Paratextual elements in manuscripts often offer surprising clues as to the different stages of transmission a particular copy has undergone. Take, for instance, the Suleymaniye Library Ayasofya Collection MS 2595, a thirteenth-century Persian translation of a popular medieval illustrated star catalogue, *Kitāb ʿuwar al-kawākib* (The Book of Constellations of Fixed Stars), produced originally in Arabic in the tenth century by ʿAbd al-Rahman al-Sufi (d. 986). Several marks on the title page and colophon of the manuscript reveal information about its date of composition as well as the subsequent chain of owners/readers during its circulation in the next few centuries.

The colophon on folio 97b states that the famous polymath and founder of the Maragha observatory, Naṣir al-Dīn al-Tūsī (d. 1274), completed this Persian translation on Monday, 25 Dhuʾl-Qaʿda 647 (March 1, 1250). Next to this colophon is a statement written horizontally in another hand, indicating that the book had been penned by Tusi himself and was later acquired in Baghdad in the year 805 (1402–3) by the Jalayirid ruler Ahmad b. Shaykh Uways (d. 1410). There are yet other possession statements on the title page (fol. 1a): what seems to be the earliest one, *li-aḥwaj khalq Allāh Ulugh Bīg* (for the most needy of created beings, Ulugh Beg), refers to Ulugh Beg (d. 1449), the famous Timurid ruler and founder of the Samarqand observatory. Above this note is the endowment (*waqf*) statement and seal of the Ottoman sultan, Mahmud I (r. 1730–54). At the bottom of the same page is the impression of yet another stamp, the idiosyncratic almond-shaped seal of Bayezid II (r. 1481–1512). The same seal is also stamped on the colophon page, documenting without any doubt that the manuscript was in the Ottoman imperial treasury by the turn of the sixteenth century.

In addition to the colophon and possession statements, two different versions of the book title are recorded on the title page of the manuscript. The short one just above the seal of Mahmud I reads: *Kitāb ʿuwar al-kawākib tarjama-i Khwāja Naṣīr* (The Book of Constellations of Fixed Stars, Translated by Master al-Nasir [al-Tusi]). The second, longer title is inscribed at the top of the page in the hand that apparently penned the titles of many other surviving manuscripts bearing Bayezid II’s oval seal. This title reads: *Kitāb tarjama kitāb ʿuwar al-kawākib bi-al-fārsiyya marqūm bi-annahu bi-khaṭṭ mutarjimihi alladhī huwa al-Naṣīr al-Ṭūsī min qibal al-nujūm* (The [Persian] Translation of the Book of Constellations of Fixed Stars, Marked as the Autograph Copy of Its Translator, al-Nasir al-Tusi, Pertaining to [the science of] the Stars). This longer version of the title is repeated verbatim in ʿAtufi’s inventory (see list of entries [126]/[158]) dated 908 (1502–3), a clean copy of which was produced the following year in 909 (1503–4).

The documented circulation of this particular manuscript—first from the Ilkhanids to the Jalayirids, then from the Jalayirids to the Timurids, and finally from the Timurids to the Ottomans—embodies the otherwise relatively abstract notion of the transmission of scientific knowledge and ideas. The curious stories offered by such surviving copies stimulate the historian’s imagination with the detailed logs of the movement of manuscripts across wide territories. That books were presented as personal or diplomatic gifts, or that valuable objects, including manuscripts, were at times of military encounter seized by the conquering party, can explain how written materials were transmitted from one courtly context to another. The physical transition of manuscripts may also be correlated with the simultaneous movement of scholars accompanied by their
As a general rule, the relevant works in the astral lore of the post-thirteenth-century Persianate East also implied a distinction between hay'a and nujūm. Whereas the former term (‘ilm al-hay’a) was employed to describe theoretical celestial knowledge that “sought a coherent physical cosmography based on mathematical models,” the category ‘ilm al-nujūm was used more as a blanket term, encompassing different branches and genres that dealt with the practical implications of celestial knowledge, including astrology.6 Works that modern historiography facilely groups together as “astronomical texts,” such as zijes (handbooks of tables used for astronomical, astrological, and calendrical purposes) or treatises on instruments like astrolabes, conveyed information necessary for astrological calculations.7 Indeed, astrological practice, which depended in principle on drawing inferences (ahkām) from celestial degrees and configurations in a given moment at a particular locality, would not have been possible without the astronomical data and parameters of calculation offered by these texts. Authoritative ancient and medieval sources such as Ptolemy (d. ca. 170), Biruni (d. ca. 1050), and Tusi are all explicit on this point, declaring that a precise mathematical knowledge of celestial positions was what the munajjims (astrologers/astronomers) needed to practice their craft, particularly for casting horoscopes and preparing almanacs with prognostications (taqwīms).8 The urge in the post-thirteenth-century Persianate East to establish observatories and conduct systematic celestial observations was also intimately related to improving the precision of celestial data and parameters, which the astral experts needed for their calculations.9

A more detailed discussion of ‘Atufi’s terminology and treatment of available titles in the library will follow in the pages to come. But suffice it to say now that compared to the number of titles strictly related to the theoretical genre of ‘ilm al-hay’a (which is around 130 by our count), the inventory contains a greater number of works (about 200) in the abovementioned genres, which can be defined, for the sake of simplicity, as astrology and practical astronomical endeavors ([‘ilm] al-nujūm, min qibal al-nujūm, [‘ilm] ahkām al-nujūm).10 In our examination of the listed items on astrological and/or practical celestial pursuits in the imperial library, we will supplement ‘Atufi’s inventory with concrete evidence.

retinues who carried their possessions between distant locations. In the particular case of Tusi’s Persian translation of the star catalogue, which later passed into the hands of Ulugh Beg, the recounted arrival of the astronomer ‘Ali al-Qushji (d. 1474) to Istanbul around 1472, with nearly two hundred people in his entourage, may provide a compelling explanation for the eventual journey of this copy—along with many other relevant items listed in ‘Atufi’s inventory—from the Timurid to the Ottoman realm.3 Undoubtedly, the coming of al-Qushji to Istanbul was not the only occasion for the accumulation of works on different branches and genres of celestial knowledge in the Ottoman capital. But regardless of how each item ended up in the Ottoman palace, the relevant holdings of the palace library as documented in ‘Atufi’s inventory neatly reflect the strong influence of post-thirteenth-century astral lore from the Persianate East, specifically of works descending from the Maragha and Samarqand “schools,” on the formation and collection of a noteworthy astral canon in late fifteenth- to early sixteenth-century Istanbul.4 The primary aim of the present article is to discuss the general contours of this influence based on the relevant catalogue section in ‘Atufi’s inventory that lists books on astrological and other practical celestial pursuits, which he groups under the following rubrics: ‘ilm al-nujūm (science of the stars), min qibal al-nujūm (pertaining to the stars), or ahkām al-nujūm (decrees of the stars, i.e., astrology sensu stricto).

In order to avoid potential confusion, we should note at the outset that the modern distinction between astrology and astronomy does not fully correspond to the disciplinary boundaries that existed in the medieval and early modern scientific culture of the Islamicate world, or elsewhere. The boundaries between ‘ilm al-hay’a (namely, the science of the structure or configuration [of the entire universe], i.e., astronomy) and ‘ilm (or sinā’at) ahkām al-nujūm (namely, the science or art of the decrees of the stars, i.e., astrology), which emerged and consolidated as early as the ninth century according to George Saliba, were not always categorically followed in late medieval and early modern astral lore in the Persianate East. This was especially the case for works that deal primarily with the practical application of celestial knowledge.5
from relevant contemporaneous texts and tables, particularly those produced during the reign of Bayezid II, whose genuine astral interests were noted in a wide array of contemporary sources. We will also examine the systematic set of annual almanacs routinely composed by practicing Ottoman munajjims, and track the scholarly references therein to assess more accurately the extent to which the library collection reflects the trends of contemporary astral practitioners. We will also draw on these late fifteenth- and early sixteenth-century taqvim, some of which have the almond-shaped seal of Bayezid II but curiously are not listed in the inventory, for further speculation on the inner workings of the imperial library, as well as to assess the logic deployed by ‘Atufi in preparing his inventory. Finally, we will focus on ‘Atufi’s categorization of titles pertaining to different branches and genres of celestial knowledge, and point to its remarkable deviation from other, more canonical classification systems adopted in the early modern Ottoman intellectual setting by relatively better-known, later figures like Taşköprizade Ahmed (d. 1561), Nev‘i Efendi (d. 1599), and Katib Çelebi (d. 1657).

CELESTIAL PURSUITS AT THE OTTOMAN COURT, 1470S TO 1510S

At the time al-Qushji arrived in Istanbul, systematic scholarly activity on celestial knowledge was only in its infancy in the Ottoman realm.11 As a matter of fact, several treatises of Tusi were already in circulation in the lands of Rûm during the fourteenth and first half of the fifteenth century, such as his introductory textbook on the astrological indications of planets, zodiac signs, and planetary aspects titled Si fasl or Mukhtasar dar ma‘rifat-i taqvim (Thirty Chapters on Almanacs), his Zīj-i ilkhānī (Ilkhanid Astronomical Handbook of Tables), and his al-Tadhkira fī ʿilm al-hayʿa (Memoir on Astronomy).12 The Fenari circle in western Anatolia, including such members as the prominent scholar Molla Fenari (d. 1431) and the Khurasan-born ‘Abdulwajid b. Muhammad (d. 1435), was also well informed about the scientific output of the Maragha school.13

Yet anecdotal and archival evidence about the students of celestial knowledge in the fifteenth century indicates that Ottoman territory was not the ideal place for a would-be expert to excel in the science of the stars at the time. For instance, Qadizade al-Rumi (d. after 1440), one of the intellectual founders of the Samarqand observatory, grew up in Bursa and received his first education within the Fenari circle. But his master Mehmed-Shah Fenari (d. 1436), the son of Molla Fenari, still felt compelled to suggest that his brilliant student should travel to Iran and Central Asia to further his quest in astral lore.14 In a similar vein, a certain ‘Abdurrahman Munajjim (d. after 1510), who served at the princely court of Bayezid II’s son Şehzade Ahmed (d. 1531) in Amasya no later than the early 1490s, writes in an autobiographical passage that after studying the basics of the science of the stars (ʿilm al-nujūm) with Mevlana Kuçek al-Amsi (d. 1481)—also known as Mevlana Yazdanbakhsh, the only documented court munajjim in the final years of Mehmed II’s reign (r. 1444–46, 1451–81)—Şehzade Ahmed recommended that he go to the lands of Iran (diyâr al-ʿAjam) to advance his knowledge in the discipline.15 Besides hinting at the embryonic state of systematic astral production in the Ottoman territories throughout the fifteenth century, these details clearly suggest that in the eyes of the fifteenth-century stargazers active in the Ottoman lands, the Persianate East was the main point of reference and locus for gaining proficiency in the science of the stars.

The exact historical details of ‘Ali al-Qushji’s arrival in Istanbul are still obscure, though anecdotal evidence extracted from various near-contemporary sources clearly shows that Mehmed II went to great lengths to bring him to the Ottoman capital. The former Aqqoyunlu scholar who joined Bayezid II’s court, Idris-i Bidlisi (d. 1520), even says that Mehmed II promised to enable al-Qushji to continue his unfinished observation program in Istanbul.16 Mehmed II’s genuine interest in recruiting al-Qushji seems to have been related to the political prestige and instrumentality accorded to the patronage of the science of the stars in late medieval and early modern courtly culture.17 Yet the sultan’s urgent need to lure an astral expert of the caliber of al-Qushji, and the authority granted him to reorganize the entire Ottoman scholarly hierarchy, could be interpreted as another sign of the inadequacy of systematized celestial
pursuits in the Ottoman empire during the last third of the fifteenth century.¹⁸

ʿAli al-Qushji could only serve the Ottoman polity for two years before he passed away in 1474, followed by the death of his patron Mehmed II in 1481. Celestial pursuits and systematic attempts to cultivate the science of the stars at the Ottoman court, however, did not come to a halt. Bayezid II, who has often been derided in modern historiography for allegedly hampering the intellectual and scientific achievements attained—or at least initiated—during the reign of his “enlightened” father, was in fact an even more avid patron and eager student of the science of the stars. As we have demonstrated in greater detail elsewhere, from his gubernatorial years in Amasya to his relatively long sultanate in Istanbul, Bayezid II actively sought expertise in this science, put a sizeable group of munajjims on the palace payroll, commissioned a number of treatises on different aspects of astral knowledge, and even spent his own spare time studying the science.¹⁹ The broad celestial and (occult) philosophical interests of Bayezid II were so widely acknowledged during his lifetime that one of his contemporaries, an anonymous Sufi shaykh, privately complained in a letter apparently addressed to Bayezid about the “worthless” efforts of the sultan to study these sciences in a formal fashion.²⁰

