

5 • The Balkhī School of Geographers

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WORKS OF THE BALKHĪ SCHOOL

The earliest set of maps to survive from the corpus of Islamic cartography are those that accompany the text *Kitāb ṣūrat al-arḍ* (Picture of the earth) of Abū al-Qāsim Muḥammad ibn Ḥawqal in the manuscript dated 479/1086, found in the Topkapı Sarayı Müzesi Kütüphanesi in Istanbul.¹ Similar sets of maps occur in other manuscripts in Istanbul and in several well-known manuscripts in European libraries. The next in age is that from the Forschungsbibliothek in Gotha, dated 569/1173.² This manuscript, known as MS. Ar. 1521, contains a text of *Kitāb al-masālik wa-al-mamālik* (Book of routes and provinces) of Abū Ishāq Ibrāhīm ibn Muḥammad al-Fārisī al-Iṣṭakhrī, and because it was published in facsimile by Moeller in 1839 it was better known to scholars in Europe than the copy from Istanbul.³ Other manuscripts contain roughly the same maps and date from the twelfth century to the nineteenth. The relationship of the various sets of maps to each other is very complicated, as is the relationship of the texts that accompany them.

Most of the texts can be connected to one of the two authors mentioned above, either because their names are given in the manuscripts or because the text corresponds closely with other manuscripts that are named. Scholars have been very confused in the past, however, and even now the identity of some manuscripts is doubtful, since there are numerous anonymous abridgments and translations from the Arabic, mainly into Persian (see appendixes 5.1 and 5.2). A later author who used a version of the same maps was Abū ‘Abdallāh Muḥammad ibn Aḥmad al-Muqaddasī, and he was rather more forthcoming about himself and his predecessors, giving us some idea of the relation of each author to the next.⁴

All together, the efforts of various European scholars sorted matters out considerably, and finally the detailed work of de Goeje produced a scholarly edited text of the works of al-Iṣṭakhrī, Ibn Ḥawqal, and al-Muqaddasī that other scholars could use as a base for their research.⁵ It also appeared that there was yet another author earlier than the three mentioned who seemed to be the originator of this type of work with maps attached, and that some of the extant manuscripts might represent his work. He was Abū Zayd Aḥmad ibn Sahl al-Balkhī (d. 322/

934), a scholar whose background, though not his geographical work, was well known in the Arab literary milieu.⁶ Since he was the earliest of these authors and the other authors admit they are indebted to him, this group has been referred to by European scholars as the Balkhī school of geographers.⁷

1. No. 6527 in Fehmi Ethem Karatay, *Topkapı Sarayı Müzesi Kütüphanesi: Araḥça Yazmalar Kataloğu*, 3 vols. (Istanbul: Topkapı Sarayı Müzesi, 1962–66), 3:581. Its shelf number, quoted by J. H. Kramers et al., is A. 3346. Other Topkapı Sarayı Müzesi manuscripts with maps are A. 3012 (6523), A. 3347 (6528), A. 3348 (6525), and A. 2830 (6524); see 3:580–81.

2. Wilhelm Pertsch, *Die orientalischen Handschriften der Herzoglichen Bibliothek zu Gotha*, pt. 3, *Die arabischen Handschriften*, 5 vols. (Gotha: Perthes, 1878–92), 3:142–44. The manuscript of Aḥmad al-Ṭūsī, which is earlier (see appendix 5.1), contains only six maps.

3. *Liber climatum*, ed. J. H. Moeller (Gotha: Libreria Beckeriana, 1839). This was translated into German and edited by Andreas David Mordtmann, *Das Buch der Länder* (Hamburg: Druck und Lithographie des Rauhen Hauses in Horn, 1845).

4. This will be discussed below.

5. Michael Jan de Goeje's editions of the three texts appear in his series *Bibliotheca Geographorum Arabicorum*, 8 vols. (Leiden: E. J. Brill, 1870–94): for al-Iṣṭakhrī, *Kitāb al-masālik wa-al-mamālik*, see vol. 1, *Viae regnorum descriptio dititionis moslemicae* (1870; reprinted 1927, 1967); for Ibn Ḥawqal, *Kitāb ṣūrat al-arḍ*, see vol. 2, *Opus geographicum* (1873), reedited by J. H. Kramers (1938; reprinted 1967); and for al-Muqaddasī, *Aḥsan al-taqāsīm*, see vol. 3, *Descriptio imperii moslemici* (1877; reprinted 1906, 1967). De Goeje's predecessors were William Ouseley, who produced a translation from a Persian redaction of al-Iṣṭakhrī that he called *The Oriental Geography of Ebn Haukal* (London: Wilson for T. Cadell and W. Davies, 1800), and Moeller, *Liber climatum* (note 3). See also Louis Amélie Sédillot, *Mémoire sur les systèmes géographiques des Grecs et Arabes* (Paris: Firmin Didot, 1842), Aloys Sprenger, *Die Post- und Reiserouten des Orients*, *Abhandlungen der Deutschen Morgenländischen Gesellschaft*, vol. 3, no. 3 (Leipzig: F. A. Brockhaus, 1864; reprinted Amsterdam: Meridian, 1962, 1971), and Joachim Lelewel, *Géographie du Moyen Age*, 4 vols. and epilogue (Brussels: J. Pilliet, 1852–57; reprinted Amsterdam: Meridian, 1966), who was a geographer and not an Orientalist.

6. D. M. Dunlop, "al-Balkhī," in *The Encyclopaedia of Islam*, new ed. (Leiden: E. J. Brill, 1960–), 1:1003, George Sarton, *Introduction to the History of Science*, 3 vols. (Baltimore: Williams and Wilkins, 1927–48), 1:631, and see also the articles on maps ("Kharīṭa") and geography ("Diḡhrāfiya") by S. Maqbul Ahmad in the new edition of the *Encyclopaedia of Islam*, 4:1077–83 and 2:575–87, respectively.

7. The appellation "school" is justified here on the grounds that one scholar deliberately followed another.

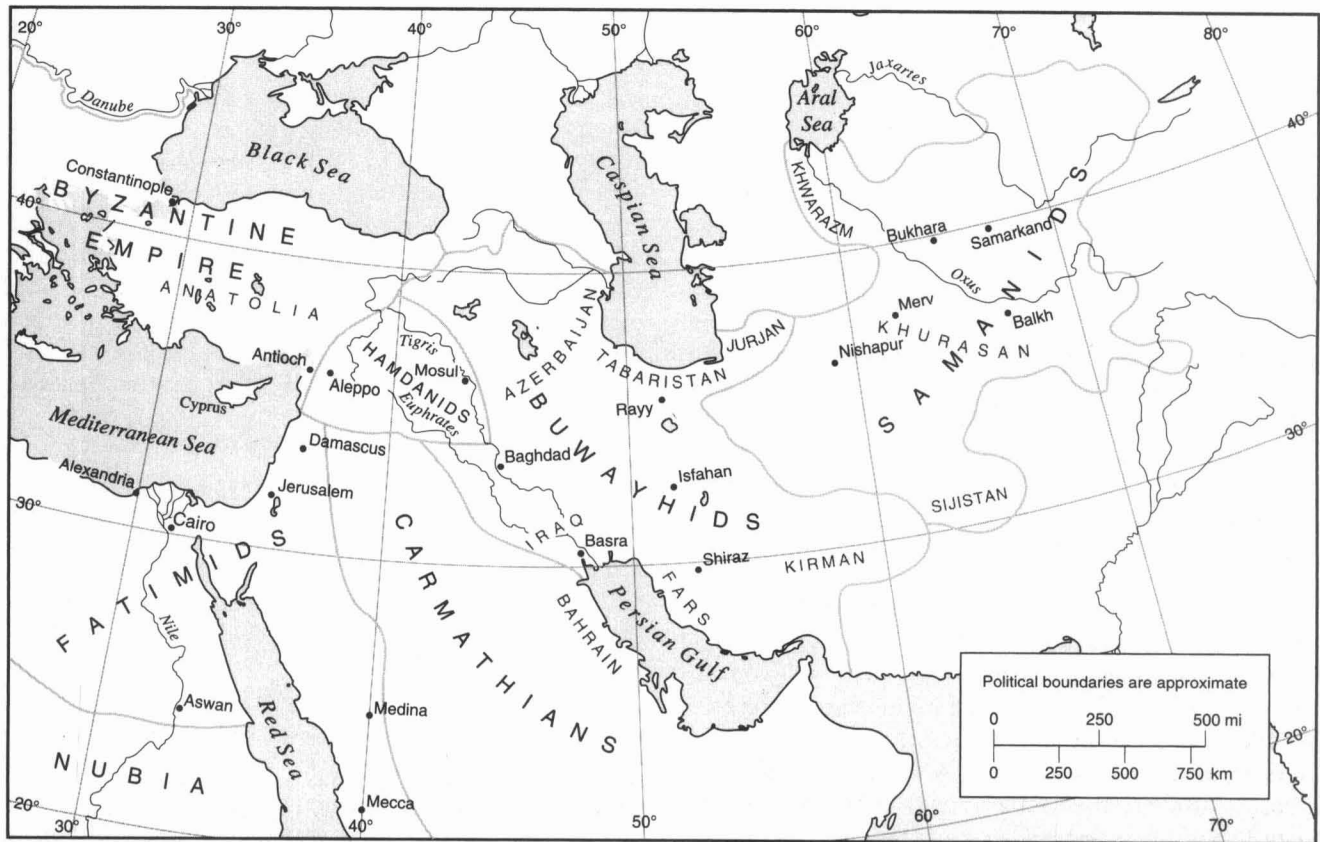


FIG. 5.1. REFERENCE MAP OF THE ISLAMIC WORLD AT THE TIME OF THE BALKHĪ SCHOOL.

After *The Cambridge History of Islam*, 2 vols., ed. P. M. Holt,

Ann K. S. Lambton, and Bernard Lewis (Cambridge: Cambridge University Press, 1970), 1:155.

Al-Balkhī's work, according to al-Muqaddasī, was mainly a short commentary on a set of maps,⁸ though other opinions state that al-Balkhī's work was the commentary and the maps were originally produced by Abū Ja'far Muḥammad ibn Muḥammad al-Khāzin (d. between 350/961 and 360/971).⁹ It is all very suspect, however, since neither al-Khāzin's maps nor even the commentary of al-Balkhī, which was entitled *Ṣuwar al-aqālīm* (Pictures of the climates), have survived—only some of the earlier portions of al-Iṣṭakhri's text can possibly be thought of as originating in the book of al-Balkhī. Al-Balkhī was primarily a general scholar and not necessarily a geographer. His life is known from the standard biographies. He was born and lived at the end of his life in Balkh in northeastern Iran, where he was supposed to have written his geographical treatise. Most of his life, however, he spent in Baghdad and Iraq, where his scholarly connections mostly belong (fig. 5.1).

Al-Iṣṭakhri, by contrast, was virtually unknown apart from his one work. He does not appear in any of the standard Arab biographies, and all we know about him personally was his meeting with Ibn Ḥawqal, which is related in the latter's own book.¹⁰ Even his work *Kitāb*

al-masālik wa-al-mamālik can be dated only from internal evidence, to the middle of the tenth century A.D. It soon became popular, however, for there are many early

8. Al-Muqaddasī, *Aḥsan al-taqāsīm fi ma'rifat al-aqālīm*; see *Aḥsanu-t-taqāsīm fi ma'rifati-l-aqālīm*, ed. and trans. G. S. A. Ranking and R. F. Azoo, Bibliotheca Indica, n.s., nos. 899, 952, 1001, and 1258 (Calcutta: Asiatic Society of Bengal, 1897–1910), 6, and *Aḥsan at-taqāsīm fi ma'rifat al-aqālīm*, trans. André Miquel (Damascus: Institut Français de Damas, 1963), 14.

9. The theory about al-Khāzin comes from an alternative reading from Ibn al-Nadīm's *al-Fihrist* (see *Kitāb al-Fihrist*, 2 vols., ed. Gustav Flügel [Leipzig: F. C. W. Vogel, 1871–72], 1:138 n. 24) and is explained by V. V. Bartol'd in his preface to *Ḥudūd al-'ālam*: "The Regions of the World," ed. and trans. Vladimir Minorsky (London: Luzac, 1937; reprinted Karachi: Indus, 1980), xv, 18. Al-Khāzin's dates do not compare easily with those of al-Balkhī. See also Sprenger, *Die Post- und Reiserouten*, preface, XIII–XIV (note 5).

10. Information can be found in André Miquel, "al-Iṣṭakhri," in *Encyclopaedia of Islam*, new ed., 4:222–23. There is a brief note (unsigned) in the first edition of *The Encyclopaedia of Islam*, 4 vols. and suppl. (Leiden: E. J. Brill, 1913–38), 2:560, and also in Sarton, *History of Science*, 1:674 (note 6). The reference from Ibn Ḥawqal comes from his chapter on Sind; see Kramers's edition of *Ṣūrat al-arḍ*, 329–30 (note 5).

editions, abridgments, and translations into Persian, often differing considerably from each other.

Ibn Ḥawqal's life has come down to us in much more detail than al-Iṣṭakhri's, mainly because he was more open about himself in his book. He was born in Nisibis in Upper Mesopotamia and spent much of his life traveling, setting out on 15 May 331/943 and continuing on and off until 362/973, when he last appears in Sicily. Between these dates he covered most of Islamic Africa and large areas of Persia and Turkestan. It is possible that he acted as a trader on his travels, since his work is full of facts relating to economic activity. That he extols the Fatimid religious policy may mean he was a *dā'i* or missionary of that sect, and this would be another reason for his moving constantly from place to place. Apart from a short work on Sicily, he is known only for his one geography book, *Kitāb ṣūrat al-arḍ*, also known as *Kitāb al-masālik wa-al-mamālik*, like that of al-Iṣṭakhri.¹¹

A fourth author belonging to the Balkhī school was al-Muqaddasī (d. ca. 390/1000).¹² Very little is known of his life apart from what he tells us himself, but his origin is presumably Jerusalem, and he was in Mecca in 356/966. He seems to have come from a family of architects. Since he is a native of Palestine, his work is geared to some extent to the western part of the Islamic empire, but the authors he quotes are from the east. He himself is not well known in Arab literature, but he is quoted by some of the later geographers.

The texts of the first three authors are so mixed up in the surviving manuscripts that it is difficult to disentangle them. As I have pointed out, de Goeje attempted to sort out this problem when he produced his critical texts of the work of al-Iṣṭakhri and Ibn Ḥawqal. Al-Balkhī's work occurs only embedded in the texts of the other two, and it is impossible to distinguish exactly what is derived from him. Al-Muqaddasī states that he had seen three manuscripts of al-Balkhī's work, one mentioning no author (though it was attributed to al-Kharkhī) and another attributed to al-Iṣṭakhri,¹³ so that even within one hundred years the exact authorship was difficult to unravel. It seems that al-Balkhī's text was filled out by al-Iṣṭakhri and that all the miscellaneous abridgments that exist, whether in Arabic, Persian, or Turkish, are only abridgments of al-Iṣṭakhri and never al-Balkhī originals.¹⁴ According to de Goeje, quotations given by other later authors as coming from al-Balkhī can all be found in al-Iṣṭakhri's text.¹⁵ De Goeje thought that al-Muqaddasī may have seen a text of al-Balkhī, but certainly Yāqūt (d. 626/1229), when he quotes al-Balkhī, uses the text we know as al-Iṣṭakhri.¹⁶ De Goeje also thought that al-Iṣṭakhri compiled a much enlarged version of al-Balkhī's text between A.H. 318 and 321 (A.D. 930–33).¹⁷ A final version of al-Iṣṭakhri came later, about 340/951, and this seems to be the basis of most copies circulating in the

eastern part of the empire.¹⁸ Quotations appear in later authors that are not in al-Iṣṭakhri's actual text, but some of these missing quotations are found in some of the later abridgments and Persian translations.¹⁹ Soon after his book was completed, al-Iṣṭakhri met Ibn Ḥawqal, who at the author's request undertook to revise the text. The results of this revision appear in the work of Ibn Ḥawqal, which follows al-Iṣṭakhri closely.²⁰ Ibn Ḥawqal became carried away with his own improvements, however, and inserted miscellaneous information relating to his own travels, so that the work becomes much more than a mere revision and stands as a work in its own right (fig. 5.2).²¹

The main difference between the work of Ibn Ḥawqal and that of al-Iṣṭakhri is in the former's discussion of the western (formerly Byzantine) part of Islam. He treats Spain, North Africa, and Sicily as three separate sections. Syria and Egypt are dealt with in more detail, and it is interesting that when later authors like Yāqūt quote Ibn Ḥawqal they are almost always referring to these western regions.

Ibn Ḥawqal's text as we know it today is again the result of three versions—a first redaction from about 350/961 dedicated to the Hamdanid Sayf al-Dawlah (d. 356/967), a second redaction containing criticism of the Hamdanids from about a decade later, and a final definitive version from about 378/988.²²

11. Information on Ibn Ḥawqal can be found in C. van Arendonk, "Ibn Ḥawqal," in *Encyclopaedia of Islam*, 1st ed., 2:383–84, and in the new edition by André Miquel, 3:786–88. See also Juan Vernet Ginés, "Ibn Ḥawqal," in *Dictionary of Scientific Biography*, 16 vols., ed. Charles Coulston Gillispie (New York: Charles Scribner's Sons, 1970–80), 6:186, and Sarton, *History of Science*, 1:674 (note 6).

12. Al-Muqaddasī means "the man from Jerusalem," and an alternative form, al-Maqdisī (meaning the same), is used by some nineteenth-century scholars. Since there are other authors with the same name, there can be some confusion.

13. Al-Muqaddasī, *Aḥsan al-taqāsīm*; Miqel's translation, 14–15 (note 8), Ranking and Azoo's translation, 7 (note 8).

14. Konrad Miller has attributed four manuscripts to al-Balkhī, on what grounds is not known; see his *Mappae arabicae: Arabische Welt- und Länderkarten des 9.–13. Jahrhunderts*, 6 vols. (Stuttgart, 1926–31), Band 1, Heft 1, 17, and Band 5, 109.

