BIBLIOGRAPHICAL ESSAY

Full citations of the sources mentioned here are given in the list of works cited. These essays contain personal suggestions for further reading, not complete scholarly bibliographies. For that, obly accomplished, along with a trilingual lexicon of papermaking terms, see Le Léanne–Bavosas 1998. Abbreviations for frequently cited works are:

DMA Dictionary of the Middle Ages
DoA The Dictionary of Art
EI/2 The Encyclopaedia of Islam, 2d ed.

INTRODUCTION

Paper sidebar. In addition to such encyclopedias and standard works as Hunter 1978 and Tsien 1985, a convenient introduction to the technology of papermaking is Dempsey n.d. For a useful overview of contemporary fine papers, including photographs and samples, see Turner 1998.

There has been no new general history of paper in English since Hunter 1978, which was written in 1947 and is outdated; it barely mentions paper in the Islamic lands. Polastron 1999 is far more global, balanced, and attractive, although it lacks detail. Turner 1998 is a brief introduction to the history of paper and a fine guide to contemporary papers, both handmade and machine-made; it includes samples of many specialty papers. Many of the sources for my research are obscure, but I am delighted to direct the reader to a group of splendid old-fashioned printed reference works including, but not limited to, The Dictionary of Art (DoA), The Dictionary of the Middle Ages (DMA), The Encyclopaedia Britannica, 11th ed., The Encyclopaedia of Islam, 2d ed. (EI/2), The Encyclopaedia Iranica, and The New Grove Dictionary of Music and Musicians, as well as several newfangled on-line (nonprint) sources, including: http://www.paperhistory.org (International Association of Paper Historians) and http://www.ipst.edu/amp/museum_dhunter.htm (Institute of Paper Science and Technology in Atlanta, Ga.).
Lalande's plates on papermaking—one is illustrated in Hunter 1978, fig. 138, and another in Polastron 1999, 120—were actually taken from Simonneau 1698. Lalande's entire text (1761) was reproduced in facsimile with other eighteenth-century works in *Les arts du papier* (1984) and has been translated into English (Atkinson 1975). On the identification of the element chlorine and its bleaching properties, see Hunter 1978, 318; *Encyclopaedia Britannica*, s.v. "Chlorine." The history of the papermaking machine and of making paper from woodpulp is discussed by Hunter (1978, chaps. 12–13). Serious study of European watermarks began with Briquet (1907). Diderot's comments can be found in Diderot and d'Alembert 1966, s.v. "Papeterie." Denton's remarks on the poor quality of Chinese paper and Olearius's remarks on goose quills and reed pens are quoted from Bosch, Carswell and Petherbridge 1981, no. 32. The idea of making paper from jute, Réamur's treatise, and Schaffer's experiments are all discussed in Hunter 1978, 313–330. A convenient introduction to Dunhuang is in *DoA*. For the mailbag of Sogdian letters, see *Encyclopaedia Iranica*, 1985—, s.v. "Ancient Letters." The quotation from Thaalibi is taken from Bosworth 1968, 140. For the slow introduction of printing in the Islamic lands, see *DoA*, s.v. "Islamic art §III.8(ii). Arabian Printing in Europe." For Roberts 1997 on the impact of Islamic civilization on Europe, see the review (Kagan 1997). For the first technical analyses of Islamic paper see Wiesner 1986. For the transition from traditional methods of mental recordkeeping to account books, deeds, and charters, see Clanchy 1993; Febvre and Martin 1990.

**Chapter 1**

**The Invention of Paper**

*Papyrus sidebar.* For the manufacture of papyrus in antiquity, see Parkinson and Quirke 1995; *DoA*, s.v. "Papyrus." For the technical characteristics of Islamic papyri, see Khan 1992 and 1993.

*Parchment sidebar.* For the manufacture of parchment, see *DoA*, s.v. "Parchment." For the conservation of the Declaration of Independence, see Leary 1999.

*Felt sidebar.* For the technical differences between papermaking and feltmaking, see Tsien 1985, 36; *DoA*, s.v. "Felt." Papermakers interleave felts between newly formed sheets in a "post," or stack, before pressing.

For how the invention of writing transformed human society, see Havelock 1986 and Diamond 1997, chap. 12. The earliest known writing system was invented in Mesopotamia; for the writing system and for many of the ideas about writing in this and the following chapters, see Martin 1994. For possible connections between Mesopotamia and China in the prehistoric period, see Barber 1999. The evolution of cuneiform script on soft clay is discussed in Daniels and Bright 1996, 33 ff.

For a good introduction to the subject of papyrus, see Parkinson and Quirke 1995. The terms hieroglyphic and hieratic received their names from Clement of Alexandria (late 2d—early 3d century C.E.); see Daniels et al. 1996, 73 ff. The recent discovery near Luxor of what appears to be alphabetic writing inscribed on limestone suggests that the Egyptians may have used an alphabet somewhat earlier than previously thought, perhaps as early as the middle of the second millennium B.C.E.; see Wilford 1999. The stiffer Greek pen was more liable to puncture the fragile writing surface according to DoA (s.v. "Papyrus").

The transition from roll to codex format and the concurrent introduction of parchment is discussed by several authors, most notably Roberts and Skeat (1983), who suggest that early Christians recorded the Gospels following the Jewish tradition for writing oral law. The various arguments are summarized in Clement 1996 and in DoA, s.v. "Book, §1," where it is argued that Christians adopted the codex to differentiate their writings from the roll-based writings of their contemporaries, including not only the Jews (who wrote their law on leather scrolls) but also the Romans, who wrote their literary works on papyrus scrolls. For the observation that the codex page lent itself to admirably new, nonlinear methods of reading and reference, see O’Donnell 1998 and Pang 1999. The codex in the Chester Beatty Library inscribed with a Greek grammar is discussed in Wouters 1990–91.

