of Turkish and Islamic Science and Technology*, 28 April–2 May 1986, 3 vols. (Istanbul: İstanbul Teknik Üniversitesi, 1986), 1:33–43. The author claims that the projection used here is an important precursor (by 350 years) of the Eckert III projection. It should be pointed out that the map is merely copied from one of the many manuscript atlases of Battista Agnese, which used a modification of the many oval projections developed in the early sixteenth century.

55. The word *harīṭa* usually carried the meaning “chart,” but it could also have had the connotation of “atlas” in the absence of a specific Turkish word for such a format.

56. Istanbul, Başvekalet Arşivi, *Dīvān-i hümāyūn ruʿūs defteri*, 16a, p. 19 (Kâmil Kepeçi’s catalog: no. 223); cited in William C. Brice, Colin Imber, and Richard Lorch, *The Aegean Sea-Chart of Mehmed Reis ibn Menemenli, A.D. 1590/1* (Manchester: University of Manchester, 1977), unpaginated.

57. Istanbul, Topkapı Sarayı Arşivi, D. 6500; see Rifki Melül Meriç, *Türk nakış sanatı tarihi araştırmaları*, vol. 1, *Veşikalar* (Ankara: Fez ve Demokrat Ankara, 1953), 6.

TABLE 14.1 Map Order in the Ottoman Portolan Atlases

Region Depicted	‘Alī Mācār Re’īs Atlas ^a	Atlas-i Hūmayun ^b	Walters <i>Deniz atlası</i> ^c	Battista Agnese Atlas (1542) ^d
Black Sea and Sea of Marmara	1	1	1	9
Eastern Mediterranean	2	2	2	8
Central Mediterranean	3	3	3	7
Western Mediterranean	4	4	4	6
Iberian Peninsula	—	—	—	5
Atlantic Coast and British Isles	5	5	5	4
Aegean Sea and Sea of Marmara	6	6	—	—
Ionian Sea	—	7	—	—
Europe and North Africa	—	9	6	—
Indian Ocean	—	—	7	3
Atlantic Ocean	—	—	—	2
Pacific Ocean	—	—	—	1
World	7	8	8	10/11

^aIstanbul, Topkapı Sarayı Müzesi Kütüphanesi, H. 644.

^bIstanbul, Arkeoloji Müzesi Kitaplığı, no. 1621.

^cBaltimore, Walters Art Gallery, MS. W. 660.

^dRome, Biblioteca Apostolica Vaticana, Cod. Pal. Lat. 1886; this 1542 atlas represents the general organization of Agnese atlases. See Roberto Almagià, *Monumenta cartographica Vaticana*, 4 vols. (Rome: Biblioteca Apostolica Vaticana, 1944–55), 1:64–67.

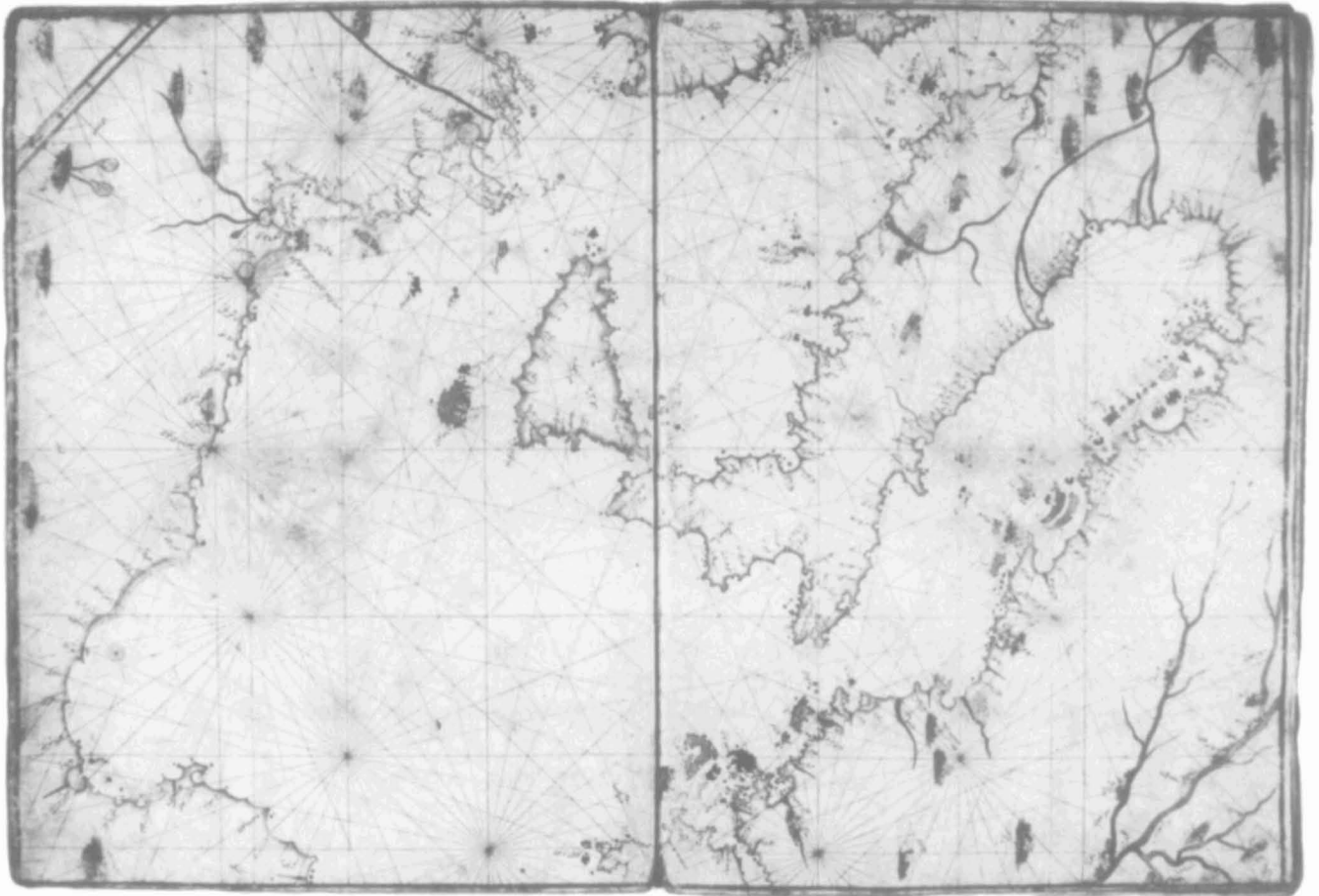


FIG. 14.16. PORTOLAN ATLAS ASSOCIATED WITH ‘ALĪ MĀCĀR RE’ĪS: ITALY AND THE CENTRAL MEDITERRANEAN. The identity of “Captain ‘Alī the Hungarian” is not precisely known, but he signed and dated the atlas on the chart of the western Mediterranean in 975/1567. The note near Sel-

manlar locating “the place where the late Sinān Paşa took ships” refers to a clash between the Ottoman fleet under Sinān Paşa and the Habsburg admiral Andrea Doria in 959/1552. Size of the original: 29 × 42 cm. By permission of the Topkapı Sarayı Müzesi Kütüphanesi, Istanbul (H. 644, fols. 3b–4a).