15. Michael Jan de Goeje, "Die Istakhri-Balkhī Frage," *Zeitschrift der Deutschen Morgenländischen Gesellschaft* 25 (1871): 42–58, esp. 47, noted in Bartol'd's preface to the *Hudūd al-'alam*, 19 (note 9).

16. De Goeje, "Die Istakhri-Balkhī Frage," 46 and 52 (note 15), and Yāqūt, *Kitāb mu'jam al-buldān*; see *Jacut's geographisches Wörterbuch*, 6 vols., ed. Ferdinand Wüstenfeld (Leipzig: F. A. Brockhaus, 1866–73), 2:122.

17. De Goeje, "Die Istakhri-Balkhī Frage," 50 (note 15).

18. De Goeje, "Die Istakhri-Balkhī Frage," 51 ff. (note 15).

19. An example is given by Bartol'd in his preface to the *Hudūd al-'alam*, 22 (note 9).

20. Miquel, "al-Iṣṭakhri," 4:223 (note 10).

21. Miquel, "Ibn Ḥawqal," 3:787 (note 11).

22. Miquel, "Ibn Ḥawqal," 3:787 (note 11).

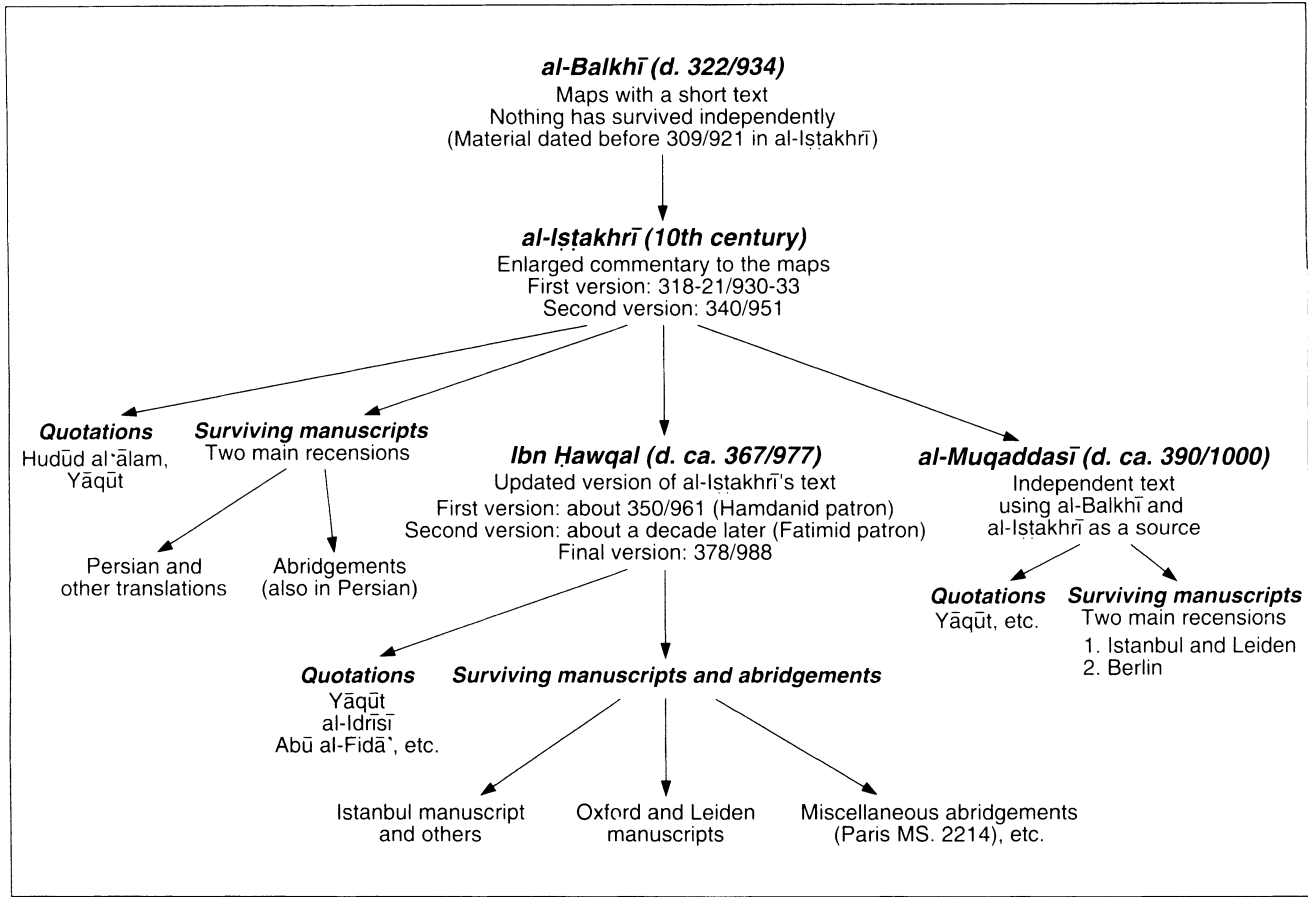


FIG. 5.2. STEMMA OF THE TEXTS OF THE BALKHĪ SCHOOL. See and compare also appendix 5.1.

There are only two early manuscripts of al-Muqaddasī's book, entitled *Aḥsan al-taqāsīm fī ma'rifat al-aqālim* (The best of divisions on the knowledge of the provinces); both were used by de Goeje in producing the printed edition of his text. They are very close in content, but one is aimed at the Samanids as patrons and the other at the Fatimids of Egypt.²³ There therefore seem to be two attempts emanating from the author, perhaps from different dates. The text dates itself 375/985, but later information is included.

Al-Muqaddasī's text was based on the same principles as the texts of al-Iṣṭakhri and Ibn Ḥawqal, and it covers, in the same way, only the area of the Islamic empire. Similarly, his maps are recognizably from the same mold as those of the earlier authors. The book, however, shows considerable variation from the pattern established. For instance, he includes a section on astronomical geography giving the Greek idea of the climates based on the length of the noonday shadow.²⁴ He has more detail, especially about those districts he has traveled through. There are detailed passages on large towns, with their population and products; there are sections in the introduction on

place-names, rivers and seas, capital towns, and the dimensions of the Islamic empire as well as other things. In fact, this work is probably the most advanced of all surviving Arab geographical works. Basically its form is inherited from al-Iṣṭakhri. The regional divisions are more or less the same, and each region has its basic map. The region is also known as a climate (*iqlim*), and this idea clashes with the idea of the Greek climates mentioned above as appearing in his introduction.²⁵ Each regional area is described and then summarized under subject headings, and finally routes with their distances are given in the manner of al-Iṣṭakhri and Ibn Ḥawqal.

23. Editions and translations of al-Muqaddasī's work are given in appendix 5.2, and manuscripts are listed in appendix 5.1. Of the two recensions, the earlier is connected with the Samanids (manuscripts from Istanbul and Leiden) and the later with the Fatimids (manuscripts from Berlin).

24. Al-Muqaddasī, *Aḥsan al-taqāsīm*; Miquel's translation, 125-36 (note 8), Ranking and Azoo's translation, 98-103 (note 8).

25. See also pp. 93-94.

THE MAPS OF THE BALKHĪ SCHOOL

The maps accompanying these texts seem at first sight to be a not entirely necessary supplement to the texts, the text being so complete in itself. This is often so with illustrative material in classical Arab texts, certainly with maps in some later geographical works. Some manuscripts of the works I am discussing have no maps at all, and some have spaces left for them in the text, though none have been inserted. However, there is every evidence that these authors were definitely, if not primarily, interested in the maps and designed their own maps even if they did not draw them themselves. According to al-Muqaddasī, al-Balkhī “intended in his book chiefly the representation of the earth by maps. . . . He described each map [only] briefly without giving useful particulars or setting forth clearly or in order the facts which were worth knowing.” He also states that al-Balkhī’s book is “a book with very carefully prepared maps, but confused in many places and superficial in its commentaries, and it does not divide the provinces into districts.”²⁶ This makes it appear that al-Balkhī’s main interest was in the maps, which were the important items while the text was secondary. Al-Iṣṭakhri’s work was still a commentary on the maps, and he states that “our plan is to describe, and to delineate on maps, the various seas, . . . affixing the name of each, so that it may be known in the maps,”²⁷ thus showing the importance he placed on the maps. The cartography, therefore, was still the essential element in the work.

He was also interested in the composition of the maps, and at his meeting with Ibn Ḥawqal they compared their maps. Ibn Ḥawqal states that al-Iṣṭakhri

had drawn a map of Sind, but he had made some mistakes, and he had also drawn Fars, which he had done extremely well. For my part, I had drawn the map of Azerbaijan which occurs on the following page and of which he approved, as well as that of al-Jazirah which he considered excellent. My map of Egypt, however, he condemned as wholly bad and that of al-Maghrib as for the most part inaccurate.

Because he states in the text that the map “occurs on the following page,” he lets it be known that the map the reader sees is the one he drew himself.²⁸

Ibn Ḥawqal himself seems originally to have wished to produce a set of maps,²⁹ but he was carried away by his commentary, and this becomes much more voluminous and interesting than that of al-Iṣṭakhri, while to the ordinary reader the map loses its importance because of its inadequacy. All this shows, however, that the map is linked directly to the scholar in each case and not added by the copyist, as are many illustrations to manuscript books or even early printed books, which thus had a completely different provenance than the text.

Ibn Ḥawqal goes one stage further than al-Iṣṭakhri. In addition to his text on a particular region, he also inserts a section that describes the map literally in the simplest terms. Whether this is meant to be an aid for the cartographer is difficult to say. This description can be understood only in conjunction with the map itself and does not add to the information in the main text. The section can easily be deleted without affecting the rest of the text. An example from the section on Kirman begins:

Explanation of the names and legends that are found on the map of Kirman. The sea appears at the top of the map; to the right of this is [the legend] “The map of Kirman,” then in the corner the word “West” while in the corner on the left is the word “South.” Then there begins to the extreme right of the sea, going down [the page] an inscription, stretched out round the three sides of the map which says “Boundary of Kirman . . .”³⁰ (and see figs. 5.4 and 5.5 below).

What one really wishes to know is how close to the original version of these scholars is the map we see in a manuscript produced several centuries after the death of the scholar himself. This is very difficult, since probably only one of the manuscripts now extant was produced within two hundred years of the original map it was taken from. Kramers, however, has attempted to classify the surviving manuscripts using the state of the maps as his criterion.³¹ This he finds fits the state of the text as well and agrees with the comments de Goeje made about them.

Kramers finds that the texts presumed to be by al-Iṣṭakhri can be divided into two groups, and he regards one as earlier in origin. In this earlier group (Iṣṭakhri I), the maps are more geometric than the later ones (Iṣṭakhri II), while the text that goes with the later maps is more finished and polished. On the other hand, it is the earlier texts that mention the name al-Iṣṭakhri, so that Miller attributes the anonymous (Iṣṭakhri II) texts to al-Balkhī, presuming wrongly that they are earlier than the others.³² Miller, however, gives no criteria for his decision. De

26. Al-Muqaddasī, *Aḥsan al-taqāsīm* (appendix 5.2); see de Goeje’s edition, 5 n. a (note 5), Miquel’s translation, 14 (note 8), and Ranking and Azoo’s translation, 6 (note 8).

27. Ouseley, *Oriental Geography of Ebn Haukal*, 2 (note 5).

28. Ibn Ḥawqal, *Ṣūrat al-ard*; see Kramers’s edition, 329–30 (note 5), J. H. Kramers, trans., and G. Wiet, ed., *Configuration de la terre (Kitab surat al-ard)*, 2 vols. (Paris: G. P. Maisonneuve et Larose, 1964), 2:322.

29. Miquel, “Ibn Ḥawqal,” 3:787 (note 11).

30. Ibn Ḥawqal, *Ṣūrat al-ard*; see Kramers’s edition, 305 (note 5), Kramers and Wiet’s edition, 2:301 (note 28).

31. J. H. Kramers, “La question Balḥi–Iṣṭakhri–Ibn Ḥawqal et l’Atlas de l’Islam,” *Acta Orientalia* 10 (1932): 9–30.

32. Kramers, “La question Balḥi–Iṣṭakhri–Ibn Ḥawqal,” 14–15 (note 31), and Miller, *Mappae arabicae*, Band 1, Heft 1, 17, and Band 5, 109 (note 14). The four manuscripts Miller gives as having maps by al-Balkhī

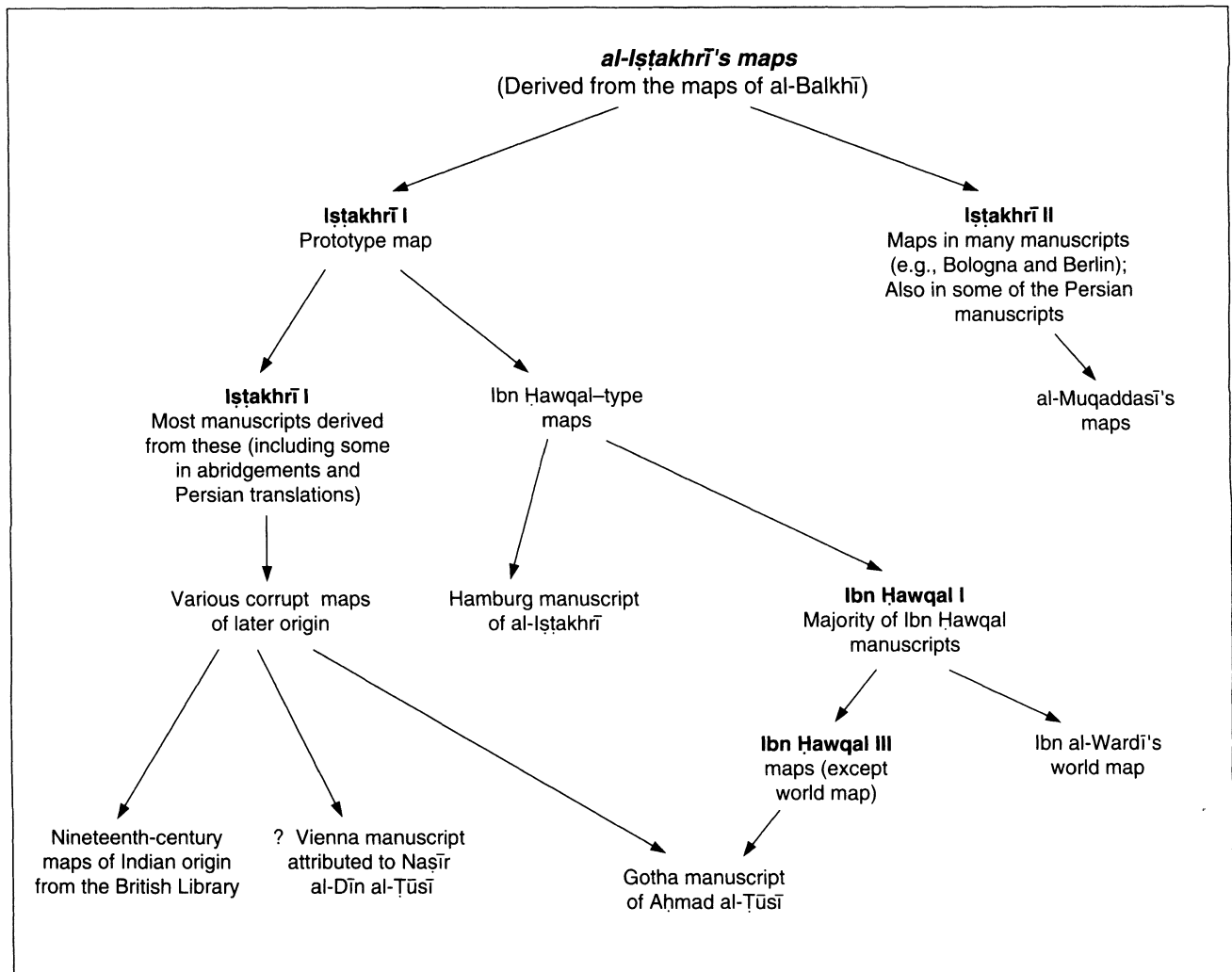


FIG. 5.3. POSSIBLE STEMMA FOR THE MAPS OF THE BALKHĪ SCHOOL. See and compare also appendix 5.1.

Goeje bases his printed edition of al-Iṣṭakhrī on these Iṣṭakhrī II texts mainly because they are more complete and less mutilated.

Kramers has also classified the texts attributed to Ibn Ḥawqal in the same way. Things here are a little more complicated, however, since the two best manuscripts contain blank pages where the maps should be. These are the Leiden and Oxford manuscripts, which have practically identical texts.³³ A manuscript in the Topkapı Sarayı Müzesi in Istanbul contains a very complete text, and this is accompanied by a set of maps, while the abridged Ibn Ḥawqal from the Bibliothèque Nationale, Paris, has a set of maps that are very different from those of Istanbul and are obviously a later development.³⁴ Comparing the text of the Istanbul manuscript with those of Oxford and Leiden, Kramers concludes that the Istanbul manuscript represents an earlier version of Ibn Ḥawqal (I) and the other two manuscripts (without maps) a later version (II).

The maps of the Paris abridgment, however, he regards as a great improvement on those of Istanbul, so that he identifies this manuscript as a later version of Ibn Ḥawqal's work (III) even though the text may hark back to an original that is earlier than the Istanbul text.³⁵ He therefore has three recensions of Ibn Ḥawqal, the middle

are: (1) Hamburg, Staats- und Universitätsbibliothek, Cod. Or. 300 (dated 1086/1675); (2) Bologna, Biblioteca Universitaria di Bologna, Cod. 3521, undated but related closely to 3; (3) Berlin, Staatsbibliothek Preussischer Kulturbesitz, Orientabteilung, MS. Sprenger 1 (Ar. 6032) (dated 1840), both 2 and 3 from a copy of 589/1193; and (4) London, British Library, MS. Or. 5305.