The Codex Sinaiticus was discovered in the monastery of St. Catherine on Mount Sinai by Constantine von Tischendorf in the mid-nineteenth century. It was presented in 1855 to Alexander II and remained in St. Petersburg until 1933, when 346 leaves were purchased by the British Museum for £100,000, raised largely by public appeal in Britain and America. Another 43 leaves are in the University Library, Leipzig. Three leaves remain in St. Petersburg, and a few other leaves are still in St. Catherine’s Monastery. The Codex Alexandrinus, now in the British Library (Royal MS 1.D.V–VIII), was sent as a gift by the Patriarch of Constantinople to James I of England in the seventeenth century; see DoA, s.v. "Book, §1: Origins." For the number of animals slaughtered to make the parchment used in a manuscript, see Hills (1992), who estimates, for example, that each parchment copy of Gutenberg’s Bible, consisting of more than 641 leaves, needed the skins of more than 300 sheep.
For Arabic papyri in general, see Khan 1993. The two Arabic papyrus codices are mentioned in Bosch et al. 1981, 24. For the use of old papyri to make pasteboard book covers, see also Karabacek 1991, 100–101. M. Lesley Wilkins is currently completing a doctoral dissertation, "From Papyrus to Paper: Technological Change in Medieval Egypt, 868–969," at Harvard University. Her preliminary findings suggest that Muslims were quicker to adopt paper than Christians were, although Assyrian Christians, who had close ties with Iraq, were quicker than the indigenous Coptic Christians. I am grateful for her generosity in sharing this unpublished information with me.

The spread of sheep raising from Mesopotamia across Central Asia in prehistoric times (Barber 1999) suggests that writing might have followed a similar path. The origins of writing in China are imaginatively presented by Wheatley (1971) and less idiosyncratically by Tsien (1962). A convenient and balanced introduction is DoA, s.v. "China $^\text{XIII}, 3(i)\text{ Manucripts}.")

For the invention of paper and printing in China, see, above all, Tsien 1985. Other convenient introductions are DoA, s.v. "China $^\text{XIII}, 3\text{ Books}" and "18 Paper"; Le Léanec–Bavavés 1998. A recent story in the China Daily (1 June 1999) shows that the invention of paper still stimulates the imagination. In this fanciful version, told by a peasant from the region near Xi'an, river floods washed over the region, tearing everything to pieces, including flax and hemp plants. Fallen trees created fermenting pools for the fibers of hemp and bark; then the fibers were caught on house curtains, which also got caught in the flood. When the flood receded, the natural pulp caught on the curtains dried in the sun, forming sheets of primitive paper.

The painter Mi Fu's soft and misty effects are briefly discussed in DoA, s.v. "Mi (1). Mi Fu," which has a bibliography. For a brief history of the kite in China, see DoA, s.v. "China $^\text{XIII}, 17\text{ Kites}.") The Greeks also claim the credit for inventing kites, which they attribute to the scientist Archytas of Tarentum, of the fifth century B.C.E. The quotation about the Chinese use of toilet paper is from Tsien 1985, 48. For the miniature charm scroll, see also DoA, s.v. "Korea $^\text{VIII}, 2(i)\text{ Woodblock printing}," where it is described as Korean printing.

In addition to Tsien 1985, see Clapperton 1934 for the analysis of fifteen documents dated 406–991 in the British Museum, primarily made of paper mulberry; thirty-two specimens dated 259–960 in the Beijing collection are mostly of hemp. For the use of paper by Silk Road merchants, see Encyclopaedia Iranica, 1985–, s.v. "Ancient Letters"; Ierusalimskaia and Borkopp 1997, 101–2. For the origins of writing in India, see Daniels et al. 1996, 165; Losty...
1982. I thank my friend Robert Hillenbrand for drawing my attention to the
delightful anecdote about the King of the Cockroaches, recounted in Gaček
1986. See also Steingass 1972, 1013b, where the author defines kabikaj as "a kind
of wild parsley, and a deadly poison; the patron angel of reptiles; king of the
cockroaches (in India frequently inscribed on the first page of a book, under
the superstitious belief that, out of respect for the name of their king, the
cockroaches will spare it)." For the introduction of papermaking to Kashmir,

The purported capture of Chinese papermakers by Muslim soldiers is reported
recently, for example, in Diamond 1997, 256. Al-Biruni tells a similar story a
millennium earlier in his Kitab al-Hind (Book of India), as quoted in Porter
1994, 16. Thalalib’s account is accessible in Bosworth 1968. For information
about Chinese forces involved in the battle of Talas, see Barthold 1977, 196–97.
Du Huan is discussed in Tsién 1985, 297. Al-Nadim’s statement about Chinese
craftsmen making paper in Khurasan is in al-Nadim 1970, 39–40. For the
transition from bast fibers to rags, see Karabacek 1892, xx; Hoernle 1903, 672.

Chapter 2
THE SPREAD OF PAPERMAKING ACROSS
THE ISLAMIC LANDS

Mills and Milling sidebar. For the cultivation of rice in the Islamic lands, see EI/2, s.v.
"Ruzz," and Wright 1999, 587ff. Al-Biruni’s text is quoted in al-Hassan and
Hill 1992, 243. There is still no specialized study devoted to the development
of mills in the Islamic lands; a general introduction is provided in Hill 1993.

Molds sidebar. For the development of different types of papermaking screens in
China, see Tsién 1985, 64–68.

Body Linen sidebar. For the history of the flax breaker and the development of
body linen, see DMA, s.v. "Linen." On the spinning wheel, see White 1967.

Zigzags sidebar. For a discussion, with an extensive bibliography, of the zigzag marks
seen on some early Spanish papers, see Le Léannec-Bavéas 1998, 68–71.

Watermarks sidebar. European watermarked paper, where the mark is really a form of
trademark, should be distinguished from Chinese watermarked paper, decoratively
striped with water during the forming of the sheet. Such paper—also known as "overflowing wave paper"—first appeared in the second half of the first millen-
nium. The oldest surviving Chinese watermarked paper therefore predates Euro-
Pean watermarked paper by several centuries, but the techniques have very different purposes. On Chinese watermarks, see DoA, s.v. "China §XIII,18(iii): Paper: treatment and decoration." On European ones, see Briquet 1907.

Paper was entirely unknown to the Sasanian and early Byzantine empires, but Watson (1983, 552 n. c) states that under the Sasanians paper was "rare and reserved for official use." I have found no corroboration for this assertion. For copying the Avesta on skins, see Porter 1994, 13. The rather confused account of the introduction of papermaking (Bosch et al. 1981, 26) in which it is stated that the Arabs first encountered paper in 650 C.E. is not to be trusted. For the derivation of the word kaghaz from the Chinese word guzhì, see von Gabain 1983, 622.

