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 Piri Reis and the charts of both the Ottoman portolan atlases and the al-Sharafi al-Šifāʾqi 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-
FIG. 14.1. THE MAGHREB CHART. This manuscript chart is drawn on paper in black and red ink with place-names in Maghribi 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 x 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 Maghribi 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 Wasar azirat 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. 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 İbrahim ibn Aḥmad al-Kātibi 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 Maghribi 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 Sarayl library are not known, but some scholars believe it may have been there already at the time of Süleyman the Magnificent (r. 926–74/1520–66).

Slightly more attention has been given to another chart from the fifteenth century by İbrahim al-Mursî, dated 865/1461 (fig. 14.3). 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

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FIG. 14.2. THE AL-KATIBI CHART. Signed and dated by al-Katibi 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 compass rose top center with north highlighted. Size of the image: 54 x 88 cm. By permission of the Topkapı Sarayı Müzesi Kütüphanesi, Istanbul (H. 1823).

plaited border, and the place-names are written in Maghribi. 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 Ramadaan, in the year 865 [24 June 1461].” This is partially repeated on the southern border, where the maker identifies himself as the physician Ibrahim, 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. 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 Hâji Abû al-Hasan 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 Süleyman 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 RÊ'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 Bâyezid II (r. 886–918/1481–1512), ambitious policies for the Ottoman navy (bahriye) began to show notable success against the Venetians. Bâyezid recruited Aegean

7. İstanbul, Topkapı Sarayı Müzesi, H. 1822; see Konyah, Topkapı Sarayında, 130–36 and pl. 2 (note 4).
FIG. 14.3. THE AL-MURSI CHART. From legends on this chart, we learn that the physician İbrahim 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 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. 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 Muḥyiddin Piri Re'is (ca. 875–961/ca. 1470–1554). Re'is means captain in Turkish, but despite Piri Re'is's position and long experience in the Ottoman navy, almost no biographical information exists outside his own works, particularly the Kitâb-i bahrîye (Book of maritime matters), a manual of sailing directions. His father's name was İhâçī Meḥmed, and unconfirmed tradition has it that Piri Re'is was born at Gallipoli in the Dardanelles, which was then the most prominent Ottoman naval base. After 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).

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 (baysa re'is), 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.

886/1481 he is believed to have sailed with his uncle Kemal Re's, 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. From 892/1487 to at least 916/1510, while intermittently on voyages along the North African coast, Piri Re's 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 Kemal Re's 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, Piri Re's came to know many of the western Mediterranean coasts and harbors intimately.

After his uncle’s death in 917/1511, Piri Re's 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 Selim I (r. 918–26/1512–20) against Mamluk Egypt. The


10. An Ottoman source suggests that Kemal Re's was a Turk originally from the Anatolian province of Karaman, and we may assume the same origin for Hacı Meşmed, Piri Re's’s father. See Hans-Albrecht von Burski, Kemal Re's: Ein Beitrag zur Geschichte der türkischen Flotte (Bonn, 1928), 40–58, and Nejat Goyunç, “Kemal Re's,” in Encyclopedia of Islam, new ed., 4:881–82.
FIG. 14.5. ATLANTIC FRAGMENT FROM THE 1513 WORLD MAP OF PIRI RE'IS. 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 Sarayi Müzesi Kütüphanesi, Istanbul (R. 1633 mük).
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 Reis’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.

In 919/1513, eight years before he completed the first version of the Kitāb-i bahriye, Piri Reis 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 New Worlds are shown.

First version of Kitāb-i bahriye appeared in 927/1521, and Piri Reis hoped in vain that it would attract the attention of the new Sultan Süleyman. 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

11. The exact date of his death has only recently become known through archival evidence; see Cengiz Orhonlu, “Hint Kaptanlığı ve Piri Reis,” Belleten (Türk Tarih Kurumu) 34 (1970): 234–54, esp. 246.
New World have survived from what was once a larger map (fig. 14.5).\(^2\) 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 Pir son of Ḥāṣi Mehmed, known as paternal nephew of Kemal Reṣ’s, may God pardon them both, in the city of Gallipoli, in the month of Muḥarram 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 Reṣ’s 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 Reṣ’s] 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 cāferyes—eight such cāferyes, 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 şeyi üzerine istifraç edip bu şekil hasil oldu].