33. Leiden, Bibliotheek der Rijksuniversiteit, Cod. Or. 314, and Oxford, Bodleian Library, MS. Huntington 538 (MS. Or. 963).

34. The Topkapı Sarayı Müzesi Kütüphanesi manuscript is the one mentioned in the first paragraph of this chapter, A. 3346. The Paris manuscript is Bibliothèque Nationale, MS. Arabe 2214.

35. Kramers, "La question Balhī-Iṣṭakhrī-Ibn Ḥawqal," 16–20 (note 31).

one having no maps to show us. The maps of other manuscripts from Istanbul, which Kramers saw, seemed to fit into the same categories of his divisions I and III. Thus there are two versions of the maps that accompany Ibn Ḥawqal's text, an earlier and a later. All together, in the Balkhī–Iṣṭakhri–Ibn Ḥawqal set of writings, we have four distinct recensions of what is basically one set of maps (fig. 5.3). For these I shall follow Kramers's example and call the four types Iṣṭakhri I, Iṣṭakhri II, Ibn Ḥawqal I, and Ibn Ḥawqal III. The manuscripts of Ibn Ḥawqal III, though all undated, are much later than the other texts, probably from the late thirteenth or early fourteenth century A.D. The regional maps are nevertheless copies of the earlier versions. The world map of Ibn Ḥawqal III, however, is so different from the other world maps that it warrants special treatment in chapter 6.

DESCRIPTION OF THE MAPS

This set in most cases comprises twenty-one maps, although some manuscripts lack a map or so.³⁶ The consistency with which the same set of maps appears in so many manuscripts and with several different authors led Miller to call the set the "Islam-atlas," and it has been called this by several other scholars. The set consists of a world map, maps of the three seas—the Mediterranean, the Persian Sea (Indian Ocean), and the Caspian Sea—and maps of seventeen "provinces" of the Islamic empire. I place the word "provinces" in quotation marks because in some cases provinces are linked together in one map (Azerbaijan, Armenia, etc., and Spain and the Maghreb) and because the Persian Desert is hardly a province. The word the texts use for "province" is *iqḷim*, from the Greek κλίμα, a word that reaches Arabic through the translation of Ptolemy. The word was used first to translate the Persian *kishvar*, which was a specific geographical region, and hence comes the present usage.³⁷ A complete list of these maps in the order usually found in a manuscript is as follows: (1) world map; (2) Arabia; (3) Indian Ocean; (4) al-Maghrib (North Africa); (5) Egypt; (6) Syria; (7) Mediterranean Sea; (8) al-Jazirah (Upper Mesopotamia); (9) Iraq (Lower Mesopotamia); (10) Khuzistan; (11) Fars; (12) Kirman; (13) Sind; (14) Armenia, Arran (Alvan), and Azerbaijan; (15) Jibal (central Persian mountains); (16) Daylam and its neighbors (Rayy, Tabaristan); (17) Caspian Sea; (18) Persian Desert; (19) Sijistan; (20) Khurasan; (21) Transoxiana.³⁸ The thirteen maps that represent the Persian-speaking provinces of the Islamic empire are fairly consistent in form throughout all the manuscripts. Their form was stereotyped by the time of the first al-Iṣṭakhri recension, and Ibn Ḥawqal seems to have found no need to change these maps. Even Azerbaijan and al-Jazirah, of which Ibn Ḥawqal produced good versions approved by al-Iṣṭakhri, do not seem to have changed much through

the recensions. It is therefore appropriate to describe these maps of the Iranian area and then use them as a standard for the rest of the set.

The maps of each of these regions consist of an area that is roughly rectangular and usually, although not always, surrounded by a line representing its boundary with the surrounding areas. There is no projection to form the base of the map. The maps cannot be joined together as a multisheet map like the sectional maps of al-Idrisi.³⁹ Even if they are reduced to the same scale, this cannot be done as it can for the sectional maps of the European edition of Ptolemy. The maps are thus individual entities and are seen as such by the draftsman.

SELECTION OF MATERIAL

This set of maps does not cover the whole world as do the sectional maps of al-Idrisi that follow in the twelfth century and the texts of the earlier geographers like Ibn al-Faqih or Ibn Khurradādhbih. These latter include considerable detail on China and India and give some account of Africa and Europe. The Balkhī maps specifically cover the Islamic empire as it appeared in the tenth century. Even Spain has no separate map and is omitted in the text, though it was Muslim at the time. It was, of course, never part of the Abbasid Empire. Inside the Dār al-Islām each province is then given its own map and a description that forms an individual chapter dealing systematically with towns, rivers, mountains, and inhabitants, followed by itineraries throughout the province. S. Maqbul Ahmad has a theory that this Islamicization of the maps and geography was a deliberate policy developing away from the work of the earlier al-Ma'mūn type of geographer, which, based mainly on Ptolemy, covered the whole of the known world.⁴⁰

Besides this policy of portraying only the areas of the Abbasid caliphate at its greatest extent, it is further obvious that there is a bias toward things Iranian: so much so that Kramers has suggested there may have been old

36. The manuscripts from Hamburg and Bologna have a complete set as I have described them, as do also the Gotha MS. Orient. P. 36 and the set of maps in the Vienna manuscript, Österreichische Nationalbibliothek, Cod. Mixt. 344 (Flügel 1271). This was the number of maps mentioned by al-Muqaddasi belonging to the set produced by al-Balkhī; see Ranking and Azoo's translation, 6 (note 8), Miquel's translation, 14 (note 8).

37. See chapter 4.

38. A list is given by Miller, *Mappae arabicae*, Band 1, Heft 1, 23 (note 14), giving the best-known manuscripts outside Istanbul and the actual maps they contain. He also gives reproductions of all the maps from all the main manuscripts.

39. See below, pp. 162–63, esp. fig. 7.6.

40. Ahmad, "Kharīṭa," 4:1079, and also Ahmad, "Dijghrāfiya," 2:581–82 (note 6).

Iranian maps that are the basis of these Balkhī maps.⁴¹ There is no evidence for the existence of the former, but the maps may ultimately be based on early lists of postal routes surviving from Sassanid times. These lists may perhaps also be seen as the origin of the lists of Islamic postal routes found in the works of the *al-Masālik wa-al-mamālik* type. The Iranian bias also appears in the contents of the set of maps. The Iranian area is divided systematically into areas for mapping, whereas the areas the Arabs conquered from the Byzantines were treated in a much less systematic way. This may, however, reflect the administrative situation in the two empires that preceded the Islamic empire at the time when the Arab conquest took place. Al-Balkhī and al-Iṣṭakhri were both patronized by the Samanid rulers of Persia, and the emphasis is very much on the Iranian area.⁴²

Ibn Ḥawqal's interest was much more in the Mediterranean area, and his first patron was the Hamdanid Sayf al-Dawlah of Syria. Later his Fatimid interests predominated, and the center of Fatimid interests was always the Mediterranean.⁴³ In his maps the real innovations occur in these regions. The map of the Maghreb is itself really a detailed map of the Mediterranean (he refers to this fact in his text when describing the map).⁴⁴ The Mediterranean map is little more than a reduced version with little detail, and of course the Nile area has been completely redrawn in the map of Egypt.⁴⁵

Al-Iṣṭakhri and Ibn Ḥawqal show no interest in projections or mathematical astronomy. Neither do they mention longitude and latitude in any form, or any sort of map construction. They both give distances between places on their routes (*marḥalah* = day's journey), and they add these up roughly to give the dimensions of the inhabited world. These distances are not recognizable on the map, however. It therefore does not seem that the authors envisaged any kind of formal scale at all in constructing these maps.

Each map consists of a set of geometric configurations. Though some are more geometric than others, most lines are straight or arced, rivers are wide parallel lines, and lakes are often perfect circles. Towns are sometimes squares, circles, or four-pointed stars or, if they are stopping places on a straight route, resemble small tents or perhaps doors to caravansaries. Thus much of the drafting is ruled with either a straight or a curved edge. The only exceptions are mountains, which are drawn as a collection of peaks or perhaps piles of rocks, though even here the base, which probably represents the position of the range on the map, is a straight line or a regular curve.⁴⁶

The basic purpose of the maps (especially those of the Persian-speaking areas) seems to be to incorporate the caravan routes across the province, with all the stages marked. This is most noticeable on the map of the Khurasan Desert, where the boundary of the desert is given

with the bordering villages and oases marked around it. Straight lines then join those places on opposite sides where traffic flows, and the name of the route is written on the line so drawn.⁴⁷

THE TREATMENT OF THE PERSIAN PROVINCES

A good example of a map from the Persian-speaking areas is that of Kirman, a province in the southeast of Persia (figs. 5.4 and 5.5).⁴⁸ This is a simple and clear example of one of these maps that can be described without great complication. However, any attempt at description is bedeviled because few of the place-names still exist, and a comparison with a modern map (fig. 5.6) reveals very little. Of the five main towns and district centers of Kirman in the tenth century, Sirjan, Jiruft, Narmashir, Bardashir (now the town of Kirman), and Bamm, only the last two exist as inhabited towns. The first two survive as district names only, yet Sirjan, the former capital, was larger than Shiraz in its heyday.⁴⁹

The top (south) of the map in figures 5.4 and 5.5 shows a crescent shape representing the sea (Persian Gulf). The left (east) side, a straight line, is the border with Sind. The bottom (north), again a straight line, is the border with the desert of Khurasan and Sijistan. The right (west) side is more elaborate, being made of three straight lines, and represents the border of Fars. It is interesting that on the map of Fars the Kirmani border has the same

41. J. H. Kramers, "Djuḡhrāfiya," in *Encyclopaedia of Islam*, 1st ed., suppl., 61-73, esp. 65.

42. Kramers, "Djuḡhrāfiya," 66 (note 41). Also the following articles in the new edition of *Encyclopaedia of Islam*: Dunlop, "al-Balkhī," 1:1003 (note 6); and Miquel, "al-Iṣṭakhri," 4:223 (note 10).

43. Miquel, "Ibn Ḥawqal," 3:787 (note 11).

44. Kramers's edition of Ibn Ḥawqal, *Ṣūrat al-arḍ*, 62-66 and plate (note 5), Kramers and Wier's edition, 1:59-62 and pl. 4 (note 28). The reduced map appears in the section on the Mediterranean, text 190-205 and pl., translation, 1:187-200 and pl. 8.

45. Kramers's edition, 132-35 and pl. (note 5), Kramers and Wier's edition, 1:131-33 and pl. 5 (note 28).

46. André Miquel, *La géographie humaine du monde musulman jusqu'au milieu du 11^e siècle*, vol. 2, *Géographie arabe et représentation du monde: La terre et l'étranger* (Paris: Mouton, 1975), 19-20, has mentioned these geometric shapes and inferred that there are reasons for using such shapes. However, the various manuscripts have not kept rigidly to the same shape, and there is no way of reproducing the original shapes used by the authors for the map.

47. For the Khurasan Desert, see the reproductions of this map in Miller, *Mappae arabicae*, Band 4, Beiheft, Taf. 48-51 (Wüste) (note 14).

48. The Kirman section of the text appears in al-Iṣṭakhri, *Kitāb al-masālik wa-al-mamālik*; see the edition by Muḥammad Jābir 'Abd al-'Al al-Ḥini (Cairo: Wizārat al-Thaqāfah, 1961), 97-101, and in Ibn Ḥawqal, *Ṣūrat al-arḍ*, Kramers's edition, 305-15 (note 5).

49. Also in Miller, *Mappae arabicae*, Band 3, Beiheft, Taf. 31-33 (note 14).

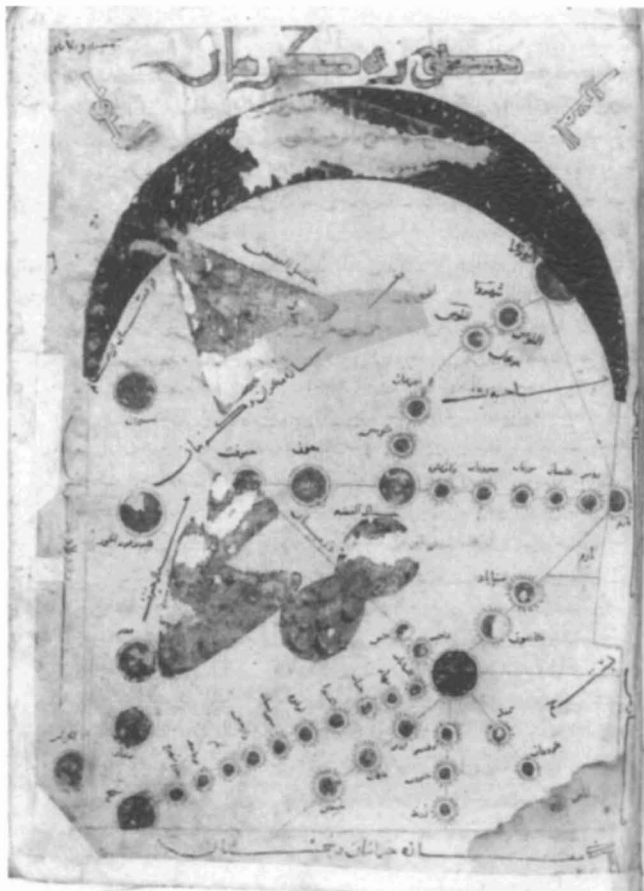


FIG. 5.4. KIRMAN ACCORDING TO IŞTAKHRĪ I. This example is taken from the Leiden manuscript (see also fig. 5.5). North is in the lower right corner. Size of the original: 42 × 30 cm. By permission of the Bibliotheek der Rijksuniversiteit, Leiden (MS. Or. 3101, p. 63).

kink, but the angles and dimensions do not correspond. It is not possible to make a “fit.” Just inside Kirman on the eastern side are two crescent-shaped areas looking like arcs of a circle on most manuscripts. These are two mountain ranges, while toward the interior from these are several small mountain groups, a partial selection from a very mountainous area. Most of the province is made up of routes starting in the north, radiating out from the capital of Sirjan. All these are difficult to follow, since the present-day road system bears no resemblance to this at all. The modern routes are based on the new capital, Kirman, which is on the main route from north-eastern Iran (via Yezd) toward Sind and India—a route that is not represented on the al-İştakhrī maps at all, though it must have been centuries old. It is interesting that Ibn Khurradādhbih, writing before the Balkhī authors, gives this latter as a main route through Kirman province, showing that the Balkhī school authors are not using Ibn Khurradādhbih directly.⁵⁰

The comparison of the various texts and this map gives

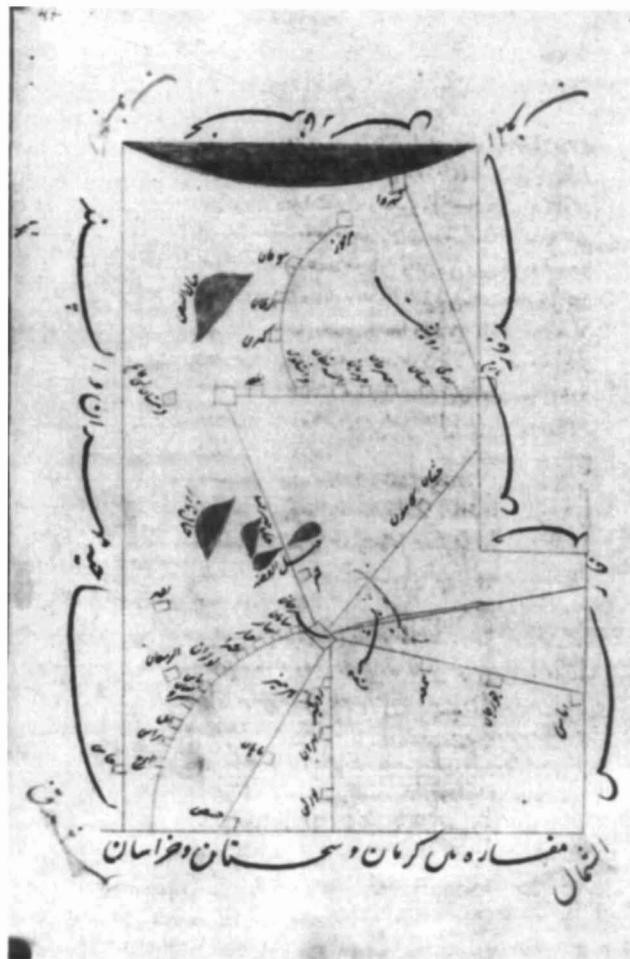


FIG. 5.5. KIRMAN ACCORDING TO IŞTAKHRĪ II. This example is taken from the manuscript in Bologna. Comparison with figure 5.4 shows the differences between the two versions. The maps of Ibn Ḥawqal and al-Muqaddasi do not vary a great deal from these. North is in the lower right corner. Size of the original: 27.5 × 17.7 cm. By permission of the Biblioteca Universitaria di Bologna (Cod. 3521, fol. 47r).

us a clue to the origins of the type of map. The concentration on these routes is important and shows a continuation of an early ninth-century preoccupation with this feature. The early texts of the form *al-Masālik wa-al-mamālik* were fundamentally texts of post routes through the Islamic empire, although most early writers were not limited to the empire, extending their work through India and China as much as possible and again by sea in the Indian Ocean and mentioning as much of

50. Ibn Khurradādhbih's account of the Kirman routes appears in his *Kitāb al-masālik wa-al-mamālik*; see the edition by Michael Jan de Goeje, *Kitāb al-masālik wa'l-mamālik (Liber viarum et regnorum)*, Bibliotheca Geographorum Arabicorum, vol. 6 (Leiden: E. J. Brill, 1889; reprinted 1967), 49–54. See also pp. 91–92. A convenient map on which to check some of this is in William C. Brice, ed., *An Historical Atlas of Islam* (Leiden: E. J. Brill, 1981), 16–17.