For the Barmakids, see EI/2, s.v. "Baramika." Franz Rosenthal, the translator of Ibn Khaldun into English, was cautious about ascribing the official introduction of paper in the government offices to the Barmakids, for he considered it to be part of the legend woven around the family by later historians. Nevertheless, this may be one of the cases where the legend is true. See Ibn Khaldûn 1967, 2:392. For the many types and sizes of Arab paper that can only rarely be identified or localized, see EI/2, s.v. "Kaghan." For the encyclopedist al-Nadim, see Pedersen 1984, 67, in addition to al-Nadim 1970.

The ninth-century letter from the members of the Babylonian Jewish academy to their colleagues in Fustat, Egypt, is Taylor-Schechter Collection 12.851 in the Cambridge University Library; see Reif 1988; Gil 1997, 2:61–62. I thank Stefan Reif for these references. For Ibn Hanbal’s writing preferences, see EI/2, s.v. "Raqq"; for those of the Copts, see Wilkins 2001. For the use of paper by Armenians and Georgians, see Le Léannec-Bavélas 1998, 80, 97. For Hilal al-Sabi, see Hilâl al-Šâbi’ 1977, 103; Sanders 1994, 24. For manuscripts of the Maqamat, including Paris, Bibliothèque Nationale, MS arabe 5847, and St. Petersburg, Academy of Sciences, S23, see Grabar 1984, nos. 3 and 4. Al-Qalqashandi is quoted in Quatremère 1968, n. 214.

I was able to examine the magnificent Ahmad al-Suhrawardi page in the collection of the Metropolitan Museum of Art with the gracious help of Marjorie Shelley and Sarah Bertalan of the paper conservation laboratory. For a technical analysis of the contemporary Rashid al-Din manuscript, see Baker 1991. For the sizes of the sheets, see Karabacek 1991, 55; Bosch et al. 1981, 31; James 1988, 235, no. 40. Tsien (1985) does not specifically mention paper formats, although some appear to be large. The counterbalance mechanism is illustrated in Polastron 1999, 45. Yaqu’s manuscript is illustrated in Gulchinî, 1375, 50. The movement of artisans from Baghdad to Damascus and Cairo is discussed in James 1988, cat. nos. 28–34. In addition to the manuscript in the
Nour Collection, for which see James 1992, several manuscripts on Italian paper in the Bibliothèque Nationale in Paris are mentioned in Humbert 1998, 2; these are MS arabe 2291, dated 1356; Suppl. Persan 113, copied in 1352 in the Crimea, then a Genoese colony; and Armenian 121, copied in 1386, also in the Crimea.

For papermaking in Raqqa and Manbij, see EI/2. For the Byzantine sources of Arab paper, see Atsalos 1977, 85. Wiesner’s analyses have been translated and republished in Wiesner 1986. For the absence of papermills in Aleppo, see Elisséeff 1967, 260, 868–89. For the export of Syrian paper to Egypt and Ibn al-Imam’s trademark, see Goitein, 1967–94, 1:81 and 410 n. 2; Goitein, 1973, 90 n. 5. For the protocollon, see Khan 1993, 17.

For the earliest Greek manuscript on "Arab" paper, Vatican Gr. 2200, see Perria 1983–84. The Thousand Nights fragment was first published in Abbott 1949; see also Bosch et al. 1981, no. 97. For the discovery of the earliest Arabic paper manuscript, see Beit-Arié 1996. The manuscript of Abu Ubayd’s work is dated by the colophon on folio 241b to Dhu al-Qada 252/November–December 866. Voorhoeve (1980, before p. 1), however, is very cautious: "Apparently the earliest dated paper codex in Europe." See also Felix 1952; Levisnus Warner, 1970, 75–76. The script of the colophon is not representative of the script in the whole codex, about two-fifths of which is lost. A more representative text page is reproduced as the last illustration in the Levisnus Warner exhibition catalogue. I am most grateful to J. J. Witkam for supplying information about the condition of this manuscript and its paper. For other cases of delamination of paper, see Don Baker in Karabacek 1991, 89 (note to p. 53).

Bird paper is described in Karabacek 1991, 65, 69; al-Qalqashandi n.d., 6:192. For the postal service, see al-Maqrízī 1853, 2:211. For not recycling paper inscribed with sacred texts or names, see Le Léannec–Bavavéas 1998, 75.

For textual sources relating to Iranian paper, including the quotations from Manuchiri, Mafarrukhi, and Jamal-i Yazdi, see Afshar 1995; Porter 1994, 14–28. For the oldest known paper manuscript in the Persian language, see Duda 1983, 51–52 and ills. 1 and 2. The Chinese wrote on only one side of the paper, according to Rashid al-Din Faḍlallah Ḥamadānī 1389/1989, 37, 87).

For the Arabic copy of the Compendium of Chronicles, see Blair 1995; Baker 1991. The pages of the two Persian versions of the Compendium in Topkapi Palace Library (Hazine 1653 and 1654) measure 542 by 377 millimeters and 557 by 388 millimeters, respectively. The copy of Rashid al-Din’s theological works is in Paris (Bibliothèque Nationale, MS arabe 2324). The anthology of poetry associated with the Rashidiyya scriptorium is in the India Office Library, Lon-
don (Ethé 903, 911, 913, and 1028); see Robinson 1976, nos. 1–53; Blair 1996. The pages now measure 385 by 275 millimeters, so they were probably trimmed. The written area is the same size (365 by 255 millimeters) as that in the Arabic and first Persian copies of the Compendium (Hazine 1653). The autograph copy of Rashid al-Din’s endowment deed now measures 340 by 270 millimeters, with a written surface of 290 by 230 millimeters, but the original sheets must have been somewhat larger, according to Afshar and Minovi (1350/1972), who published the facsimile edition.

For the Great Mongol Shahnama, see Grabar and Blair 1980. Illustrated manuscripts made in Shiraz are discussed by Wright (1997, 163). I am most grateful to her for sharing this unpublished information with me. For metal-workers and potters brought to Samarkand by Timur, see Komaroff 1992; Golombek, Mason, and Bailey 1996. The sheet of Chinese paper some 17 meters long is mentioned in Tsien 1985, 48.