What the anonymous shaykh alludes to in his letter may be related to Bayezid II’s decision in the 1490s to call upon Mahmud b. Muhammed b. Qadizade al-Rumi (fl. second half of the fifteenth century), to tutor him in the “mathematical sciences” (i.e., al-ʿulūm al-rīyāḍīyya), which conventionally comprised astral sciences (hay’a and nujūm), along with geometry (handasa), arithmetic (hisāb), and music (mūsīqī).²¹ Descending from a family that included such stellar figures as Qadizade al-Rumi and ‘Ali al-Qushji, the young Mirim Çelebi was a direct heir to the post-thirteenth-century astral tradition of the Persianate East in addition to being learned in the Hellenistic astrological heritage. Beyond Mirim Çelebi’s service as the sultan’s private tutor, Bayezid II also asked him to compose a commentary on the Ulugh Beg tables (Zīj-i Ulugh Beg) that was produced in the Samarkand observatory through the concerted efforts of its members, including Ghiyath al-Din Jamshid al-Kashi (d. 1429), Qadizade al-Rumi, and ‘Ali al-Qushji. Completed in the year 1499, Mirim’s commentary was later catalogued in ‘Atufi’s inventory (list of entries [74]/[185]).²² As indicated by the specific supplication (sal-lamahu) used in the relevant entry, Sharḥ-i Zīj-i Ulugh Beg li-Mawlānā Mirim Çelebi sallamahu Allāhu ta‘ālā fī al-nujūm (Commentary on Ulugh Beg’s Astronomical Handbook of Tables by our master Mirim Çelebi, God keep him safe), which is repeated verbatim on the title page of the surviving autograph copy of the text (SK, Ayasofya MS 2697), ‘Atufi must have known Mirim Çelebi personally.²³ While ‘Atufi is reported by Taşköprizade to have studied the rational sciences at the feet of Mirim Çelebi’s apparently elder brother, Qutb al-Din Muhammed b. Muhammed b. Qadizade al-Rumi (fl. second half of the fifteenth century), Mirim and ‘Atufi studied together ‘ilm al-aṣūl (the science of principles [of jurisprudence]) under Hocazade (Khajazada) Muslih al-Din (d. 1487–88).²⁴

It is difficult to determine with certainty how long Mirim Çelebi tutored the sultan and which books featured in these studies. As far as the surviving archival documents and contemporary narrative sources are concerned, Mirim Çelebi remained in the close circle of Bayezid II until the sultan’s death.²⁵ One indication of the books Bayezid II likely studied with Mirim Çelebi is a list of surviving manuscripts in which are found special inscriptions that, in addition to the standard almond-shaped seal, suggest the book was personally owned by the sultan: šāhibu hu al-Sulṭān Bāyezīd b. Meḥemmed Khān (“its owner is Sultan Bayezid”), or sometimes min kutub al-Sulṭān Bāyezīd b. Meḥemmed Khān (“from among the books of Sultan Bayezid”).

What should we understand from these supplementary inscriptions that register such items as the personal property of the sultan? In what respects was a book with the almond-shaped seal different from a copy with both the seal and ex-libris inscription? Was there any clearly defined distinction between the books kept in the imperial treasury and the personal collection of the sultan, in terms of the space in which they were preserved, their accessibility, and their use? What percentage of the personal items Bayezid once held as a prince were transferred to the palace library and processed accordingly, and which works that were already located in the palace
book treasury became reserved for the private use of the sultan?

It is difficult to provide substantial answers to these questions, as paratextual components in the surviving manuscripts fall short of presenting conclusive evidence. It is striking, though, that many of the cited works in astral lore, both theoretical and practical, constitute the great majority of surviving manuscripts that bear an attestation of Bayezid’s personal ownership. Among those books bearing ṣāḥibuhu statements that Bayezid likely studied, we should note the following:

i. Nasir al-Din al-Tusi’s Sī fuṣl

ii. (Tusi’s) Zīj-i īlkhānī

iii. (Tusi’s) Taḥrīr al-Majisṭī (recension of Ptolemy’s Almagest)

iv. (Tusi’s) Tadhkira fī ʿilm al-hayʾa

v. Mukhtasār madkhal ilā ʿilm aḥkām al-nujūm (The epitome of the introduction to Astrology), ʿAli b. Ahmad Balkhi’s (fl. twelfth century) astrological introduction in both the Arabic original and a Persian rendition

vi. The Epistle of Ikhwan al-Safa on mathematical sciences including the science of the stars

vii. Anonymous Risāla al-lubāb fī al-usṭurlāb (The Quintessence on the Astrolabe)

viii. al-dirini’s (d. 1297) Kitāb yawāqīt al-mawāqīt min qibal al-nujūm (Rubies of Timekeeping, an introductory work in verse on the astronomical/astrological calculation of time)

ix. Abu al-Hasan ‘Ali Marrakushi’s (fl. late thirteenth century) summa on astronomical instrumentation and computation of time, ḫāmiʿ al-mabādīʿ wa-al-ghāyāt fī ‘ilm al-miẖāt (Comprehensive Collection of Principles and Goals in the Science of Timekeeping)

x. A majmūʿa (compendium) containing Qusta b. Luqa al-Baʾlabakki’s (d. ca. 912–13) Risāla fī al-amal bi-al-kura al-falakiyya (Treatise on Using the Celestial Globe) as well as (pseudo-)Aristotle’s Risāla al-ghālib wa-al-maghlūb (The Victorious and the Vanquished), a small treatise on a prognosticative technique deployed to predict the outcome of a battle, which was quite popular among Ottoman taqwīms writers.

Even more curious than the personal ownership notices of Bayezid II is a set of almanacs with prognostications (taqwīms) composed in the first decade of the sultan’s reign and embossed with his idiosyncratic almond-shaped seal that appear to be uncatologued in ‘Atufi’s inventory. While there are approximately thirty surviving Ottoman taqwīms that were composed before the compilation of the library inventory, only three of them bear the seal of Bayezid II. The earliest of these three taqwīms was compiled by Khitabi-i Lahijani (d. after 1495) on the occasion of the new (solar) year in 1489 and is now preserved in the Topkapı Palace Museum Library’s Bağdad Collection (TSMK B. 310). The other taqwīms with Bayezid’s seal are two anonymous ones from the year 1490, one of which is preserved in the same collection (TSMK B. 311) and the other is in the Istanbul Kandilli Observatory Library (MS 365).

The ephemeral nature of annual almanacs might have played a role in their exclusion from ‘Atufi’s inventory. Despite the fact that almost all extant Ottoman taqwīms are in codex form, they appear to have been considered different from regular books in some respect. The most obvious difference is that they were produced annually and also expired annually. Early modern Ottoman readers were certainly aware of the ephemeral nature of taqwīms. For instance, one malḥama text (a prognosticatory writing related to celestial and meteorological phenomena) produced in the late fifteenth century reminds its readers that taqwīms are rendered ineffective every new year, whereas the malḥama text would survive for many more years to come (taḳvīm gibi yılda bir żāyiʿ olmaz). In a similar vein, Katib Çelebi contrasts his Taqwīm al-tawārīkh (Chronological Tables) with the taqwīms of munajjims, which, he states, by nature annually become invalid (taḳvīm-i aşḥāb-i tencim gibī mensūḫü'l-ʿamel).

The three aforementioned stamped taqwīms from 1489 and 1490 imply that the seal of Bayezid II was applied immediately after the codices were presented to the court, and not around the time ‘Atufi started working on the copies available in the treasury to prepare his inventory. Otherwise, one would expect to find the almond-shaped seal in many of the other surviving
taqwīms from 1421 to 1503, most of which are still preserved today in the Topkapi Palace Museum Library collections. This suggests that the custom of impressing the presented copies of manuscripts with the stamp of Bayezid II might have already been practiced in the late 1480s. Unfortunately, there is no extant taqwīm from the reign of Bayezid II composed prior to 1489; hence, we are not in a position to confirm whether those taqwīms produced in the early 1480s would have borne the seal. Yet it seems credible to assume that at a certain juncture, likely around 1490, a final decision was reached to no longer stamp taqwīms with the sultan’s almond-shaped seal.

Notwithstanding the fact that taqwīms, even ones bearing the almond-shaped seal, are not listed in ’Atūfī’s inventory, their contents are crucial for tracking the scholarly references of contemporary astral experts and evaluating more precisely the scope of the palace library vis-à-vis the authoritative texts in astral sciences held therein. We should briefly note that, with all due respect to the significant differences between various examples, a taqwīm is, in principle, an annual presentation combining astronomical, astrological, and calendric information with regard to the upcoming solar year. Seemingly ubiquitous throughout medieval and early modern Islamicate culture, especially in the eastern lands, these texts were produced by experts in the science of stars around the time of the year-transfer (taḥwīl-i sāl), that is, the spring equinox and the beginning of the new solar year (nawrūz).

The preparation of these texts required the astral expert to make mathematical and astronomical computations of the celestial positions at the exact moment of the year-transfer, which was necessary for deriving astrological judgments. After identifying the ascendant (tāli‘) at the time of the year-transfer and establishing other astrological houses by drawing upon the data and methods provided by zījes in circulation, the taqwīm compiler could prepare the horoscope of the coming year. Then he would begin to delineate astrological predictions as to the fortunes of different social categories of people and earthly affairs. In a taqwīm, the detailed astrological section in prose is followed by the laborious tabulation of astronomical, astrological, and calendric information for each solar month of the upcoming year. Here the taqwīm writer would place ephemeris tables to mathematically demonstrate the celestial positions in each and every day of the month, to mark the corresponding days in the lunar calendar, and to designate the days of religious and liturgical significance in various traditions. These monthly tables are juxtaposed with astrological remarks in the form of inferences of omens (akhām) and recommendations for auspicious times to undertake various activities (ikhtiyārāt), based on the interpretation of the individual horoscope of each month as well as the computed planetary aspects. Finally, the last section of a taqwīm is devoted to the eclipses expected in the upcoming year. If an eclipse was anticipated in that year, information about its projected time, location, and duration would be recorded, along with its astrological interpretation.

As is clear from this brief summary of the contents of surviving taqwīms, there were two major items a munajjīm categorically needed to prepare for an accurate taqwīm: (i) a valid zīj to accurately calculate the celestial positions in a given time for a given locality, and (ii) a working astrological textbook describing the dispositions of planets and signs as well as the indications of celestial positions. An astronomical instrument that would help the practicing munajjīm determine the required celestial positions more easily and accurately was rather optional, as it was likely unaffordable for many a practitioner.

While the zīj tradition in the Islamicate context dates as far back as the eighth century, with more than 200 such works in different lengths and levels of sophistication surviving to date, a close examination of Ottoman taqwīms reveals that munajjīms in the service of the Ottoman court clearly favored the ones prepared in the post-thirteenth-century Persianate East as the fruits of systematic observation programs. This period was characterized by a heightened interest in conducting systematic observational programs (raṣad) in the newly established observatories to revise the data and parameters conveyed through astronomical tables (zījes). At the end of each systematic observation a new zīj was introduced, with revised figures. The Zīj-i ʿilkhānī, for example, was produced no later than the early 1270s by Nasir al-Din al-Tusi and his collaborators as part of the brief observational enterprise at the Maragha observatory.
Despite Tusi’s high expectations for his work, the Zīj-i īlkhānī did not win much favor among his contemporaries due to its dated parameters and the limited timespan of actual observations prior to its preparation. Thus, soon after its publication, several experts in astral sciences, including ‘Ali-Shah Bukhari (d. after 1291), Shams al-Din Muhammad al-Wabkanawi (d. ca. 1320), and Nizam al-Din al-Nisaburi (d. ca. 1329–30), expressed criticisms of the Zīj-i īlkhānī in their own compilations of tables. Finally, in the first half of the fifteenth century, the Samarqand observatory was established on the initiative of Ulugh Beg, who gathered an impressive array of astral experts, such as Ghiyath al-Din Jamshid al-Kashi, Qadizade al-Rumi, and ‘Ali al-Qushji, to conduct a systematic observational enterprise. At the end of this observational program a new zīj was composed that came to be known as the Zīj-i Ulugh Beg (Ulugh Beg Tables) or Zīj-i-jadīd-i sulṭānī (The New Royal Tables).

In surviving fifteenth- and sixteenth-century Ottoman taqwīms, munajjims often cite explicitly which zīj they consulted to make the necessary celestial calculations. Half of the eighteen extant Ottoman taqwīms compiled between 1489 and the year ‘Atufi completed his inventory cite as their main source the Verified Ilkhanid Tables (Zīj al-muḥaqqaq al-īlkhānī) that can be attributed to Wabkanawi, whereas four taqwīms made use of the Ulugh Beg tables and only two utilized the Ilkhanid tables. From the 1510s up until the late sixteenth century, when the most famous Ottoman astronomer of all times, Taqi al-Din (d. 1585), prepared new tables on the basis of his limited observations in the Istanbul observatory, practicing Ottoman munajjims almost exclusively utilized and cited the Zīj-i Ulugh Beg.

Although the zīj collection in the palace library largely reflects the general leanings among practicing munajjims toward the post-Maragha zīj tradition in Persian, it is rather surprising not to come across a single explicit reference to Wabkanawi’s Verified Zīj within the palace holdings, given that most court munajjims at the time seem to have based their calculations upon it. Another remarkable detail about the zījes collected in the imperial treasury is the relatively high number of Nizam al-Din Nishaburi’s Kashf-i haqā’iq-i Zīj-i īlkhānī (Uncovering of the Truths of the Ilkhanid Astronomical Handbook of Tables). Among the twenty-six copies specifically listed as zījes in the inventory and their commentaries—with the exception of the two copies of al-Biruni’s al-Qānūn al-Masʿūdi, which can indeed be regarded as a zīj—five of them (list of entries [76]–[80]) are Nishaburi’s Kashf-i haqā’iq-i Zīj-i īlkhānī, to which contemporary Ottoman munajjims seem to have paid little attention. Similarly, there are two copies of Jamshid al-Kashi’s Zīj-i khāqānī fi takmil-i Zīj-i īlkhānī (Astronomical Tables for the Great Khan Prepared for Completing [Tusi’s] Ilkhanid Tables) in the palace library (list of entries [44], [45]), although in none of the surviving fifteenth- and sixteenth-century taqwīms is Kashi’s zīj preferred. As for the Zīj-i īlkhānī and Zīj-i Ulugh Beg, ‘Atufi’s inventory lists five copies of each (the former: [164]–[168]; the latter: [178]–[182]). Also cited are two copies of ‘Ali al-Qushji’s commentary on Zīj-i Ulugh Beg (list of entries [112]/[183], [113]/[184]), and one copy of Mirim Çelebi’s commentary on the same text (list of entries [74]/[185]). However, it should be noted that these commentaries were written more in order to explain in prose the challenging parts of the Ulugh Beg tables than to publish new tables; thus, they might not have been used in actual computations. It is also worth noting that the zīj Mevlana Kuçek al-Amasi composed and dedicated to Bayezid II at his gubernatorial seat in Amasya, evidently before January 1477, also ended up in the palace library by the turn of the sixteenth century (list of entries [69]).