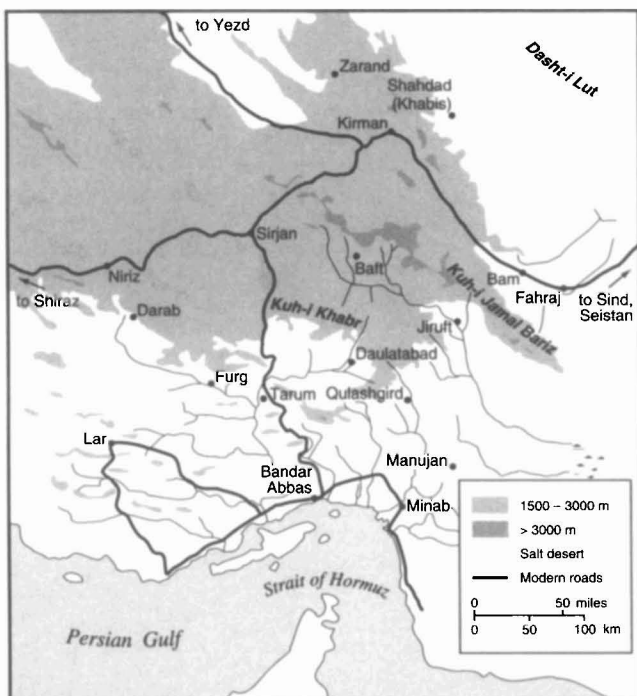


FIG. 5.6. MODERN KIRMAN AND SURROUNDING AREA. A modern map of Kirman for comparison.

Europe as they could. The text of Ibn Khurradādhbih is the only one that survives as an independent work. He was a postal official of the empire, and so his interest in the postal routes was professional. His routes through Kirman are easy to follow, giving the distance between places in parasangs (about four miles). It is possible that his routes were actually compiled from material left over from the days of the Sassanid Empire. Al-Jayhānī and al-Marwazī, who wrote similar works that are now lost and may perhaps be based on Ibn Khurradādhbih, probably followed in the same tradition.⁵¹ The Balkhī-Iṣṭakhri school—note that al-Iṣṭakhri also calls his work *Kitāb al-masālik wa-al-mamālik*—likewise probably perpetuated this tradition, but it is obvious by a simple comparison with the existing texts that the routes were subsequently rethought. We have the same idea based on new facts, whose origin is not known, but contemporaries assumed that this material was new and up to date. Thus Ibn Ḥawqal copies it almost blindly for areas like Kirman. Al-Muqaddasī too follows this information. When we come to later geographers who base their works on the earliest geographers and generally eschew the Balkhī-Iṣṭakhri traditions, we find that they take their place-names directly from al-Iṣṭakhri for areas in Iran and neglect the important route system of Ibn Khurradādhbih.⁵²

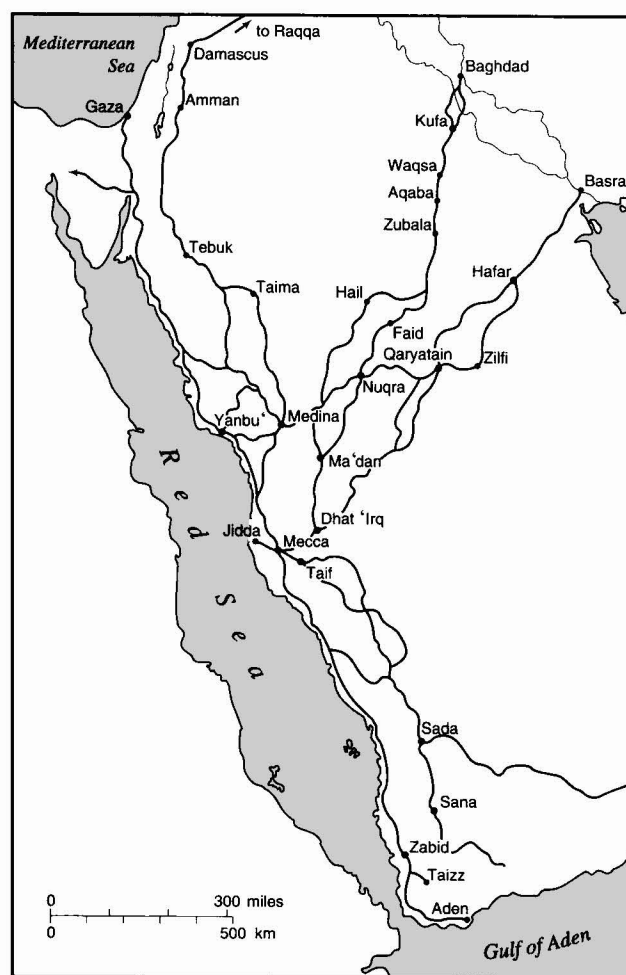


FIG. 5.7. THE ARABIAN DESERT PILGRIMAGE ROUTES. After William C. Brice, ed., *An Historical Atlas of Islam* (Leiden: E. J. Brill, 1981), 22.

THE ARABIC-SPEAKING PROVINCES

The four provinces that are not Persian speaking—Arabia, Syria, Egypt, and North Africa—are treated somewhat differently from the Persian provinces, although Syria, being nearest to the Iranian area, diverges less. The Arabian Peninsula is very impractically represented when one considers that from an Islamic standpoint, as the center of the pilgrim routes, it is so very important (fig. 5.7). Also, much had been written on the Arabian Peninsula by Arab writers, and a work like al-Hamdānī’s *Ṣifāt Jazīrat al-‘Arab* (History of the Arabian Peninsula) had already been produced by the time of these authors.⁵³ Al-Iṣṭakhri shows the peninsula as a protrusion sticking out into the Persian Sea with the African coast beyond

51. All these authors are mentioned in chapter 4.

52. The most obvious of these is the anonymous Persian text *Ḥudūd al-‘ālam*, ed. and trans. Minorsky (note 9).

53. Al-Ḥasan ibn Aḥmad al-Hamdānī died in 334/945.

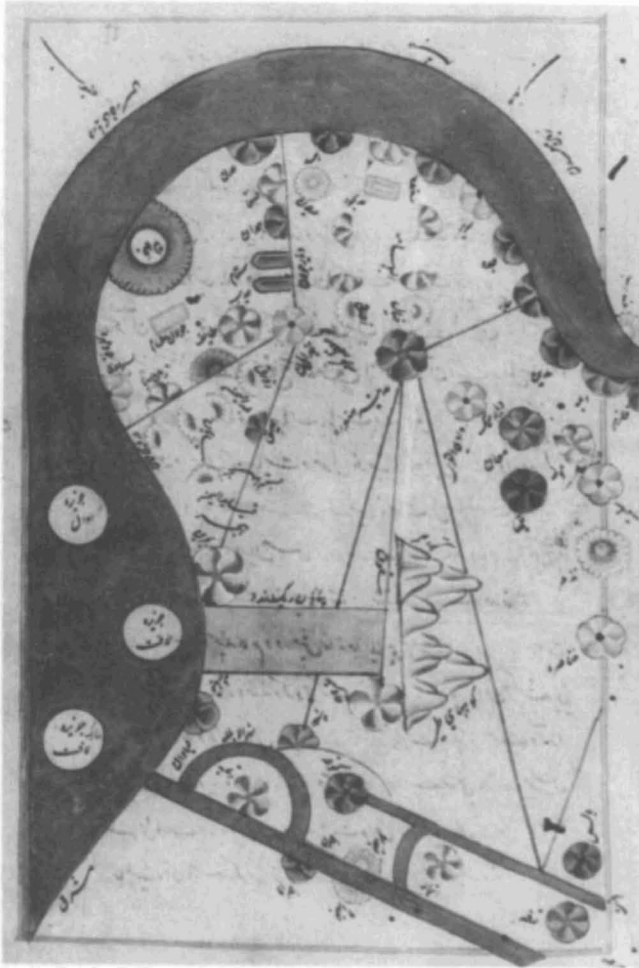


FIG. 5.8. ARABIA ACCORDING TO THE BALKHĪ SCHOOL, IṢṬAKHRĪ I. North is toward the lower right corner. Size of the original: not known. By permission of the Ordeleniya Instituta Vostokovedeniya Akademii Nauk, SSSR, Leningrad (MS. C-610, fol. 13a).

(fig. 5.8).⁵⁴ South is to the top left. Most of the detail in the peninsula relates to the Ḥijāz and Yemen. Below, it is separated from the rest of the landmass by the Euphrates and the Tigris, and only the area immediately above and to the left refers to the larger part of the peninsula (Najd, Bahrain, and Oman). Most of this latter area is devoted to the sands and to the two mountains of Ṭaʿī. Routes radiate out from Mecca and Medina, as one might expect; for example, from Mecca to Bahrain, Oman, and Aden and from Medina to Basra, Kadesia (Qadisīya), Raqqa, and through Taima toward Syria. The later recension of al-Iṣṭakhri is much more vague but has Mecca and Medina much farther north, giving more space in the southern part of the peninsula but even less for the north, east, and center (fig. 5.9). Ibn Ḥawqal's map of Arabia is even more vague, little more than a

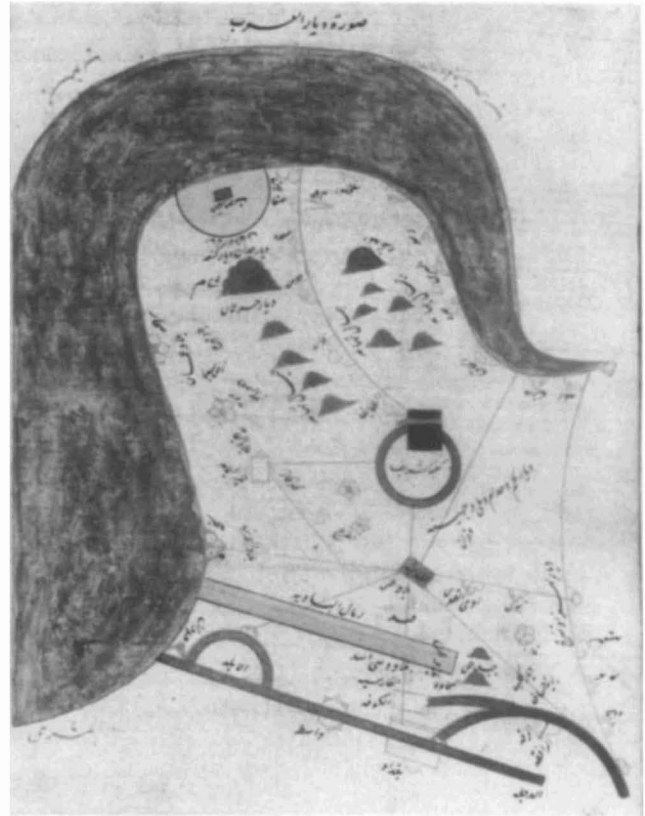


FIG. 5.9. ARABIA ACCORDING TO THE BALKHĪ SCHOOL, IṢṬAKHRĪ II. North is toward the lower right corner.

Size of the original: 27.5 × 17.7 cm. By permission of the Biblioteca Universitaria di Bologna (Cod. 3521, fol. 5v).

hurried sketch map based ultimately on al-Iṣṭakhri (figs. 5.10 and 5.11).

The maps of the two westerly provinces, Egypt and the Maghreb, vary enormously from recension to recension. There can certainly have been no original Iranian lists of postal routes for these areas and probably no Byzantine or any other Western equivalent. The sources are therefore limited to Ptolemy and any Muslim writers or collectors of information active since the Islamic conquest of these areas. The early writers of *masālik* literature like Ibn Khurradādhbih did not neglect these areas, and from their works a considerable amount of geographical information could be obtained. When considering these areas we must also consider the map of the Mediterranean, one of the few places where information relating to non-Islamic areas is found in these texts (fig. 5.12). The Mediterranean begins in Iṣṭakhri I as a com-

54. Maps of the Arabian Peninsula are in Miller, *Mappae arabicae*, Band 3, Beiheft, Taf. 19–21 (note 14).



FIG. 5.10. ARABIA ACCORDING TO THE BALKHĪ SCHOOL, IBN ḤAWQAL I. North is toward the upper right corner.

Size of the original: not known. By permission of the Topkapı Sarayı Müzesi Kütüphanesi, Istanbul (A. 3346).

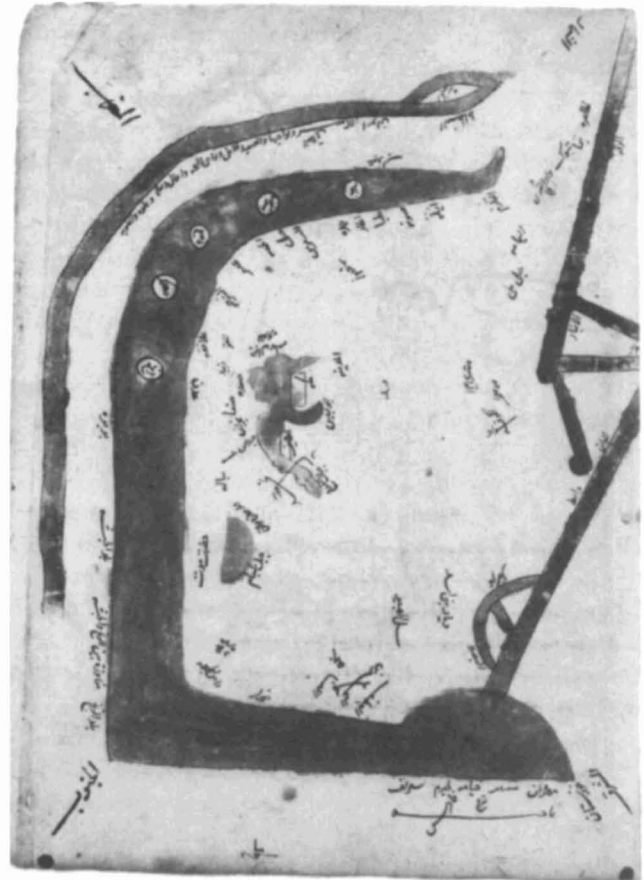


FIG. 5.11. ARABIA ACCORDING TO THE BALKHĪ SCHOOL, IBN ḤAWQAL III. North is toward the upper right corner.

Size of the original: 35 × 26.5 cm. By permission of the Bibliothèque Nationale, Paris (MS. Arabe 2214, fol. 5).

plete circle with a wide entrance to the Encompassing Ocean on top.⁵⁵ Details of North Africa lie on the left and those of Europe (mainly Islamic Spain) on the right. At 90° from the mouth of the sea (Strait of Gibraltar) we have a wide, straight water channel lying due north-south that is the Bosphorus, and at 270° there appears another channel, the mouth of the Nile. This has a semicircular area with the entrance of the Nile to the left, containing two islands (Tinnis and Damiyāt). At the bottom of the design (east) are three parallel rivers. In the center of the sea symmetrically west-east are a large mountain, Jabal al-Qilāl (in the Strait of Gibraltar), and a line of three large circular islands; Sicily, Crete, and Cyprus. This shape is reflected in the maps of both North Africa and Egypt. North Africa, which includes Spain, is really a map of the western end of the Mediterranean with a circular Spain on the north and a straight (horizontal east-west) North African coast (plate 6 and fig. 5.13).⁵⁶ The large mountain is again present but farther inside the Mediterranean, and there is one island (Sicily)

and a prominent circular area on the African side that seems to house Sijilmasa and the land of the blacks (Bilād al-Sūdān). Egypt (fig. 5.14) also fits roughly to the Mediterranean map except that the seacoast is straight. The delta remains semicircular, with its two islands and a long, straight Nile with ranges of mountains on each side.

The later recension of Iṣṭakhri (II) is somewhat the same. The Mediterranean on its own map becomes elongated, and the central islands are much smaller (fig. 5.12*b*). The Nile and the Bosphorus are not so symmetrically arranged, and the mountain in the strait is much smaller. In the North African map, Spain loses its circular shape, becoming extended obliquely on the east and in some manuscripts flattened on the south (fig. 5.13*b*).⁵⁷ Egypt also varies slightly (fig. 5.14*b*).

55. The maps of the Mediterranean are reproduced in Miller, *Mappae arabicae*, Band 1, Beiheft 1, Taf. 1–4 (note 14).

56. The maps of the Maghreb occur in Miller, *Mappae arabicae*, Band 2, Beiheft, Taf. 5–7 (note 14).

57. Miller, *Mappae arabicae*, Band 1, Beiheft 1, Taf. 4 (Bologna)

In the Ibn Ḥawqal recensions the map titled al-Maghrib includes the whole of the Mediterranean, and the outline of the sea has been completely revised (fig. 5.12c and 5.12d).⁵⁸ The mountain is gone, and though Spain and North Africa remain roughly the same geometric shape, they are well covered with rivers. The important thing, however, is that the eastern end of the Mediterranean is no longer a circle but has a recognizable shape. There is a peninsula for Italy and another for Greece. The Alps are visible, Corsica and Cyprus appear, and there are signs of an Anatolian peninsula (wrongly oriented). The earlier recension (Ibn Ḥawqal I, fig. 5.12e) has another map of the Mediterranean (this time titled correctly) that is a simplification of the other, slightly more stylized, while the second recension has only one map (also ostensibly North Africa) that is inferior to the first recension of Ibn Ḥawqal but still a great improvement of that of al-Iṣṭakhri. Egypt too has been completely redrawn by Ibn Ḥawqal, giving more detail to the Nile Delta (fig. 5.14c).⁵⁹ This map of Egypt is reproduced in Ibn Ḥawqal III (fig. 5.14d) but is more stylized and angular—again not really an improvement on I but vastly better than al-Iṣṭakhri.

The impression one gets of Ibn Ḥawqal's maps of western Islam is that they are the work of someone who has been there and knows what he is portraying but is working within a traditional cartographic style and does not wish to depart too far from it. Such a conclusion is emphasized by the Paris abridgment manuscript.⁶⁰ This also contains a map of the Nile basin from al-Khwārazmī that is based on Ptolemy and is drawn in a much freer and more natural style than the other Balkhī school maps.⁶¹

All the provincial maps of this school of geographers may be based on practical considerations like land routes. These routes and the order of towns along them must have originated from the constant observations of those who traveled them. All the maps, however, except perhaps for the western areas of Ibn Ḥawqal's work, appear to have been drawn for mnemonic purposes, rather than for any other practical use, and for this their geometric style is admirably suited.