The translation of Qadi Ahmad’s anecdote about Umar-i Aqta is adapted from Soudavar 1992, 59. Simi Nishapuri’s remarks are translated in Thackston 1990. For the classical moment in the Persian arts of the book, see Lentz and Lowry 1989. For papers of varying thickness in a single volume, see Wright 1997, 168–70. Sultan-Ali Mashhadi’s poem is translated in Minorsky 1959, 114. For the use of Chinese paper, see Minorsky 1959, 113, and especially Blair 2000. For the document bearing the name of Husayn Mirza see Soucek and Çağman 1995, 200–201. For Shahrulkh’s manuscript of Attar on Chinese paper, see Lentz et al. 1989, cats. 39, 40. For the copy of Mir-Haydar Khwarazmi’s Makbzan al-’asr, see Soucek 1988. For gold sprinkling, see Porter 1994, 49–51; for Chinese marbling, see Tsien 1985, 94; and for Iranian marbling, see Porter 1994, 45–49. For the spread of the technique to Europe, see Wolfe 1991. The Safavid work on administration is mentioned in Porter 1994, 17; for paper in India, see Premchand 1995. For a technical examination of the paper from Persian manuscripts, see Snyder 1988.

For the travelers to Egypt see al-Muqaddasi 167, 32 ff., 193 ff., 201 ff.; Pedersen 1984, 62. The paper and textile finds during the 1980 season in Fustat were published in Kubiak and Scanlon 1989. For the papyrus and parchment documents found in the Fayyum in 1877–78, see Karabacek 1892. For early fragments brought from Syria to Egypt, see—in addition to Abbott 1949—Hoernle 1903. For the nature and discovery of the Geniza fragments, see Goitein, 1967–94, 1:1–28. For the Freer Geniza collection, see Gottheil and Worrell 1927. The Taylor-Schechter collection is immense; convenient access to a selection of the material is provided in Cambridge University Library 1900.

Minute fragments of woven cloth are visible to the naked eye in the sheet
TS 16.203 in the Cambridge University Library. Papermills were confined to Fustat according to al-Maqritā 1853, 1:366; note that Goitein (1967–94, 1:81 and n. 2) refers to him as Abu Said. For the decline of grain exports and the rise of flax as the primary Egyptian export, see Mayerson 1997. Abd al-Latif’s story about graverobbers is told in Lombard 1978, 205. The Maine paper-maker who used mummy wrappings to make coarse brown paper is mentioned in Hunter 1978, 382. For the use and reuse of small pieces of paper, see Goitein, 1967–94, 1:241. An example of a page made up of the full width of the original sheet is Cambridge University Library, TS 32.2; examples pasted up from smaller pieces of paper are TS 28.14, 28.15, and 28.2. For poor-quality paper and for writing a word across a join, see Goitein, 1967–94, 2:232–33; the comparable use of a seal on a document of the Mongol ruler Gayhatu is illustrated in Soudavar 1992. The effects of gall-based (as opposed to carbon) ink can be seen on Cambridge University Library, TS 16–37, a document of 995. For the Geniza correspondence of Ben Yiju, see Goitein, 1973, 186 ff.); and especially Ghosh 1993, an utterly magical book.

Surviving decrees of the Fatimid period were published in Stern 1964. The six Egyptian letters in the Aragonese archives are mentioned in Valls i Subirà 1970, 11. Writing materials remained relatively precious, according to Le Léannec-Bavaves 1998, 133.


For European paper sent to Tripoli and other Syrian cities, see Ashtor 1977, 270. The almost-complete pack of hand-painted cards was published in Mayer 1971. For Cairo as a redistribution point for the export of European paper and the decline of bookselling, see Raymond 1973–74, 130, 343.

The oldest surviving Maghribi Koran manuscript on paper was sold at Christie’s in London, on 9 October 1990 (pl. 46 in the sales catalogue). It is illustrated in Khemir 1992, 177. For Ibn Badis’s account, see Levy 1962. For Fez paper shipped to Majorca and Aragon, see Burns 1985, 174–76; for Italian paper exported to Tunis, as well as for the sheet bearing both the watermark and a zigzag, see Valls i Subirà 1970, 11–12. For Fibonacci in Tunis, see
Abulafia 1994, 16. The decision recorded by the Fez jurist al-Wansharisi is summarized in Lagardière 1995, 42. I am most grateful to David S. Powers of Cornell University for bringing this reference to my attention.

Pedersen (1984, 62) quotes Ibn Abd al-Rabbih on the different kinds of reed pens most suitable for writing on parchment, papyrus, and paper. For the only manuscript to survive from al-Hakam’s library, see Lévi-Provençal 1934. For the Mozarabic Breviary and Missal in Silos, as well as for the papermill in Ruzafa, see Valls i Subirà 1970, 5, 9. Idra 168 (1968, 233) praised Shatiba for its paper. For the market inspector and papermakers, see Lévi-Provençal, 1947, 107 (Arabic text, 150). For sheets of Andalusian or Toledan paper sent to Egypt, see Goitein, 1967–94, 5:288 n. 72. 5:457; Constable 1994, 195–96. Colored nasri papers are discussed in Valls i Subirà 1970, 12. The only surviving Spanish–Arabic manuscripts are discussed in James 1992, 212. For the romance of Bayad and Riyad (Vatican Ar. 368.), see Dodds 1992, 312–13; Nykl 1941.

Chapter 3
Paper and Books


For yet another negative assessment of Islamic civilization’s failure to adopt printing, see Landes 1998, 401–2. For the size of Chinese editions, see Tsien 1985, 369 ff. The estimate of extant Arabic manuscripts was made by Gaček (1983, 175). For the diversity of early Islamic society, see Daftary 1998, 21–22. For discussion of the transition from a culture based on memory and gesture to one grounded in the written record, see Havelock 1986 and Clanchy 1993.

The Koran and Oral Culture

A convenient introduction to the early history of Arabic is Beeston et al. 1983, 1–22. Graham 1993 is an eloquent discussion of orality and scripture in the Islamic world. The reliance of the Egyptian standard edition of the Koranic text on oral transmission is discussed in El/2, s.v. “Kur’an.” For the opposition to writing down Koranic cantillation, see Sadie 1980, s.v. “Islamic religious music.” The anecdote about the young caliph al-Mamun is reported in Pedersen 1984, 28.

As we can judge from the contracts from medieval Egypt, even oral Arabic had to be “explained” to the parties, indicating a lack of arabization after more
than three hundred years of Arabic linguistic dominance. The contracts also confirm the lack of arabization and conversion in Egypt suggested by both contemporaries and modern researchers. See, for example, Ibn Hawqāl 1967, 161; Frantz-Murphy 1985, 37.

For Fatima Mernissi’s account of learning to read in a traditional Moroccan household, see Mernissi 1995, 96.