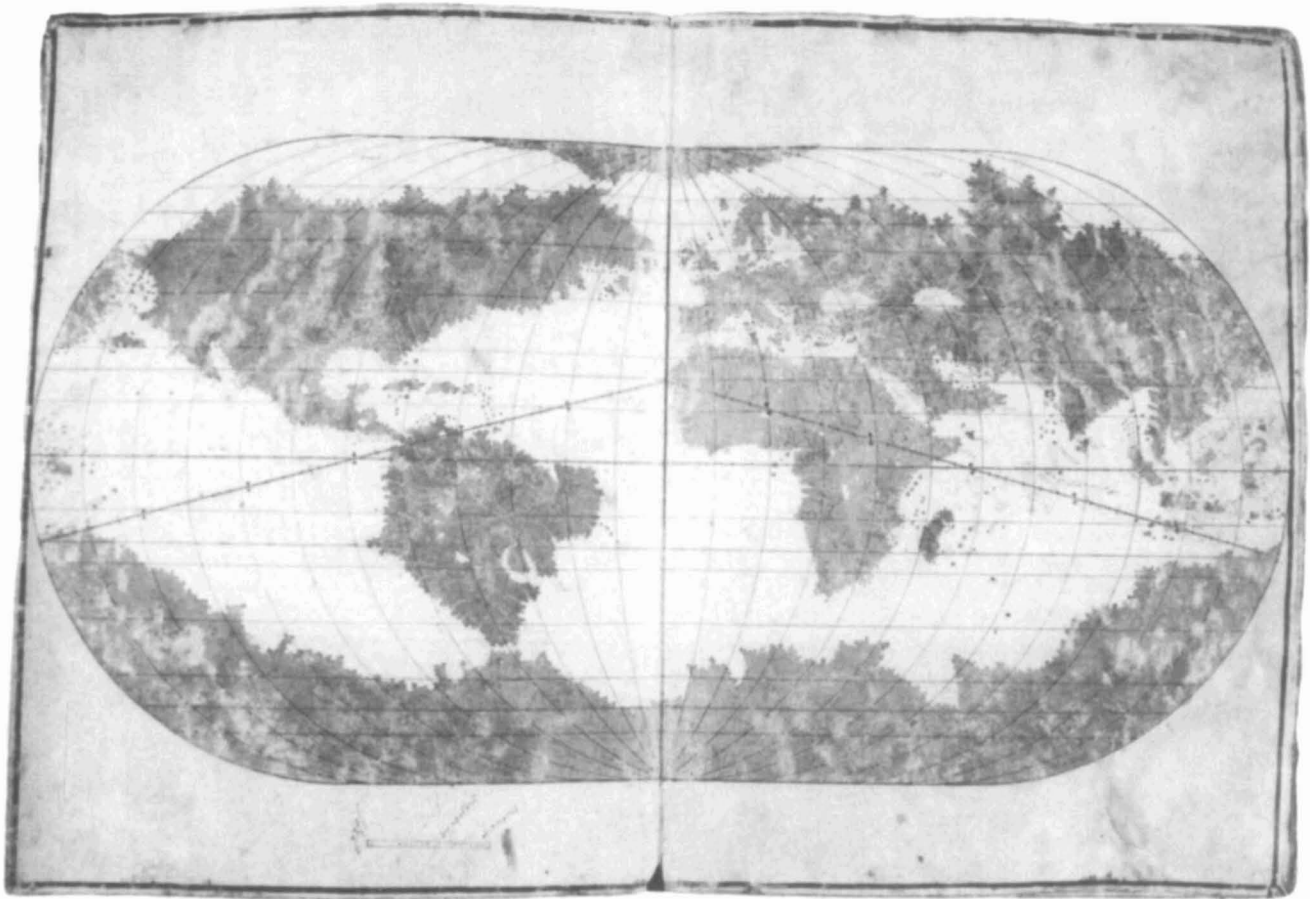


FIG. 14.17. WORLD MAP FROM THE 'ALĪ MĀCĀR RE'ĪS ATLAS. World maps like this one are found in all three portolan atlases described here. They are all drawn on oval projections derived from the many Agnese atlases dated to the mid-sixteenth century, which were themselves based on earlier models by Francesco Rosselli and Benedetto Bordone. This example has a curious representation of the ecliptic as two straight-line

or the phrase *'amal . . .*, "work of . . .," might have been used. The theory has thus developed that originally these charts bore only coastal outlines, to which place-names would be added by the owner.

Until 1984, the 'Alī Mācār Re'īs maps were the only known Ottoman charts in atlas format. In that year, however, Goodrich discovered another such atlas at the Istanbul Arkeoloji Müzesi that he tentatively labeled *Atlas-i hümayun* (Imperial atlas) (fig. 14.18).⁵⁸ The atlas consists of nine charts on parchment bound in heavy leather. Its covers measure fifty-four by thirty-five centimeters, and it is thus larger than the 'Alī Mācār Re'īs atlas both in size and in the number of charts. Seven of the charts (charts 1–6 and 8) closely resemble those of the 'Alī Mācār example, while the chart of the Ionian Sea, Greece, and Sicily (chart 7) appears to be an enlargement of one section of the chart of the central Mediterranean (chart 3). The final chart contains a very unusual depiction of Europe and northern Africa (chart 9). Unlike the 'Alī

segments and, also unusual for world maps of this type, a scale at the foot of the map. The coastal outlines are extremely similar to those on Gastaldi's woodcut world map (1561–62) in the British Library.

Size of the original: 29 × 42 cm. By permission of the Topkapı Sarayı Müzesi Kütüphanesi, Istanbul (H. 644, fols. 7b–8a).

Mācār Re'īs atlas, this work lacks information about the author, date, and place of manufacture. Goodrich tentatively dates it to 978/1570.⁵⁹

By a remarkable coincidence, in the same year that he discovered the *Atlas-i hümayun*, Goodrich also identified a third such Ottoman atlas. Since it is housed at the Walters Art Gallery in Baltimore, he named it *Walters Deniz atlası* (Walters sea atlas) (plate 23).⁶⁰ It contains the traditional portolan atlas contingent of six charts, from the Black Sea to the coast of western Europe, apparently reflecting the pattern of the other two atlases. In addition, there is a world map on an oval projection, similar in form to those in, for example, the Battista

58. Istanbul, Arkeoloji Müzesi Kitaplığı, no. 1621; see Goodrich, "Atlas-i hümayun," 83–101 (note 21).

59. Goodrich, "Atlas-i hümayun," 92 (note 21).

60. Baltimore, Walters Art Gallery, MS. W. 660; see Thomas D. Goodrich, "The Earliest Ottoman Maritime Atlas—The Walters *Deniz atlası*," *Archivum Ottomanicum* 11 (1986): 25–50.

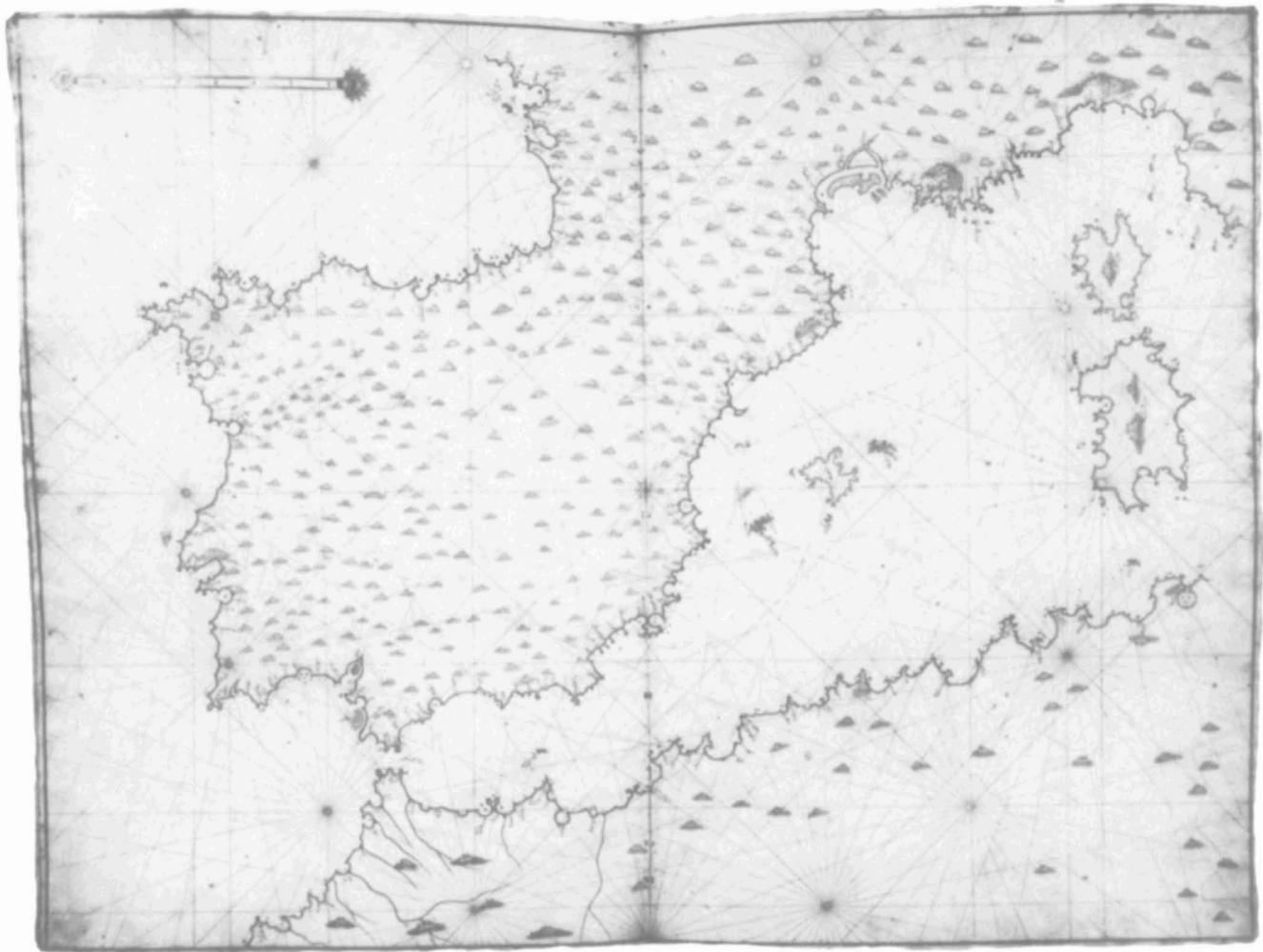


FIG. 14.18. ATLAS-I HÜMAYUN: THE IBERIAN PENINSULA. This atlas of nine charts was discovered in 1984. From its content, it has been conjecturally dated as ca. 978/1570, but there are no other clues to its authorship or date. The resemblance of the coastlines to those in the ‘Alī Mācār Re’īs atlas is striking enough to suggest that it was made in the same work-

shop, but since the graphic style is quite different, this has still to be confirmed.

Size of the original: 53.3 × 69.9 cm. Arkeoloji Müzesi Kitaplığı, Istanbul (no. 1621). Photograph courtesy of Thomas D. Goodrich, Indiana, Pennsylvania.