THE WORLD MAP

The world map⁶² and the map of the Indian Ocean, which is enlarged from it and always referred to as the Persian Sea, are a different proposition. These two maps are built up by what might be called academic conjecture—an arm-chair attempt to see all the provinces set down relative to each other. The whole has to fit into a stereotyped idea of what the whole world should look like. According to Arab geographical theory based entirely on Ptolemy, this would be a sphere.⁶³ Since the far side of a

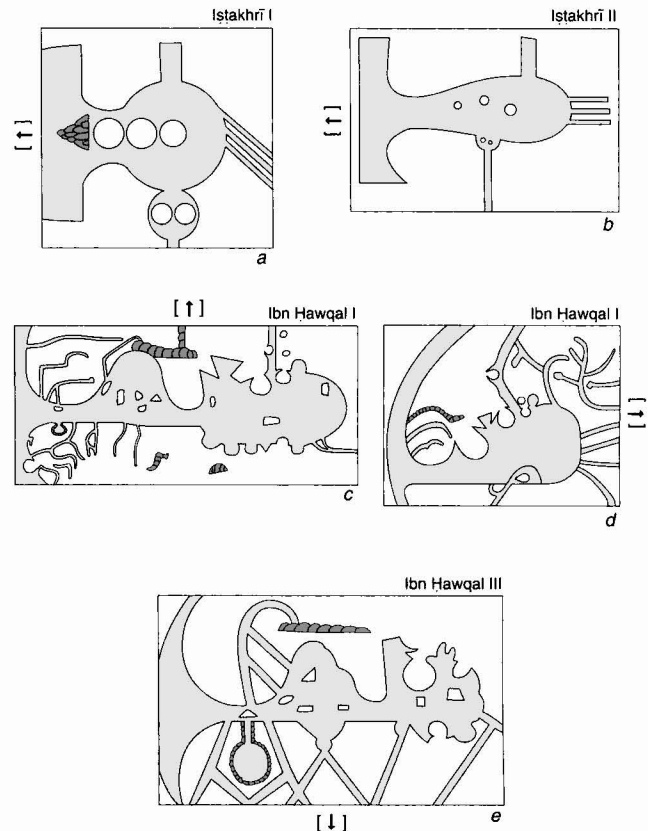


FIG. 5.12. THE DEVELOPMENT OF THE MEDITERRANEAN IN MAPS OF THE BALKHĪ SCHOOL. Five sketches of the Mediterranean based on al-Iṣṭakhri (a and b) and Ibn Ḥawqal (c, d, e) (sometimes titled al-Maghrib in Ibn Ḥawqal). North is at the top for comparative purposes; the usual orientation in the manuscripts is indicated in square brackets. After J. H. Kramers, "La question Balhī-Iṣṭakhri-Ibn Ḥawqal et l'Atlas de l'Islam," *Acta Orientalia* 10 (1932): 9–30.

(note 14). The North African map is found in Band 2, Beiheft, Taf. 5 (Berlin₁) and Taf. 7 (Bologna).

58. Kramers's edition of Ibn Ḥawqal's *Ṣūrat al-arḍ* (note 5) gives his map in its first recension as the plate between pp. 66 and 67. The second map of the Mediterranean appears on p. 193.

59. The first-recension maps of Egypt are reproduced in Kramers's edition, pls. between pp. 134 and 135 (note 5), and also in Kramers and Wiet's edition, vol. 1, pl. 5 (note 28). They are not reproduced by Miller. The second-recension maps (Ibn Ḥawqal III) appear in Miller, *Mappae arabicae*, Band 2, Beiheft, Taf. 9 (Paris₂) (note 14).

60. Paris, Bibliothèque Nationale, MS. Arabe 2214.

61. The map of the Nile basin is illustrated in figure 6.2 and can be compared with al-Khwārazmī's map, see plate 4.

62. Here we are dealing with the maps of al-Iṣṭakhri (I and II) and the first recension of Ibn Ḥawqal (I). Ibn Ḥawqal III is discussed in more detail in chapter 6.

63. See, for example, p. 4.

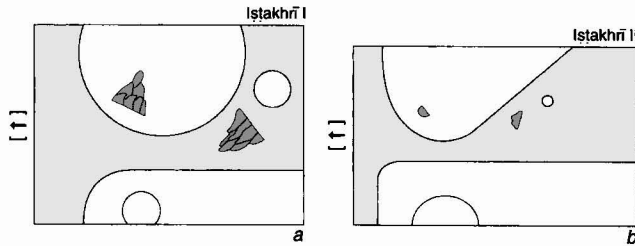


FIG. 5.13. THE DEVELOPMENT OF NORTH AFRICA AND SPAIN IN MAPS OF THE BALKHĪ SCHOOL. Two sketches of North Africa and Spain based on Iṣṭakhri I (a) and Iṣṭakhri II (b). North is at the top for comparative purposes; the usual orientation in the manuscripts is indicated in square brackets. After J. H. Kramers, “La question Balḥī-Iṣṭahri-Ibn Ḥawqal et l’Atlas de l’Islam,” *Acta Orientalia* 10 (1932): 9–30.

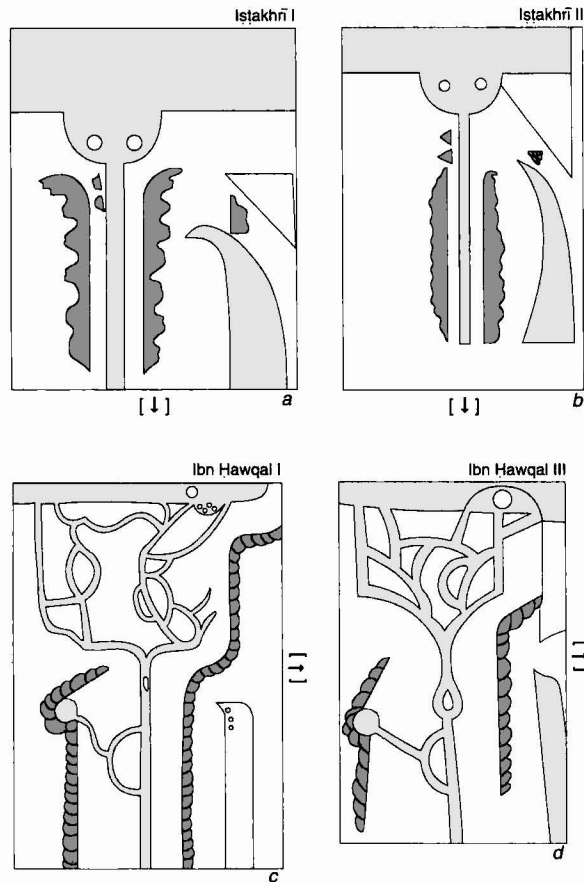


FIG. 5.14. EGYPT ACCORDING TO THE BALKHĪ SCHOOL. Sketches based on the maps of al-Iṣṭakhri (a and b) and Ibn Ḥawqal (c and d). North is at the top for comparative purposes; the usual orientation in the manuscripts is indicated in square brackets. After J. H. Kramers, “La question Balḥī-Iṣṭahri-Ibn Ḥawqal et l’Atlas de l’Islam,” *Acta Orientalia* 10 (1932): 9–30.

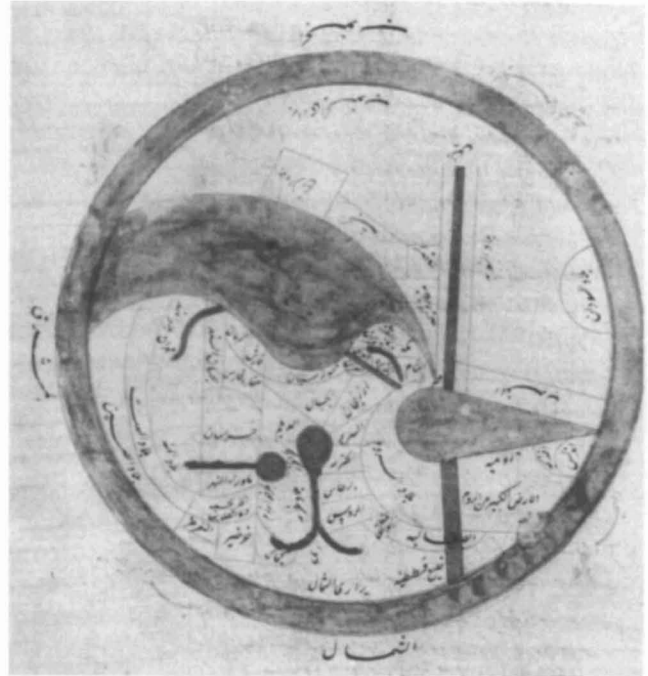


FIG. 5.15. THE WORLD, IṢṬAKHRĪ II. Size of the original: 27.5 × 17.7 cm. By permission of the Biblioteca Universitaria di Bologna (Cod. 3521, fol. 2r).

world sphere (an upside-down world) was practically inconceivable, only a hemisphere was thought to be inhabitable. This could easily be “projected” onto a flat area and represented by a circle. That Ptolemy represented the inhabitable world as occupying 180 degrees of the earth supported this idea. Thus al-Iṣṭakhri represented the world as a circle surrounded by the Encompassing Sea, with the two main seas reaching in from the east and the west toward the center, where they would join except for a small, narrow land barrier—the *barzakh* of the Qur’ān (plate 7 and fig. 5.15).⁶⁴

In his text, al-Iṣṭakhri gives a simple description of the world to explain his map. “The earth is divided into two by the two seas, so that we have a north or cold half and a south or hot half. People in these two halves get blacker as you go south and whiter as you go north etc.”⁶⁵ The main kingdoms are listed together with the kingdoms that adjoin them. This is the only place where non-Islamic areas are given any mention. Measurements are attempted; thus the width from the Encircling Ocean in northwestern Africa to the Ocean in China was 400 days’

64. This is basically the system adopted by the medieval *mappaemundi*. See David Woodward, “Medieval *Mappaemundi*,” in *The History of Cartography*, ed. J. B. Harley and David Woodward (Chicago: University of Chicago Press, 1987–), 1:286–370, esp. 328.

65. Al-Iṣṭakhri, *Kitāb al-masālik wa-al-mamālik*; see the edition by al-Ḥīnī, 16 (note 48).

journey. However, the distance north to south was not measurable. There were 210 days' journey through inhabitable lands, but the extreme north was uninhabited because of intense cold and the extreme south because of intense heat. The seas were described briefly, and the fact that the Caspian (Khazar) Sea and the Aral (Khwārazm) Sea were landlocked is mentioned, as well as the sea connection between the Encircling Ocean and Istanbul—that is, the Baltic joins up to the Bosphorus.

The map of the Persian Sea is an enlarged version of a portion of the world map,⁶⁶ although there are enough differences in the shape of the ocean in the two maps to necessitate some explanation. Three large islands—Khārak, Awāl (Bahrain), and Lāft (Qishm Island)—are set symmetrically in what is the Arabian Sea, with the Tigris to the left and the Indus to the right. India and China coalesce into one narrow peninsula, matching Arabia on the other side. The attempt is probably to match the Mediterranean on the other side of the world. Hence India also has a large mountain (Adam's Peak) to match the Jabal al-Qilāl near the Strait of Gibraltar. This is the Indian Ocean map in the first recension (Iṣṭakhri I).

The second (Iṣṭakhri II) is not so symmetrical, and the mountain and three islands become much smaller (as they also do in the Mediterranean). In the world map, the islands disappear altogether in the second recension but are there, very large, in the first. There is no "mountain" in either recension of the world map. The surprising difference is that the western tip of the Indian Ocean, which represents the Red Sea (Sea of Qulzum), points to the west in the ocean map, but in the world map it turns back on itself to almost touch the southeastern corner of the Mediterranean Sea.

The Ibn Ḥawqal maps, however, are very different.⁶⁷ This may be due to a closer reading of the earlier geographers and an attempt to incorporate features from their texts. This would include the Arabic translation of Ptolemy. But we are some way from indicating the Chinese and Golden Chersonese peninsulas of al-Khwārazmī or of Ptolemy, and there is no Taprobane. The main point is that the Red Sea and Persian Gulf are clearly shown, and the Nile rises in the Mountains of the Moon in the easterly extreme of Africa (fig. 5.16). The islands of al-Iṣṭakhri have retreated into the Persian Gulf, where they actually belong, and other islands appear from the accounts of the non-Balkhī school geographers.⁶⁸ Ibn Ḥawqal III, like most of this set, is an inferior edition of Ibn Ḥawqal I with no new, up-to-date features.

AL-MUQADDASĪ'S MAPS

Al-Muqaddasī has the same set of maps as the other two authors, but they have become little more than illustrations to the text and are not really essential to under-

standing it. The maps generally give much less detail than those of al-Iṣṭakhri and Ibn Ḥawqal, whereas his text is much more descriptive than theirs. The set of maps, however, is not quite the same as that of the earlier authors, for he has no world map and no map of the Caspian Sea or of Sijistan, but he does include a newly conceived map of the Arabian Desert showing the pilgrim routes to Mecca from the north and east.⁶⁹

The surviving manuscript maps were apparently taken from the second recension of al-Iṣṭakhri, although they seem to be completely redesigned.⁷⁰ Al-Muqaddasī himself says that among the more reliable maps he has found are those of al-Iṣṭakhri, and he states that he has done his best to bring out the correct representations of the different parts of the empire in making the maps. He also explains that the colors of the maps are significant: "In the maps we have colored the familiar routes red, the golden sands yellow, the salt seas green, the well-known rivers blue, and the principal mountains dull brown."⁷¹ He also seems to indicate the relative importance of the towns by the differing size of circles, something he is very keen on in his text. This emphasis is clear in the Leiden manuscript but not very obvious in that from Berlin, although both manuscripts have maps that look more businesslike than the more ornamental maps of the first Iṣṭakhri recension, albeit in a sketch map style.⁷²

The map of Kirman shows this tendency. It is virtually a redrawing of the al-Iṣṭakhri map (Iṣṭakhri I) with a few omissions but nothing new. By comparing this map with the equivalent text it is easy to see how al-Muqaddasī developed the text without developing the maps. For instance, he mentions far more towns and villages in his text than either of the earlier authors do, whereas his

66. For al-Iṣṭakhri's maps, see Miller, *Mappae arabicae*, Band 3, Beiheft, Taf. 22 (except Gotha₃), 23, and 24 (except Berlin₂ and Paris₂) (note 14).

67. The Ibn Ḥawqal I map can be seen in Kramers's edition of *Ṣūrat al-arḍ*, pl. on 45 (note 5), and Kramers and Wiet's edition, pl. 3 (note 28). The Ibn Ḥawqal III map appears in Miller, *Mappae arabicae*, Band 3, Beiheft, Taf. 24 (Paris₂) (note 14).

68. Kramers's edition of *Ṣūrat al-arḍ*, 44 (note 5). The islands are Sribuza, Sūbāra, Sarandib, Qanbalu, Dahlak, Sunjala, and Bādīf.

69. Examples of this are given in Miller, *Mappae arabicae*, Band 3, Beiheft, Taf. 21 (Berlin₂ and Leiden₂), as opposed to his maps of Arabia proper, Taf. 20 (note 14).

70. The Muqaddasī maps are given throughout Miller, *Mappae arabicae*, as the maps in Berlin₂ and Leiden₂: these representing the two surviving recensions of al-Muqaddasī's text. The Leiden maps are much more individual than those of Berlin and presumably reflect the maps (as it does the text) of the Istanbul manuscript, which I have not seen. See appendix 5.1.

71. Al-Muqaddasī, *Aḥsan al-taqāsīm*; Miquel's translation, 27 (note 8), Ranking and Azoo's translation, 12 (note 8).

72. Compare the Kirman maps from the two manuscripts in Miller, *Mappae arabicae*, Band 3, Beiheft, Taf. 33 (Berlin₂ and Leiden₂) (note 14).

map has, if anything, less detail than theirs. He shows that Bardashir is the seat of government, although Sirjan is the largest town. This sort of thing is not discernible from any map. The Arabian Peninsula, however, looks very different: the surrounding sea has vanished, and the peninsula becomes a square block (fig. 5.17), though rounded off in the south in the Leiden manuscript. The al-Iṣṭakhri origin is still obvious, but someone has obviously redesigned it who shows more interest in the peninsula. The routes have been completely redrawn.

In addition, al-Muqaddasī has, as I have said, a new map of the Arabian Desert, formed on the lines of al-Iṣṭakhri's map of the Persian Desert. Presumably al-Muqaddasī, who was more at home in this area, thought it was important to have these desert routes, especially since these were the main pilgrimage land routes. In spite of its possible importance, the final map seems sketchy to modern eyes, and it differs considerably in the two

manuscripts. The Berlin manuscript (fig. 5.18) gives several routes from places on the Syrian-Iraqi border of this desert, and these routes meet at Taima, whereas the Leiden map has routes terminating in Mecca. A series of stages are given on each route in both maps in much more detail and more clearly positioned than in any of the maps of peninsular Arabia I have discussed. However, this is nothing like the detail given in al-Muqaddasī's text, where the routes terminate in Mecca, therefore agreeing with the Leiden manuscript map.

Generally the maps appearing in al-Muqaddasī manuscripts contain little detail for the Persian areas of Islam. The Mediterranean map again is little more than a hurried copy of al-Iṣṭakhri. The Arabian areas, however, should be studied. Certainly the map of the Arabian Peninsula, together with that of the Arabian Desert, is superior to any map of the area that has appeared before.