For memorization of the Koran as a prerequisite for further study, see Graham 1993, 105–6. For information about learning the hadith, see Beeston et al. 1983, chap. 10, and especially Makdisi 1981, 99–105, where the amusing anecdotes about al-Ghazali and Ibn Durayd are reported. On the complex question of when the hadith were written down, see "The Writing Down of the Hadith" in Goldziher 1971, 2:181–88. On the continued primacy of oral learning, see Bulliet 1994, 15. The quotation is from Rosenthal’s translation of Ibn Khaldūn 1967, 2:393–94. On the manipulation of the written word in Islamic law, see Powers 1993, 390. On the role of written documents in Islamic law, see Tyan 1959; Wakin 1972; Cook 1997. For the indispensability of written documents, see Schacht 1966, 82, 193.

For the Koran as a written document, see Pedersen 1984, 57. For the role of documents in replacing rather than supporting memory, see Graham 1993, 15. For the various views on the early history of the written text of the Koran, see EL/2, s.v. “Kur’ān.” For the dating of the earliest manuscripts of the Koran, see, among others, Whelan 1990; Déroche 1983, 1992. Arabic scripts on private and commercial documents are analyzed in Khan 1993.

Some scholars believe that vertical-format ("portrait") Koran manuscripts copied in a distinctive script that slopes to the right can be dated to the early eighth century because they have identified the script as the hijāzī script mentioned in texts. Nevertheless, this identification is based on several false assumptions. See Déroche (1987–89; 1983, 14) and especially Whelan (in press) for a convincing reappraisal of these manuscripts. Only one "secular" manuscript—an as-yet-unidentified genealogical work—is known to have been copied in Kufic script; see Whelan 1990, 122 and n. 94.

The late Estelle Whelan, who was working on early Arabic calligraphy at her untimely death in 1997, proposed calling the new script warraq script, in homage to the stationers and copyists who promoted its use. She had not fully developed her elegant hypothesis about the relation of secretaries and copyists to the emergence of new calligraphic styles, but see Whelan, in press. For a related approach, we await the next publication of Blair (2002), who calls it "broken cursive." On the responsibilities of the secretary, see EL/2, s.v. "Katib."

For the portion of the manuscript by Ali ibn Shadan al-Razi in Istanbul
University Library, A. 6778, see *Catalogue of the 1931 Exhibition*, 1931, 70, no. 126D. For the portion in the Chester Beatty library, see Arberry 1967, 13, no. 35; James 1980, 27, no. 13. Most of the four-volume anonymous manuscript copied in Isfahan in 993 is in the Museum of Turkish and Islamic Art, Istanbul, although leaves have been sold at auction, and one leaf is in the Nour Collection, London—for which see Déroche 1992, 154. Another is in the Metropolitan Museum of Art. For the 897 Gospel manuscript at Mount Sinai, which was copied on parchment in the new script, see Atiya 1955, 4, no. 72, and pl. VI. For an explanation of the different types of ink, see *DoA*, s.v. "Ink." Recipes are given in Levy 1962. Two late and particularly fancy examples of broken cursive are the dispersed "Qarmathian" Koran (James 1980, no. 15) and the *Kitab al-Diryag* (Book of the Theriac) dated 1198–99 (Paris, Bibliothèque Nationale, MS arabe 2964), for which see Farès 1953. Broken cursive continued to be used for headings in manuscripts into the fourteenth and fifteenth centuries.

**An Explosion of Books**

For books in general, see *El/2*, s.v. "Kitab." For the process of conversion, see Bulliet 1979; these dates mark the beginning of Bulliet's "late majority" phase. For Islamic law, see Schacht 1966, 44. For the rise of historical writing, see Duri 1983, 22; Cahen 1990, 207. For new types of secular literature, see Irwin 1994, 78; Wright 1999. For cookbooks, see Rodinson 1949–50, 97; al-Nadim 1970, 742–43. About the authors of cookbooks, see Mez 1937, 394. The recipe for apricot stew was first translated in Arberry, 1939, 40, and also appears in Bloom and Blair 2000. For a fuller discussion of the composition and transmission of Arabic books, see Pedersen 1984, chap. 3. For the translation of Greek materials into Arabic, see Cahen 1990, 483, and the more recent Gutas 1998. Rashid al-Din's instructions to his copyists are translated in Thackston 1995, 114. The interpretation of the Dioscorides frontispiece was proposed by Ettinghausen (1962, 67–70). The small but lavish copy of the Koran made for the Zangid ruler of Mosul was published in James 1992, no. 7, and the Artuqid school of painting was delineated in Ward 1985.

**Collections and Libraries**

For estimates of the size of the library in Alexandria, see Wasserstein 1990–91. According to Martin (1994, 56), the Ptolemaic library in Alexandria contained 490,000 scrolls and the library of the Serapeum 42,800. For the size of medieval libraries, see *DMA*, 1982–89, s.v. "Libraries," 7:562; Manguel 1997, 189. The library in Paris is discussed in Martin 1994, 154. For al-Nadim and the *Fihrist*, see Dodge's introduction to al-Nadim 1970. For libraries in the Arab lands, see Eche 1967. At this time the dirham, or silver coin, was nominally worth about one-thirteenth of a dinar, or gold coin.

The seventh-century Umayyad prince Khalid ibn Yazid is sometimes said
to have devoted his life to the study of Greek sciences, particularly alchemy and medicine, but this is legend based on a mistranslation of the sources. See El/2, s.v. "Khalid b. Yazid b. Mu‘awiya." For the caliphal library in Baghdad, see Young, Latham, and Serjeant 1990, chap. 28; El/2, s.v. "Bayt al-Hikma," "Dar al-‘Ilm," and "Maktaba." For the anecdote about Ibn al-Bawwab and Adud al-Dawla’s library in Shiraz, see Pedersen 1984, 86, 123; as well as Rice 1955. For al-Hakam’s library in Córdoba, see Wasserstein 1990–91. The only surviving manuscript known to come from the library, written in broken cursive script, is the Mukhtasar of Abu Musab ibn Abi Bakr al-Zurhi, made by Husayn ibn Yusuf for al-Hakam in 970; see Lévi-Provençal 1934.