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.\(^1\)

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 Topkapi Sarayi Müzeesi 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.\(^1\) This original 1498 map is lost. However, we learn from the longest inscription on Piri Reṣ’s chart that his uncle Kemal Reṣ’s 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


\(^{13}\) 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 Muṣṭafā ibn ʿAbdallāh Kāṭib Ǧeṣebī, 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-Jugāfrāyiya, owing to a graphic distortion easily made in the Arabic alphabet; see Konyali, Topkapi Sarayinda, 80–81 (note 4).

\(^{14}\) Piri Reṣ’s, Kitāb-i bahriye; see Kitāb-i bahriye, Piri Reṣ’s, 4 vols., ed. Ertağrul Zekai Ökte, trans. Vaḥīn Ǧabūk, Tūlāy Dūran, 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).


\(^{16}\) We know that Kemal Reṣ’s 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 Reṣ’s, Kitāb-i bahriye (note 14).
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. 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, 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 Akcura (Istanbul: Devlet, 1935; slightly revised edition, Istanbul: Deniz Kuvvetleri Komutanlığı Hidrograf Neşriyatı, 1966).


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 Hājj Abū al-Ḥasan (fig. 14.4), where the coastline of southern Africa is crammed in to fit the vellum.

A second map signed by Piri Re’s is 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 Yucatān 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 bahriye (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 Piri Re’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 Piri Re’s composed the book: the enthronement of Sultan Süleyman 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 unequaled favor, they might attain fame and honor.”24 The Kitāb-i bahriye was Piri Re’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 Piri Re’s 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

Piri Re’s 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. Piri Re’s was the pilot of a ship that in 931/1524–25 took the grand vizier İbrahim Paşa to Egypt to settle disturbances provoked by a rebellious governor. During this voyage, the mariner showed the vizier his Kitāb-i bahriye in its original form, which had failed to gain the sovereign’s attention. İbrahim Paşa advised Piri Re’s to make a more polished copy, worthier of its intended august recipient. This event was the genesis of the second version.

23. Facsimile editions of the Kitāb-i bahriye are based on one of the best complete manuscripts of the 932/1526 version (Istanbul, Suleymaniye Kütüphanesi, Ayasofya 2612). It was first reproduced in facsimile by the Türk Tarih Kurumu: Piri Re’s, Kitābe bahriye, ed. Fevzi Kurtoglu 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: Kitāb-i bahriye, Piri Reis (note 14).
24. Author’s translation; see Piri Re’s, Kitāb-i bahriye, 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 Murād implied he was a “ghost writer” of the Kitāb-i bahriye in his Gazavat-i Hayreddin Paşa (Istanbul, Topkapı Sarayi Müzesi Kütüphanesi, R. 1291, fol. 292b). For a discussion of this controversy, see Hüseyin G. Yurdayım, “Kitāb-i bahriye’nin telifi meceseli,” Ankara Üniversitesi Dil ve Tarih-Cografya Fakültesi Dergisi 10 (1952): 143–46.
A brief description with a few examples will better indicate the structure of the Kitāb-i bahrīye. 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 (Karpithos), 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 Korfezi (Gulf of Saros) in the second.

Piri Re'is intended the book to address the needs of the sixteenth-century Ottoman war fleet, which relied heavily on the galley (kādrīga) and the galliot (kālīte).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 Limanı. Its landmark from the sea is a high, blunt cape facing southwest. This cape is called Kav 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 Piri Re’is, Kitāb-i bahrīye, 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. 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. 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, Piri Reis described the winds and told where to find shelter and fresh water, such as on the island of Sakiz (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.

Finally, one must consider the style of warfare practiced in the Mediterranean at the time Piri Reis 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

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 Piri Reis, Kitab-i bahriye, 1:362–65 (fols. 84a–b) (note 14).
Cycle Path of the Kitiib-i bahriye; a version, each containing new details and new maps. 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 Kitiib-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.

The maps of Egypt are also notable and were probably a result of the encouragement Piri Re’s received from the grand vizier Ibrahim Paşa.