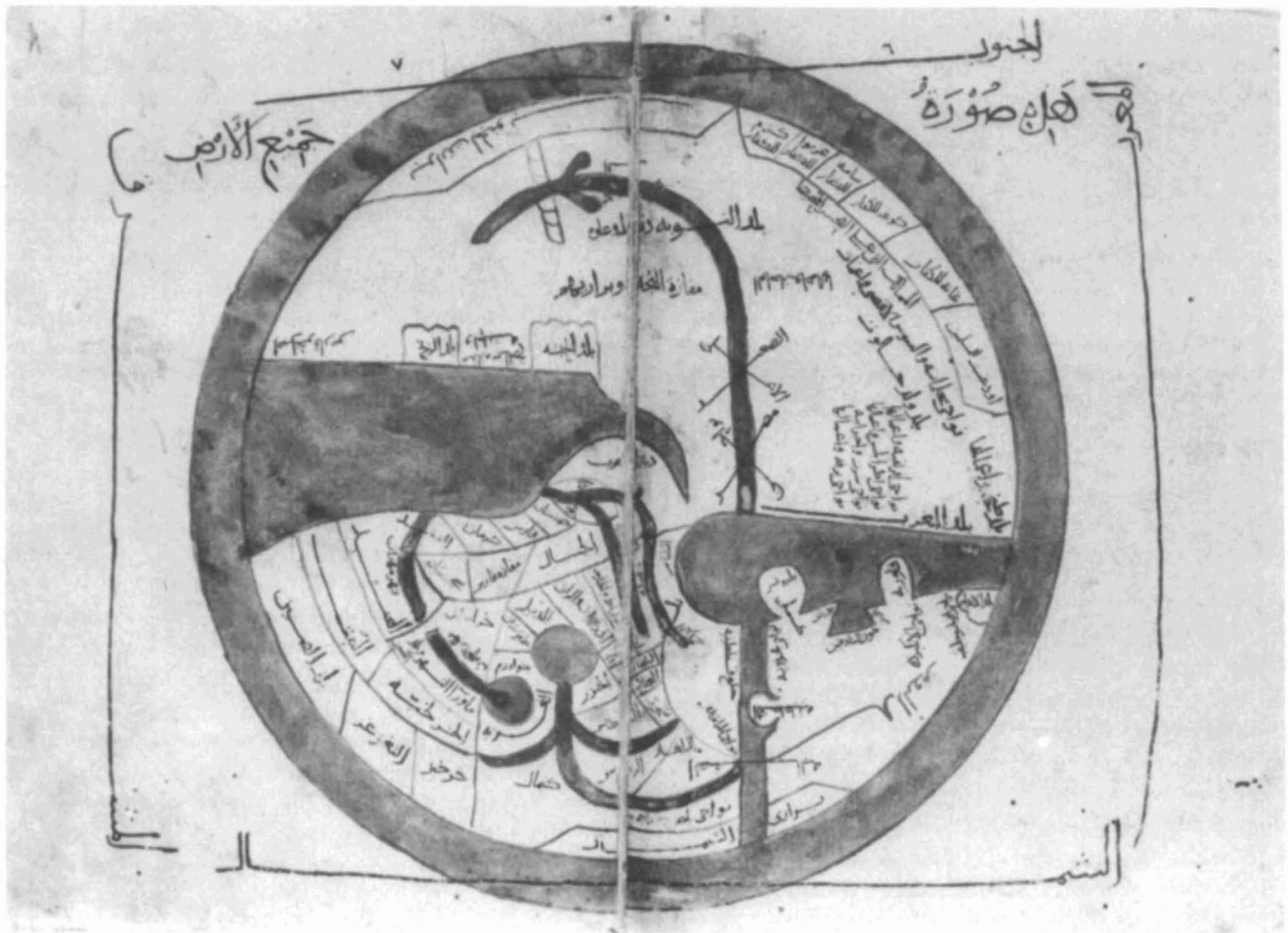


FIG. 5.16. THE WORLD, IBN ḤAWQAL I. Size of the original: not known. By permission of the Topkapı Sarayı Müzesi Kütüphanesi, Istanbul (A. 3346).

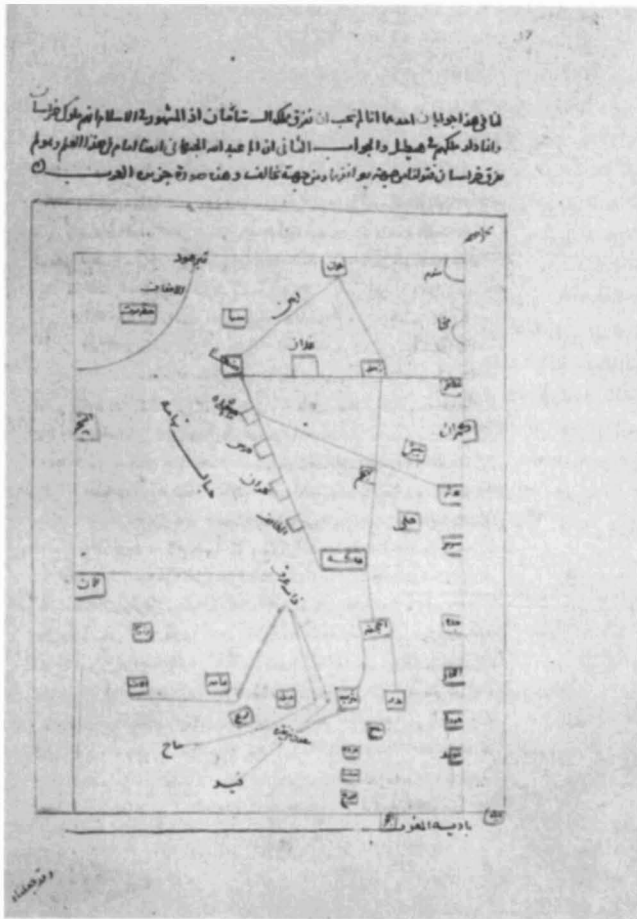


FIG. 5.17. ARABIA ACCORDING TO AL-MUQADDASĪ. The map of Arabia from the Berlin manuscript. North is at the bottom. Size of the original map: 17 × 12.5 cm. By permission of the Staatsbibliothek Preussischer Kulturbesitz, Berlin (Orientabteilung, MS. Sprenger 5, p. 37).

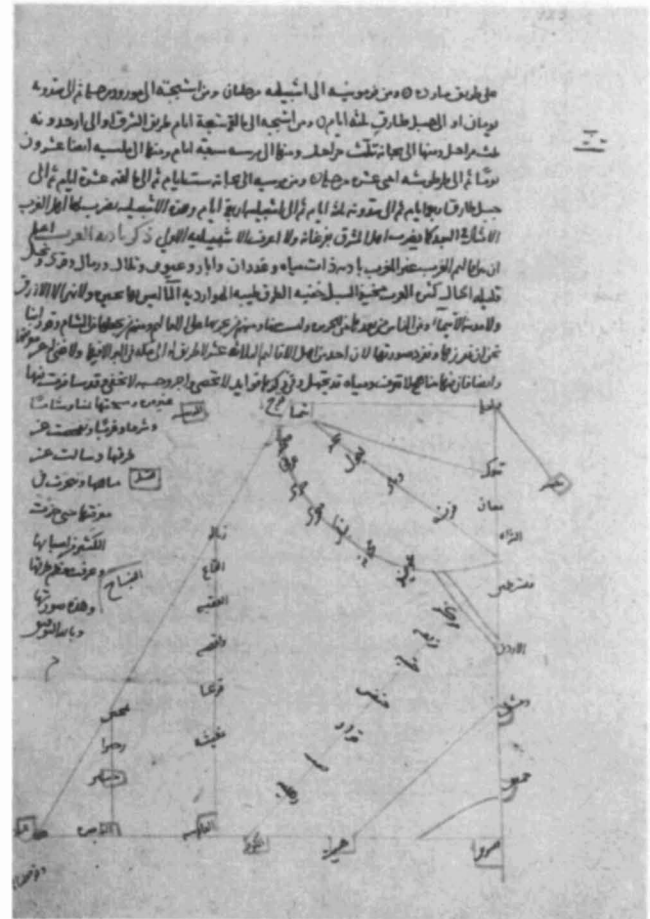


FIG. 5.18. THE ARABIAN DESERT ACCORDING TO AL-MUQADDASĪ. The map of the Arabian Desert from the Berlin manuscript. North is at the bottom. Size of the original map: 14 × 16 cm. By permission of the Staatsbibliothek Preussischer Kulturbesitz, Berlin (Orientabteilung, MS. Sprenger 5, p. 123).

MISCELLANEOUS MANUSCRIPTS BELONGING TO THE BALKHĪ SCHOOL

In addition to the manuscripts connected with these authors, three other manuscripts with maps show interesting variations on those already mentioned. The first of these is the very late copy (1675) of al-Iṣṭakhri from the Staats- und Universitätsbibliothek in Hamburg, which, according to Kramers, shows a text relating closely to Iṣṭakhri I.⁷³ He therefore classes the maps in the same category. A closer inspection of the maps, however, will show al-Iṣṭakhri features in some of the maps, but the map of Kirman is distinctly of the Ibn Ḥawqal I type. The maps of the Persian area all compare closely with Ibn Ḥawqal's maps, that of Transoxiana being almost identical.⁷⁴ The maps of the Mediterranean Sea and the Maghreb are certainly Iṣṭakhri I (fig. 5.19),

although the Mediterranean map has only two large islands instead of the usual three. These Hamburg maps were drawn in Persia for the Safavid prince Ḥusayn in 1675.⁷⁵ They have a distinctive design, superior to many earlier manuscripts, and the nomenclature is written in a very clear Persian Naskhī script. Considerable trouble was taken over them, and it may be that what were thought to be the best features from several manuscripts of different styles were combined to construct them.

The second of the variations occurs in a manuscript from the Forschungsbibliothek, Gotha (MS. Orient. P.

73. Kramers, "La question Balḫī-Iṣṭakhri-Ibn Ḥawqal," 14-15 (note 31).

74. Compare the various maps of the Hamburg manuscript that are scattered throughout Miller, *Mappae arabicae* (note 14); the Transoxiana map is in Band 4, Beiheft, Taf. 59.

75. Miller, *Mappae arabicae*, Band 1, Heft 1, 17 (note 14).



FIG. 5.19. AL-MAGHRIB FOLLOWING IŞTAKHRĪ I. The Hamburg manuscript from which this map comes, Staats- und Universitätsbibliothek, Cod. Or. 300, is being restored. This photograph is taken from Konrad Miller, *Mappae arabicae: Arabische Welt- und Länderkarten des 9.-13. Jahrhunderts*, 6 vols. (Stuttgart, 1926–31), vol. 2, Beiheft. Size of the original: not known. By permission of the Staats- und Universitätsbibliothek, Hamburg, and from the American Geographical Society Collection, University of Wisconsin–Milwaukee Library.

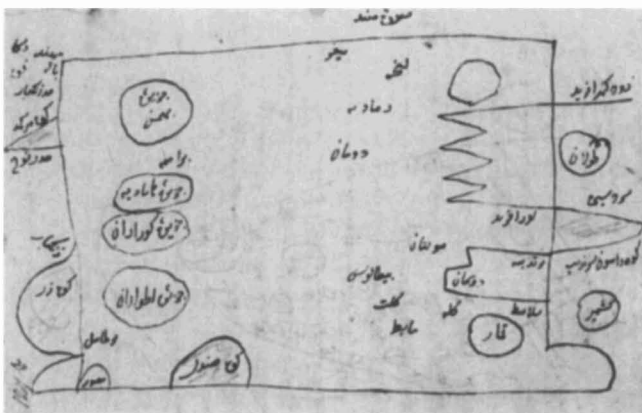


FIG. 5.20. THE INDIAN OCEAN IN THE MANUSCRIPT OF AḤMAD (OR MUḤAMMAD) AL-ṬŪSĪ. From the Gotha manuscript. West is at the top. The map is titled *Şurat Hind* (Map of India). It should be titled *Şurat baḥr Hind*. Size of the original: not known. By permission of the Forschungsbibliothek, Gotha (MS. Orient. P. 35, fol. 127^a).

35). The manuscript was dedicated to the Seljuk ruler Tuğhrul ibn Arslān, who died in 590/1193, so its date must be slightly earlier than that.⁷⁶ It contains the work entitled *‘Ajā’ib al-makhlūqāt* of Aḥmad (or Muḥammad) al-Ṭūsī, who was alive at the time the manuscript was written. The maps, of which only six appear (two in the text and four as separate small plates at the beginning), are drawn in very sketchily with a pen (fig. 5.20). Although these maps are sketchy, they seem to resemble recension III of Ibn Ḥawqal, as shown in the Paris manuscript (Bibliothèque Nationale, MS. Arabe 2214). The Caspian Sea, however, is more individual, while the Mediterranean is a very badly drawn Işṭakhri I. The connection of these maps with the others is very uncertain, since the text itself is not related to that of al-Işṭakhri.⁷⁷

The third set of maps occurs in a manuscript from Vienna that is a Persian epitome of al-Işṭakhri, in spite of being attributed to Naşir al-Dīn al-Ṭūsī. This is a beautifully written manuscript, but the maps (of which there is a full set) have been reduced to mere outlines, with the towns lined up in any order on the land and the rivers and mountains lined up too, so that the whole appears as a pictorial listing of the topographical features rather than as a map (figs. 5.21 and 5.22). Only those areas like the Mediterranean with a distinctive coastline are recognizable.⁷⁸

The maps in the two nineteenth-century manuscripts in London that Miller attributed to al-Jayhānī have nothing to do with al-Jayhānī.⁷⁹ The text comes from another

76. Miller, *Mappae arabicae*, Band 1, Heft 1, 21 (note 14), and Wilhelm Pertsch, *Die orientalischen Handschriften der Herzoglichen Bibliothek zu Gotha*, pt. 1, *Die persischen Handschriften* (Vienna: Kaiserlich-Königliche Hof- und Staatsdruckerei, 1859), 58–61. According to Cevdet Türkay, *İstanbul Kütüphanelerinde Osmanlı’lar Devrine Aid Türkçe–Arabça–Farsça Yazma ve Basma Coğrafya Eserleri Bibliyografyası* (Istanbul: Maarif, 1958), 3, another manuscript of this text exists in Istanbul, Hamid-i Evvel Kitaplığı, no. 554, and Türkay dates the Istanbul manuscript 555/1160. There may be others. Whether they have maps I do not know.

77. There are empty pages that may have been meant for more maps. The existing maps are reproduced by Miller, *Mappae arabicae* (Gotha, manuscript), Band 1, Beiheft, Taf. 4 (Mediterranean); Band 3, Beiheft, Taf. 21 (Arabia), Taf. 22 (Indian Ocean), and Taf. 36 (Sind); Band 4, Beiheft, Taf. 42 (Jibal), and Taf. 48 (Caspian Sea) (note 14).

78. The maps of this manuscript, Cod. Mixt. 344 at the Österreichische Nationalbibliothek, Vienna, are beautifully reproduced with accompanying descriptions and translations in Hans von Mzik, ed., *al-Işṭakhri und seine Landkarten im Buch “Şuwar al-aḳālim”* (Vienna: Georg Prachner, 1965). See also Gustav Flügel, *Die arabischen, persischen und türkischen Handschriften der Kaiserlich-Königlichen Hofbibliothek zu Wien*, 3 vols. (Vienna: Kaiserlich-Königliche Hof- und Staatsdruckerei, 1865–67), 2:424–25 (MS. 1271). The Mediterranean map is reproduced in Miller, *Mappae arabicae*, Band 1, Beiheft, Taf. 4 (Wien) (note 14).

79. Vladimir Minorsky, “A False Jayhānī,” *Bulletin of the School of Oriental and African Studies* 13 (1949–51): 89–96. The maps for this manuscript appear in Miller, *Mappae arabicae*, Band 5, Beiheft, Taf. 66–70, 72v, 73 (note 14).

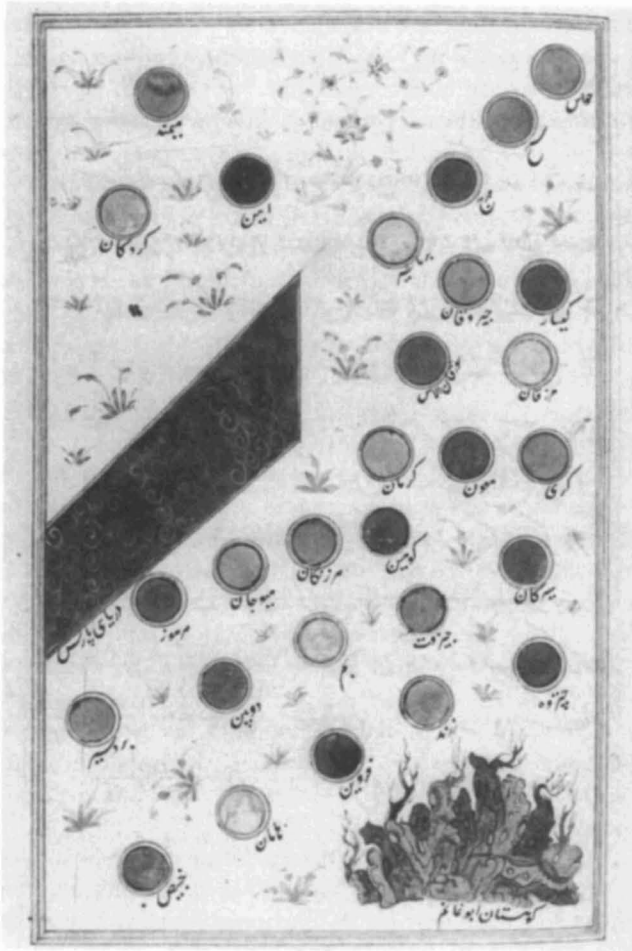


FIG. 5.21. MAP OF KIRMAN FROM A MANUSCRIPT ATTRIBUTED TO NAŞİR AL-DİN AL-ṬŪSĪ.

Size of the original: 31.4 × 20.8 cm. By permission of the Bild-Archiv der Österreichische Nationalbibliothek, Vienna (Cod. Mixt. 344, fol. 79r).