Agnese atlases, but with a different arrangement of the landmasses. The most unusual addition, however, is a chart of the Indian Ocean unlike any other generally known. Goodrich suggested this may be the earliest Ottoman atlas, owing to some rather archaic geographical notions on the world map when compared with world maps in the other two atlases. He believed it could date from as early as ca. 968/1560, but he left the subject open to more intense study. The atlas seems to have been made strictly for presentation. The town view miniatures and compass roses are particularly fine, and the snake motifs at the ends of the graphic scales are especially unusual.

We should mention finally the Aegean sea chart by Mehmed Re’īs of Menemen, dated 999/1590–91 (fig. 14.19). Its less sumptuous workmanship, as well as the

significant independence of its toponymic content, suggests the rare preservation of a portolan chart that was produced for practical use and may in fact have been completed in the course of that use.⁶¹ As suggested with the ‘Alī Mācār Re’īs atlas, it is quite possible that mariners, technically unequipped to make such charts themselves from scratch, would acquire blank ones bearing only coastal outlines, which they would then complete or emend with appropriate toponymy, perhaps adding a few hydrographic corrections. Since they lacked the money or motive to acquire refined illuminated specimens, the supplier of charts to ordinary Turkish navi-

61. Venice, Civico Museo Correr, Port. 22. The place-names reveal little similarity to comparable charts in the ‘Alī Mācār Re’īs atlas or in the *Kitab-i bahrıye*; see Brice, Imber, and Lorch, *Aegean Sea-Chart* (note 56).



FIG. 14.19. THE MEHMED RE'IS CHART. This single, south-oriented chart is dated 999/1590–91 and signed by Mehmed Re'is. The preservation of the natural shoulder of its vellum indicates that it is not a fragment of a larger portolan chart covering the Mediterranean but a rare regional chart of Greece,

Crete, and the Aegean Sea. Its unadorned style has led to the view that it is a freak survivor of a working chart, possibly intended as a base for the compilation of other charts. Size of the original: 59.5 × 82.5 cm. By permission of the Civico Museo Correr, Venice (Port. 22).

gators would not be the imperial atelier but a simpler yet specialized mapmakers' workshop.

Evidence of this activity is found in the writings of the Turkish traveler and author Evliyā Çelebi (1020/1611 to ca. 1095/1684), who mentions eight workshops of mapmakers (*eşnāf-i harīṭacıyān*) employing fifteen craftsmen in his exhaustive list of Istanbul guilds. Significantly, he places this passage just after those dealing with the guilds of the compass makers (*eşnāf-i puslaciyān*) and of hour-glass makers (*eşnāf-i kum sā'atçıyān*). These products, he states, are equally indispensable to sailors. As for the mapmakers' guild, he is explicit—mariners are its main customers:

The Map-makers [*harīṭacıyān*] are but fifteen, with eight shops. They are deeply versed in all kinds of sciences, and possess different languages, particularly the Latin, in which they read the geographical works, Atlas minor and Mappemonde [*papamonta*]. They lay down in their drawings the seas, rivers and mountains

of the whole world, and sell their works to sailors and navigators. The science of charts is the soul of navigation, because on them the road is traced for ships in every direction of the compass, and there is laid down whether the places resorted to are islands, ports, shallows, rocks, deep water, &c., according to which directions, navigators undertake their voyages on the ocean.⁶²

THE AL-SHARAFĪ AL-ŞİFAQSĪ FAMILY

Although not normally associated with Ottoman marine cartography, the center of activity of the al-Sharafī al-

62. Evliyā Çelebi, *Seyahatnâme* (Book of travels); see the modern edition in 10 vols. (Istanbul: İqdām, 1896–1938), 1:548. The translation in the text follows *Narrative of Travels in Europe Asia and Africa, in the Seventeenth Century by Evliya Efendi*, trans. Joseph von Hammer, 2 vols. in 1 (London: Printed for the Oriental Translation Fund of Great Britain and Ireland, 1846–50), vol. 1, pt. 2, p. 131.

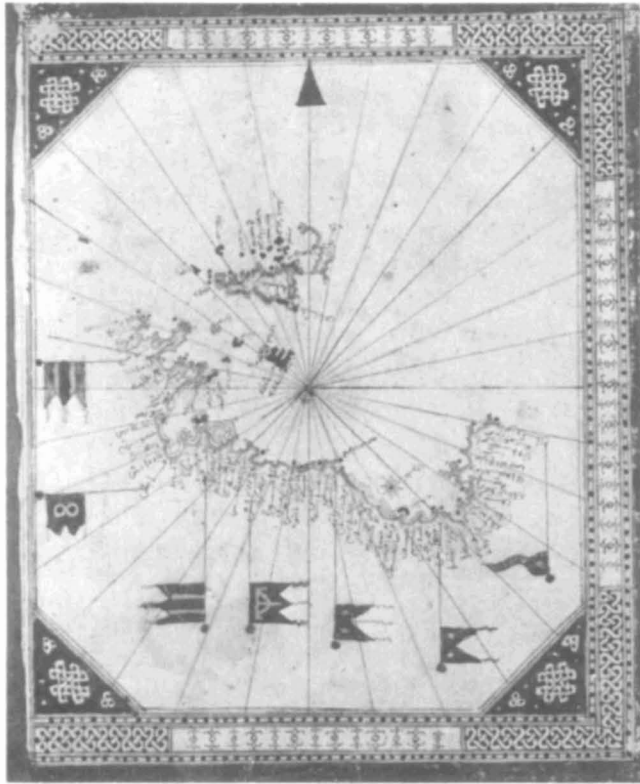


FIG. 14.20. CENTRAL MEDITERRANEAN FROM THE 1551 AL-SHARAFĪ AL-ŞIFĀQŞĪ ATLAS. A chart, oriented to the south, of the Gulf of Sidra, Malta, Sicily, and part of the Calabrian coast from the earliest extant portolan atlas of the al-Sharafī al-Şifāqşī family of cartographers, dated 958/1551. The intricate arabesque borders are characteristic of the work of this family.

Size of the original: 25 × 20 cm. By permission of the Bibliothèque Nationale, Paris (MS. Arabe 2278, fol. 6v).

Şifāqşī family in the Tunisian town of Sfax was within the political influence of the Ottoman Empire for most of the period of its chartmaking. The Ottoman sultans never controlled the western Mediterranean but achieved a measure of success along the Maghreb coast beginning in 892/1487 when Kemāl Re'is began to raid Christian shipping from bases on the island of Djerba and the ports of Bône and Bougie. By the first decades of the sixteenth century, the Barbarossa brothers had established corsair activity out of Algiers, and in 924/1518 Ḥayreddīn Barbarossa requested that ports under his control be included within the boundaries of Ottoman protection.⁶³

The al-Şifāqşī family appears to have no direct links to Ottoman chartmakers, but they had a special relationship to the tradition of al-Idrīsī, whose influence is ever present in their work (see chap. 7). Much like the Ptolemaic tradition, which was held in esteem long after the content of Ptolemy's maps ceased to serve any useful purpose in Europe, the mark of al-Idrīsī remained in their work until the seventeenth century.

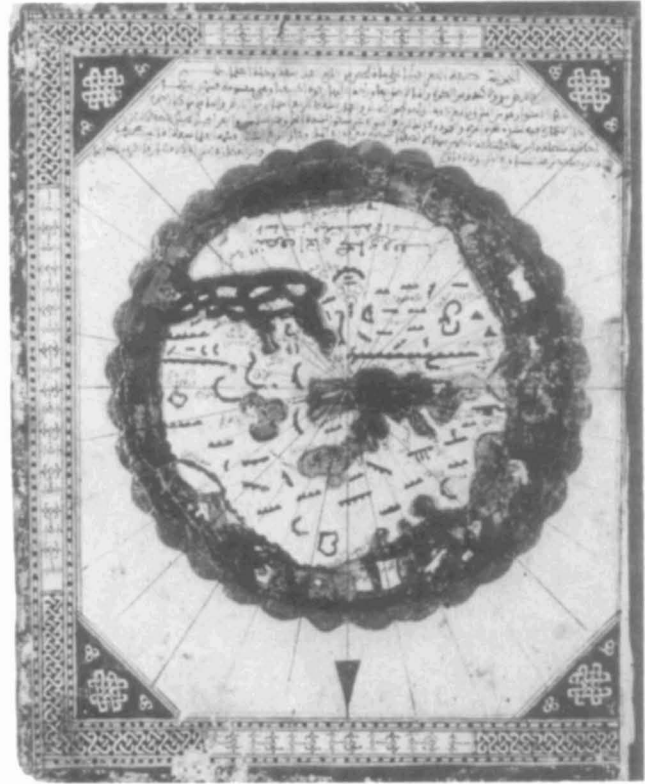


FIG. 14.21. WORLD MAP FROM THE 1551 AL-SHARAFĪ AL-ŞIFĀQŞĪ ATLAS. This family of cartographers drew extensively on the geographical tradition of al-Idrīsī, whose influence is clearly shown in this small, diagrammatic world map from their earliest extant atlas.

Size of the original: 25 × 20 cm. By permission of the Bibliothèque Nationale, Paris (MS. Arabe 2278, fol. 3r).