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. Figures 14.11 through 14.13 and plate 22 provide comparisons between the two versions.

The difference between the practical and presentation 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 Piri Re’s, the scribe of the Ottoman arsenal often appealed to the users of his work to recite a fāṭīḥa (the first sura of the Qur’an) 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

33. Author’s translation; see Piri Re’s, Kitiib-i bahriye, 2:860–61 (fol. 203b) (note 14).
34. This becomes evident from comparing the two versions of the Kitiib-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 Piri Re’s 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 Sarayi Müzesi Kütüphanesi (B. 337), the chart of Djerba contains the written annotation “Turgut Re’s 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.
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 Kitâb-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 Nakkaş Oşmân, Ali Çelebi, Meşmed Beg, Veliçan, Molla Kasım, and Molla Tiflisî or Nigarî (known also as Haydar Re’îs—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 Kitâb-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 Re’îs 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 Kitâb-i Bahriye to a certain “Seyyid Nuhî” 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-

The shortcomings of contemporary charts of the Mediterranean are also stressed when Piri Reis 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 bahrīye, 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, Piri Reis 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 bahrīye

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40. Author’s translation; see Piri Reis, Kitāb-i bahrīye, 1:426–27 (fol. 100a) (note 14).

41. Piri Reis, Kitāb-i bahrīye, 1:42–43 (fol. 3a) (note 14); this translation follows Brice and Imber, “Turkish Charts,” 528 (note 8). Piri Reis 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 Anthropologischen 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 bahrīye (1:198–99, [fol. 42a]) (note 14), Piri Reis refers to a mapmaker named Borotlonyme, 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’s Kitāb-i Bahrīye.
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’s. The campanile, the pillars in Piazza San Marco, and the Venetian arsenal are, however, prominently featured in the foreground of the city.

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’s followed models that came into his hands through booty or by purchase in neutral ports. 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’s charts is without question. Mantran concludes

Is/amic Charting in the Mediterranean

FIG. 14.14. KITĀB-I BĀHRIYE: 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.

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

The Tunisian chapters, which have come under closest scrutiny, are clearly one of the most original parts of the Kitāb-i bāhriye. Piri Re's was most familiar with these coasts, and his 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 bāhriye has been compared with four contemporary maritime sources: Lo Compasso da navigare, a mid-fifteenth-century Italian portolan, a Greek portolan printed in 1573, and a printed Italian portolan of 1666. The conclusion is that Piri Re'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).

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 bāhriye of Piri Re's. 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's atlas, consisting of six portolan charts and one world map, all on double pages (figs. 14.16 and 14.17). They

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.
52. Venice, Biblioteca Querini-Stampaglia, Querini III 16.
54. Istanbul, Topkapı Sarayi Muzei Kütüphanesi, H. 644; see Soucek, "'Ali Macar Reis Atlas," 17-25 (note 38); Fevzi Kurtoglu, Türk sûel alamında harita ve krokiere 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 BÂHRÎYE: ISLAND OF DJERBA. The representation of North African ports and harbors, as in the case of Djerba, was derived from direct observation by Piri Re’is 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 x 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 ‘Ali Mâcâr Re’îs wrote it with the aid of the Lord of Decision [God] in the month of Safer, year 975 [between 7 August and 4 September 1567].” ‘Ali Mâcâr’s name also appears on the inside cover: “This chart [or better, atlas] is ‘Ali Mâcâr’s; do not leave it unnoticed!”

Despite these seemingly adequate clues, the authorship of the atlas remains elusive. Since the word re’îs can mean “captain,” it would thus be a professional epithet as part of the name. An ‘Ali Mâcâr Re’îs (Captain ‘Ali the Hungarian) is indeed listed in a roster of skippers of the sultan’s galleys (hâska re’îsleri) who received promotion in 979/1571.6 Thus, as with Piri Re’îs, 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 Cema’at-i Nakâşan-i Rûmîyân (Guild of Rumi painters, employed by the imperial palace) dated 965/1558, which lists an ‘Ali Mâcâr 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, Rûmî, 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 ‘Ali Mâcâr Re’îs 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 ‘Ali Mâcâr Re’îs 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,”
TABLE 14.1 Map Order in the Ottoman Portolan Atlases