Regarding the zījes composed prior to the thirteenth century, the palace library inventory seems to contain only two items: one copy of Kushyar ibn Labban’s (d. after 1025) al-Zīj al-Jāmiʿ (Comprehensive Astronomical Handbook of Tables, list of entries [65]), and one copy that may be attributed to Abu’l-Wafa’ Buzjani (d. 997–98), which ‘Atufi catalogues as Zīj mawdūʿ ‘alā mā saḥḥahu al-Shaykh Abū al-Wafā’ wa-ashābuhu (Tables Set Forth according to What Was Corrected by the Master Abu al-Wafa’ and His Colleagues) (list of entries [24]). As another indication of the supremacy of the Persianate astral tradition in the early sixteenth-century Ottoman world, al-Zīj al-jadid (The New Astronomical Handbook of Tables) of the famed Mamluk astronomer Ibn al-Shatir (d. ca. 1375) is cited neither in the palace library inventory nor in any of the contemporary taqwīms.

In addition to having the ability to extract the necessary celestial data from zījes, the munajjims had to have
a sound knowledge of the nature and indications of planets, signs, astrological houses, and planetary aspects. Although there were several alternative textbooks and summae of astrological principles circulating at the time, the authoritative texts and names quoted heavily in the Ottoman taqwims and other horoscopes whenever the need to justify a specific astrological indication arose can be grouped as follows:

i. Kitāb al-thamara (Centiloquium or One Hundred Astrological Aphorisms) attributed to Ptolemy, which was originally composed in Arabic in the early tenth century by a certain Abu Ja'far Ahmad b. Yusuf (d. ca. 944) and later translated into Persian by different parties including Tusi;52

ii. Nasir al-Din al-Tusi and his Sī faṣl;

iii. Kushyar ibn Labban and his Mujmal al-usūl fī aḥkām al-nujūm (Compendium of Astrological Principles, also named al-Mudkhal fī sināʿat aḥkām al-nujūm);53

iv. Abu Rayhan al-Biruni and his Kitāb al-taqfīm li-awāʾil sināʿat al-tanjīm (Book of Instruction in the First Principles of the Art of Astrology);

d. Abu Ma'shar al-Balkhi (d. ca. 886), though his well-known treatises, such as Kitāb al-mudkhal al-kabīr (General Introduction to Astrology), Kitāb al-milal wa'l-dīnawal (Book of Religions and Dynasties), and Kitāb al-ulūf (Book of Thousands), are not explicitly cited in the inventory;54

vi. Kifāyat al-taʿlīm fī ṣināʿat al-tanjīm (Sufficiency of Learning in the Art of Astrology) of Abu al-ma’hamid b. Mas’ud al-Ghaznawi (fl. late twelfth century).55

Numerous copies of these titles are catalogued in ‘Atufi’s inventory, and Tusi’s Sī faṣl seems to have enjoyed the most popularity. There are, by our count, fourteen copies of this text (list of entries [55]/[153], [144], [145], [146], [147], [148], [149], [150], [151], [152], [154], [155], [156], [157]), including later commentaries, such as Khitabi-i Lahijani’s lengthy Muwaddih al-rusum fi ‘ilm al-nujūm (The Expositor of the Notes in the Science of the Stars), which he presented to Mehmed II in December 1479.56

Next comes the corpus of Kitāb al-thamara with ten copies (list of entries [81], [82], [83], [84], [85], [86]/[159], [87]/[160], [88]/[161], [89]/[162], [90]/[163])—two of which are cited in the history (tārīkh) section of the inventory—almost all in Persian. That most of the available Thamara copies in the palace library were written in Persian provides yet further proof for the ascendancy of the Persianate astral tradition within Ottoman circles. Ptolemy’s major work in astrology, Tetrabiblos (Four Books of the Influence of the Stars), also seems to have been featured in the library, just as two separate copies of al-Battani’s (d. 929–30) commentary are listed in the inventory (list of entries [11], [12]).

As for the books of Abu Ma’shar, the celebrated astrologer of Abbasid times, there are six titles recorded with explicit reference to his name (list of entries [1]–[6]). Yet, on the basis of the manuscript evidence with Bayezid’s seal, it is safe to assume that some of the items listed in the inventory under different or generic titles might have also contained the works of Abu Ma’shar. For example, a majmū’a now preserved as SK, Ayasofya MS 3600 bears the almond-shaped seal of Bayezid II and hosts Abu Ma’shar’s Kitāb tahawīl sinī al-mawâlīd (Book of the Revolutions of the Years of Nativities), but the title assigned either by ‘Atufi or one of his colleagues on fol. 1a of this compendium is Kitāb taqwīm al-adwiya fī al-tibb (The Book of the Table of Medicaments in [the science] of Medicine).57 In addition to the works of Tusi, (ps.-)Ptolemy, and Abu Ma’shar, the library inventory contains at least eight references to the Mujmal al-usūl of Kushyar (list of entries [57]–[64]) and five references to the Kitāb al-taqfīm of Biruni (list of entries [17]–[21]). Ghaznawi’s Kifāya is also cited at least two times (list of entries [27]–[28]).

Before moving to the next section, we would like to make a few more notes regarding the general works on astrological principles. First, parallel to the dearth of references in the writings of early modern Ottoman muṣnajjims to al-Qabisi (fl. second half of the tenth century), whose introduction to astrology (Kitāb al-mudkhal ilā ṣināʿat al-nujūm) became immensely popular in medieval and Renaissance Europe upon its translation into Latin from Arabic, the palace library has no volume explicitly related to him.58 Secondly, another popular (in the sense of the high number of surviving manuscripts) Persian astrological textbook, Laṭāʾif al-kalām fī aḥkām al-aʿwām (General Astrological Judgments) composed by Sayyid Munajjim (fl. first half of the fifteenth century), is only cited once in the inventory (list of entries...
Finally, we note that the celebrated astrologer from the Abbasid times, Masha'allah ibn Athari (d. ca. 815), is also not mentioned in the inventory, although the *taqwiims* and other types of horoscopes produced in the early modern Ottoman world occasionally refer to him.  

**BIRTH HOROSCOPES AND OTHER GENRES**

Zījes and astrological textbooks were also put in use in other genres that calculate the horoscope at the hour of an event. The birth horoscope or natal chart, which was prepared primarily for the members of the ruling dynasty, is one such genre. The most famous example of the genre in the entire corpus of Islamicate astrology, due to its captivating illustrations, is the horoscope of the Timurid prince Mirza Iskandar b. ‘Umar-Shaykh (d. 1415–16), composed around 1411 by Mahmud b. Yahya b. al-Hasan al-Kashi (d. after 1411), a close relative of Jamshid al-Kashi’s.  

Not surprisingly, ‘Atufi’s inventory lists Mirza Iskandar’s horoscope (list of entries [46]), which must have entered the Ottoman palace library along with other works on the science of the stars produced or circulated in the Timurid realm.  

This lavishly illuminated horoscope was not the only natal horoscope cited in the inventory, however. ‘Atufi lists six birth horoscopes cast for members of the Ottoman dynasty. Three of these copies are horoscopes cast for Mehmed II, one of which was prepared by Khitabi-i Lahijani (list of entries: [52], [194]–[195]). Lahijani’s text is stamped with Bayezid II’s seal and tells us that a royal edition of it was penned in Istanbul in 1481 by Ghiyath al-Mujallid al-Isfahani.  

The other three horoscopes listed in the inventory are for Bayezid II ([197]), his son Mehmed (d. 1505) ([198]), and Prince Cem ([196]). To date, these three natal charts remain undiscovered, and thus we are not in a position to track the scholarly references in these horoscopes. However, similar to Iskandar’s horoscope, the extant birth horoscopes of Mehmed II feature numerous references to Ptolemy, Kushyar, and Abu Ma’shar as authoritative sources.  

It is worth noting that, except for the natal chart of Prince Cem, all of the birth horoscopes are recorded in the inventory under the rubric of “pertaining to the stars” (*min qibal al-nujūm*). Another important group of titles classified with the same tag is the corpus on astronomical instruments and treatises on celestial observation. Notwithstanding several exceptions, we can speak here of a pattern observed by ‘Atufi throughout the section of books on various celestial pursuits, which is also noted by Jamil Ragep and the McGill Team in their article in this volume. An obvious example of these exceptions is Tusi’s popular treatise on the use of the astrolabe, *Bīst bāb fīl-āṣṭūrlāb* (Twenty Chapters on Uses of the Astrolabe), referred to nine times in the inventory (list of entries [130]–[136], [26]/[137], [56]/[138]), along with its later commentaries, including that of Efezade (d. after 1495). This book is sometimes cataloged in the inventory under the rubric of *min qibal al-nujūm* and sometimes as *fī* (*ilm*) *al-nujūm*. Likewise, the *Kitāb al-thamara* corpus is sometimes recorded with the tag *fī* (*ilm*) *al-nujūm* and sometimes with *ahkām al-nujūm*. In general, however, ‘Atufi seems to follow a discernible blueprint, cataloging all the *zījes* and many of the textbooks of an astrological nature under the tags *‘ilm al-nujūm* or *nujūm*, and the majority of treatises on instruments of observation under *min qibal al-nujūm*.  

One important aspect of the *min qibal al-nujūm* subsection is that it also contains very rare examples of relevant works in Turkish. There are references to at least three copies of Turkish translations of the Mamluk astronomer al-Khalili’s (d. ca. 1365) timekeeping tables and astronomical instruments (list of entries [48]/[98], [49]/[99], [50]/[100]), completed by Muhammad b. Katib Sinan al-Qunawi (d. 1524), who worked in the early sixteenth century as the muwaqqit (timekeeper) in various mosque complexes in Edirne and Istanbul.  

Titles on specific branches of astrology—such as interrogations or horary astrology (*masāʿīl*), which intend to compute and interpret a horoscope for the exact time the client asks questions to the *munajjīm*, and elections (*ikhtiyārāt*), which is concerned with the choice of an auspicious moment for doing or avoiding a particular activity—are sometimes categorized in the inventory under the rubric of *‘ilm al-nujūm* and sometimes as *ahkām al-nujūm*. One should highlight here the *Kitāb al-masāʿīl* of Ya’qub b. ‘Ali al-Qasrani (fl. ninth century). Not much is known about him, although later sources, including Fakhr al-Din al-Razi (d. 1210), cite Qasrani...
among other astrological authorities from the early Abbasid period, including Abu Ma’shar, ’Umar b. al-Farrukhan al-Tabari (d. 815–16), and Sahl b. Bishr (fl. 821–50). His compilation on horary astrology, which treats a wide array of questions and cases by interpreting the astrological significance of the time when a particular question was posed to him, seems to have been popular in the Ottoman realm. Not only does the palace library inventory cite four copies (list of entries [91–[94]), but Mirim Çelebi, in his treatise on horary astrology, also recommends that his readers consult Qasrani’s compilation for further reading on the topic. In addition to Qasrani, Fakhr al-Din al-Razi’s influential work on electional astrology, al-Ikhtiyārāt al-ʿalāʾīyya fi ahkām al-samāwīyya (On the Selection of Propitious Times for Various Acts and Affairs), of which al-Razi himself prepared both Arabic and Persian editions, was represented by at least four copies in the palace library according to ‘Atufi’s inventory (list of entries [114]–[117]). Another important work attributed to al-Razi, al-Sirr al-maktūm (The Hidden Secret), a treatise on celestial magic, is also listed in the inventory at least six times (308 {15}, {16}, {16–17}, {17–18}; 309 {1–2}, {2–3}), albeit it does not appear in this particular section, where titles related to astral and mathematical sciences are enumerated, but rather in the section on natural and occult sciences immediately preceding the quadrivium: Tafsīl kutub ‘ilm al-ta’bīr wa-kutub ‘ilm al-fīrāsā wa-kutub al-‘ilm al-kīmiyāʾ wa-kutub ‘ilm al-ahjār wa-kutub al-ṣināʿāt al-ʿajība wa-kutub al-ṣīmiyāʾ wa-kutub al-ʿazāʾim wa-kutub ʿilm al-nayrinjāt wa-kutub al-ṭilsīmāt al-ṣīmāt wa-kutub al-sīmiyāʾ wa-kutub al-aṣāʾim wa-kutub ‘ilm al-j̱̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲̲́y) wa-kutub al-ṣināʿāt al-ʿajība wa-kutub al-ṣīmiyāʾ (The Section on Dream Interpretation/Oneiroromancy, Physiognomy, Alchemy, Gemology, Geomancy, Divination, Terrestrial Magic, Celestial Magic or Talismans, Letter Magic, Jinn Magic, Letter Divination, Mechanics and Wondrous Devices, Magic).