The earliest extant maps made by the family are in a small portolan atlas. It consists of five charts of the Mediterranean and Black Sea and the Iberian and Moroccan coasts of the Atlantic (fig. 14.20), a world map similar to the small circular world map of al-Idrīsī (fig. 14.21), a qibla diagram (plate 13), a diagram showing the day lengths for each month of the year in the fourth climate, and an agricultural calendar for each month.⁶⁴ The author, 'Alī ibn Aḥmad ibn Muḥammad al-Sharafī al-Şifāqşī, refers to his cartographic work as a *ṭablah* (Latin

63. Although it provided skilled mariners and bases from which to harass Christian shipping, the North African frontier never developed beyond a string of coastal strongholds held by semiautonomous corsairs. See Andrew C. Hess, *The Forgotten Frontier: A History of the Sixteenth-Century Ibero-African Frontier* (Chicago: University of Chicago Press, 1978), esp. 58–66; Svat Soucek, "The Rise of the Barbarossas in North Africa," *Archivum Ottomanicum* 3 (1971): 238–50; and Aldo Galotta, "Khayr al-Din (Khıdır) Pasha, Barbarossa" in *Encyclopaedia of Islam*, new ed., 4:1155–58.

64. Paris, Bibliothèque Nationale, MS. Arabe 2278.



FIG. 14.22. WORLD DIAGRAM FROM THE 1571–72 AL-SHARAFĪ AL-ṢIFĀQṢĪ ATLAS. The inclusion in these atlases of a circular world map from the al-Idrīsī tradition in diagrammatic form (compare with fig. 14.21) clearly served a symbolic rather than a purely geographical purpose. The scalloped outer band represents the legendary mountain of Qāf surrounding the earth. The legend on the southern continent reads, “The empty half of the earth, according to what philosophers have told: sands, wasteland, deserts; it is hot because of the proximity of the sun to it, nothing lives there because of the heat, according to what has been said.”

Size of the original: 26.5 × 20.5 cm. By permission of the Bodleian Library, Oxford (MS. Marsh 294, fol. 5v).

tabula or map) and says that he finished it on 1 Ramaḍān 958 (1 or 2 September 1551).

The same author produced a second work, a world map drawn in 987/1579. As described by Nallino, it consists of two large sheets pasted together, with names in Maghribī script (plate 24).⁶⁵ Once the property of the admiral Marquis Giovanni della Chiesa, it was acquired in 1916 by the Italian antiquarian Alessandro Castagnari. Part of an inscription on the western side reads:

The writer of these lines is the humble servant of God ‘Alī ibn Aḥmad ibn Muḥammad al-Sharafī, native of Sfax, living now in al-Qayrawān, follower of the Maliki rite. . . . it [the map] was finished in the first days of Jumādā 987 [late June–early July 1579].

The major inscription on the eastern side introduces the oldest member of the family of whom we have record:

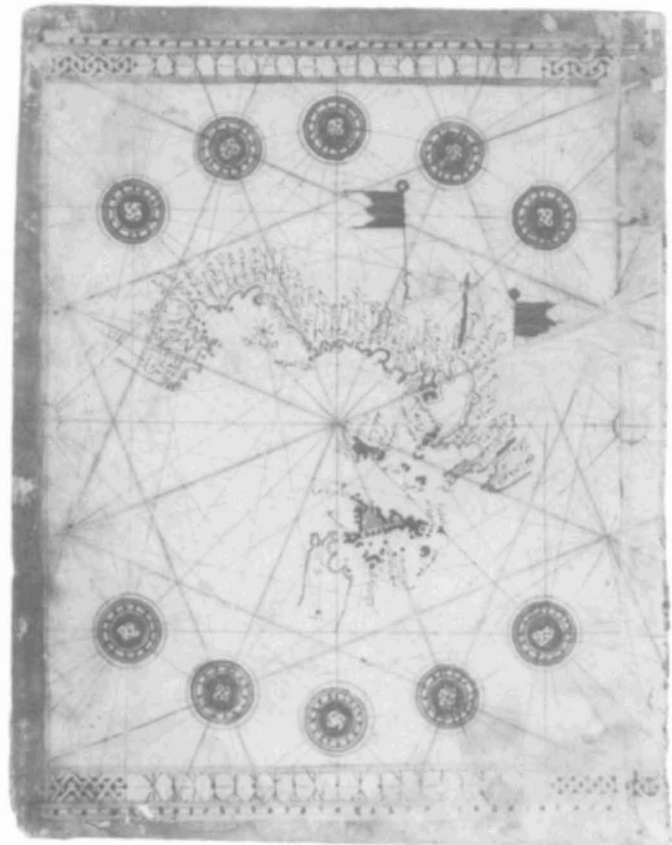


FIG. 14.23. CENTRAL MEDITERRANEAN FROM THE 1571–72 AL-SHARAFĪ AL-ṢIFĀQṢĪ ATLAS. The representation on this chart may be compared with the same region depicted in figure 14.20. The place-names are practically identical, but the style has a less formal and finished look than the version of A.D. 1551.

Size of the original: 26.5 × 20.5 cm. By permission of the Bodleian Library, Oxford (MS. Marsh 294, fol. 6r).

“I have copied this mappamondo from [another] drawn by my grandfather Muḥammad . . . ; he had copied the coasts of the ‘mare Siro’ and its ports from a *qunbāṣ* [nautical chart]⁶⁶ made by the Majorcans.” The reference

65. Rome, Istituto Italo-Africano; see Carlo Alfonso Nallino, “Un mappamondo arabo disegnato nel 1579 da ‘Alī ibn Aḥmad al-Sharafī di Sfax,” *Bollettino della Reale Società Geografica Italiana* 53 (1916): 721–36.

66. See above, pp. 256 and 257. In Ibn Khaldūn’s description of the Eternal Islands (Canaries), *qunbāṣ* was indeed the Arabic word for portolan chart, the word coming from “compass,” meaning “dividers”: “The countries situated on the two shores of the Mediterranean are noted on a chart (*ṣahīfah* [literally, vellum]) which indicates the true facts regarding them and gives their positions along the coast in the proper order. The various winds and their paths are likewise put down on the chart. This chart is called the ‘compass’ [*qunbāṣ*]. It is on this (compass) that (sailors) rely on their voyages.” Ibn Khaldūn, *The Muqaddimah: An Introduction to History*, 3 vols., trans. Franz Rosenthal (New York: Bollingen Foundation, 1958), 1:117. See also William C. Brice, “Compasses, Compassi, and *Kanābiṣ*,” *Journal of Semitic Studies* 29 (1984): 169–78, and Nallino, “Un mappamondo arabo,” 734–36 (note 65).

is to Muḥammad ibn Muḥammad al-Sharafī al-Ṣifāqsi, but no map of his survives—we assume one resembled the 987/1579 chart. The western half followed Catalan models, but the eastern half, the source of which is al-Idrisī, is incongruously tacked on and oblivious to the new European discoveries. It bears no trace of the discovery of the Americas, the circumnavigation of the world, or even the works of Pīrī Reʿīs. The lines from the compass rose are continued over the eastern section in a way that al-Idrisī would never have considered and probably would not have understood. The author relied on al-Idrisī for the depiction of the internal part of Europe as well. From the viewpoint of content, the map reveals the independence of Arabic nomenclature from the European names.

Finally there is a third work, a small portolan atlas dated 979 (26 May 1571–13 May 1572), by ʿAlī ibn Aḥmad ibn Muḥammad.⁶⁷ Not unlike the 958/1551 atlas, it has a small, round, very corrupt Idrīsī-like world diagram (fig. 14.22) and charts of the Gulf of Sidra (fig. 14.23), Italy and the Adriatic, the Iberian Peninsula, the western Mediterranean with the Balearics, the Aegean Sea and Crete, the Black Sea, and the eastern Mediterranean and Cyprus. All the charts are oriented to the south. The place-names are practically identical to those on his earlier atlas.

These maps originating in the sixteenth century were copied by later generations of the same family. The 987/1579 hybrid world chart of ʿAlī ibn Aḥmad ibn Muḥammad, which was a copy of a map by his grandfather Muḥammad ibn Muḥammad, was copied in its turn by his son Muḥammad ibn ʿAlī ibn Aḥmad in 1009/1600–1601. It is this copy, held at the Bibliothèque Nationale, Paris (figs. 14.24 and 14.25), that is best known to scholars through the full-sized facsimile in Jomard's *Les monuments de la géographie* and a much reduced copy in Nordenskiöld.⁶⁸ The graphic scales and elaborate wind roses that are so prominent on the western part are not included on the eastern portion.

Finally, another descendent of the same family, perhaps a grandson or great-grandson of ʿAlī ibn Aḥmad ibn Muḥammad, named Aḥmad al-Sharafī al-Ṣifāqsi, settled in Cairo, where he became a teacher in the al-Azhar mosque. In 1087/1676–77, he composed a treatise on the

use of the quadrant.⁶⁹ A series of manuscripts entitled *Nuzhat al-anzār fī ʿajāʾib al-tawārikh wa-al-akhbār* by the late eighteenth-century chronicler from Sfax, Maḥmūd ibn Saʿīd Maqdīsh, lists several other members of the family, of which the last two died of the plague in 1199/1784–85.⁷⁰ We thus have eight or nine generations of the same family following similar cartographic, mathematical, or astronomical interests.