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Black Sea and Sea of Marmara</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>9</td>
</tr>
<tr>
<td>Eastern Mediterranean</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>8</td>
</tr>
<tr>
<td>Central Mediterranean</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>Western Mediterranean</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>Iberian Peninsula</td>
<td>5</td>
<td></td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>Atlantic Coast and British Isles</td>
<td>6</td>
<td>5</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Aegean Sea and Sea of Marmara</td>
<td>7</td>
<td>6</td>
<td>6</td>
<td>9</td>
</tr>
<tr>
<td>Ionian Sea</td>
<td>8</td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Europe and North Africa</td>
<td>9</td>
<td>7</td>
<td>7</td>
<td>3</td>
</tr>
<tr>
<td>Indian Ocean</td>
<td></td>
<td>9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Atlantic Ocean</td>
<td></td>
<td>7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pacific Ocean</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>World</td>
<td>7</td>
<td>8</td>
<td>8</td>
<td>10/11</td>
</tr>
</tbody>
</table>

a Istanbul, Topkapı Sarayi Müzesi Kütüphanesi, H. 644.
b Istanbul, Arkeoloji Müzesi Kitaplığı, no. 1621.
c Baltimore, Walters Art Gallery, MS. W. 660.

FIG. 14.16. PORTOLAN ATLAS ASSOCIATED WITH ‘ALI MĀCāR RE’IS: ITALY AND THE CENTRAL MEDITERRANEAN. The identity of “Captain ‘Ali 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 Selmanlar 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 Sarayi Müzesi Kütüphanesi, Istanbul (H. 644, fols. 3b–4a).
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 'Ali Mâcâr Re'îs 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 hûmayûn (Imperial atlas) (fig. 14.18). 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 'Ali Mâcâr Re'îs atlas both in size and in the number of charts. Seven of the charts (charts 1-6 and 8) closely resemble those of the 'Ali Mâcâr 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 'Ali Mâcâr Re'îs atlas, this work lacks information about the author, date, and place of manufacture. Goodrich tentatively dates it to 978/1570.

By a remarkable coincidence, in the same year that he discovered the Atlas-i hûmayûn, Goodrich also identified a third such Ottoman atlas. Since it is housed at the Walters Art Gallery in Baltimore, he named it Walters Deniz atlasî (Walters sea atlas) (plate 23). 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

Fig. 14.18. Atlas-i Humayun: 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 ‘Ali Macar Re’s atlas is striking enough to suggest that it was made in the same workshop, but since the graphic style is quite different, this has still to be confirmed.

Size of the original: 53.3 x 69.9 cm. Arkeoloji Müzesi Kiraplığı, 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’s 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. As suggested with the ‘Ali Mâcâr Re’s 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-

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61. Venice, Civico Museo Correr, Port. 22. The place-names reveal little similarity to comparable charts in the ‘Ali Mâcâr Re’s atlas or in the Kitâb-i bahriye; see Brice, Imber, and Lorch, Aegean Sea-Chart (note 56).
FIG. 14.19. THE MEHMET REİS CHART. This single, south-oriented chart is dated 999/1590-91 and signed by Mehemet Reis. 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 x 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 Evliya Çelebi (1020/1611 to ca. 1095/1684), who mentions eight workshops of mapmakers (eşnaf-i haritacıyan) 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 (eşnaf-i puslacıyıyan) and of hourglass makers (eşnaf-i kum săʿatçıyıyan). 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 [haritacıyan] 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-SHARAFI AL-ŞIFĀQSI FAMILY

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

The early stages of chartmaking by the al-Sharafi-Sifaqsi 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 Kemal 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 Hayreddin Barbarossa requested that ports under his control be included within the boundaries of Ottoman protection.63 The author, ‘Ali ibn Ahmad ibn Muḥammad al-Sharafi al-Sifaqsi, refers to his cartographic work as a tablah (Latin