‘ATUF’S RECLASSIFICATION OF THE ASTRAL AND OCCULT SCIENCES

By locating al-Razi’s al-Sirr al-maktūm among titles in natural and occult sciences while listing the same author’s work on electional astrology, al-Ikhtiyārāt al-ʿalāʾīyya, under mathematical sciences, ‘Atufi clearly deviates from the more canonical Avicennan tradition, which typically discusses ahkām al-nujūm under the rubric of natural sciences (tābīʿīyyāt) along with dream interpretation, physiognomy, geomancy, alchemy, and various magical practices. In order to understand why ‘Atufi introduced the section on natural and occult sciences immediately before the quadrivium and why he listed all the strictly astrological titles in the latter section, it is necessary to revisit relevant debates in the medieval Islamicate taxonomies of sciences and observe the impact of Persianate encyclopedism, specifically of Razi’s Jāmiʿ al-ʿulūm (Compendium of Sciences, also known as Ḥadāʾiq al-anwār fi ḥaqāʾiq al-ʿasrāʾ or Kitāb-i sittinī) on the reclassification of astrology under the rubric of mathematical sciences.

Given the great diversity of examples written in different languages, which adopt various methods of classification, it is quite difficult, and indeed misleading, to speak of a single, easy-to-define Islamicate taxonomy of science. The rationale upon which knowledge was hierarchically categorized by various authors varied greatly. Besides such established conventions as dividing knowledge into categories of transmitted (al-ʿulūm al-naqliyya) and rational sciences (al-ʿulūm al-aqliyya), or religious sciences versus the sciences of the ancients (al-ʿulūm al-awāʾil), branches of knowledge were also grouped, as in the case of al-Ghazali (d. 1111), into rather subjective categories of praiseworthy, blameworthy, and permissible sciences. Another method, also largely favored by later Ottoman classifiers of knowledge, was the Aristotelian tradition, which found its way into the medieval Islamicate context especially through the works of Ibn Sina (d. 1037) and partially through those of al-Farabi (d. 950). Accordingly, theoretical philosophy (al-hikma al-naẓariyya) is divided into three hierarchical categories, each corresponding to one of the realms of the tripartite scheme of the cosmos. The lowest (asfal), terrestrial world, i.e., the world of generation and corruption, is the main concern of natural and occult sciences, which essentially deal with the sub-lunar domain that is subject to physical change. The study of the middle (awsat), unchanging celestial region requires unavering mathematical proofs and geometrical demonstrations, whereas the highest (al-ʿlā) sphere beyond
the celestial orbs concerns metaphysics and theological sciences.73

Within this mainstream Avicennan taxonomy of sciences, astrology (‘ilm ahḵām al-nujūm) was detached from the mathematical investigation of heavenly objects (‘ilm al-hay’a) and classified exclusively as a natural science (al-ḥikma al-ṭabīʿīyya) along with medicine, geomancy, alchemy, and other divinatory practices and arts of magic. The epistemological distinction between the two, however, was neither revolutionary nor entirely unambiguous. For example, Ptolemy covered astronomy in his Almagest, while devoting Tetrabiblos to what he defined as “prognostication through astronomy” (τὸ δι’ ἀστρονομίας προγνωστικόν [to di’ astronomias progństikon]); he acknowledged that astronomy was intended for the investigation of the movements of celestial bodies and the planetary aspects, whereas the latter deliberated the corollary changes appearing in the terrestrial realm.

Discussions on the classification of astrology in the medieval Islamicate intellectual realm were marked by similar controversies and inconsistencies that were sometimes apparent even in the same work of a single author. Such controversy was mostly due to the subject, methods, and objectives of this science, which, as a contentious discipline, was categorically considered (i) among the sciences of the ancients, which a great many ulema in the Islamic Middle period often took with a grain of salt; (ii) dependent upon the unwavering mathematical knowledge of the heavens but applied to understand the ever-changing physical nature of the sub-lunar world; and iii) susceptible to being interpreted as a quest threatening to undermine the belief in God’s omnipotence.74

Taşköprizade’s treatment of the astral sciences is a perfect example of such complications and inconsistencies. Following the Avicennan model that he largely inherited from the Mamluk encyclopedist Ibn al-Akfani (d. 1348), Taşköprizade makes a clear distinction between ‘ilm al-hay’a and ‘ilm ahḵām al-nujūm, classifying the former in the mathematical sciences (al-ʿulūm al-riyādīyya) and the latter in the natural sciences (al-ʿulūm al-ṭabīʿīyya). At times, he uses ‘ilm al-nujūm and ‘ilm al-hay’a interchangeably and further emphasizes the distinction between ‘ilm al-nujūm and ahḵām al-nujūm by saying that the former relies upon mathematics and calculation (hisāb), whereas the latter aims at determining the physical influences in nature.75 Nevertheless, in his section on ‘ilm al-hay’a under the general category of mathematical sciences, Taşköprizade lists, among others, ‘ilm al-zījāt wa’l-taqqāwīm (the science of astronomical tables and almanacs), ‘ilm al-girānāt (the science of conjunctions), ‘ilm al-ālāt al-raṣadīyya (the science of the instruments of celestial observation), and ‘ilm al-malāḥīm (the science of weather prognostications), all of which, he explicitly maintains, have strong astrological implications.76

Unlike Taşköprizade and subsequent generations of well-known Ottoman encyclopedists, including Nev’i Efendi and Katib Çelebi, ‘Atufi emphatically records astrological titles under the rubric of mathematical sciences, right after his section on natural and occult sciences. In this regard, he seems to have preferred non-Avicennan models, such as al-Razi’s classification in his Persian encyclopedic work, where ahḵām al-nujūm is deliberately detached from natural and occult sciences and placed right next to ‘ilm al-hay’a under the mathematical sciences.77 Razi’s classification exerted an influence on several other examples of the taxonomy of science genre in Persian and also found an enthusiastic reception in the fifteenth-century Ottoman world, particularly within the Fenari circle.78 It is worth mentioning here that ‘Atufi’s organization of this section (and others) also accords closely with the schematic classification of the sciences by ‘Abd al-Rahman al-Bistami (d. 1454), a prominent protégé of both Molla Fenari and Sultan Murad II (r. 1421–44; 1446–51) whose works (some in autograph) entered the palace library.79 Al-Bistami’s “tree of knowledge,” which is found in his autobiographical bibliography, titled Durrat tāj al-rasā’il (Pearl in the Crown of Tractates), firmly attaches aṣṭranūmīyā (آسترنومی) to the mathematical sciences, while at the same time expressing his commitment to “Greek learning” by using Greek terminology whenever possible.80 Thus, ‘Atufi’s deviation from the more canonical, Avicennan tradition is certainly not exceptional and serves as another reminder to modern scholars that the Ottoman taxonomy of science is not singularly represented by Taşköprizade or Katib Çelebi.
A detailed discussion of the titles related to natural and occult sciences in ʿAtufi’s inventory is beyond the scope of this article. Yet we should note that the occult section of the palace library shows patterns similar to the collection of books on celestial knowledge, insofar as it incorporates works produced in the post-Mongol Persianate world as well as examples from the Graeco-Arabic tradition. For instance, among the no less than twenty-four copies of dream interpretation manuals, six are Hubaysh b. Ibrahim b. Muhammad Tiflisi’s (d. ca. 1203–4) Kāmil al-taʿbīr (Compendium of Dream Interpretation), which the author composed in Persian and dedicated to the Rum Seljuq ruler Qilij Arslan II (r. 1156–92) (302 {16–17}, {17}, {18}, {18}, {19}, {19}). Of the sixteen treatises on physiognomy, the text attributed to Polemon of Laodicea (ca. 88–144 CE), Kitāb Falīmūn or Aflīmūn al-Ḥakīm, stands out with at least four copies (304 {11}, {12}, {12–13}, {15}), next to the physiognomical works of Fakhr al-Din al-Razi (304 {19}–305 {1}) and Muhammad Nurbakhsh (d. 1462) (304 {18}).

CONCLUSION

Around the time the library inventory was compiled, one of the aspirant munajjims approached Bayezid II in an anonymous Persian petition, asking for access to some of the items in the imperial treasury (khizāne). The requested items included a complete astrolabe (ūsturlāb-i tām), the works Zīj-i Ulugh Beg and Kitāb-i Majistī, and the horoscope of the sultan (tālīʿ-i ḥażret-i ʿālem-penāḥī) along with those of his sons, Korkud and Ahmed. The anonymous munajjim also reassures the sultan that if the horoscopes are not currently available, he could produce (new) ones for each, so long as he is informed of the exact birthdates of the sultan and the princes.

Except for the horoscopes of Princes Korkud and Ahmed, which are not listed in ʿAtufi’s inventory, the items that the anonymous munajjim requested accord well with the holdings of the imperial treasury, which, in addition to the books in question, also housed a rich collection of astronomical instruments during Bayezid II’s reign. This raises the questions of whether ʿAtufi’s inventory was accessible to other members of the palace at the time and whether minor updates were made to the already finished and embellished inventory. Of course, the anonymous aspirant munajjim might have simply heard about these items at the treasury from his colleagues. No matter what the accessibility of ʿAtufi’s library inventory may have been, the munajjim’s petition as well as Bayezid’s own reading preferences unequivocally show that the titles on practical astral sciences, particularly those related to the post-thirteenth-century astral lore of the Persianate East, were certainly in use whenever the need arose.

NOTES

Authors’ note: The references to inventory items in bracketed numbers throughout refer to those in our list of entries, which follows this essay.


2. MS Török F. 59. 317 {3–4}.


6. EI3, s.v. “Astronomy,” by Jamil Ragep. Although Jamil Ragep does not specifically refer to ʿahkām in his discussion, relevant sources often mention ʿahkām within the all-encompassing science of the stars. See n8 below.

7. Modern literature on zījes has barely highlighted the astrological significance of these texts, though scholars are definitely aware of the astrological components in zījes. See Edward S. Kennedy, “A Survey of Islamic Astronomical Tables,” Transactions of the American Philosophical Soci-


10. The discrepancy in numbers is even more significant considering that some of the ĥay’a books were taught at certain madrasas, and thus more copies of these texts must have been in circulation. See Cevat İzgi, Osmanlı Medreselerinde İlîm, 2 vols. (Istanbul: İz, 1997), 1:361–412.

11. For a general overview of Ottoman scientific activity before the sixteenth century, see TDVia, s.v. “Osmânlılar (İlim ve Kültür. 1. Düşünce Hayatı ve Bilim. Kaynaklar),” by İhsan Fazlıoğlu.

12. For the early-fifteenth-century Turkish translation of Sī fasāl, see Ahmed-i Dārî, Muhtasar fi ilm el-tencim ve marifet el-takvim (Risâle-i sī fasāl), ed. T. N. Gencan and M. Dizer (İstanbul: Boğaziçi Üniversitesi Kandilli Araştırma Merkezi, 1984).


15. ‘Abdurrahman Munajjim, Jawhar hizā fi al-sihhāt fī al-tibb, SK, Ayasofya MS 3635, 2b (also listed in the inventory: 166 [15]). His first instructor, Mevlana Kuçek, was listed in the palace payroll of 1478 as the only royal munajjim at the time under the rubric of mùteferrika. See Ahmed Refik (Altıyan), “Fatih Devrine aiṭ Vesikalær,” Tarih-i Osmani Encümeni Mecmuası 8–11, nos. 49–62 (1335/1919): 1–58. Mevlana Kuçek’s zīj, which was presented to Bayezid II when the latter was still in his gubernatorial seat in Amasya, is recorded in the inventory (list of entries [69]).


18. For an overview of the available sources on al-Qushji’s move to the Ottoman capital and his tenure there, see Heiderzaideh, “Ali Kuççu’nun Astronomi Eserleri,” 13–17.

19. This is discussed in more detail in A. Tunç Şen, “Reading the Stars at the Ottoman Court: Bayezid II (r. 1386/1481–98/1512) and His Celestial Interests,” Arabica 64, no. 3–4 (2017): 557–608.

20. TSMa, E. 6722.


22. The autograph copy is available at SK, Ayasofya MS 2697. Mirim says in this copy (2a) that he was in the service of Mawlana ‘Ata’ullah, another émigré scholar from Kirman, while ‘Ata’ullah was working on the commentary of the Ulugh Beg tables, probably in Istanbul. Surprisingly, this detail about ‘Ata’ullah is not included in other available copies of the commentary.

23. List of entries [74] /[185]. So far as it is known, the supplication sallamahu was used for authors who were alive at the time.

24. Taşköprüzade, 249–50. While the familial ties between Mirim Çelebi and Qub al-Din are not certain, they appear to be the sons of the same father based on their nisbas given by Taşköprüzade. Qub al-Din’s supercommentary on al-Samarqandî’s Propositions for the Foundation is also listed in the inventory (list of entries [555]/[156]/[156]).

25. The in’âmat defteri (Atatürk Kitaplığı, Muallim Cevdet O. 71) lists all the gifts and payments Mirim and his wife received from the sultan between 1503 and 1512. Another sign of Mirim’s closeness to Bayezid II is that during the
pro-Selim rebellions in Istanbul in 1511, Mirim's house was targeted along with the mansions of other important individuals who were close to the sultan. See Çağatay Uluçay, “Yavuz Sultan Selim Nasıl Padişah Oldu II,” İÜEF Dergisi, 7-10 (1954): 120–21.

26. SK, Ayasofya MS 2474. This copy should be [145]/[298]/[438] in the list of entries.

27. Bursa Türk ve İslam Eserleri Müzesi, MS 11. We would like to thank Zeren Tanındı for this information about the manuscript.