For the Fatimid libraries, see Walker 1997; El/2, s.v. "Dar al-‘Ilm." The basic source is al-Maqrizi 1853, 1:409. The two manuscripts to survive from the Fatimid library are (1) a unique copy of Abu Ali al-Hajari’s al-Tal’iqat wa‘l-nawadir, which is divided between the National Library in Cairo and the library of the Asiatic Society of Bengal in Calcutta, and (2) an autograph copy by the noted grammarian Ishaq al-Najayrami of his genealogical work, Kitab hadhf min nasab Quraysh an Mu’arrarj b. Amr al-Sadusi (Abridgement of the Genealogy of the Quraysh by Muarraj b. Amr al-Sadusi). The first manuscript was written for al-Afdal’s library in the mid-twelfth century, but a few years later the book was incorporated into the library of the caliph al-Faiz. The second manuscript, now in the Public Library of Rabat, Morocco, was copied before 966 in Baghdad, so it is therefore not technically a Fatimid manuscript. It bears an inscription stating that it was li‘l-hizana al-saida al-Zafiryya, that is, belonging to the library of the Fatimid caliph al-Zafir, father of al-Faiz. For both these manuscripts, see Fu‘ad Sayyid 1998, 82–83.

For the transformation from oral to scribal culture, see Graham 1993, 15–17; Clanchy 1993. For a provocative discussion of the changing relationships between religious authority and society in this period, see Bulliet 1994, 21–22. For a description of Islamic education as it evolved under the Mamluks of Egypt, see Berkey 1992.

Chapter 4

Paper and systems of notation

A convenient introduction to Arab mathematics and other subjects discussed in this chapter is Hill 1993. For the different systems of counting used in the Islamic lands, see El/2, s.vv. "Abdjad," "Hisab al-Djummal," and "Ta’rikh III"; see also MacDonald 1992. For the history of Greek and Roman numerals see Daniels et al. 1996, 804. For an extraordinarily clear explanation of how the abacus was used to multiply and divide Roman numerals, see DMA, 1982–89, s.v. "Mathematics." For daulomony in the Muslim world, see El/2, s.v. "Hisab al-’akd." Much of my discussion of arithmetic in the Muslim world is based on the illuminating article by A. I. Sabra (El/2, s.v. "Ilm al-Hisab"). For the origins of Hindu–Arabic numerals, see Saidan 1996, 333–34. For the origins of the word algorithm, see El/2, s.v. "Algorithmus." For al-Nadim and al-Khwarizmi, see DMA, 1982–89, s.v. "Arabic Numerals." For the history of the pencil, see Petroski 1992. On the introduction of Arabic numerals to Byzantium, see DMA, 1982–89, s.v. "Arabic Numerals." On the use of Arabic numerals on casting counters, see El/2, s.v. "Hisab al-Ghubar." On Italian merchants and Arabic numerals see Crosby 1997. On paper and ink replacing casting counters in Italian banks, see Rowland 1994; Barnard 1916; Crosby 1997.


Much of the information in this section is based on the excellent articles in Harley and Woodward 1992, as well as the introduction by Karamustafa (1992). See King and Lorch 1992 on qibla mapping and Savage-Smith 1992 on celestial mapping. The Zodiac of Quasyr Amra is discussed in Saxl 1969; Beer 1969. The Bodleian al-Sufi manuscript was published in Wellesz 1959. Al-Biruni’s account about al-Sufi tracing a globe is recounted in Savage-Smith 1992, 55. The earliest Islamic maps are discussed in Tibbetts 1992. For Masudi’s account of al-Mamun’s globe, see Mas’udi 1964, 33; the text is trans-
lated in Tibbetts 1992, 95. For the orientation of Islamic maps, see Tibbetts 1992, 105. The Fatimid world map is described in al-Maqrizi 1853, I:417, lines 12 ff.; cf. also Combe, Sauvaget, and Wiet 1931—, 4:186, no. 1654. For the "routes and kingdoms" school of mapmakers, see Tibbetts 1992, 105; Mas'udi 1964. For European mappae mundi, see DoA, s.v. "Map 2. Western world maps." Idrisi's maps are discussed in Ahmad 1992; the earliest to survive is Paris, Bibliothèque Nationale, MS arabe 2221, fols. 3v–4r. For Chinese maps, see Steinhardt, 1997, 1998.


For genealogies and family trees, see El/2, s.vv. "Hamdani" and "Nasab." For the manuscript of Rashid al-Din, see Richard 1997, 44. The genealogical chart covers folios 265b to 277a. For other charts illustrated with schematic portraits, see Blair 1995, 110 n. 45. For diagrams in Furusiyya manuscripts, see El/2, s.v. "Furusiyya"; Hillenbrand 1999, 518–21. For the al-Aqsarai manuscript in the Chester Beatty Library, Dublin, Add. MS. 1, see Atil 1981, 262.

**Chapter 5**

**Paper and the Visual Arts**

Some of the material in this chapter has already appeared in a different form in Bloom 1993 and Bloom 2000. The literature on the subject of Islamic aniconism, or avoidance of images, is vast. For a summary, see Allen 1988, chap. 2. A relatively small number of images with ostensibly "religious" subjects, such as Muhammad's mystical night journey, were produced at various times and places, but most, if not all, of these should be understood as illustrations to historical and poetic works, not as works of devotional art. For illustrated Islamic manuscripts before 1350, see Holter 1937, and the supplement, Buchthal, Kurz, and Ettinghausen 1940. For the Dioscorides manuscript, see Weitzmann 1971, 252, and pl. xxxiv, figs. 8 and 11; Grube 1959, 169, 175, fig. 5.

The interpretation of the Fustat fragments is fraught with difficulties. On the oldest illustrated Arabic manuscript, see Rice 1959. Dealers have been known not only to forge but also to "embellish" or "improve" genuine medieval pages and drawings to increase their worth on the art market by pro-
viding them with identifying texts or illustrations. It is extremely risky to use such examples as the Kab al-Ahbar leaf illustrated with a lion as conclusive evidence for early book illustration, as does Hoffman (2000). For a more balanced assessment, see Stefano Carboni in *Trésors fatimides du Caire*, 1998, 99. The purported frontispiece to the volume of Umayyad poems was published in Wiet 1944; Grube 1976, 33. Another well-known drawing of two warriors, most recently published in *Trésors fatimides du Caire* (1998, no. 22), is equally suspicious, particularly since some authors describe it as an ink drawing, whereas others claim it to be a block print. As far as I can determine, these works all appeared on the Cairo art market in the 1930s and 1940s, at the same time as a group of Persian silks purporting to date from the "Buyid" period (Wiet 1948). The textiles, which have been shown to be modern forgeries, were initially authenticated by using the securely dated texts and poetry inscribed on them; see Blair, Bloom, and Wardwell 1993. Although I do not believe in guilt by association, the Fustat paper fragments have been inscribed with texts in much the same way, and it remains hazardous to base much on them until they have been scientifically examined.