64. Paris, Bibliothèque Nationale, MS. Arabe 2278.
FIG. 14.22. WORLD DIAGRAM FROM THE 1571-72 AL-SHARAFI AL-ŠİFĀQSI ATLAS. The inclusion in these atlases of a circular world map from the al-Idrisî 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 Qaf 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 Ramadân 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 Maghribi script (plate 24). 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 ‘Ali ibn Ahmad ibn Muhammad al-Sharafi, native of Sfax, living now in al-Qayrawân, follower of the Malikite rite... it [the map] was finished in the first days of Jumâda 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-SHARAFI AL-ŠİFĀQSI 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 qunbâs [nautical chart] made by the Majorcans.” The reference


66. See above, pp. 256 and 257. In Ibn Khaldûn’s description of the Eternal Islands (Canaries), qunbās 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 (sabfah [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’ (qunbâs). It is on this (compass) that (sailors) rely on their voyages.” Ibn Khaldûn, 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 Kanibâts,” 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-Ṣifāqṣī, 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-Idrīsī, 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 Reʾīs. The lines from the compass rose are continued over the eastern section in a way that al-Idrīsī would never have considered and probably would not have understood. The author relied on al-Idrīsī 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 Nordensköld. 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 descendant of the same family, perhaps a grandson or great-grandson of ʿAlī ibn Aḥmad ibn Muḥammad, named Aḥmad al-Sharafī al-Ṣifāqṣī, settled in Cairo, where he became a teacher in the al-ʿAzhar mosque. In 1087/1676–77, he composed a treatise on the use of the quadrant. 69 A series of manuscripts entitled Nuzhat al-anẓār fi ʿajāʾib al-tawārīkh wa-al-akhbār by the late eighteenth-century chronicler from Sfax, Maḥmūd ibn Saʿīd Maqdish, 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-Idrīsī’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 Reʾīs, although also relying on Western sources, show particular originality, especially in the Kitāb-i bahrīye. 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-Ṣifāqṣī family blend the traditional cartography of al-Idrīsī 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.

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69. Manuscripts in Paris, Bibliothèque Nationale, Suppl. Arabe 961, shown as no. 2551 in the printed catalog; and one in Cairo, Sultanāniyya, Miṣqāt 58; see Nallino, “Un mappamondo arabo,” 729 (note 65).
APPENDIX 14.1
ISLAMIC MARITIME CHARTS

Early Charts in Arabic

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.¹

2. Istanbul, Topkapı Sarayi Müzesi Kütüphanesi, H. 1823 (Mediterranean chart). İbrahim ibn Aḥmad al-Kātibi; 816/1413–14; parchment; 54 × 88 cm.³

3. Istanbul, Deniz Müzesi, no. 882 (Mediterranean chart). İbrahim al-Mursi; 865/1461; parchment; 48 × 89 cm.⁴

4. Istanbul, Topkapı Sarayi Müzesi Kütüphanesi, H. 1822 (Mediterranean chart). Hāj Abū al-Ḥasan; undated (considered post-926/1520); parchment; 74 × 100 cm.⁵

Piri Re’is

5. Istanbul, Topkapı Sarayi Müzesi Kütüphanesi, R. 1633 mûk (world map fragment of the Atlantic). Piri Re’is; 919/1513; parchment; 90 × 63 cm.⁶

6. Istanbul, Topkapı Sarayi Müzesi Kütüphanesi, H. 1824 (world map fragment of the north Atlantic). Piri Re’is; 935/1528–29; parchment; 69 × 70 cm.⁷

Ottoman Portolan Charts and Atlases

7. Istanbul, Topkapı Sarayi Müzesi Kütüphanesi, H. 644 (Ali Mâcâr Re’s atlas). Authorship attributed to ‘Ali Mâcâr Re’s; 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 hümâyûn). 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 atlas). 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). Mehmed Re’s 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-SHARAFI AL-ŞIFAQSI CHART. A copy made by Muhammad ibn 'Ali ibn Aḥmad, a fourth-generation mapmaker of the al-Sharafi al-Şifaqsi 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 (Rév. Ge. C. 5089).

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.