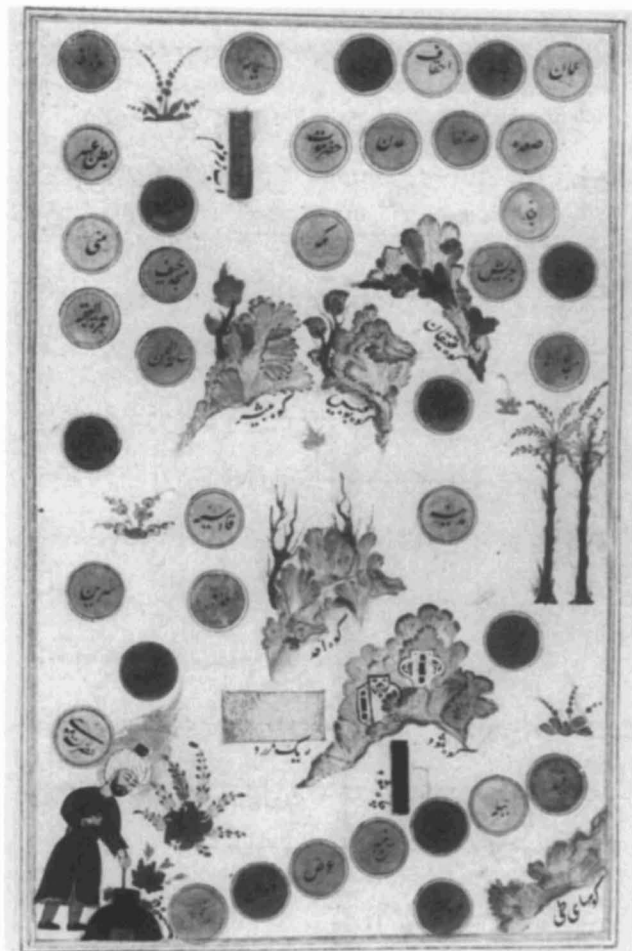


FIG. 5.22. MAP OF ARABIA FROM A MANUSCRIPT ATTRIBUTED TO NAŞİR AL-DİN AL-ṬŪSĪ.

Size of the original: 31.4 × 20.8 cm. By permission of the Bild-Archiv der Österreichische Nationalbibliothek, Vienna (Cod. Mixt. 344, fol. 9r).

Persian abridgment of al-Iṣṭakhri that included a set of maps and was copied in India for a European scholar. The regional maps (especially those of the Persian areas) are quite passable examples of Iṣṭakhri I, though less detailed than those of the twelfth-century manuscripts. The maps of the seas (with mermaids and fish), however, are very corrupt (fig. 5.23), and the world map is little more than a rough sketch of al-Iṣṭakhri's world map (fig. 5.24). But the map of Egypt gives the source of the Nile, showing Arab Ptolemaic influence, although the delta area is taken directly from al-Iṣṭakhri and the anchor shape of the Mediterranean again shows a comparison with the Ibn Ḥawqal III map from the Paris abridgment.⁸⁰

There is at least one map of the Balkhī school that possesses climate boundaries. It is a very late map (ca.

816/1413) from a Timurid scientific manuscript now in the Topkapı Sarayı Müzesi Kütüphanesi in Istanbul (fig. 5.25).⁸¹ It was obviously drawn with special care, and the climates are spaced so that the southern ones are wider than the northern ones and the boundaries are straight lines due east and west. The southern edge of the Indian Ocean follows the southern boundary of the first climate (presumably the equator, though not labeled as such and appearing well to the south of the world circle). A Pro-

80. Miller, *Mappae arabicae*, Band 5, Beiheft, Taf. 67 (Aegypten und Mittelmeer) (note 14).

81. The map is briefly mentioned and illustrated in Thomas W. Lentz and Glenn D. Lowry, *Timur and the Princely Vision: Persian Art and Culture in the Fifteenth Century* (Los Angeles: Museum Associates, Los Angeles County Museum of Art, 1989), 149–50 and fig. 50.

lemaic feature occurs in the mountains at the source of the Nile. The map itself has all the features of the Iṣṭakhri I map (although it has only two islands in the Mediterranean) but is unusual in having detailed nomenclature in the Persian area and only selected material in the rest of the world.

Finally, some of the maps taken from the al-Iṣṭakhri set were used as the basis of maps in some later geographers' works. Thus the occasional new work perpetuated a map when the remainder of the Balkhī maps had

lost their currency (except in direct copies of existing works). The *Kitāb 'ajā'ib al-makhlūqāt* of Zakariyā' ibn Muḥammad al-Qazwīnī and the *Kharīdat al-'ajā'ib* of Sirāj al-Dīn Abū Ḥafṣ 'Umar Ibn al-Wardī are often accompanied by a world map that is based on that of al-Iṣṭakhri but has enough individual features to allow it to be classified as an al-Qazwīnī or an Ibn al-Wardī world map. Both these works were extremely popular, and many manuscripts have survived (on the maps, see below, pp. 143–44). Also, Ḥāfiẓ-i Abrū, a Persian geographer of



FIG. 5.23. MAP OF THE INDIAN OCEAN FROM THE BRITISH LIBRARY MANUSCRIPT. A Persian epitome of al-Iṣṭakhri from nineteenth-century India. Size of the original: 25.5 × 13 cm. By permission of the British Library, London (MS. Or. 1587, fol. 39r).



FIG. 5.24. WORLD MAP FROM THE BRITISH LIBRARY MANUSCRIPT. Diameter of the original: ca. 15 cm. By permission of the British Library, London (MS. Or. 1587, fol. 5).

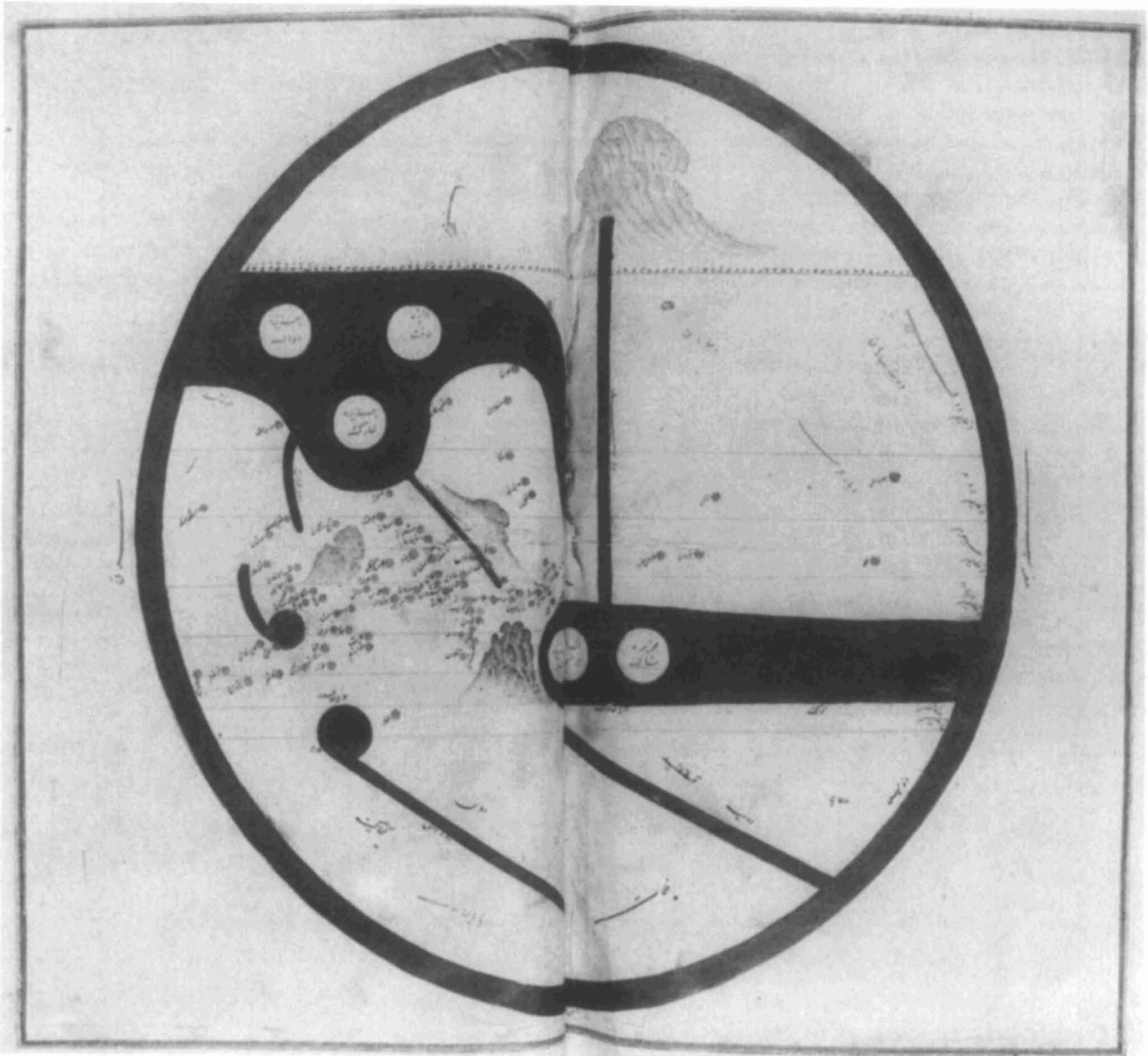


FIG. 5.25. BALKHĪ WORLD MAP WITH CLIMATE BOUNDARIES. This late example (ca. 816/1413) is opaque watercolor, ink, and gold on paper.

Size of the original: 35.5 × 48 cm. By permission of the Topkapı Sarayı Müzesi Kütüphanesi, Istanbul (B. 411, fols. 141b–142a).

the fifteenth century whose maps will be mentioned later, had sketch maps of the Persian and Mediterranean seas based on the form of al-Iṣṭakhrī's maps but including the extra islands mentioned by Ibn Ḥawqal.

CONCLUSION

One might ask, What are the origins of this set of maps? The only maps whose construction has been considered earlier than those of the Balkhī school are maps formed from Ptolemaic data or the world map associated with

al-Ma'mūn.⁸² There is nothing to show any connection between these and the Balkhī school maps. The Arab geographers before these writers have been either Ptolemaic scholars, collectors of travel writings, or listers of postal routes. The one complete survival of this last genre is the text of Ibn Khurradādhbih, and the routes across the maps of al-Iṣṭakhrī are very reminiscent of Ibn Khurradādhbih's routes except that the latter does not break his routes into provinces but follows them naturally from one end to the other before turning to another route.

82. See chapter 4 above.

Also, al-Iṣṭakhri and al-Muqaddasī do not take their information from Ibn Khurradādhbih, so that the stages have different names even though their routes are sometimes the same.

Nevertheless one can imagine a scholar drawing out Ibn Khurradādhbih's routes and then splitting them up into areas, but the maps we are dealing with have more to them than this. They have boundaries and coastlines, lakes, rivers, and mountains—in fact, a backdrop on which to display the routes. This backdrop is not unlike some of the medieval *mappaemundi*, and the idea could be derived from Byzantine material. If one allows for the geometric style of the Arab maps, as, for instance, in the Iṣṭakhri world map, the resemblance is quite noticeable.⁸³ The Ibn Ḥawqal maps of the Mediterranean may have even more of the *mappamundi* style. There is also the possibility that since the maps of the Iranian area are obviously standard they may go back before the Islamic period and have a Sassanian origin. The groupings of the maps, however, are definitely administrative in origin, and it seems possible that some scholar (al-Balkhī or someone else) took material such as the routes from a work similar to Ibn Khurradādhbih's and produced maps in an original burst of enthusiasm. This may be why the title *al-Masālik wa-al-mamālik* is taken up by the authors of this school

from the Ibn Khurradādhbih–Sarakhī–Jayhānī group of writers, whose origins were as listers of postal routes. That individuals were experimenting with map construction is shown by al-Muqaddasī's discussion about the man from Sarakhs.⁸⁴ Al-Balkhī's idea of a set of maps obviously became popular, and "atlases" of this sort became common. The number of manuscripts that have survived speak to this, but they were always based on the texts of the few authors I have described. Also, the style in which the maps are drawn became established. Future mapmakers used the cartographic style of these maps as a basis for their own efforts even when the content of their maps was completely different, as in maps of Ptolemaic origin. It is these later authors, al-Idrisī and others, whose works will be discussed in the following chapters.

83. A difference of emphasis can be seen: the European map emphasizes the Mediterranean Sea and Palestine, whereas the Arab authors emphasize the Islamic landmass. A comparison can be made between Ibn Ḥawqal's world map (Ibn Ḥawqal I, fig. 5.16) and the *mappaemundi* illustrated in Woodward, "Medieval *Mappaemundi*," figs. 18.61 to 18.63 (note 64).

84. Al-Muqaddasī, *Aḥsan al-taqāsīm*; Miquel's translation, 19 (note 8), Ranking and Azoo's translation, 7–8 n. 4 (note 8).

APPENDIX 5.1 SELECT LIST OF MANUSCRIPTS

Location and Number	Date	Details of Text
AL-IŞTAKHRĪ		
1 Berlin, Staatsbibliothek Preussischer Kulturbesitz, Orientabteilung, MS. Sprenger 1 (Ar. 6032 [Ahlwardt]) ^b	Orig. MS 589/1193, copy ca. A.D. 1840	Standard text used by de Goeje; author not named; earliest parts (pre-309/921) may be al-Balkhī
2 Bologna, Biblioteca Universitaria, Cod. 3521	Orig. MS 589/1193. Same as copy above?	Similar to no. 1
3 Cairo, Dār al-Kutub, MS. Geog. 199		Text on which al-Ḥīnī's printed text is based, resembles Topkapı Sarayı Müzesi Kütüphanesi, A. 3348
4 Cairo, Dār al-Kutub, MS. Geog. 256		Used by al-Ḥīnī, resembles de Goeje's text based on Leiden and Gotha manuscripts
5 Cairo, Dār al-Kutub, MS. Geog. 257		Used by al-Ḥīnī, similar to previous manuscript
6 Eton, Eton College, Oriental MS. 418, present location unknown		Persian translation of al-Işṭakhrī
7 Gotha, Forschungsbibliothek, MS. Orient. A. 1521 [Pertsch] ^c	569/1173	Later abridgment of second recension of al-Işṭakhrī, who is mentioned by name
8 Gotha, Forschungsbibliothek, MS. Orient. P. 36 [Pertsch] ^d	1012/1604	Persian translation of al-Işṭakhrī
9 Hamburg, Staats- und Universitätsbibliothek, Cod. Or. 300	1086/1675	Al-Işṭakhrī's text
10 Istanbul, Süleymaniye Kütüphanesi, Ayasofya 2613	878/1473	Al-Işṭakhrī's text
11 Istanbul, Süleymaniye Kütüphanesi, Ayasofya 2971a	n.d. (850/1450 by Kamal)	Al-Işṭakhrī's text
12 Istanbul, Süleymaniye Kütüphanesi, Ayasofya 3156	n.d. (ca. 800/1400 by Kamal)	Described in Türkay as al-Balkhī's <i>Masālik wa-al mamālik</i> —probably al-Işṭakhrī; Persian translation
13 Istanbul, Topkapı Sarayı Müzesi Kütüphanesi, B. 334	ca. 870/1460	Persian text of al-Işṭakhrī
14 Istanbul, Topkapı Sarayı Müzesi Kütüphanesi, R. 1646	ca. 1075/1664	Persian text of al-Işṭakhrī attributed (Türkay) to Ibn Khurradādhbih
15 Istanbul, Topkapı Sarayı Müzesi Kütüphanesi, A. 2830	n.d.	Al-Işṭakhrī text; Arabic attributed (Türkay and Karatay) to al-Balkhī <i>Şuwar al-aqālim</i>
16 Istanbul, Topkapı Sarayı Müzesi Kütüphanesi, A. 3012	ca. 867/1462	Al-Işṭakhrī text

^aThe references cited by author's last name in this column of the appendix are those that follow (the bold indicates the name found in the references column): **Āstān-i Quds-i Raḡavi**, *Fihrist-i kutub-i kitāb'khānah-i mubārakah-i Āstān-i Quds-i Raḡavi* (Meshed, 1926–67). Michael Jan de Goeje, “Die Istakhrī-Balkhī Frage,” *Zeitschrift der Deutschen Morgenländischen Gesellschaft* 25 (1871): 42–58. Ibn Ḥawqal, *Opus geographicum*, ed. Michael Jan de Goeje, *Bibliotheca Geographorum Arabicorum*, vol. 2 (Leiden: E. J. Brill, 1873), reedited by J. H. Kramers (1938; reprinted 1967). Al-Işṭakhrī, *Masālik wa mamālik*, ed. Iraj Afshār (Tehran: Bungāh-i Tarjamah va Nashr-i Kitāb, 1961); idem, *Viae regnorum descriptio ditionis moslemicae*, ed. Michael Jan de Goeje, *Bibliotheca Geographorum Arabicorum*, vol. 1 (Leiden: E. J. Brill, 1870; reprinted 1927, 1967); idem, *al-Masālik wa-al-mamā-*

lik, ed. Muḥammad Jābir ‘Abd al-‘Āl al-Ḥīnī (Cairo: Wazārat al-Thaqāfah, 1961); idem, *Liber climatum*, ed. J. H. Moeller (Götha: Libraria Beckeriana, 1839); idem, *Das Buch der Länder*, ed. and trans. Andreas David Mordtmann (Hamburg: Druck und Lithographie des Rauhen Hauses in Horn, 1845); and idem, *The Oriental Geography of Ebn Haukal*, ed. and trans. William Ouseley (London: Wilson for T. Cadell and W. Davies, 1800). Youssouf Kamal, *Monumenta cartographica Africae et Aegypti*, 5 vols. in 16 pts. (Cairo, 1926–51). Fehmi Edhem Karatay, *Topkapı Sarayı Müzesi Kütüphanesi: Arapça Yazmalar Kataloğu*, 3 vols. (Istanbul: Topkapı Sarayı Müzesi, 1962–66). J. H. Kramers, “al-Muḥaddasi,” in *The Encyclopaedia of Islam*, 1st ed., 4 vols. and suppl. (Leiden: E. J. Brill, 1913–38), 3:708–9; idem, “La question Balḥi-Işṭakhrī-Ibn Ḥawqal et l’Atlas de l’Islam,” *Acta Orientalia* 10