28. TSMK, A. 3317. [394] in the list of entries might the copy in question.

29. TSMK, A. 3328. either [421] or [422] in the list of entries


32. SK, Ayasofya MS 2618. [228] in the list of entries is the title in question.

33. SK, Ayasofya MS 2432. This volume should be the one listed as [109].


35. SK, Ayasofya MS 2432. This volume should be the one listed as [109].

36. One entry in ‘Atufi’s inventory could indeed be interpreted as a taqwīm. The item listed as [239] contains Kitāb jadāwīl al-tawārīkh wa-al-nujūm (The Book of Chronology Tables and Star Charts). However, we should note that none of the extant taqwīm manuscripts with the seal of Bayezid II bears such a title among its inscriptions.

37. For more on Khitabi, see Şen, “Reading the Stars,” esp. 577–82. Four different works of Khitabi in five copies are listed in the inventory. See the list of entries at the end of our essay: [51]–[55].

38. SK, Esad Efendi MS 205, 2b.


41. ʿAlī is the point of the Zodiac rising above the horizon at the moment of nativity or any other event on which the horoscope is being cast. See also ELZ, s.v. “al-ʿAlī,” by David King and Toufic Fahd. The concept gradually transformed in vernacular Turkish into ʿalīh, denoting fortune and luck. It is difficult to ascertain when exactly this transformation occurred, yet as Meniński’s Thesaurus Linguarum Orientalem reveals, ʿalīh was in use as early as the first half of the seventeenth century.

42. Ikhtiyārat ( Elections, or Choices) is a major division of astrology by which the munajjim identifies the auspicious time to carry out an activity. ELZ, s.v. “Astrology,” by Charles Burnett.

In stressing the urgency of the rulers’ support, munajjims often referred to the financial difficulty of possessing sizeable and reliable astronomical instruments without assistance from the sovereigns. See, for instance, Rukn al-Din Amuli’s Panjāb bāb-i sultānī or ‘Ali-Shah Bukhari’s Kitāb aththmār wa-ṣāḥīḥ fī al-nujūm (The Book of Fruits and Trees), the latter of which is cited in ‘Atufi’s inventory as [22]/[165] (see list of entries).

43. For the ziį genre, see 17.


45. For a brief biography of Taqī al-dīn, see İhsan Fazlıoğlu, Muḥammad b. Ḥasan Ťūsī, s.v. “al-Ṭāliʿ,” in Encyclopaedia Iranica, s.v. “al-Ṭāliʿ,” by David Ofni Zadeh; Burnett.

46. For more details, see Appendix C in Şen’s dissertation.

47. For a brief biography of Taqī al-dīn, see İhsan Fazlıoğlu, Muḥammad b. Ḥasan Ťūsī, s.v. “al-Ṭāliʿ,” in Encyclopaedia Iranica, s.v. “al-Ṭāliʿ,” by David Ofni Zadeh; Burnett.

48. For the contents and astrological significance of this ziį, see Robert Morrison, Islam and Science: The Intellectual Career of Nizām al-Dīn al-Nisābūrī (New York: Routledge, 2007), esp. 63–70.

49. For the contents and astrological significance of this ziį, see Robert Morrison, Islam and Science: The Intellectual Career of Nizām al-Dīn al-Nisābūrī (New York: Routledge, 2007), esp. 63–70.

50. TSMK, R. 1713. The copy has brief notes including an ownership statement on the title page, revealing that the Ottoman scholar-bureaucrat Muḥammadzade (d. 1516) used the book for his own calculations of ascendants.
51. The McGill Team notes that the description of this title is strikingly similar to the introduction to Athir al-Din al-Abhari’s (d. ca. 1265) al-Zīj al-shāmīl (The Comprehensive Tables).


56. SK, Ayasofya MS 2709. This copy should be [55]/[153] in our list of manuscripts.

57. This manuscript should be the one listed in MS Török F. 59, 169 [4].


59. The manuscript libraries in Turkey and major European countries host no less than ten extant manuscripts of the work. There should be even more surviving copies in Iran.

60. For his life and works, see Ela, s.v. “Māshā’Allah b. Aṯathari or b. Sāriya,” by Julio Samsó.

61. The horoscope of Iskandar has yet to be published as a critical edition, but several studies have already explored different aspects of it. For the astronomical and astrological content of the text, see especially L. Elwell-Sutton, “A Royal Timurid Nativity Book,” in Logos Islamikos, in Honorem Georgii Michaelis Wickens, ed. Roger Savory and Dionisius Albertus Agius (Toronto: Pontifical Institute of Medieval Studies, 1984), 119–36.

62. [46] in our list of entries.

63. TSMK, YY 830.

64. The earliest, and apparently the only, surviving copy of Bayezid II’s horoscope comes from the second half of the sixteenth century. See Kandilli MS 396.

65. TSMK, YY 830 and Beyazıt Library MS 4619, passim.

66. For Efizade’s commentary, see SK, Ayasofya MS 2641 (list of entries [26]/[137]).

67. There are at least two other texts in the inventory related to astral sciences that are written in Turkish. The first is a book on meteorological/astrological prognostications, Kitāb al-Maḥṣama al-Turkıyya, cited (list of entries [209]) in the section on ‘ilm al-ﬁğh. The second is a book on the astrological judgments of solar and lunar eclipses, Risāla fī aḥkām al-khūsūf wa al-kusūf bi-al-Turkıyya al-maṇẓūma, recorded (list of entries [257]) in the Turkish poetry section, simply because it is in verse.


69. TSMK, R. 1705, 2a.

70. Mirim Çelebi’s work circulated under different titles, such as Mesʿā’il-i Mirim Çelebi or Mesʿā’il-i Teʿşrāt dar nujūm. For his reference to Qasrani, see SK, Bağdath Vehbi MS 2005, 38b.

71. This important work has also yet to be published. See Storey, Persian Literature, 2:49.


74. For a more detailed discussion, see Şen, “Astrology in the Service of the Empire,” 59–79.

75. For a more detailed discussion, see Şen, “Astrology in the Service of the Empire,” 59–79.

76. In Taşkoprizade’s elaboration of ‘ilm al-qirānāt (the science of conjunctions), for instance, he goes on to say that, as many astrologers state, there is a correlation between the occurrence of grand conjunctions and the shift of dynasties or the emergence of world conquerors such as Alexander the Great, Chingiz Khan, or Timur (ibid., 359–60).


79. For two examples of mss. bearing the seal of Bayezid II, see TSMK, A. 3167, a corrected presentation copy of Durrat al-funūn fi rūʿyat qurrat al-ʿuyūn (On Seeing the Prophet in Dream State), begun in 832/1428–29 and completed Friday, 10 Shaʿban 843/January 16, 1440; and TSMK, A. 1597, an autograph of the important Naẓm al-sulūk fī musāmarat al-mulāk (Ordering of the Paths for the Accompaniment of Rulers) completed 24 Dhuʾl-Qaʿda 834/August 3, 1431 (where the "tree of knowledge" is reproduced on fol. 53a). The former manuscript should be the one listed in MS Török F. 59, 303 (12–13): Kitāb durrat al-funūn fi rūʿyat qurrat al-ʿuyūn fi al-taʿbīr. The latter should be the one listed in MS Török F. 59, 194 (14–15): Kitāb naẓm al-sulūk fī musāmarat al-mulāk fī al-tawārīkh al-gharība.

80. SK, Nuruosmaniye MS 4905, 20a.


82. Encyclopaedia Iranica, s.v. “Ḥobayš b. Ebrāhim b. Moḥammad b. Tellisi,” by Tahsin Yazici. Yazici maintains that at least three different Turkish translations of this text were produced during the reigns of Murad II, Selim I, and Süleyman I.


84. TSMA, E. 1059/6.

85. In an individual register drafted in 10 Shaʿban 910 (January 16, 1505) by Mevlana Kasım Celebi and Pir Mehmed Celebi for the purpose of recording the holdings of the imperial inner treasury (khizāne-i ʿāmire-i enderūnī), numerous astronomical instruments, including astrolabes (ṣuturlāb), quadrants (rubʿ daʿār), and armillary spheres (felek topu) are listed. See TSMA, D. 19026. An earlier register dated 1496 likewise lists astronomical instruments. See Gülru Necipoğlu, Architecture, Ceremonial, and Power: The Topkapı Palace in the Fifteenth and Sixteenth Centuries (Cambridge: MIT Press, 1991), 134–35.
LIST OF ENTRIES

WORKS ON THE QUADRIVIUM

(Tafsīlu kutubi ʿilm al-nujūmī wa-kutubi ʿilm al-hayʿati wa-kutubi ʿilm al-hīsābī wa-kutubi ʿilmī al-handāsāti wa-kutubi ʿilmī al-mūsīqī)

Following the suggestion of Dimitri Gutas, all commentaries, supercommentaries, and glosses are listed under the title of the work on which they comment, but the authors of these commentaries are also listed separately with full reference to their works in the inventory. Under each author, the works are listed as follows: Integer numbers (1, 2, 3) indicate separate works by the author. Lowercase letters (a, b, c) indicate separate copies of the same work, or separate works with the same title. Decimal numbers (1.1, 1.2, 1.3) indicate separate commentaries on the original work by various commentators. A second decimal number after a first (1.1.1, 1.1.2, 1.1.3) indicates a supercommentary on a commentary of the listed work. Lowercase Roman numerals in parentheses, (i), (ii), (iii), indicate that the MS is a translation of the work.

The authors and their works are listed alphabetically. Definite articles, prepositions, and the words R[iṣāla], M[aqāla], and K[itāb] are disregarded in the alphabetization.

PART ONE

The Science of the Stars (ʿilm al-nujūm)

(including both aḥkām al-nujūm and mīn qibal al-nujūm)

ABŪ MAʿSHAR Jaʿfar ibn Muḥammad ibn ʿUmar al-Balkhī (d. 886)


[5] 5. Muntakhab k. qirānāt (The Selection from the Book of Conjunctions), Arabic, 322 {6}.


ʿALĪ B. ʿĪSĀ AL-USTURTΛABĪ (fl. ninth century)


AL-ASHRAF, ʿUmar b. Yūsuf b. ʿUmar b. ʿAlī b. Rasūl (d. 1296)

AL-BALKHĪ, ʿAli b. ʿAlām (fl. twelfth century)
[10] 1(i). Same as preceding, Persian, 317 {10}. Bound with the Arabic original. MANUSCRIPT: SK Ayasofya 2702, personal copy of Bayezid II.

[12] 1b. Same as preceding [catalogued in the inventory as Sharḥ maqālāt Baṭlamyūs fī al-qaḍāʿ bi-al-nujūm ‘alā al-hawādith], 323 {11–12}.

AL-BĪRŪNĪ, Abū rayḥān Muḥammad b. Aḥmad (d. 1048)
[16] 2b. Same as preceding. 313 {11–12}.
[18] 3b. Same as preceding. 320 {10}.
[19] 3c. Same as preceding. 320 {10}.
[20] 3d. Same as preceding. 323 {18}.
[21] 3e. Same as preceding, language specified as Arabic, 320 {13–14}.

AL-BUKHĀRĪ, ʿAlā ʿAl-Dīn ʿAli-Shāh b. Muḥammad b. Qāsim al-Khawārazmī (d. after 1291)

AL-BUKHĀRĪ, ʿImad al-Dīn (fl. fifteenth century)
[23] 1. K. jadwal tashīl al-Qamar wa-jadwal tashīl ʿUtārid (Table for Facilitating [the Calculations of] the Moon and Mercury), 319 {2–3}.
AL-BŪZJĀNĪ, Abū al-Wafā’ Muḥammad b. Muḥammad b. Yahyā (d. 997 or 998)
See also al-Būzjānī in Part Four (ʿilm al-handasa).

[24] 1. Zīj al-wāḍiḥ (Clear Astronomical Handbook of Tables) [catalogued in the inventory as Zīj mawḍūʿ ʿalā mā ṣaḥḥahu al-Shaykh Abū al-Wafāʾ wa-ḥaddahu (Tables Set Forth according to What Was Corrected by the Master Abū’l-Wafāʾ and His Colleagues)], Arabic, 313 {16–17}.

AL-DĪRĪNĪ, ‘Abd al-ʿAzīz b. Aḥmad b. Saʿīd al-Damīrī (d. 1297)

MANUSCRIPT: SK Ayasofya 2711, personal copy of Bayezid II.

EFEZĀDE, Muḥammad b. Khwāja Sulaymān al-Bursawī (d. after 1495)

[26] 1. Shahrī bistāb dar usturlāb (Commentary of al-Ṭūsī’s Treatise on the Astrolabe), Persian, late fifteenth century, 321 {12}. See → al-Ṭūsī, 1.3, Part I. MANUSCRIPT: This codex should be the copy now housed as SK Ayasofya 2641.

AL-GHAZNAWĪ, Abū al-Maḥāmīd b. masʿūd (fl. late twelfth century)

MANUSCRIPT: SK Ayasofya 2699.

[28] 1b. Same as preceding, 316 {16}.

ḤAMZA B. ʿABD AL-KARĪM (d. after 1497)

[29] 1. K. miftāḥ al-nujūm (Book of the Key to the Stars), Persian, 313 {14}.
MANUSCRIPT: TSMK R. 1706.2

IBN AL-HAYTHAM, Abū ‘Ali al-Ḥasan b. al-Ḥasan (d. ca. 1040)
See also Ibn al-Haytham in Part Two (ʿilm al-hay'ā) and Part Four (ʿilm al-handasa).

[30] 1. Qawl fi samt al-qibla (Book on the Azimuth of the Qibla), Arabic, 321 {1}.

[31] 2. M. fi istikhrāj khaṭṭ nisf al-nahār (Chapter on Computing the Meridian Line), Arabic, 321 {1}.

[32] 3. M. fi istikhrāj irtīfāʿ al-quṭb (Chapter on Computing the Altitude of the Pole), Arabic, 321 {1–2}.
Bound in a volume containing Ibn al-Haytham’s M. fi istikhrāj khaṭṭ nisf al-nahār and Qawl fi samt al-qibla.