5. Karatay, Türkçe Yazmalar Kataloğu, 1:471 (no. 1431) (note 3). William C. Brice lists the inventory number as “No. 49356/2753” in
APPENDIX 14.2
PRELIMINARY LIST OF EXTANT MANUSCRIPTS OF THE KITAB-I BAHRIYE

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 Seyid; 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
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
13. Istanbul, Süleymaniye Kütüphanesi, Hamidiye 971; 116 maps; 40.5 × 27.7 cm.
15. Istanbul, Süleymaniye Kütüphanesi, Yeni Cami 790. Copied 959/1551 by Muhyyiddin; 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 Yusuf (A.H. 1098) and İbrahin Nâşif (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
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

¹ See also: A. V. Sieli, "Atlas-Vryshes in the Ottoman Empire," in Elizabeth Heath (ed.), The Age of Discovery: Sea Charts and Trade in the Mediterranean, 1400-1600 (Syracuse, 1993), 17-34.
² See also: B. R. C. Robinson, "The Early Ottoman Empire," in Elizabeth Heath (ed.), The Age of Discovery: Sea Charts and Trade in the Mediterranean, 1400-1600 (Syracuse, 1993), 17-34.
³ See also: B. R. C. Robinson, "The Early Ottoman Empire," in Elizabeth Heath (ed.), The Age of Discovery: Sea Charts and Trade in the Mediterranean, 1400-1600 (Syracuse, 1993), 17-34.
⁴ See also: B. R. C. Robinson, "The Early Ottoman Empire," in Elizabeth Heath (ed.), The Age of Discovery: Sea Charts and Trade in the Mediterranean, 1400-1600 (Syracuse, 1993), 17-34.
⁵ See also: B. R. C. Robinson, "The Early Ottoman Empire," in Elizabeth Heath (ed.), The Age of Discovery: Sea Charts and Trade in the Mediterranean, 1400-1600 (Syracuse, 1993), 17-34.
⁶ See also: B. R. C. Robinson, "The Early Ottoman Empire," in Elizabeth Heath (ed.), The Age of Discovery: Sea Charts and Trade in the Mediterranean, 1400-1600 (Syracuse, 1993), 17-34.
⁷ See also: B. R. C. Robinson, "The Early Ottoman Empire," in Elizabeth Heath (ed.), The Age of Discovery: Sea Charts and Trade in the Mediterranean, 1400-1600 (Syracuse, 1993), 17-34.
⁸ See also: B. R. C. Robinson, "The Early Ottoman Empire," in Elizabeth Heath (ed.), The Age of Discovery: Sea Charts and Trade in the Mediterranean, 1400-1600 (Syracuse, 1993), 17-34.
⁹ See also: B. R. C. Robinson, "The Early Ottoman Empire," in Elizabeth Heath (ed.), The Age of Discovery: Sea Charts and Trade in the Mediterranean, 1400-1600 (Syracuse, 1993), 17-34.
¹⁰ See also: B. R. C. Robinson, "The Early Ottoman Empire," in Elizabeth Heath (ed.), The Age of Discovery: Sea Charts and Trade in the Mediterranean, 1400-1600 (Syracuse, 1993), 17-34.
¹¹ See also: B. R. C. Robinson, "The Early Ottoman Empire," in Elizabeth Heath (ed.), The Age of Discovery: Sea Charts and Trade in the Mediterranean, 1400-1600 (Syracuse, 1993), 17-34.
¹² See also: B. R. C. Robinson, "The Early Ottoman Empire," in Elizabeth Heath (ed.), The Age of Discovery: Sea Charts and Trade in the Mediterranean, 1400-1600 (Syracuse, 1993), 17-34.
¹³ See also: B. R. C. Robinson, "The Early Ottoman Empire," in Elizabeth Heath (ed.), The Age of Discovery: Sea Charts and Trade in the Mediterranean, 1400-1600 (Syracuse, 1993), 17-34.
¹⁴ See also: B. R. C. Robinson, "The Early Ottoman Empire," in Elizabeth Heath (ed.), The Age of Discovery: Sea Charts and Trade in the Mediterranean, 1400-1600 (Syracuse, 1993), 17-34.
¹⁵ See also: B. R. C. Robinson, "The Early Ottoman Empire," in Elizabeth Heath (ed.), The Age of Discovery: Sea Charts and Trade in the Mediterranean, 1400-1600 (Syracuse, 1993), 17-34.
¹⁶ See also: B. R. C. Robinson, "The Early Ottoman Empire," in Elizabeth Heath (ed.), The Age of Discovery: Sea Charts and Trade in the Mediterranean, 1400-1600 (Syracuse, 1993), 17-34.
¹⁷ See also: B. R. C. Robinson, "The Early Ottoman Empire," in Elizabeth Heath (ed.), The Age of Discovery: Sea Charts and Trade in the Mediterranean, 1400-1600 (Syracuse, 1993), 17-34.
¹⁸ See also: B. R. C. Robinson, "The Early Ottoman Empire," in Elizabeth Heath (ed.), The Age of Discovery: Sea Charts and Trade in the Mediterranean, 1400-1600 (Syracuse, 1993), 17-34.
¹⁹ See also: B. R. C. Robinson, "The Early Ottoman Empire," in Elizabeth Heath (ed.), The Age of Discovery: Sea Charts and Trade in the Mediterranean, 1400-1600 (Syracuse, 1993), 17-34.
Islamic Charting in the Mediterranean