The general picture that emerges of Islamic marine cartography from the fourteenth to the seventeenth century is that of an eclectic and pragmatic blend of sources. Al-Idrisī's works, Italian and Catalan sailing charts and portolans, Italian *isolarii*, and original observations of Turkish corsairs and naval officers were all drawn upon. Of the groups of maps and atlases defined here, the early charts in Arabic script seem to have borne great affinity to their Western counterparts, in structure and convention if not in toponymy. Those of Pīrī Reʿīs, although also relying on Western sources, show particular originality, especially in the *Kitāb-i bahriyye*. The Ottoman portolan atlases, on the other hand, apart from their Arabic and Turkish legends, appear to have been based largely on Italian sources. Last, the maps of the al-Sharafī al-Ṣifāqsi family blend the traditional cartography of al-Idrisī with that of the Catalan sea charts of the Mediterranean, combining quite different geometrical structures in an arbitrary and often anachronistic way. But even this last group of maps, like all the others, calls out for further study, as we seek a clearer explanation of the function and use of many of these charts.

67. Oxford, Bodleian Library, MS. Marsh 294.

68. Paris, Bibliothèque Nationale, MS. Rés. Ge. C. 5089. Edme François Jomard, *Les monuments de la géographie* (Paris: Duprat, 1842–62), 60–63, and Adolf Erik Nordenskiöld, *Periplus: An Essay on the Early History of Charts and Sailing-Directions*, trans. Francis A. Bather (Stockholm: P. A. Norstedt, 1897; reprinted New York: Burt Franklin, 1967), 69 and figs. 22–23.

69. Manuscripts in Paris, Bibliothèque Nationale, Suppl. Arabe 961, shown as no. 2551 in the printed catalog; and one in Cairo, Sultāniyah, Miqāt 58; see Nallino, “Un mappamondo arabo,” 729 (note 65).

70. The manuscripts were reproduced lithographically in a rare facsimile (Tunis: Maṭbaʿah ʿIlmiyah Ḥajariyah, 1903). See Carlo Alfonso Nallino, “Venezia e Sfax nel secolo XVIII secondo il cronista arabo Maqdīsh,” in *Centenario della nascita di Michele Amari*, 2 vols. (Palermo: Stabilimento Tipografico Verzi, 1910), 1:307–56, esp. 309–12.

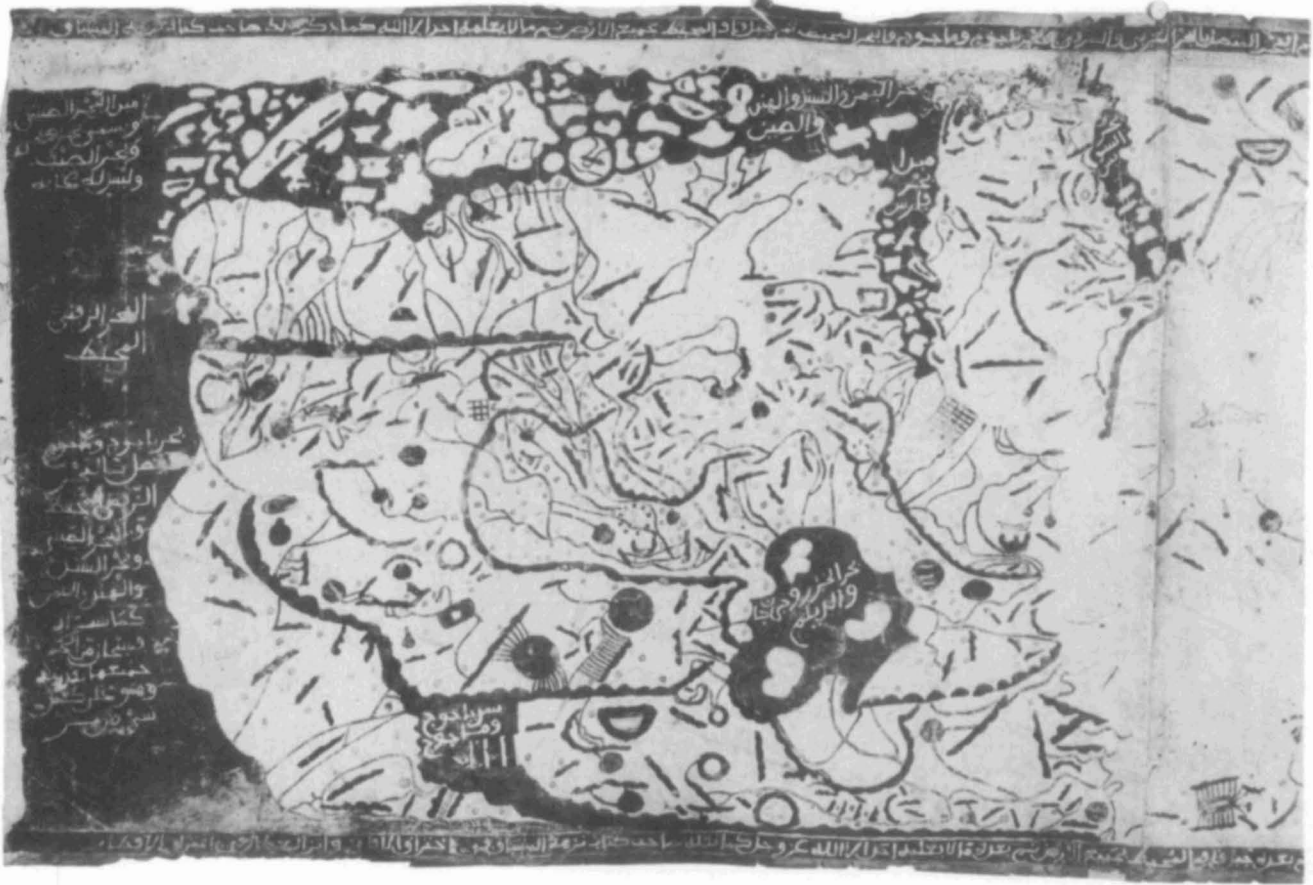


FIG. 14.24. ASIA AND THE MIDDLE EAST ON THE 1601-2 AL-SHARAFĪ AL-ŞIFĀQŚĪ CHART. The eastern portion of this chart, on a separate piece of parchment, follows al-Idrīsī's

sectional maps for the configuration of Asia. Size of the original: 48.5 × 64.5 cm. By permission of the Bibliothèque Nationale, Paris (Rés. Ge. C. 5089).

APPENDIX 14.1 ISLAMIC MARITIME CHARTS

Early Charts in Arabic¹

1. Milan, Biblioteca Ambrosiana, MS. S.P. II 259 ("Maghreb" chart of the western Mediterranean). Anonymous and undated (attributed to the first half of the fourteenth century); paper; 24 × 17 cm.²
2. Istanbul, Topkapı Sarayı Müzesi Kütüphanesi, H. 1823 (Mediterranean chart). İbrāhīm ibn Aḥmad al-Kātibī; 816/1413-14; parchment; 54 × 88 cm.³
3. Istanbul, Deniz Müzesi, no. 882 (Mediterranean chart). İbrāhīm al-Mursī; 865/1461; parchment; 48 × 89 cm.⁴
4. Istanbul, Topkapı Sarayı Müzesi Kütüphanesi, H. 1822 (Mediterranean chart). Ḥajj Abū al-Ḥasan; undated (considered post-926/1520); parchment; 74 × 100 cm.⁵

Pīrī Re'īs

5. Istanbul, Topkapı Sarayı Müzesi Kütüphanesi, R. 1633 mük (world map fragment of the Atlantic). Pīrī Re'īs; 919/1513; parchment; 90 × 63 cm.⁶

6. Istanbul, Topkapı Sarayı Müzesi Kütüphanesi, H. 1824 (world map fragment of the north Atlantic). Pīrī Re'īs; 935/1528-29; parchment; 69 × 70 cm.⁷

Ottoman Portolan Charts and Atlases

7. Istanbul, Topkapı Sarayı Müzesi Kütüphanesi, H. 644 ('Ali Mācār Re'īs atlas). Authorship attributed to 'Ali Mācār Re'īs; drafted in 975/1567; six charts and one world map on parchment; size of the double-page map: 29 × 42 cm.⁸
8. Istanbul Arkeoloji Müzesi Kitaplığı, no. 1621 (Atlas-i hūmayun). Anonymous and undated (considered ca. 978/1570); eight charts and one world map on parchment; size of the double-page map: 53.3 × 69.9 cm.⁹
9. Baltimore, Walters Art Gallery, MS. W. 660 (Walters *Deniz atlası*). Anonymous and undated (considered ca. 1560-70); seven charts and one world map on parchment; size of the double-page map: 30.1 × 45 cm.¹⁰
10. Venice, Civico Museo Correr, Port. 22 (formerly Cicogna 3448) (Aegean chart). Meḥmed Re'īs of Menemen; 999/1590-91; parchment; 59.5 × 82.5 cm.¹¹
11. Munich, Bayerische Staatsbibliothek, Cod. Turc. 431 (Mediterranean chart). Dated 1062/1652; 117.5 × 81 cm.¹²