IBN ’ĀṢIM, Abū Bakr ‘Abd Allāh b. ḥusayn b. Ibrāhīm b. Husayn (d. 1013)

MANUSCRIPT: TSMK A. 3508 (Karatağ: A 7053).

IDRIS AL-NABĪ or HERMES

[34] 1a. R. akkām tuliʾal-shīrā (Treatise on the Judgments of the Appearance of Sirius), Arabic, 320 {4–5}.

[35] 1b. Same as preceding, 321 {11–12}.

[36] 1c. Same as preceding, 322 {8–9}.
[37] 1d. Same as preceding [catalogued in the inventory as K. Hurmus fī ahkām al-nujūm], 323 {5–6}. Bound in a volume containing astrological texts.\(^3\)

IKHWĀN AL-ṢAFĀʾ (fl. tenth cent.)
[39] 1b. Same as preceding, 319 {11–12}.
[40] 1c. Same as preceding, 319 {12–14}.
[41] 1d. Same as preceding, 319 {14}.
[42] 1e. Same as preceding, 324 {4–5}.
[43] 1(i). Same as preceding, Persian translation, 324 {2–4}.

AL-KĀSHĪ, Ghiyāth (al-Milla wa-) al-Dīn Jamshīd b. Masʿūd b. Maḥmūd (d. 1429)
See also al-Kāshī in Part Three (ʿilm al-ḥisāb).
[45] 1b. Same as preceding, 314 {6–7}.

AL-KĀSHĪ, Maḥmūd b. Yaḥyā b. al-Ḥasan (d. after 1411)

AL-KHĀLĪLĪ, Shams al-Dīn Abū ʿAbdallāh Muḥammad b. Muḥammad (d. after 1360)
[49] 1(i)b. Same as preceding [catalogued in the inventory as Sharḥ al-ṣafāʾiḥ al-āfāqiyya (Commentary on al-Khālīlī’s Table)], Turkish, 318 {17}. MANUSCRIPT: TSMK A. 3499 (Karatay: T 1618).
[50] 1(i)c. Same as preceding [catalogued in the inventory as Tarjama R. al-ṣafāʾiḥ al-āfāqiyya], 321 {4–5}.

AL-KHĪṬĀBĪ Al-ḤusAYNĪ, Ḥusām b. shams al-dīn al-lāhijānī al-gīlānī (d. after 1495)
3a. *Jāmiʿ al-qismayn min al-riyādī wa-al-ṭabīʿī fī al-nujūm wa-al-ṭibb* (Collection of Two Parts from Mathematical and Medical Sciences), Persian, 1479–80, autograph, 319 {16–17}.

3b. Same as preceding [catalogued in the inventory as *R. bi-al-fārisīyya fī al-nujūm wa-al-ṭibb*], 318 {16–17}. MANUSCRIPT: This particular copy (3b) is at SK Ayasofya 2444–M.


AL-KŪHIŠTĀNĪ, Fasih al-Dīn Muḥammad b. ‘Abd al-Karīm Nizāmī (d. 1530)


KŪSHYĀR b. LABBĀN, Kiyā Abū al-Ḥasan Bāshahrī al-Jīlī (d. after 1025)


58. ib. Same as preceding, 322 {6–7}.


60. id. Same as preceding, 317 {1}. Bound with an anonymous *K. usūl al-malāḥim*.

61. ie. Same as preceding, language specified as Persian, 313 {12–13}.

62. if. Same as preceding [catalogued in the inventory as *K. fī aḥkām al-nujūm*], 316 {17–18}. Bound with al-Ṭūsī’s *Tarjama K. Thamara-i Baṭlamyūs*. MANUSCRIPT: This codex (1f) should be the copy now housed as Beyazıt Library Beyazıt 4640.

63. ig. Same as preceding, 319 {8}. Bound with *Burhān al-hayʾa* and two anonymous treatises on the science of the stars.

64. ih. Same as preceding, 322 {4}. Bound with al-Ṭūsī’s *Tarjama K. Thamara-i Baṭlamyūs*.


67. 1a. *Jāmiʿ al-mabādiʾ wa-al-ghāyāt fī ilm al-mīqāt* (Comprehensive Collection of Principles and Goals in the Science of Timekeeping), Arabic, 1276–82, 318 {4–5}.

68. ib. Same as preceding, 318 {6}. MANUSCRIPT: These two codices (1a, ib) should be the copies now housed as SK Ayasofya 2699 and TSMK A. 3343 (Karatay: A 7079), personal copy of Bayezid II. EDITION: Jāmiʿ al-mabādiʾ wa-l-ghāyāt fī ilm al-mīqāt, facs. ed. of TSMK A. 3343, ed. Fuat Sezgin, 2 vols. (Frankfurt: Institut für Geschichte der Arabisch-Islamischen Wissenschaften, 1984).

2. *R. Kashf al-rayb fī al-ʿamal bi-al-jayb* (Dispelling Doubt in Working with the Sine Quadrant), Arabic, fourteenth century, 316 {11}. MANUSCRIPT: This codex should be the copy now housed as TSMK A. 3119 (Karatay: A 7037).


4. *Kashf-i ḥaqāʾiq-i Zīj-i īlkhānī* (uncovering of the Truths of the Īlkhānid Astronomical Handbook of Tables), Persian, 1308–9, autograph, 315 {19–21}. See → al-Ṭūsī, 6.3, Part I. MANUSCRIPT: This last book (1e) should be the copy now housed as sk Ayasofya 2696.

5. *K. al-Thamara li-Baṭlamyūs* (The Centiloquium or One Hundred sayings), conventionally attributed to Ptolemy but likely written by a certain Aḥmad b. Yūsuf al-Miṣrī, Arabic, 190 {6}. Bound with al-Ṭūsī’s *Tarjama/Sharḥ al-Thamara* and other treatises. [Catalogued under Kutub al-siyar wa-al-tawārikh, etc.]


1.1b. Same as preceding, 322 {10}.


1(i)b. Same as preceding, 318 {18}.

1(i)c. Same as preceding, 321 {8}. MANUSCRIPT: This codex (1(i)c) should be the copy now housed as SK Ayasofya 2695.

1(i)d. Same as preceding, 322 {3}. Bound with Kūshyār’s Mujmal al-uṣūl.

1(i)e. Same as preceding, 190 {7}. Bound with (pseudo-Ptolemy’s) K. al-Thamara and other treatises. [Catalogued under Kutub al-siyar wa-al-tawārīkh, etc.]


1(i)b. Same as preceding, 318 {18}.

1(i)c. Same as preceding, 321 {8}. MANUSCRIPT: This codex (1(i)c) should be the copy now housed as SK Ayasofya 2695.

1(i)d. Same as preceding, 322 {3}. Bound with Kūshyār’s Mujmal al-uṣūl.

1(i)e. Same as preceding, 190 {7}. Bound with (pseudo-Ptolemy’s) K. al-Thamara and other treatises. [Catalogued under Kutub al-siyar wa-al-tawārīkh, etc.]


1(i)b. Same as preceding, 318 {18}.

1(i)c. Same as preceding, 321 {8}. MANUSCRIPT: This codex (1(i)c) should be the copy now housed as SK Ayasofya 2695.

1(i)d. Same as preceding, 322 {3}. Bound with Kūshyār’s Mujmal al-uṣūl.

1(i)e. Same as preceding, 190 {7}. Bound with (pseudo-Ptolemy’s) K. al-Thamara and other treatises. [Catalogued under Kutub al-siyar wa-al-tawārīkh, etc.]

AL-QAṢRĀNĪ, Ya’qūb b. ʿAlī (fl. likely ninth century)


1b. Same as preceding, 320 {15}.

1c. Same as preceding, 320 {16}.

1d. Same as preceding, 320 {17}.

AL-QUNAWĪ, Muḥammad b. al-Kātib Sinān (d. ca. 1523–24)

1. R. mūḍiḥ al-awqāt fī maʿrīfāt al-muqanṭarāt (Elucidator of Times on Understanding the Al-mucantars [Quadrant]), Arabic, 318 {7}. MANUSCRIPT: TSMK A. 3481 (Karatabay: A 7122).

2. R. tabyīn al-awqāt fī maʿrīfāt waḍʿ al-rukhāmāt (Treatise on explanation of Times for understanding the setting up of Sundials), Arabic, 318 {12–13}. MANUSCRIPT: TSMK A. 3501 (Karatabay: A 7121).

3. Tarjama r. al-jayb (Turkish Translation of a Treatise on the sine Quadrant), Turkish, 316 {10}. MANUSCRIPT: SK Ayasofya 2594.


4b. Same as preceding [catalogued in the inventory as Tarjama r. al-ṣafāʾīḥ al-āfāqiyya], 321 {4–5}.

4c. Same as preceding [catalogued in the inventory as Sharḥ al-ṣafāʾīḥ al-āfāqiyya], 318 {17}. MANUSCRIPT: TSMK A. 3499 (Karatabay: T 1618).

5. Tuḥfat al-fuqarāʾ fī rubʿ al-dāʾira (The gift of the impoverished on the Quadrant of the Circle), Arabic, 318 {7–8}.

QUSṬĀ B. LŪQĀ AL-BALʿABAKĪ (d. ca. 912–13)


1b. Same as preceding, 320 {1}. Bound with Sharaf al-Dīn al-Ṭūsī’s K. fi maʿrīfāt al-usturlāb al-musatṭah, al-Ṣūfī’s K. fi al-ʿamal bi-al-kura, al-Bīrūnī’s K. fi istīʿāb al-wujūḥ, an anonymous treatise on the astrolabe, and another anonymous treatise on using the spherical astrolabe. MANUSCRIPT: According to the Islamic Scientific Manuscript Initiative database (https://ismi.mpw-berlin.mpg.de/), this codex might be TSMK A. 3505 (Karatabay: A 7046).12
1c. Same as preceding, 320 {6}. Bound with an anonymous treatise on the spherical astrolabe, an anonymous treatise on the astrolabe, and R. al-ʿamal bi-al-rubʿ al-mawḍūʿ fīhi al-muqanṭarāt. MANUSCRIPT: This codex (1c) should be the copy now housed as SK Ayasofya 2638.


1e. Same as preceding, 319 {16}. MANUSCRIPT: This codex (1e) should be the copy now housed as TSMK A. 3475 (Karatay: A 7040).

1f. Same as preceding [catalogued in the inventory as R. al-ʿamal bi-al-kura al-falakiyya], 324 {10–11}. Bound with K. daʿāwā Uqlīdus. MANUSCRIPT: This codex (1f) should be the copy now housed as SK Ayasofya 2635.

1g. Same as preceding [catalogued in the inventory as R. al-kura al-falakiyya min qibal al-nujūm], 326 {3}. MANUSCRIPT: This codex (1g) should be the copy now housed as SK Ayasofya 2633.

1h. Same as preceding, 311 {3}. Bound with Sharḥ Mīrak li-ḥikmat al-Hidāya, R. fī al-mūsīqī, K. fī maʿrifat al-ghālib wa-al-maghlūb. [Catalogued under kutub ‘ilm al-taʿbīr, etc.] MANUSCRIPT: SK Ayasofya 2432, personal copy of Bayezid II.

2a. K. fī al-ʿamal bi-al-kura dhāt al-kursī (on the use of the mounted Celestial sphere), Arabic, 320 {11–12}. Bound with five treatises on the use of the quadrant.

2b. Same as preceding, Persian, 324 {5}. MANUSCRIPT: This codex (2b) should be the copy now housed as SK Ayasofya 2631.

Al-QŪSHJĪ, Abū al-Qāsim ʿAlāʾ al-dīn ʿAlī b. muḥammad (d. 1474)
See also al-Qūshjī in Part Two (ʿilm al-hayʾa) and Part Three (ʿilm al-ḥisāb).

1a. Sharḥ-i Zīj-i Ulugh Beg (Commentary of Ulugh Beg’s Astronomical Handbook of Tables), Persian, 315 {16–17}. See → Ulugh Beg, 1.1, Part I.

1b. Same as preceding, 316 {1–2}. MANUSCRIPT: One of these copies should be TSMK A. 3318.13

AL-RĀZĪ, Fakhr al-dīn Abū ʿAbdallāh Muḥammad b. ʿUmar b. al-Khaṭīb (d. 1210)

1a. Ikhtiyārāt al-aḥkām al-ʿalāʾiyya (on the selection of Propitious Times for various Acts and Affairs), Arabic/Persian, 318 {1}.

1b. Same as preceding, 318 {1–2}.

1c. Same as preceding, language specified as Persian, 320 {8–9}. MANUSCRIPT: TSMK R. 1705 (Karatay: F 228).

1d. Same as preceding, 318 {11}. Bound with al-Sijzī’s K. al-dalāʾīl fī aḥkām al-nujūm.

AL-RĀZĪ, Shahmardān b. Abū al-Khayr (d. after 1072)


IBN ÂBĪ AL-RĪJĀL (d. after 1037)

SAYYID MUNAJJIM (fl. first half of the fifteenth century)


AL-SIJZĪ, Abū Saʿīd Aḥmad b. Muḥammad b. ‘Abd al-Jalīl (d. ca. 1020)


2. *R. al-usṭūrlāb al-zawraqī* (Treatise on mariners’ Astrolabe), Arabic, 322 {7–8}.

AL-ṢŪFĪ, Abū al-Ḥusayn ʿAbd al-raḥmān b. ʿumar (d. 986)


1b. Same as preceding, Persian, 321 {15–16}.