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Maps and Versions	Comments on Maps	References ^a
18 maps	No world map or Fars; Iṣṭakhri II	De Goeje, Kramers, Miller (b ₁); Miller attributed to al-Balkhī
Complete set of 21 maps	Iṣṭakhri II	De Goeje, Kramers, Miller (bo); Miller attributed to al-Balkhī
?		Al-Ḥīnī
Has set of maps	Iṣṭakhri I	Al-Ḥīnī
Has maps		Al-Ḥīnī
Blank pages left for maps		Used by Ouseley in his edition; Afshār
20 maps	Arabia missing; Iṣṭakhri I	De Goeje, Kamal (3.2:591–94), Kramers, Miller (g ₁), Moeller, Mordtmann
21 maps	Complete set of Iṣṭakhri I	Kamal (3.2:611–15), Miller (g ₂), Ouseley
21 maps	Mixed set of maps (see text above for details)	Kramers, Miller (ha); Miller attributed to al-Balkhī
Maps?	Iṣṭakhri II	Karatay, Kramers, Ritter, Türkay (p. 12)
Maps	Iṣṭakhri II	Kamal (3.2:600–604), Karatay, Kramers, Ritter, Türkay (p. 8)
Maps	Iṣṭakhri II; Egypt and Kirmān reproduced in Afshār	Afshār, Kamal (3.2:606–10), Türkay (p. 12)
21 maps		Afshār, Türkay (p. 57)
20 maps		Afshār, Kamal (3.2:621–22), Türkay (p. 56)
21 maps	Iṣṭakhri II	Karatay, Kramers, Ritter, Türkay (p. 59)
Maps		Kamal (3.2:605), Karatay, Kramers, Ritter

(1932): 9–30; and idem, “Djughrafiya,” in *Encyclopaedia of Islam*, 1st ed., suppl., 61–73. Konrad Miller, *Mappae arabicae: Arabische Welt- und Länderkarten des 9.–13. Jahrhunderts*, 6 vols. (Stuttgart, 1926–31). Al-Muqaddasi, *Descriptio imperii moslemici*, ed. Michael Jan de Goeje, *Bibliotheca Geographorum Arabicorum*, vol. 3 (Leiden: E. J. Brill, 1877; reprinted 1906, 1967); and idem, *Aḥsan at-taqāsīm fī maʿrifat al-aqālīm*, trans. André Miquel (Damascus: Institut Français de Damas, 1963). Helmut Ritter, Review of Hans von Mzik, *Das Kitāb šūrat al-arḍ des Abū Ġaʿfar Muḥammad ibn Mūsā al-Ḥuwārizmī*, in *Der Islam* 19 (1931): 52–57. Basil William Robinson, *Persian Paintings in the India Office Library* (London: Sotheby Parke Bernet, 1976). Cevdet Türkay, *İstanbul Kütüphanelerinde Osmanlı’lar Devrine Ait Türkçe–Arabça–Farsça Yazma ve Basma Coğrafya Eserleri Bibliyografyası* (Istanbul:

Maarif, 1958).

^bWilhelm Ahlwardt, *Verzeichniss der arabischen Handschriften der Königlichen Bibliothek zu Berlin*, 10 vols. (Berlin, 1887–99; reprinted New York: Georg Olms, 1980–81), 5:362.

^cWilhelm Pertsch, *Die orientalischen Handschriften der Herzoglichen Bibliothek zu Gotha*, pt. 3, *Die arabischen Handschriften*, 5 vols. (Gotha: Perthes, 1878–92), 3:142–44.

^dWilhelm Pertsch, *Die orientalischen Handschriften der Herzoglichen Bibliothek zu Gotha*, pt. 1, *Die persischen Handschriften* (Vienna: Kaiserlich-Königliche Hof- und Staatsdruckerei, 1859), 61–63.

APPENDIX 5.1—*continued*

Location and Number	Date	Details of Text
17 Istanbul, Topkapı Sarayı Müzesi Kütüphanesi, A. 3348	684/1285	Al-Iṣṭakhri text, similar to Gotha, MS. Ar. 1521
18 Istanbul, Topkapı Sarayı Müzesi Kütüphanesi, A. 3349	878/1473	Al-Iṣṭakhri text
19 Leiden, Bibliotheek der Rijksuniversiteit, Cod. Or. 3101 (Cod. 1702 [de Goeje and Juynboll]) ^e	569/1173	Al-Iṣṭakhri text; author is named; similar to Gotha, MS. Ar. 1521, but without 12th-century additions
20 Leningrad, Otdeleniya Instituta Vostokovedeniya Akademii Nauk SSR, C-610	1164/1750	Persian translation of al-Iṣṭakhri
21 Leningrad, Otdeleniya Instituta Vostokovedeniya Akademii Nauk SSR, V-797	14th century	Persian translation of al-Iṣṭakhri
22 London, British Library, MS. Or. 1587	1256/1840	<i>Ashkāl al-‘ālam</i> Persian abridgment of al-Iṣṭakhri attributed to al-Jayhāni in text
23 London, British Library, MS. Or. 5305	930/1523 from earlier manuscript of 878/1473	Arabic text of al-Iṣṭakhri, <i>al-Masālik wa-al-mamālik</i>
24 London, British Library, Add. MS. 23542	1251/1835	<i>Ashkāl al-‘ālam</i> Persian abridgment of al-Iṣṭakhri attributed to al-Jayhāni in text
25 London, India Office Library and Records (British Library), Ethé 707	n.d., early 14th century	<i>Tarjumah-i al-masālik wa-al-mamālik</i> Persian text of al-Iṣṭakhri
26 Meshed, Āstān-i Quds-i Raḡavī, private no. 483, general no. 5623		Persian text of al-Iṣṭakhri, corrupt and incomplete
27 Oxford, Bodleian Library, MS. Ouseley 373	670/1272	Persian text of al-Iṣṭakhri <i>Ṣuwar al-buldān</i>
28 Paris, Bibliothèque Nationale, Cod. Pers. 355	17th century A.D.	Persian text of al-Iṣṭakhri
29 Tehran, Mūzah-i Īrān-i Bāstān (Archaeol. Mus.), MS. 3515	726/1325	Persian version of al-Iṣṭakhri used by Afshār in his printed edition
30 Tehran, Kitāb’khānah-i Majlis, no. 1407		Persian version of al-Iṣṭakhri, copy of Tehran, MS. 3515 above
31 Tehran, Kitāb’khānah-i Malik, MS. 5990		Persian version of al-Iṣṭakhri
32 Tehran, Kitāb’khānah-i Markazi-i Danishgāh-i Tihiran, no. 1331	ca. 700/1300	Fragment from Persian version of al-Iṣṭakhri
33 Tehran, Kitāb’khānah-i Salṭanatī, no. 1867		Persian version of al-Iṣṭakhri
34 Vienna, Österreichische Nationalbibliothek, Cod. Mixt. 344 (MS. Ar. 1271 [Flügel]) ^f	n.d. (10th/16th century by Kamal)	Persian text of al-Iṣṭakhri attributed to Naṣir al-Dīn al-Ṭūsī
IBN ḤAWQAL		
35 Istanbul, Arkeoloji Müzesi Kitaplığı, no. 527.	n.d.	Ibn Ḥawqal

^eMichael Jan de Goeje and Th. W. Juynboll, *Catalogus codicum arabicorum, Bibliothecae Academiae Lugduno-Batavae*, 2d ed. (Leiden: E. J. Brill, 1907), 2:1.

^fGustav Flügel, *Die arabischen, persischen und türkischen Handschriften der Kaiserlich-Königlichen Hofbibliothek zu Wien*, 3 vols. (Vienna: Kaiserlich-Königliche Hof- und Staatsdruckerei, 1865–67), 2:424–25.

Maps and Versions	Comments on Maps	References ^a
21 maps	Iṣṭakhri I	Kamal (3.2:595–99), Karatay, Kramers, Ritter
21 maps		Karatay, Ritter
18 good maps	No Arabia, Egypt, or Syria; Iṣṭakhri I	De Goeje, Kamal (3.2:587–90), Kramers, Miller (le ₁)
Complete set of 21 maps	Iṣṭakhri I	Miller (lg ₁)
Incomplete set, 15 maps	Iṣṭakhri I	Miller (lg ₂)
19 maps	Described in text above, pp. 125–26	Miller attributed to al-Jayhāni
21 maps	Iṣṭakhri II	Kramers
19 maps as atlas in center of manuscript	Mentioned in text above, pp. 125–26	Miller attributed to al-Jayhāni
18 maps	No world map, Arabia, or Persian Sea	Afshār, Miller (lo), Robinson (pp. 10–12; nos. 54–71) Āstān-i Quds-i Razavī catalog (3:356, no. 178)
17 maps	Maps not discussed by Miller	Possibly Ouseley's own text, which he used as base of his edition
18 maps	No Egypt; Iṣṭakhri I	Miller (p ₁)
20 maps given in color by Afshār	Iṣṭakhri II	Afshār Afshār
18 maps		Afshār Afshār
Maps similar to Tehran, MS. 3515 above		Afshār
Complete set of 21 maps	Maps described in text above, p. 125; Egypt and Kirman in Afshār	Afshār, Kamal (3.2:616–20), Miller (w) Found only in Tūrkey (p. 6)

APPENDIX 5.1—*continued*

Location and Number	Date	Details of Text
36 Istanbul, Süleymaniye Kütüphanesi, Ayasofya 2934 *	n.d. (ca. 600/1200 by Kamal)	Ibn Ḥawqal text
37 Istanbul, Süleymaniye Kütüphanesi, Ayasofya 2577	n.d. (ca. 750/1350 by Kamal)	Ibn Ḥawqal. Abridgment of Topkapı Sarayı Müzesi Kütüphanesi, A. 3346; Türkay attributed to al-Balkhi
38 Istanbul, Topkapı Sarayı Müzesi Kütüphanesi, A. 3346	479/1086	Text of Ibn Ḥawqal naming author, original date 362/973
39 Istanbul, Topkapı Sarayı Müzesi Kütüphanesi, A. 3347	n.d. (ca. 700/1300 in Kamal)	Ibn Ḥawqal's text
40 Leiden, Bibliotheek der Rijksuniversiteit, Cod. Or. 314 (Cod. 314 Warn. [de Goeje and Juynboll]) ^g	725/1325?	Ibn Ḥawqal II text
41 Oxford, Bodleian Library, MS. Huntington 538	n.d.	Ibn Ḥawqal II text
42 Paris, Bibliothèque Nationale, MS. Arabe 2214	n.d. (849/1445 in Kamal)	Abridgment of Ibn Ḥawqal, text of Topkapı Sarayı Müzesi Kütüphanesi, A. 3346, including material to 540/1145
43 Paris, Bibliothèque Nationale, MS. Arabe 2215	n.d.	Abridgment of Leiden, MS. Ar. 314, of Ibn Ḥawqal II
AL-MUQADDASĪ		
44 Berlin, Staatsbibliothek Preussischer Kulturbesitz, Orientabteilung, MS. Sprenger 6 (Ar. 6033 [Ahlwardt]) ^h	n.d.; recent copy (ca. 19th century)	Late and bad copy of Berlin, MS. Sprenger 5, see below; reference copy of collector (A. Sprenger)
45 Berlin, Staatsbibliothek Preussischer Kulturbesitz, Orientabteilung, MS. Sprenger 5 (Ar. 6034 [Ahlwardt]) ⁱ	900/1494	Al-Muqaddasī text of 375/985
46 Istanbul, Süleymaniye Kütüphanesi, Ayasofya 2971 bis	658/1260	Al-Muqaddasī text of 375/985
47 Leiden, Bibliotheek der Rijksuniversiteit, Cod. Or. 2063	1255–56/1840	Copy of Istanbul, Süleymaniye Kütüphanesi, Ayasofya 2971 bis
AḤMAD (OR MUḤAMMAD) AL-ṬŪSĪ		
48 Gotha, Forschungsbibliothek, MS. Orient. P. 35 [Pertsch] ^j	n.d.	Persian text described as 'Aḡā'ib al-makhlūqāt attributed to Aḡmad al-Ṭūsī
49 Istanbul, Süleymaniye Kütüphanesi, Hamid-i Evvel Kitaplığı (Murad Molla Kitaplığı), no. 554	555/1160	Same title as above according to Türkay

^gDe Goeje and Juynboll, *Catalogus codicum arabicorum*, 2:1 (note e).

^hAhlwardt, *Verzeichniss der arabischen Handschriften*, 5:362–63 (note b).

ⁱAhlwardt, *Verzeichniss der arabischen Handschriften*, 5:363 (note b).

^jPertsch, *Die persischen Handschriften*, 58–61 (note d).

Maps and Versions	Comments on Maps	References ^a
Maps	Ibn Ḥawqal III	Kamal (3.3:805–9), Karatay, Kramers, Ritter, Türkay (p. 8, with errors)
Maps	Ibn Ḥawqal I	Kamal (3.3:660–63), Karatay, Türkay (p. 9)
21 maps	Ibn Ḥawqal I	Kamal (3.2:655–59), Karatay, Kramers, Ritter
23 maps	Ibn Ḥawqal III	Kamal (3.3:810), Karatay, Kramers, Ritter
No maps		De Goeje, Kramers, Miller
No maps	Map pages left blank	De Goeje, Kramers, Miller
21 maps (including a zone map)	Ibn Ḥawqal III	De Goeje, Kamal (3.3: 811–17), Kramers, Miller (p ₂) attributed to Ibn Saʿīd
No maps		Miller; n.b. MSS. Ar. 2216 and 2217, which could be copies
No maps		Kramers (<i>Enc. of Islam</i>); Miquel on al-Muqaddasī
19 maps	Includes Arabian Desert but no world map, Caspian Sea, or Sijistan	De Goeje, Kamal (3.2:674–77), Miller (b ₂)
15 maps		De Goeje, Kamal (3.2:672–73), Karatay, Miller, Türkay (p. 8)
15 maps		De Goeje, Miller (le ₂)
6 maps	For details see text above, pp. 124–25	Miller (g ₃)
?		Türkay (pp. 1 and 28) only; this manuscript does not seem to have been inspected by anyone else

APPENDIX 5.2
LIST OF PRINTED EDITIONS AND
TRANSLATIONS OF WORKS BY AUTHORS OF
THE BALKHĪ SCHOOL

AL-IṢṬAKHRĪ
Printed Editions

- Liber climatum*. Edited by J. H. Moeller. Gotha: Libraria Beck-
eriana, 1839. With nineteen maps (no world map, and Arabia
borrowed from elsewhere) from Gotha, Forschungsbib-
liothek, MS. Ar. 1521.
- Kitāb al-masālik wa-al-mamālik*. Edited by Michael Jan de
Goeje. *Viae regnorum descriptio ditonnis moslemicae*. Bib-
liotheca Geographorum Arabicorum, vol. 1. Leiden: E. J.
Brill, 1870; reprinted 1927, 1967. No maps.
- al-Masālik wa-al-mamālik*. Edited by Muḥammad Jābir ‘Abd
al-‘Āl al-Ḥinī. Cairo: Wizārat al-Thaqāfah, 1961. With repro-
ductions of manuscript maps (eighteen maps are given
[Iṣṭakhri II], but it is not clear from which manuscript).
- Masālik wa mamālik*. Edited by Iraj Afshār. Tehran: Buṅāhi
Tarjamah va Nashr-i Kitāb, 1961. Twenty colored maps
(Iṣṭakhri II) from Tehran manuscript (Mūzah-i Īrān-i Bāstān,
MS. 3515) used in the text; also Egypt and Kirman in black
and white from the Vienna manuscript (Österreichische
Nationalbibliothek, Cod. Mixt. 344), and Istanbul manu-
script (Süleymaniye Kütüphanesi, Ayasofya 3156).

Translations

- The Oriental Geography of Ebn Haukal*. Translated by William
Ouseley. London: Wilson for T. Cadell and W. Davies, 1800.
No maps (places where maps or blanks appear in the text are
indicated).
- Das Buch der Länder*. Edited and translated by Andreas David
Mordtmann. Hamburg: Druck und Lithographie des Rauhen
Hauses in Horn, 1845. Translation of *Liber climatum* above,
using the same maps.

IBN ḤAWQAL
Printed Editions

- Kitāb ṣūrat al-ard*. Edited by Michael Jan de Goeje. *Opus geo-
graphicum*. Bibliotheca Geographorum Arabicorum, vol. 2.
Leiden: E. J. Brill, 1873. No maps.
- Kitāb ṣūrat al-ard*. Edited by J. H. Kramers. *Opus geographi-
cum*, 2d ed. Bibliotheca Geographorum Arabicorum, vol. 2.
Leiden: E. J. Brill, 1938; reprinted 1967. Line maps of Ibn
Ḥawqal I.

Translation

- Configuration de la terre (Kitab surat al-ard)*. 2 vols. Translated
by J. H. Kramers. Edited by G. Wiet. Paris: G. P. Maisonneuve
et Larose, 1964. Same maps as in *Kitāb ṣūrat al-ard*, ed.
Kramers, above with key maps in every case for identifying
place-names.

AL-MUQADDASĪ
Printed Edition

- Aḥsan al-taqāsīm*. Edited by Michael Jan de Goeje. *Descriptio
imperii moslemici*. Bibliotheca Geographorum Arabicorum,
vol. 3. Leiden: E. J. Brill, 1877; reprinted 1906, 1967. No
maps.

Translations

- Aḥsanu-t-taqāsīm fi maʿrifati-l-aqālim*. Edited and translated
by G. S. A. Ranking and R. F. Azoo. Bibliotheca Indica, n.s.,
nos. 899, 952, 1001, and 1258. Calcutta: Asiatic Society of
Bengal, 1897–1910. First part only. No maps.
- Aḥsan at-taqāsīm fi maʿrifat al-aqālim*. Translated by André
Miquel. Damascus: Institut Français de Damas, 1963. Partial
translation, annotated. Line maps with explanatory diagrams.
Maps from various manuscripts used.