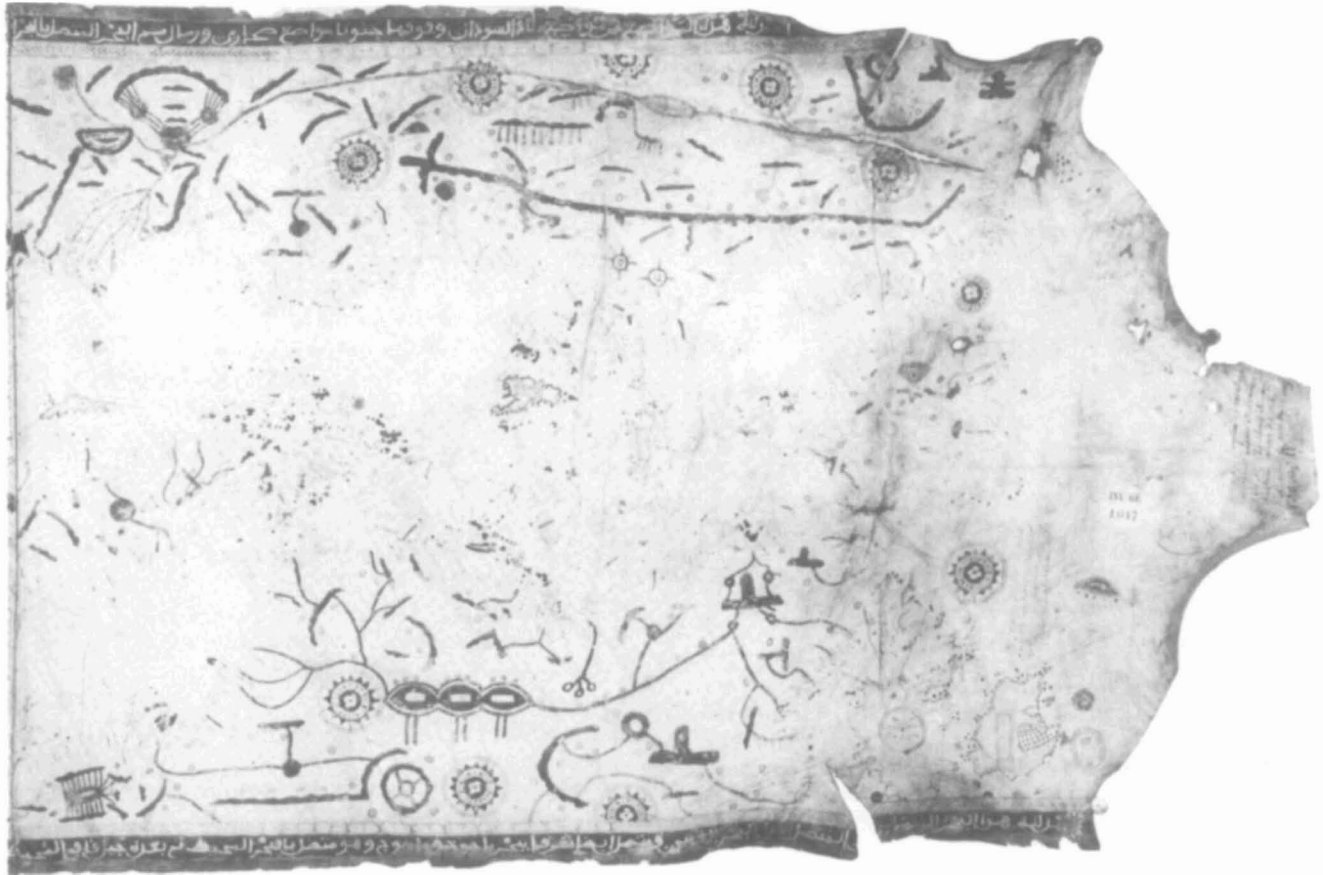


FIG. 14.25. EUROPE AND NORTH AFRICA ON THE 1601–2 AL-SHARAFĪ AL-ŞIFĀQŞĪ CHART. A copy made by Muḥammad ibn ‘Alī ibn Aḥmad, a fourth-generation mapmaker of the al-Sharafī al-Şifāqşī family, following the A.D. 1579 chart made by his father (plate 24) and the lost chart made by his

great grandfather. The European and North African portion follows the representation of traditional portolan charts. Size of the original: 48.5 × 72.5 cm. By permission of the Bibliothèque Nationale, Paris (Rés. Ge. C. 5089).

12. Vatican, Biblioteca Apostolica Vaticana, Borg. Turco 72; 22 × 16 cm.¹³ Nothing else is known about this chart.

Al-Sharafī al-Şifāqşī Family

13. Planisphere; not extant. Muḥammad ibn Muḥammad; referred to in an inscription on the 987/1579 chart by ‘Alī ibn Aḥmad ibn Muḥammad (see no. 15).

14. Paris, Bibliothèque Nationale, MS. Arabe 2278 (portolan atlas). ‘Alī ibn Aḥmad ibn Muḥammad, 958/1551; five charts and one world map; 25 × 20 cm.¹⁴

15. Rome, Istituto Italo-Africano (planisphere). ‘Alī ibn Aḥmad ibn Muḥammad; 987/1579; parchment; 135 × 59 cm.¹⁵

16. Oxford, Bodleian Library, MS. Marsh 294 (formerly Bodleian Uri 17871) (portolan atlas). ‘Alī ibn Aḥmad ibn Muḥammad; 979/1571–72; seven charts and one world map; 26.5 × 20.5 cm.¹⁶

17. Paris, Bibliothèque Nationale, Rés Ge. C. 5089 (planisphere). Muḥammad ibn ‘Alī ibn Aḥmad; 1009/1601; parchment; 48.5 × 72.5 cm (western part), 48.5 × 64.5 cm (eastern part).¹⁷

1. There is, in addition to this map corpus, a 1482 chart that contains Arabic annotations by Jaime Bertran, a Jewish chartmaker from Barcelona; see Tony Campbell, “Portolan Charts from the Late Thirteenth Century to 1500,” in *The History of Cartography*, ed. J. B. Harley and David Woodward (Chicago: University of Chicago Press, 1987–), 1:371–463, esp. 374 and 451.

2. Paolo Revelli, “Codici ambrosiani di contenuto geografico,” *Fontes Ambrosiani* 1 (1929): 181–82 (no. 532); Konrad Miller, *Mappae arabicae: Arabische Welt- und Länderkarten des 9.–13. Jahrhunderts*, 6 vols. (Stuttgart, 1926–31), Band 5, 173–75; and Youssouf Kamal, *Monumenta cartographica Africae et Aegypti*, 5 vols. in 16 pts. (Cairo, 1925–51), 4.3:1336–37; facsimile reprint, 6 vols., ed. Fuat Sezgin (Frankfurt: Institut für Geschichte der Arabisch-Islamischen Wissenschaften, 1987), 6:27–29.

3. Fehmi Edhem Karatay, *Topkapı Sarayı Müzesi Kütüphanesi: Türkçe Yazmalar Kataloğu*, 2 vols. (Istanbul: Topkapı Sarayı Müzesi, 1961), 1:464–65 (no. 1407), and Campbell, “Portolan Charts,” 453 (note 1). A color reproduction can be found in Fuat Sezgin, *The Contribution of Arabic-Islamic Geographers to the Formation of the World Map* (Frankfurt: Institut für Geschichte der Arabisch-Islamischen Wissenschaften, 1987), pl. 18.

4. Campbell, “Portolan Charts,” 453 (note 1).

5. Karatay, *Türkçe Yazmalar Kataloğu*, 1:471 (no. 1431) (note 3). William C. Brice lists the inventory number as “No. 49356/2753” in

"Early Muslim Sea-Charts," *Journal of the Royal Asiatic Society of Great Britain and Ireland*, [1977], 55.

6. Karatay, *Türkçe Yazmalar Kataloğu*, 1:465 (no. 1408) (note 3); Gustav Adolf Deissmann, *Forschungen und Funde im Serai, mit einem Verzeichnis der nichtislamischen Handschriften im Topkapu Serai zu Istanbul* (Berlin: Walter de Gruyter, 1933), 111–22 (no. 87); and Cevdet Türkay, *Istanbul Kütüphanelerinde Osmanlı'lar Devrine Aid Türkçe—Arabça—Farsça Yazma ve Basma Coğrafya Eserleri Bibliyografyası* (Istanbul: Maarif, 1958), 56. Good color reproductions are found in Michel Mollat du Jourdin and Monique de La Roncière, *Sea Charts of the Early Explorers: 13th to 17th Century*, trans. L. le R. Dethan (New York: Thames and Hudson, 1984), pl. 28; and Esin Atıl, *The Age of Sultan Süleyman the Magnificent*, exhibition catalog (Washington, D.C., and New York: National Gallery of Art and Harry N. Abrams, 1987), fig. 35.

7. Karatay, *Türkçe Yazmalar Kataloğu*, 1:465–66 (no. 1409) (note 3), and Türkay, *Yazma ve Basma Coğrafya Eserleri*, 55 (note 6).

8. Karatay, *Türkçe Yazmalar Kataloğu*, 1:466 (no. 1410) (note 3), and Türkay, *Yazma ve Basma Coğrafya Eserleri*, 54 (note 6). See also Svat Soucek, "The 'Ali Macar Reis Atlas' and the Deniz kitabı: Their Place in the Genre of Portolan Charts and Atlases," *Imago Mundi* 25 (1971): 17–27.

9. Thomas D. Goodrich, "Atlas-i hümayun: A Sixteenth-Century Ottoman Maritime Atlas Discovered in 1984," *Archivum Ottomanicum* 10 (1985): 83–101.