2b. Same as preceding, 320 {12}. Bound with al-ʿUrḍī’s work on using the sphere. MANUSCRIPT: This codex (2b) should be the copy now housed as TSMK A. 3491 (Karatay: A 7047).


AL-ṬŪSĪ, Naṣīr al-Dīn Abū Jaʿfar Muḥammad b. Muḥammad (d. 1274)

See also al-Ṭūsī in Part Two (*ʿilm al-hayʾa*), Part Three (*ʿilm al-ḥisāb*), and Part Four (*ʿilm al-handasa*).


1c. Same as preceding [catalogued in the inventory as *R. al-usṭūrlāb*], 317 {7}. Bound with al-Ṭūsī’s *Sī faṣl* and *Madkhāl-i manzūm*. MANUSCRIPT: This codex (1c) should be the copy now housed as SK Ayasofya 2701.
1d. Same as preceding [catalogued in the inventory as Mukhtasár fī ma’rifat al-usturláb], 317 [15–16]. Bound with Book 7 of Qustás’s ‘Amal bi-al-kura, R. fī al-farq bayn al-dád wa-al-zá, and other unspecified treatises.

1.1a. “Sharḥ-i bīst bāb fī ma’rifat al-usturláb” (Commentary on Twenty Chapters), 317 {19}.

1.1b. Same as preceding, 318 [8–9]. Bound with R. fī kayfiyyat al-‘amal bi-al-usturláb, al-ḍād wa-al-zá, and other unspecified treatises.

1.1c. [Efezade] Sharḥ-i bīst bāb fī ma’rifat al-usturláb, 321 [12]. See → Efezade. MANUSCRIPT: This codex (1.1c) should be the copy now housed as SK Ayasofya 2641.

1.2. “K. bīst bāb al-muḥashshā” (Twenty Chapters with glosses), 321 [17–18].

1.3. [Efezade] Sharḥ-i bīst bāb fī ma’rifat al-usturláb, 321 [12]. See → Efezade. MANUSCRIPT: This codex (1.3) should be the copy now housed as SK Ayasofya 2641.


MANUSCRIPT: SK Ayasofya 2701.

2b. Same as preceding, 321 [2–3]. Bound with al-Ṭūsī’s Sī faṣl and other unspecified treatises.

2c. Same as preceding, 148 [12]. Bound with K. al-fiqh bi-al-fārisiya al-manẓūma and Sharḥ al-Farrā’ al-lāmiyya fī al-ṭasawwuf. [Catalogued under Kutub al-ṭasawwuf, etc.]

2d. Same as preceding, 227 [13–14]. Bound with Qaṣīdat Salmān al-muṣannaʿāt and Munshaʿat al-Wahid al-Tabrizi. [Catalogued under al-dawāwīn al-ʿarabiyya, etc.]


3b. Same as preceding, 316 [14]. Bound with K. al-hidāya fī al-ḥikma al-falsafiyya and al-ʿubaydī’s Sharḥ k. al-Chaghmīnī. MANUSCRIPT: SK Ayasofya 2474, personal copy of Bayezid II.


3e. Same as preceding, 318 [10–11]. Bound with al-Ṭūsī’s Zuhdat al-idrāk.

3f. Same as preceding, 321 [2]. Bound with al-Ṭūsī’s Madkhal-i manẓūm and other unspecified treatises.

3g. Same as preceding, language specified as Arabic, 321 [9].


3i. Same as preceding [catalogued in the inventory as Mukhtasár fī ma’rifat al-taqwīm fī al-nujūm], 321 [15].


3k. “Sharḥ-i Sī faṣl,” 321 [8–9].
[155] 3.2b. Same as preceding, 323 {2–3}. Bound as the final text in a compilation, which has as its first text Ibn al-Haytham’s Hall shukūfī K. al-Majisti.
[156] 3.2c. Same as preceding, language specified as Arabic, 323 {16}.
[157] 3.2d. Same as preceding, language specified as Arabic, 323 {16–17}. MANUSCRIPT: One of the two codices (3.2c, 3.2d) should be the copy now housed as SK Ayasofya 2664.15
[160] 5b. Same as preceding, 318 {18}.
[161] 5c. Same as preceding, 321 {8}. MANUSCRIPT: This codex (5c) should be the copy now housed as SK Ayasofya 2695.
[162] 5d. Same as preceding, 322 {3}. Bound with Kūshyār’s Majmal al-uṣād.
[163] 5e. Same as preceding, 190 {7}. Bound with (pseudo-Ptolemy’s) K. al-Thamara and other treatises. [Catalogued under Kutub al-siyar wa-al-tawārīkh, etc.]
[166] 6c. Same as preceding, 313 {18}.
[167] 6d. Same as preceding, 313 {18}.
[173] 6.3b. Same as preceding, 315 {13–14}.
[174] 6.3c. Same as preceding, 315 {14–15}.
[175] 6.3d. Same as preceding, 315 {15–16}.
[176] 6.3e. Same as preceding [catalogued in the inventory as Sharḥ Zīj īlkhānī al-musammā bi-kashf-i zīj-i īlkhānī], 315 {18–19}. MANUSCRIPT: This codex (6.3e) should be the copy now housed as SK Ayasofya 2696.16

AL-ṬŪSĪ, Sharaf al-Din Muẓaffar b. Muḥammad b. al-Muẓaffar (d. 1213)
[177] 1. K. ūsārīfat al-usturlāb al-musattaḥ (Book about the Knowledge of the Flat Astrolabe), 319 {18–19}. Bound with Quṣṭā b. Lūqā’s K. fi al-ʿamal bi-al-kura, al-Ṣūfī’s K. fi al-ʿamal bi-al-kura, al-Bīrūnī’s K. fi istiʿāb al-wujūh, an anonymous treatise on the astrolabe, and an anonymous
treatise on using the spherical astrolabe. MANUSCRIPT: According to the Islamic Scientific Manuscript Initiative database (https://ismi.mpiwg-berlin.mpg.de/), this codex might be TSMK A. 3505 (Karatay: A 7046).17

ULUGH BEG, Muhammad Tağhatay b. Shâhrukh b. Timûr (d. 1449)


[179] 1b. Same as preceding, 313 [17].
[180] 1c. Same as preceding, 313 [18–19].
[181] 1d. Same as preceding, 314 [2].
[182] 1e. Same as preceding, 314 [7].


[184] 1.1b. Same as preceding, 316 [1–2].


AL-ʿURḌĪ, Muʿayyad al-Dīn al-ʿĀmirī al-Dimashqī (d. ca. 1266)


[188] 2b. Same as preceding, Arabic, 329 [12]. Bound with Ibn al-Haytham’s commentary on Ptolemy’s Almagest and another commentary on the same work. MANUSCRIPT: TSMK A. 3329 (Karatay: A 7140).


AL-WĀSĪTĪ, ḤĀmid B. ʿALĪ (fl. ca. 950)


ANONYMOUS/UNIDENTIFIED AUTHORS


8. *R. fī aḥkām al-nujūm* (Treatise on the Judgments of the stars), 323 {7}. Bound with *R. fī ʿamal al-usṭurlāb* and other treatises. MANUSCRIPT: This particular book (9a) should be the copy now housed as SK Ayasofya 2672.

9a. *R. fī aḥkām al-nujūm* (Treatise on the Judgments of the stars), 323 {7}. Bound with *R. fī ʿamal al-usṭurlāb* and other treatises. MANUSCRIPT: This particular book (9a) should be the copy now housed as SK Ayasofya 2672.

9b. Same as preceding, language specified as Persian, 322 {9–10}.


10. *Mukhtār min kutub al-ikhtiyārāt al-falakiyya* (Compilation on the selection of the Propitious Times for various Acts and Affairs), Arabic, 316 {15–16}.

11. *Mujmal al-ikhtiyārāt* (Epitome of the Elections), 318 {10}.


17a. *R. fī samt al-qibla* (Treatise on the Azimuth of the Qibla), 313 {13}.

17b. Same as preceding, 323 {9}.
17c. Same as preceding, 85 {19}. Bound with al-Qaramānī’s Ḥāshiyat Ṣadr al-Sharīʿa. [Catalogued under Kutub al-fiqh wa-kutub manāqib al-aʿimma.]


18b. Same as preceding, 317 {8–9}. Bound with K. arbaʿ maqālāt fī aḥkām al-nujūm.


18d. Same as preceding, 320 {7}. Bound with Qusṭā b. Lūqā’s R. al-ʿamal bi-al-kura al-falakiyya, an anonymous treatise on the spherical astrolabe, and R. al-ʿamal bi-al-rubʿ al-mawḍūʿ fīhi al-muqanṭarāt. MANUSCRIPT: This codex (18d) should be the copy now housed as SK Ayasofya 2638.

18e. Same as preceding, language specified as Persian, 321 {14}.

18f. “R. fī ʿilm al-usṭurlāb,” language specified as Arabic, 322 {1–2}.


19b. Same as preceding, 319 {15}.


19d. “R. al-usturlāb fī al-kūri,” 320 {7}. Bound with Qusṭā b. Lūqā’s R. al-ʿamal bi-al-kura al-falakiyya, an anonymous treatise on the astrolabe, and R. al-ʿamal bi-al-rubʿ al-mawḍūʿ fīhi al-muqanṭarāt. MANUSCRIPT: This codex (19d) should be the copy now housed as SK Ayasofya 2638.

20. R. al-M. al-ḥādī ʿashara fī ʿamal al-usṭurlāb, 322 {15–16}.


22. R. al-usturlāb al-musammā bi-al-Lubāb fī al-nujūm (Treatise on the Astrolabe, entitled The Quintessence on [the Knowledge about] the Astrolabe), Persian, 320 {3}. MANUSCRIPT: SK Ayasofya 2618, personal copy of Bayezid II.


[232] 25. *Jadwal [...]* (Table Showing the Qualities of Zodiac Signs), 322 {4–5}. Bound in a miscellaneous compilation of tables.


[234] 27. *R. al-ʿamal bi-al-rubʾ al-mawḍūʿ fī al-muqanṭarāt* (Treatise on the Use of Almucantar), 320 {7–8}. Bound with Qusṭā b. lūqā’s *R. al-ʿamal bi-al-kura al-falākiyya*, an anonymous treatise on the spherical astrolabe, and an anonymous treatise on the astrolabe. MANUSCRIPT: This codex should be the copy now housed as SK Ayasofya 2638.


[241] 34. *Majmūʿa min rasāʾil fī al-rubʾ* (Collection of Treatises on the Quadrant), 323 {1}.


[245] 38. *K. jadwal ʿuyyina fī al-shuḥūr al-qamāriyya bi-sinīhā* (Book of Tables in which leap Years are Designated According to the Lunar Calendar), 324 {1}.


42. R. fi kayfiyyatʾ amal al-ʾarâṣad wa-kayfiyyat istiʿmâlîhâ (Treatise on the Use of Instruments for Celestial Observation), 323 (3–4). Bound in a miscellaneous volume containing al-ʿUrđî’s R. fi kayfiyyat al-arşâd. MANUSCRIPT: This codex (42) should be the copy now housed as SK Ayasofya 2673.

43. al-Qâṣidat al-ghârrâʾ fi harakât al-ʾalâk (The Splendid Qasida on the Movements of the Orbs), Arabic, 331 (7). MANUSCRIPT: This codex (43) should be the copy now housed as SK Ayasofya 2666.

43.1 Sharḥ al-Qâṣidat al-ghârrâʾ, 331 (6).

44. R. fī kayfiyyat ʿamal ālāt al-raṣād wa-kayfiyyat istiʿmālîhā (Treatise on the use of instruments for Celestial observation), 323 (3–4). Bound in a miscellaneous volume containing al-ʿUrđî’s R. fī kayfiyyat al-arṣâd. MANUSCRIPT: This codex (44) should be the copy now housed as SK Ayasofya 2673.


PART TWO
The Science of the Configuration [of the Heavens] (ʿilm al-hayʿa)

AL-ALĀNĪ, Yūsuf b. Mubārak (d. after 1334)


AL-ANDIQĀNĪ, Muḥammad b. ‘Umar (fl. fourteenth century)

[262] 1. Tarjamat Chaghmīnī bi-al-fārisiyya fī ʿilm al-hayʿa (Persian Translation of Chagmīnī’s Mulakhkhas), Persian, 326 [19]. See → al-Chagmīnī, 1(i). MANUSCRIPT: This codex should be the copy now housed as SK Ayasofya 2592.23

AL-BĪṬRŪJĪ, Nūr al-Dīn Abū ʾIṣḥāq Ibrāhīm b. Yūsuf (d. 1185)


[264] ib. Same as preceding, 332 [15]. Bound with other anonymous treatises.

AL-BUKHĀRĪ, Muḥammad Ibrāhīm b. Mubārakshāh Shams al-Dīn Mirak (d. 1340)


[266] ib. Same as preceding, bound with 1a.

AL-CHAGHMĪNĪ, Sharaf al-Dīn Muḥmūd b. Muḥammad b. ‘Umar (fl. first half of the thirteenth c.)


[268] ib. Same as preceding, 328 [10–11]. MANUSCRIPT: One of these two (1a and 1b) should be TSMK A. 3352 (Karatay 8744).

[269] 1c. Same as preceding, 328 [11]. MANUSCRIPT: These two codices (1b and 1c) may be the copies now housed as SK Ayasofya 2679 and TSMK A. 3352 (Karatay 8744).