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.

25. Istanbul, Deniz Müzesi, no. 988 (formerly no. 3537). Date undetermined; presented to the museum by Hasan Hüsnü Paşa; 426 fols., 239 maps; 34.5 × 23 cm.

26. Istanbul, Deniz Müzesi, no. 989. Date undetermined; 226 maps; 31.3 × 21 cm.


30. Istanbul, Topkapı Sarayı Müzesi Kütüphanesi, R. 1633. Copied possibly late seventeenth or early eighteenth century; 221 maps; 32.5 × 22 cm.

31. Istanbul, Universitesi Kütüphanesi, Türkçe 6605; 228 maps.

32. Kuwait, Dar al-Āthār al-Islāmiyyah, LNS. 75 MS. Copied A.D. 1688–89; originally in the library of Philip Hofer; 192 fols., 131 maps; 31.7 × 21.2 cm.


Manuscripts without Text

34. Bologna, Biblioteca Universitaria di Bologna, MS. 3609. Attributed to “Seyyid Nāh”; 204 maps; 42.1 × 27.7 cm.

35. Istanbul, Topkapı Sarayı Müzesi Kütüphanesi, B. 338. Date undetermined; 189 maps; 28.5 × 19.5 cm.


Manuscript with Text Only


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. [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.


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

3. Heinrich Fleischer, Catalogus codicum manuscriptorum orientalium 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.


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 carefully drawn and colored. There are stylistic similarities to no. 3 above. A seal indicates that the manuscript was once owned by a person named Mustafa, and “Abdul-Fattah Ebul… Maḥmūd es-ṣehr… [illegible name]” is written on the cover. Fehmi Edhem Karatay, Topkapı Sarayı Müzesi Kütüphanesi: Türkçe Yaz­malar Kataloğu, 2 vols. (Istanbul: Topkapı Sarayı Müzesi, 1961), 1445 (no. 1338) and Türkay, Yazma ve Basma Coğrafya Eserleri, 57 (note 5).

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


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 Philipps, catalog 153 (New York: H. P. Kraus, 1979), 116 (no. 106).


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


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: *Kitabt bahriye*, ed. Fevzi Kurtoğlu and Haydar Alpagot (Istanbul: Devlet, 1935); *Kitab't bahriyye*, 2 vols., ed. Yavuz Senemoglu (Istanbul: Denizcilik Kitabi, 1973); and *Kitab-t bahriye*, *Piri Reis*, 4 vols., ed. Ertugrul Zekai Ökte, trans. Vahit Çabuk, Tülay 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 Katalogu*, 1:444 (no. 1336) (note 12) and J. M. Rogers and R. M. Ward, *Suleyman 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 Katalogu*, 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 Atıllı, 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).


30. The maps are well drawn and colored. The manuscript carries the foundation seal of Selim III and the inscription *ba'ıta-i akıldm;* see Karatay, *Türkçe Yazmalar Katalogu*, 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 Svart Soucek. A microfilm copy is held at the Suleymaniye Kütüphanesi, no. 3574.