10. Thomas D. Goodrich, "The Earliest Ottoman Maritime Atlas—The Walters Deniz atlası," *Archivum Ottomanicum* 11 (1986): 25–50, and *The World Encompassed: An Exhibition of the History of Maps Held at the Baltimore Museum of Art, October 7 to November 23, 1952* (Baltimore: Trustees of the Walters Art Gallery, 1952), no. 105.

11. For a good color reproduction, see Susanna Biadene, ed., *Carte da navigar: Portolani e carte nautiche del Museo Correr, 1318–1732*, exhibition catalog (Venice: Marsilio Editori, 1990), 94–95 (no. 26). See also Mirco Vedovato, "The Nautical Chart of Mohammed Raus, 1590," *Imago Mundi* 8 (1951): 49.

12. Bayerische Staatsbibliothek, *Das Buch im Orient: Handschriften und kostbare Drucke aus zwei Jahrtausenden*, exhibition catalog (Wiesbaden: Ludwig Reichert, 1982), 205 (no. 132).

13. Ettore Rossi, *Elenco dei manoscritti turchi della Biblioteca Vaticana* (Vatican: Biblioteca Apostolica Vaticana, 1953), 360.

14. Miller, *Mappae arabicae*, Band 5, 175–76, and Band 6, Taf. 78 (note 2).

15. Miller, *Mappae arabicae*, Band 5, 176 (note 2).

16. Miller, *Mappae arabicae*, Band 5, 176 (note 2).

17. Myriem Foncin, *Catalogue des cartes nautiques sur vélin conservées au Département des Cartes et Plans* (Paris: Bibliothèque Nationale, 1963), 98 (no. 60). See also Edme François Jomard, *Les monuments de la géographie* (Paris: Duprat, 1842–62), 60–63; Adolf Erik Nordenskiöld, *Periplus: An Essay on the Early History of Charts and Sailing-Directions*, trans. Francis A. Bather (Stockholm: P. A. Norstedt, 1897; reprinted New York: Burt Franklin, 1967), 69 and figs. 22–23; and Miller, *Mappae arabicae*, Band 5, 176–77 and Band 6, Taf. 79–80 (note 2).

APPENDIX 14.2 PRELIMINARY LIST OF EXTANT MANUSCRIPTS OF THE *KITĀB-I BAĦRĪYE*

Version 1 (927/1521)

1. Bologna, Biblioteca Universitaria di Bologna, MS. 3612. Date undetermined; 105 maps; 31.2 × 21.6 cm.¹
2. Bologna, Biblioteca Universitaria di Bologna, MS. 3613. Copied 977/1569; 125 maps; 30.6 × 21 cm.²
3. Dresden, Sächsische Landesbibliothek, MS. Eb. 389. Copied 961/1554; 119 maps; 28.7 × 19.9 cm.³
4. Istanbul, Deniz Müzesi, no. 987 (formerly no. 3535). Date undetermined; copied by Mehmed Seyyid; presented to the museum by Hasan Hüsnü Paşa; 368 fols., 88 maps; 29.2 × 26 cm.⁴
5. Istanbul, Deniz Müzesi, no. 990 (formerly no. 3538). Date undetermined; 269 fols., 134 maps; 31 × 22 cm.
6. Istanbul, Köprülü Kütüphanesi, Fazıl Ahmed Paşa, MS. 172. Copied 1068/1657; 123 maps; 35 × 25.5 cm.⁵
7. Istanbul, Millet Genel Kütüphanesi, Coğrafya 1; 129 maps.⁶
8. Istanbul, Nuruosmaniye Kütüphanesi, MS. 2990. Copied 1055/1645–46 by Ahmed ibn Muştafa; 126 maps; 30 × 20 cm.
9. Istanbul, Nuruosmaniye Kütüphanesi, MS. 2997. Copied 1038/1628–29 by Muştafa ibn Muḥammad Cündi; 124 maps; 28.7 × 19.9 cm.
10. Istanbul, Süleymaniye Kütüphanesi, Ayasofya 2605. Copied 1134/1721; 133 maps; 29.3 × 20.1 cm.⁷
11. Istanbul, Süleymaniye Kütüphanesi, Ayasofya 3161; 125 maps; 27.7 × 19.5 cm.⁸
12. Istanbul, Süleymaniye Kütüphanesi, Hamidiye 945. Copied in 962/1554–55 by Ahmed ibn 'Alī ibn Mehmed; 42 maps; 36 × 25.4 cm.⁹
13. Istanbul, Süleymaniye Kütüphanesi, Hamidiye 971; 116 maps; 40.5 × 27.7 cm.
14. Istanbul, Süleymaniye Kütüphanesi, Hüsvrev Paşa 272. Copied 978/1570; 127 maps; 30.7 × 20.7 cm.¹⁰
15. Istanbul, Süleymaniye Kütüphanesi, Yeni Cami 790. Copied 959/1551 by Muḥyiddin; 128 maps; 29.9 × 20 cm.¹¹
16. Istanbul, Topkapı Sarayı Müzesi Kütüphanesi, B. 337. Copied 982/1574–75; 134 maps; 30 × 20.5 cm.¹²
17. Istanbul Üniversitesi Kütüphanesi, Türkçe 123/2; 119 maps.¹³
18. London, British Library, MS. Or. 4131. Copied seventeenth century; past owners include Ibn Yūsuf (A.H. 1098) and İbrāhīm Nāşid (A.H. 1206); 137 maps; 29.3 × 20.4 cm.¹⁴
19. Oxford, Bodleian Library, MS. d'Orville 543. Copied 996/1587; 142 fols.; 29 × 20.3 cm.¹⁵
20. Paris, Bibliothèque Nationale, MS. Suppl. Turc 220. Copied end of sixteenth or beginning of seventeenth century; 157 fols., 122 maps; 32.5 × 22.5 cm.¹⁶
21. Berlin, Staatsbibliothek zu Berlin, Orientabteilung, MS. Or. Foliant 4133. Copied 1054/1644–45.¹⁷
22. United States (?), private collector. Copied 1131/1718; originally in the library of Sir Thomas Phillipps (MS. 3974); 223 fols., 123 maps; 32 × 22.5 cm.¹⁸
23. Vienna, Österreichische Nationalbibliothek, Bild-Archiv und Porträt-Sammlung, Cod. H.O. 192 (Historia Osmanica); 172 fols., approx. 130 maps; 31.6 × 21.4 cm.¹⁹

Version 2 (932/1526)

24. Baltimore, Walters Art Gallery, MS. W. 658. Copied end of seventeenth century; 376 fols., 239 maps; 34 × 23.5 cm.²⁰
25. Istanbul, Deniz Müzesi, no. 988 (formerly no. 3537). Date undetermined; presented to the museum by Hasan Hüsnu Paşa; 426 fols., 239 maps; 34.5 × 23 cm.²¹
26. Istanbul, Deniz Müzesi, no. 989. Date undetermined; 226 maps; 31.3 × 21 cm.
27. Istanbul, Köprülü Kütüphanesi, Fazıl Ahmed Paşa, MS. 171. Copied 962/1555; 426 fols., 117 maps; 31.5 × 20 cm.²²
28. Istanbul, Süleymaniye Kütüphanesi, Ayasofya 2612. Copied 982/1574; 429 fols., 216 maps; 32.4 × 21.5 cm.²³
29. Istanbul, Topkapı Sarayı Müzesi Kütüphanesi, H. 642. Copied late sixteenth century; 421 fols., 215 maps; 31.5 × 22 cm.²⁴
30. Istanbul, Topkapı Sarayı Müzesi Kütüphanesi, R. 1633. Copied possibly late seventeenth or early eighteenth century; 221 maps; 32.5 × 22 cm.²⁵
31. Istanbul Üniversitesi Kütüphanesi, Türkçe 6605; 228 maps.²⁶
32. Kuwait, Dār al-Āthār al-Islāmīyah, LNS. 75 MS. Copied A.D. 1688–89; originally in the library of Philip Hofer; 192 fols., 131 maps; 31.7 × 21.2 cm.²⁷
33. Paris, Bibliothèque Nationale, MS. Suppl. Turc 956. Copied late sixteenth century; 434 fols., 219 maps; 35 × 23 cm.²⁸

Manuscripts without Text

34. Bologna, Biblioteca Universitaria di Bologna, MS. 3609. Attributed to “Seyyid Nüh”; 204 maps; 42.1 × 27.7 cm.²⁹
35. Istanbul, Topkapı Sarayı Müzesi Kütüphanesi, B. 338. Date undetermined; 189 maps; 28.5 × 19.5 cm.³⁰
36. London, Nasser D. Khalili Collection of Islamic Arts, MS. 718. Formerly in the private Istanbul collection of Halil Bezmen; 119 maps.³¹

Manuscript with Text Only

37. Istanbul, Süleymaniye Kütüphanesi, Hüsrev Paşa 264. Second version text copied 1184/1770 by Süleymān el-maʿrūf [bi-]Zuhūrī.

Manuscript Lost or Location Unknown

38. Berlin, Deutsche Staatsbibliothek, Diez A. Foliant 57. First version copy acquired in Istanbul by Heinrich Friedrich von Diez in 1789, supposedly destroyed during World War II; copied beginning of seventeenth century; 50 maps; 42 × 55 cm.³² [In a letter dated 2 April 1993, the Staatsbibliothek zu Berlin notified us that this version 2 manuscript survived World War II among the holdings of the Asien-Afrika-Abteilung, Deutsche Staatsbibliothek, and it was united with the holdings of the Orientabteilung, Staatsbibliothek Preussischer Kulturbesitz in 1991.]