The passage from Masudi is quoted in Rice 1959, as is the passage from al-Nadim (al-Nadim 1970, 832). For Mansur al-Suri, see Hillenbrand 1991, 161 n. 48, with reference to Mohiuddin 1981. For illustrated *Kalila and Dimna* manuscripts, see Grube 1990–91. Ibn al-Muqaffa's introduction has been quoted many times, including in Rice 1959, 209. For the Central Asian sources of the earliest *Kalila and Dimna* illustrations, see Raby 1987–88.

The purported function of the Fustat fragments is stated in Grube 1976, 26–27. For the early inscribed pottery of Khurasan and Transoxiana, see Volov (Golombek) 1966; Wilkinson 1973. For examples of textiles woven to the identical pattern on different looms, see Blair, Bloom, and Wardwell 1993.

The use of architectural plans in early Islamic architecture, and specifically at the Dome of the Rock, is discussed in Creswell 1969, 101ff., 109–11, and specifically in Bloom 1993, which takes quite a different approach. For plans of the Zaytuna mosque in Tunis, see Creswell 1989, 386–87; Golvin 1970–, 3:156–60. For additional references to architectural "plans," see Necipoğlu 1995, 3–4. The passage from al-Masudi was quoted recently in Matthews and Daskalakis Matthews 1997. For the Great Mosque of Taza, see Terrasse 1943. The illogical extension of the practice of relying more on what plans show than on the three-dimensional experience of a building can be seen in Ewert and Wisshak 1981, 127. The authors believe that the concentric octagons in the plan of the Dome of the Rock were repeated consciously in the columnation of the Great Mosque of Kairouan, although these "octagons" are apparent only in highly schematized plans of the mosque's
columns. For contemporary manuals of calligraphy, see Blair 2002. For differences between theory and practice, see Rogers 1973–74.

Arabic copies of al-Buzajani’s text include one made in the fifteenth century for the library of Ulugh Beg in Samarqand (Istanbul, Süleymaniye Library, MS Ayasofya 2753) and one in Milan (Ambrosiana, Ar. 68). Later Persian translations made from the Arabic manuscripts include Paris, Bibliothèque Nationale, MS persane 169, and Tehran, University Library, MS 2876; see Sezgin 1974, 324. For an entirely different interpretation of Abu’l-Wafa’s role, see Necipoğlu 1995, which is to be used with caution, according to Saliba 1999. On different types or degrees of literacy, see Ettinghausen 1974. For the role of belles lettres in Arabic culture, see, for example, EI/2, s.v. “Adab.”

The literature on the development of Islamic painting, particularly illustrated manuscripts, is also vast. For a summary, see, for example, Raby 1987–88. For the view that illustrated manuscripts were produced in early times but have not survived, see Ettinghausen 1942; Grube 1976; and, most recently, Hoffman 2000, which, like Weitzmann 1971, approaches the Islamic book as an outgrowth of late antiquity. For the illustrated book as a product of the emergence of an urban bourgeoisie, see Grabar 1970. In the absence of a general history of the illustrated book in this period, see, for example, Blair and Bloom 1994, passim, and DoA, s.v. “Islamic art, III, 4(v) Painted book illustration c. 1250–c. 1500.”

For the romance of Bayad and Riyad, see Dodds 1992, no. 82; see the full publication in Nykl 1941. Ravandi’s account is discussed in Blair 1995, 55–56. Porter (1994) has gathered some other references to illustrated books in contemporary texts. Literary evidence for illustrated Shahnama manuscripts produced for the Qarakhanid court in the twelfth century is found in Melikian-Chirvani 1988, 43–45. For the romance of Warqa and Gulshah, see Melikian-Chirvani 1970. Illustrated copies of the Magamat are discussed in Grabar 1984.

For the origins and development of the illustrated book in fourteenth-century Iran, see Blair 1993. For the “Small” Shahnama manuscripts, see Simpson 1979. For an attempt to unravel the sizes of paper used in Persian (unillustrated) manuscripts, see Humbert 1998. The dimensions given for the textblock of the Warqa and Gulshah manuscript in Ateş 1961 are inaccurate; see Melikian-Chirvani 1970; Çağman and Tanindir 1986, nos. 21–24. For the Great Mongol Shahnama, see Grabar and Blair 1980. The Istanbul albums are incompletely published. For two of the albums with some fourteenth-century paintings, see Roxburgh 1996. Illustrations from a dismembered fourteenth-century Kalila and Dimna manuscript have been published by Cowen (1989),
although her conclusions are not universally accepted. For the Berlin albums, see Ipşiroğlu 1964. For thirteenth- and fourteenth-century Koran manuscripts, see James 1988.

For the classic formulation of the three styles of Kashan luster pottery, see Watson 1985. The Kashan style is exhaustively discussed in Guest and Ettinghausen 1961. A somewhat different explanation of the relations between ceramics and book painting in this period is offered in Hillenbrand 1994. For Abu‘l-Qasim, see, in addition to Watson 1985, Blair 1986b; Allan 1973. Dust Muhammad’s preface is translated in Thackston 1989, 345. On the repetition of figures and compositions, see Titley 1979; Adamova 1992. For the Iskandar Sultan anthology, see Gray 1979, 134. A brief history of pricked drawings is in DoA, s.v. “Pouncing.” Iznik vessels and tiles, as well as a pricked drawing, are published in Atasoy and Raby 1989, 56–57. For the use of paper patterns in the late sixteenth century, see Necipoğlu 1990, 155. For metalwork designs and manuscripts in fourteenth-century Iran, see Komaroff 1994. For decorators and illuminators working from common sources, see Sims 1988.

For a judicious selection of fifteenth-century drawings on paper, see Lentz and Lowry 1989, chap. 3. Baysunghur’s work order to Jafar b. Ali Tabrizi is translated in Thackston 1989, 323–27. Several examples showing the transfer of motifs from one medium to another are exhibited in Rogers 1983. The unfinished inscription at the Blue Mosque in Tabriz is discussed in Rogers 1989. The small plaster plaque discovered in Tākh-i Sulayman is published in Harb 1978. For Rukn al-Din’s funerary complex in Yazd, see Jafari 1938/1960, 88–89; Blair 1986a, 33, 92 n. 10; Afsihar 1979. For Iranian architecture of the fourteenth century, see Wilber 1969; for that of the fifteenth century, see Golombek and Wilber 1988. For the oldest surviving architectural drawings as well as the Topkapi Scroll, see Necipoğlu 1995. For itinerant artisans, see Meinecke 1992, 130–52; 1996. For the new “professional” approach to design in Timurid architecture, see Golombek and Wilber 1988, chap. 7.