(There are other extracts of the *Kitāb-i bahriye* in different Turkish collections).

I thank Thomas D. Goodrich for his generous assistance in compiling this appendix.

1. Viktor R. Rozen, “Remarques sur les manuscrits orientaux de la Collection Marsigli à Bologne,” *Atti della Reale Accademia dei Lincei: Memorie della Classe di Scienze Morali, Storiche, e Filologiche*, 3d ser., 12 (1883–84): 179.

2. Rozen, “Remarques,” 179 (note 1). This was the principal manuscript that Paul Kahle used for his partial edition and translation in *Piri Reʿis Bahriye: Das türkische Segelhandbuch für das Mittelländische Meer vom Jahre 1521*, 2 vols. (Berlin: Walter de Gruyter, 1926–27).

3. Heinrich Fleischer, *Catalogus codicum manuscriptorum orientaliū Bibliothecae Regiae Dresdensis* (Leipzig: F. C. G. Vogel, 1831), 64 (no. 389). This manuscript must have been copied by more than one individual, since the hand changes several times.

4. Maps appear first in the volume, followed by text.

5. Ramazan Şeşen, Cevat İzgi, and Cemil Akpınar, *Catalogue of Manuscripts in the Köprülü Library*, 3 vols. (in Ottoman Turkish) (Istanbul: Research Centre for Islamic History, Art, and Culture, 1986), vol. 2, and Cevdet Türkay, *Istanbul Kütübhanelerinde Osmanlılar Devrine Aid Türkçe–Arabça–Farsça Yazma ve Basma Coğrafya Eserleri Bibliyografyası* (Istanbul: Maarif, 1958), 23.

6. Türkay, *Yazma ve Basma Coğrafya Eserleri*, 24 (note 5).

7. Türkay, *Yazma ve Basma Coğrafya Eserleri*, 9 (note 5).

8. Türkay, *Yazma ve Basma Coğrafya Eserleri*, 9 (note 5).

9. Similar to no. 4, the maps appear first (fols. 3b–42b) and text follows (fols. 43a–109b) on what appears to be the same paper.

10. Five or six folios appear to have been inserted at a later date.

11. Türkay, *Yazma ve Basma Coğrafya Eserleri*, 52 (note 5).

12. The maps are carelessly drawn and colored. There are stylistic similarities to no. 3 above. A seal indicates that the manuscript was once owned by a person named Muştafâ, and “‘Abdülfâkir Ebû’l- . . . Maḥmūd eş-şehîr . . . [illegible name]” is written on the cover. Fehmi Edhem Karatay, *Topkapı Sarayı Müzesi Kütüphanesi: Türkçe Yazmalar Kataloğu*, 2 vols. (Istanbul: Topkapı Sarayı Müzesi, 1961), 1:445 (no. 1338) and Türkay, *Yazma ve Basma Coğrafya Eserleri*, 57 (note 5).

13. This volume is part 2 of a two-part set.

14. Norah M. Titley, *Miniatures from Turkish Manuscripts: A Catalogue and Subject Index of Paintings in the British Library and British Museum* (London: British Library, 1981), 64–66 (no. 57).

15. Hermann Ethé, *Catalogue of the Persian, Turkish, Hindūstānī and Pushtū Manuscripts in the Bodleian Library* (Oxford: Clarendon Press, 1930), pt. 2, pp. 1177–79 (no. 2079).

16. Edgar Blochet, *Catalogue des manuscrits turcs*, 2 vols. (Paris: Bibliothèque Nationale, 1932–33), 1:268 (no. 220). A manuscript translation of this copy by Cardonne, entitled “Le flambeau de la Méditerranée,” is in the Bibliothèque Nationale (Fonds Français 22972).

17. Barbara Flemming, *Türkische Handschriften, Verzeichnis der Orientalischen Handschriften in Deutschland*, vol. 13, pt. 1 (Wiesbaden: Franz Steiner, 1968), 238–39 (no. 300).

18. The attention given to the elaborate script and decorative charts in this manuscript is more common to manuscripts of the second version. Perhaps it was transcribed to commemorate one of the treaties between Turkey and the European powers in the early eighteenth century; see H. P. Kraus, *Bibliotheca Philippica: Manuscripts on Vellum and Paper from the 9th to the 18th Centuries from the Celebrated Collection Formed by Sir Thomas Phillipps*, catalog 153 (New York: H. P. Kraus, 1979), 116 (no. 106).

19. Gustav Flügel, *Die arabischen, persischen und türkischen Handschriften der Kaiserlich-Königlichen Hofbibliothek zu Wien*, 3 vols. (Vienna: Kaiserlich-Königliche Hof- und Staatsdruckerei, 1865–67), 1:428 (no. 1275).

20. Erroneously cataloged as a copy of the *Cihānnumā* by Kätib Çelebi. On fol. 1a is the title *portolan-i kebîr*. Venice and Crete are illustrated in Thomas D. Goodrich, “Ottoman Portolans,” *Portolan 7* (1986): 6–11, and Cairo is shown in *Fire of Life: The Smithsonian Book of the Sun* (Washington, D.C.: Smithsonian Institution, 1981), 32.

21. The maps in this volume are stylistically similar to those in nos. 24 and 31.

22. Şeşen, İzgi, and Akpınar, *Manuscripts of the Köprülü Library*, 2:494 (note 5), and Türkay, *Yazma ve Basma Coğrafya Eserleri*, 23 (note 5).

23. Türkay, *Yazma ve Basma Coğrafya Eserleri*, 9 (note 5). Considered one of the best complete manuscripts of the second version, it may also be the earliest, possibly close to the original. It is the subject of three facsimile editions: *Kitabı bahriye*, ed. Fevzi Kurtoglu and Haydar Alpagot (Istanbul: Devlet, 1935); *Kitab'ı bahriyye*, 2 vols., ed. Yavuz Senemoğlu (Istanbul: Denizcilik Kitabı, 1973); and *Kitab-ı bahriye, Piri Reis*, 4 vols., ed. Ertuğrul Zekai Ökte, trans. Vahit Çabuk, Tülây Duran, and Robert Bragner, Historical Research Foundation—Istanbul Research Center (Ankara: Ministry of Culture and Tourism of the Turkish Republic, 1988–). In style it is similar to no. 29.

24. Karatay, *Türkçe Yazmalar Kataloğu*, 1:444 (no. 1336) (note 12) and J. M. Rogers and R. M. Ward, *Süleyman the Magnificent*, exhibition catalog (London: British Museum Publications, 1988), 103–4 (no. 40). The manuscript is still in its original stamped leather binding. In style, it is extraordinarily like no. 28, suggesting that it was produced by the same individual at the same place and time.

25. The maps are poorly drawn and colored; some folios are missing. See Karatay, *Türkçe Yazmalar Kataloğu*, 1:444–45 (no. 1337) (note 12), and Türkay, *Yazma ve Basma Coğrafya Eserleri*, 56 (note 5).

26. This is the best representative of a later group of second-version manuscripts copied by expert calligraphers and decorated with lavishly illuminated maps, similar in style to those in nos. 24 and 25. See Türkay, *Yazma ve Basma Coğrafya Eserleri*, 64 (note 5).

27. This manuscript will be featured in Esin Atıl, ed., *Islamic Art and Patronage: Treasures from Kuwait* (New York: Rizzoli, forthcoming). It was on display at the Bibliothèque Nationale, Paris, for a 1990 exhibition and later at the Walters Art Gallery, Baltimore. The map of Istanbul from this manuscript was used as the frontispiece of Lloyd A. Brown, *The Story of Maps* (Boston: Little, Brown, 1949; reprinted New York: Dover, 1979).

28. Blochet, *Manuscrits turcs*, 2:108 (no. 956) (note 16). Two charts from this manuscript are illustrated in color in Michel Mollat du Jourdin and Monique de La Roncière, *Sea Charts of the Early Explorers: 13th to 17th Century*, trans. L. le R. Dethan (New York: Thames and Hudson, 1984), pls. 35–36.

29. Hans Joachim Kissling, *Der See-Atlas des Sejjid Nûh* (Munich: Rudolf Trofenik, 1966).

30. The maps are well drawn and colored. The manuscript carries the foundation seal of Selim III and the inscription *harîta-i akâlim*; see Karatay, *Türkçe Yazmalar Kataloğu*, 1:466 (n. 1411) (note 12).

31. This collection was formerly known as the Nour Collection of Islamic Art. The manuscript will be the subject of a forthcoming study by Svat Soucek. A microfilm copy is held at the Süleymaniye Kütüphanesi, no. 3574.

32. Wilhelm Pertsch, *Verzeichnis der türkischen Handschriften, Handschriftenverzeichnisse der Königlichen Bibliothek zu Berlin*, vol. 8 (Berlin, 1889), 203–10 (no. 184) and Kahle, *Piri Re'is Bahriye*, 2:xxx–xxxiv (note 2). The double-page map of Istanbul was illustrated in Eugen Oberhummer, *Konstantinopel unter Sultan Suleiman dem Grossen, aufgenommen im Jahre 1559 durch Melchior Lorichs aus Flensburg* (Munich: R. Oldenbourg, 1902), pl. 22.