Several drawings by the Italian architect Baldassare Peruzzi are on squared paper, but most fifteenth-century Italian architectural drawings are not. I thank Myra Nan Rosenfeld, senior research curator at the Centre Canadien d’Architecture, for this information. For Italian architectural drawings, see Frommel 1997. For the proportional systems used in Timurid architecture, see Golombek and Wilber 1988, chap. 7. For an example of a designer’s ink drawings and an artisan’s dependent realizations, see the stamped bookbindings of the mid-fifteenth century discussed in Raby and Tanindri 1993, 15–17. For a brilliant and concise assessment of Timurid literature, see Wheeler M. Thackston’s entry in EL2 (s.v. “Timurids 2. Literature”). The work of Qivam al-Din is discussed in Golombek and Wilber 1988, 189–93; Wilber 1987.
Sinan is the subject of many studies, including Kuran 1987. For Bihzad, see Priscilla P. Soucek in DoA (s.v. "Bihzad"); see also the illustrations in Bahari 1996. For Sultan–Muhammad, see Soucek 1990.

For examples of Timurid metalwork and woodwork based on paper designs, see, for example, Lentz and Lowry 1989, 206–9; Grube 1974. For an overview of the arts in this period, see Blair and Bloom 1994, passim. For the use of paper patterns for fifteenth-century embroideries, see Lentz and Lowry 1989, cat. nos. 95–98. The evolution of carpet design is discussed in Blair and Bloom 1994, chaps. 10 and 16. For Ushak medallion carpets, see Raby 1986. The Ardabil carpets are discussed in Stead 1974; Encyclopaedia Iranica, 1985–, s.v. "Ardabil Carpets."

CHAPTER 6
THE TRANSFER OF PAPER AND PAPERMAKING TO CHRISTIAN EUROPE


Laid and Chain Lines sidebar. The technical characteristics of a sheet of paper, including laid and chain lines, are clearly discussed by Turner (1998, 26 ff.). A useful glossary of papermaking terms was prepared by Garlock (1983).

Italian Papermaking sidebar. For the history of early Italian paper, see Hills 1992.

For the spread of papermaking in Europe after the invention of printing with movable type, see Febvre et al. 1990, 112–113, 216–22.

The early history of paper in Byzantium has been studied by Irigoin (1953). Nicholas Oikonomides (1977) has argued that papermakers are mentioned in two medieval Byzantine texts. The Catechism of Theodore the Studite enumerates the professions practiced in his monastery in the ninth century. That of the kartopoio, those who make kartes, is distinguished from that of the membranopoio, who make parchment. The emperor Constantine Porphyrogenito’s tenth-century treatise on statecraft, On the Administration of the Empire, also mentions a group of kartopoio. Oikonomides assumed that these kartopoio were papermakers, but because papyrus was known in Greek as kartes and because Egypt continued to produce and export papyrus until the tenth century, these
individuals undoubtedly worked with papyrus. Once papyrus was no longer available, scribes had to seek a substitute.

For a comparison between Byzantine and Fatimid ceremonial practices, see Canard 1951. For the increasing popularity of European paper in Byzantium after the Fourth Crusade, see Irigoin 1977. For the export of paper from Barcelona to Constantinople, see Burns 1985, 174. For the early history of papermaking under the Ottomans, see Kağıtçı 1963, 37. Babinger (1931) argued the mill in Kagithane did not begin working until the eighteenth century, although the name is attested at least two centuries earlier. Something is clearly wrong here. For the types of paper used at the Ottoman court, see Raby et al. 1993, 69, 215. For the movement of calligraphers from the Turkmen court to the Ottoman court, see Blair 2002.

**Spain**

For the shared material culture of medieval Spain, see Mann, Glick, and Dodds 1992. The history of Spanish—and particularly Catalan—paper has been the special passion of the Catalan scholar Oriol Valls i Subirà (1978). Le Léannec-Bavavéas (1998, 87–95, 132) has presented the state of current knowledge about the pre-watermarked papers of Spain. The quotation from Peter the Venerable is taken from Valls i Subirà 1970, 5–6. Burns (1980; 1985, 180) considers that the standardization of paper size helped prepare the way for printing. On the technology of the mill in Spain, see Glick 1979, 230–34. The contents of the Aragonese archives have been studied by Valls i Subirà (1970). On the introduction of Italian papers to Spain, see Irigoin 1977, 48; 1960.

**Italy**

The origins of Italian papermaking and the notarial registers have been studied by Irigoin (1963) and Le Léannec-Bavavéas (1998, 107–10). The technological component has been studied by Hills (1992). For the importation of Spanish papers to Italy, see Constable 1994, 196.

**Europe North of the Alps**

For the establishment of papermills north of the Alps, see Martin 1994, 209. For a comparison of the cost of paper to parchment, see Irigoin 1950. Dates for the introduction of paper in northern Europe can be found in Le Léannec-Bavavéas 1998, 80, 129–30, 134. For the impact of paper on methods of design and drawing, see DoA, s.v. "Architectural Drawing."
CHAPTER 7

PAPER AFTER PRINT

Hollander Beater sidebar. The invention and development of the Hollander beater is discussed in Hunter 1978, 162 ff.

On the effects of the print revolution, see Martin 1994 and Febvre et al. 1990. On the general advantages of the Eurasian landmass, see Diamond 1997. For the spread of sheep raising from Mesopotamia to Central Asia, see Barber 1999. For the stirrup and mills, see White 1967. For the transmission of ideas and techniques in the Islamic period, see Hodgson 1974, 3:200. Apart from Burns 1980, the role of paper in the transformation of premodern Europe seems not to have been explored.


For the changing receptivity of Islamic culture to new ideas, see Hodgson 1974, 3:179 ff. For the new European ideas, see Lapidus 1988, 268–75, 553. The quotation at the end is from Alfred von Kremer’s Culturgeschichte des Orients (1875–77) as quoted in Karabacek 1991, 72; the longer passage from which the quotation is taken was my choice for the epigraph of this book.


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