[272] i(i). [al-Andiqānī.] Tarjamat Chaghmīnī bi-al-fārisiyya fī ʿilm al-hayʿa, Persian, 326 [19]. See → al-Andiqānī. MANUSCRIPT: This codex (1(i)) should be the copy now housed as SK Ayasofya 2592.24

[273] i(ii). [Ḥamza b. Ḥājj b. sulaymān.] Ṭabṣira, Persian, 327 [8]. Bound with an anonymous Persian commentary of al-Chaghmīnī’s Mulakhkhas. See → Ḥamza b. Ḥājj Sulaymān. MANUSCRIPT: This codex (1(ii)) should be the copy now housed as SK Ayasofya 2593.

1.1b. Same as preceding, 326 {8}. MANUSCRIPT: This codex (1.1b) should be the copy now housed as SK Ayasofya 2651.

1.1c. Same as preceding, 328 {3}. MANUSCRIPT: One of the two codices (1.1c, 1.1d) should be the copy now housed as SK Ayasofya 2653.

1.1d. Same as preceding, 328 {4}. Bound with al-Jurjānī's Ḥāshiyat sharḥ al-Ṭawālī (Supercommentary on al-Bayḍāwī's Rising Light from Far Horizons).

1.1e. Same as preceding, 328 {15–16}. Bound with al-Turkmānī's commentary on al-Chaghmīnī's Mulakhkhas.

1.1f. Same as preceding, 330 {19–331 {1}.

1.1g. Same as preceding, 329 {3}. MANUSCRIPT: This codex (1.1g) should be the copy now housed as SK Ayasofya 2654.

1.1h. Same as preceding, 328 {1–2}. Bound with al-Turkmānī's Ḥāshiyat sharḥ al-Chaghmīnī, 326 {15–16}. see → al-niksārī. MANUSCRIPT: sk Ayasofya 2656.

1.1i. Same as preceding, 329 {1–2}. Bound with Ḥamza b. Ḫājj b. sulaymān's Persian translation of al-Chaghmīnī's Mulakhkhas. MANUSCRIPT: This (1.1i) should be the copy now housed as SK Ayasofya 2593.

1.2a. Qāḍīzāde al-rūmī, Sharḥ al-Mulakhkhas, Arabic, 1412, 328 {1–2}. Bound with Kāfī al-hay'a. See → Qāḍīzāde al-Rūmi, Part II.

1.2b. Same as preceding, 328 {2}.

1.2c. Same as preceding, 328 {12–13}.

1.2d. Same as preceding, 328 {13–14}. Bound with R. al-ishq bi-al-fārisiyā and al-Nīsābūrī's R. al-Shamsiyya. MANUSCRIPT: This (1.2d) should be the copy now housed as SK Ayasofya 2659.

1.2e. Same as preceding, 329 {2}.

1.2f. Same as preceding, 329 {16–17}.

1.2g. Same as preceding, 330 {10–11}. Bound with miscellaneous treatises.

1.2h. Same as preceding, 330 {14–15}.

1.2i. Same as preceding, 330 {16}.

1.2j. Same as preceding, 332 {6–7}. Bound with Qāḍīzāde al-Rūmī's Sharḥ Ashkāl al-ta⁠ʾsīs.

1.2.1. al-Niksārī, Ḥāshiyat sharḥ al-Chaghmīnī, Arabic, 326 {15–16}. See → al-Niksārī. MANUSCRIPT: SK Ayasofya 2656.

1.2.2. al-Shirwānī, Ḥāshiyat sharḥ Qāḍīzāde li-l-Chaghmīnī, 329 {1–2}. See → al-Shirwānī, Part II. MANUSCRIPT: TSMK A. 3294 (Karatay: A 7077).25

1.2.3. Sinān Pasha, Ḥāshiyat sharḥ Qāḍīzāde li-l-Chaghmīnī, 330 {15}. See → Sinān Pasha. MANUSCRIPT: TSMK A. 3299 (Karatay: A 7074).26


1.4b. Same as preceding, 316 {13}. Bound with Kāfī al-hidāya fī al-ḥikma and al-Ṭūsī’s Sīfasl. MANUSCRIPT: SK Ayasofya 2474.

1.5. al-Turkmānī, Sharḥ k. al-Chaghmīnī, Arabic, 328 {16}. Bound with al-Jurjānī’s Sharḥ al-Mulakhkhas. See → al-Turkmānī. MANUSCRIPT: SK Ayasofya 2653.

1.6. Qarā Sinān, Sharḥ al-Chaghmīnī, 326 {2}. See → Qarā Sinān.

1.7a. Sharḥ al-Mulakhkhas, Persian, 327 {8}. Bound with Ḥamza b. Ḥājj b. Sulaymān’s Persian translation of al-Chaghmīnī’s Mulakhkhas. MANUSCRIPT: This codex (1.7a) should be the copy now housed as SK Ayasofya 2593.

1.7.1a. Ḥāshiyat sharḥ al-Chaghmīnī, 325 {19–326 {1}.

1.7.1b. Same as preceding, 332 {8}.
[304] 1.7.1c. Same as preceding, 327 [18]. MANUSCRIPT: These two codices (1.7.1b and 1.7.1c) should be the copies now housed as SK Ayasofya 2607 and 2608.
[305] 1.7.1d. Same as preceding, 329 [13–14].

GHULĀM SINĀN (d. 1506)
[306] 1. Fath al-fathīyya fi sharh al-Fathīyya (Commentary on ‘Alī al-Qūshjī’s R. al-fathīyya), Arabic, 1485, 328 [10]. See → ‘Alī al-Qūshjī, 1.1, Part II. MANUSCRIPT: This codex should be the copy now housed as TSMK A. 3291 (Karatay: A 7117).

ḤAMZĀ B. ḤĀJJ B. SULAYMĀN (fl. fifteenth century)

IBN AL-HAYTHAM, Abū ‘Alī al-Ḥasan b. al-Ḥasan (d. ca. 1040)
See also Ibn al-Haytham in Part One (‘ilm al-nujūm) and Part Four (‘ilm al-handasa).

AL-KHARAQĪ, ʿAbd al-Jabbār (d. 1158)
[311] ib. Same as preceding, 328 [6].
[312] ic. Same as preceding, 329 [5].
[313] id. Same as preceding, 329 [13]. MANUSCRIPT: The last three codices (ib, ic, id) should be the copies now housed as SK Ayasofya 2578, Ayasofya 2579, and Ayasofya 2581.
[315] 1.1b. Same as preceding, bound with 1.1a.
[316] 2. ‘Umda Khwārazmshāhī, Persian, thirteenth century, 328 [17].

AL-ḴHARĀQĪ, Muḥammad (fl. thirteenth century)

AL-JĀJĂRĂMI, Muḥammad al-Jabbār (d. 1158)
[319] 1b. Same as preceding, 326 [8]. MANUSCRIPT: This codex (1b) should be the copy now housed as SK Ayasofya 2651.
[320] 1c. Same as preceding, 327 [7–8].
1d. Same as preceding, 328 {3}. MANUSCRIPT: One of the two codices (1c, 1d) should be the copy now housed as SK Ayasofya 2653.

1e. Same as preceding, 328 {4}. Bound with al-Jurjānī’s Hāshiyat sharḥ al-Ṭawālī’ (Supercommentary on al-Baydawi’s Rising Light from Far Horizons).

1f. Same as preceding, 328 {15–16}. Bound with al-Turkmānī’s commentary on al-Chaghmīnī’s Mulakhkhas.

1g. Same as preceding, 329 {3}. MANUSCRIPT: This codex (1g) should be the copy now housed as SK Ayasofya 2654.

1h. Same as preceding, 330 {19}–331 {1}.

1(i). Turkish translation of al-Jurjānī’s Sharḥ al-Mulakhkhas, 329 {6}.

2. Sharḥ al-Tadhkira (Commentary of Ṭūsī’s Memoir), Arabic, 1409. See → al-Ṭūsī, 2.4–2.10, Part II. 27 MANUSCRIPT: This codex should be the copy now housed as TSMK A. 3320 (Karatay: A 7091).

AL-MASŪDĪ, Sharaf al-Din Muhammad b. Mas‘ūd (fl. thirteenth century)


1b. Same as preceding, 331 {12–13}. MANUSCRIPT: One of the two codices (1a, 1b) should be the copy now housed as SK Ayasofya 2601.

1c. Same as preceding, 327 {1}. MANUSCRIPT: This codex (1c) should be the copy now housed as SK Ayasofya 2602.


AL-NĪSĀBŪRĪ, Muḥyī al-Dīn Muḥammad b. İbrāhīm b. Hasan al-Rūmī (d. 1495)

1. Hāshiyat sharḥ al-Chaghmīnī, Arabic, 326 {15–16}. See → al-Chaghmīnī, 1.2.1; Qaḍizāde al-Rūmī, 1.1. MANUSCRIPT: SK Ayasofya 2656.

AL-NĪSĀBŪRĪ, al-Ḥasan b. Muḥammad b. al-Ḥusayn Niẓām al-Dīn al-Aʿraj (d. ca. 1329–30)

See also al-Nīsābūrī in Part One (‘ilm al-nujūm) and Part Three (‘ilm al-ḥisāb).

1a. Tawḍīḥ (or Sharḥ) al-tadhkira (Elucidation of the Memoir), Arabic, 1311, autograph, 329 {9–10}. See → al-Ṭūsī, 2.1, Part II.

1b. Same as preceding, 327 {2–3}. Bound with al-Ṭūsī’s K. al-tadhkira fī ’ilm al-hay’ā.

1c. Same as preceding, 327 {19}. Bound with al-Ṭūsī’s K. al-tadhkira fī ’ilm al-hay’ā. MANUSCRIPT: One of the two codices (1b, 1c) should be the copy now housed as SK Ayasofya 2589.

1d. Same as preceding [catalogued in the inventory as Tawḍīḥ al-tadhkira], 327 {11}.

1e. Same as preceding [catalogued in the inventory as Sharḥ al-tadhkira], 328 {5}. MANUSCRIPT: This codex (1e) should be the copy now housed as SK Ayasofya 2646.

1f. Same as preceding [catalogued in the inventory as Sharḥ al-tadhkira al-musammā bi-tawḍīḥ al-tadhkira], 330 {3–4}.

1g. Same as preceding, 330 {4–5}. MANUSCRIPT: One of the two codices (1f, 1g) should be the copy now housed as SK Ayasofya 2647.

QĀḌĪzĀDE AL-RŪMĪ, Salāḥ al-Dīn Mūsā b. Muḥammad b. Maḥmūd al-Rūmī (d. after 1440)
See also Qāḍīzāde al-Rūmī in Part Four (ʿilm al-handasa).


[342] ib. Same as preceding, 328 {2}.

[343] ic. Same as preceding, 328 {12–13}.

[344] id. Same as preceding, 328 {13–14}. Bound with R. al-ishlyq bi-al-ǧarīṣiya and al-Nisābūrī's R. al-Shamsiyya. MANUSCRIPT: This codex (id) should be the copy now housed as SK Ayasofya 2659.

[345] ie. Same as preceding, 329 {2}.

[346] if. Same as preceding, 329 {16–17}.

[347] ig. Same as preceding, 330 {10–11}. Bound with miscellaneous treatises.

[348] ih. Same as preceding, 330 {14–15}.

[349] ii. Same as preceding, 330 {16}.


QARĀ SINĀN (d. ca. 1480–81)


AL-QŪSHJĪ, Abū al-Qāsim 'Alāʾ al-Dīn 'Ali b. Muḥammad (d. 1474)
See also al-Qūshjī in Part One (ʿilm al-nuǧūm) and Part Three (ʿilm al-ḥisāb).

[355] 1a. R. al-fāṭihyya fi ʿilm al-hayʿa, Arabic, 1473, 327 {9}.

[356] 1b. Same as preceding, 332 {11}. Bound with al-Qūshjī's R. al-Muḥammadiyya. MANUSCRIPT: This codex (1b) should be the copy now housed as SK Ayasofya 2733.


[358] 1.1. [Ghulām Sinān.] Fath al-fāṭihyya fi sharḥ al-Fāṭihyya, Arabic, 1485, 328 {10}. See → Ghulām Sinān. MANUSCRIPT: This codex (1.1) should be the copy now housed as TSMK A. 3291 (Karatay: A 7117).

[359] 2a. R. dar ʿilm al-hayʿa, Persian, 1458, 327 {11–12}. Bound with a treatise in Persian on Arithmetic and Sharḥ Ashkāl al-taʿsīs. MANUSCRIPT: This codex (2a) should be the copy now housed as SK Ayasofya 2640.

[360] 2b. Same as preceding, 331 {5}. MANUSCRIPT: This codex (2b) should be the copy now housed as SK Ayasofya 2639.

[361] 3. Sharḥ al-Tuḥfa al-shāhiyya, Arabic, autograph. 332 {5–6}. See → al-Shirāzī, 3.1, in Part II. MANUSCRIPT: This codex might be the copy now housed as SK Ayasofya 2643.


SINĀN PASHA, Sinān al-dīn yūsuf b. Ḵhīḍr Beg b. Jalāl al-Dīn Ārif (d. 1486).

1. Ḥāšiyat sharḥ al-Mulakhkhaṣ, Arabic, 330. See → al-Chaghmīnī, 1.2.3; Qāḍīzāde al-Rūmī, 1.3. MANUSCRIPT: TSMK A. 3299 (Karatay: A 7074).

AL-SHIRĀZĪ, Quṭb al-dīn maḥmūd b. masʿūd b. muṣliḥ (d. 1311) See also al-Shīrāzī in Part Four (ʿilm al-handasa)

1a. Nihāyat al-idrāk fī dirāyat al-aflāk (The Utmost Attainment in Comprehending the Orbs), Arabic, 1281, 325 (16).

1b. Same as preceding, 326 (10–11). Bound with R. ʿalā al-ḥaraka al-dahraja (Commentary of the Treatise on the Motion of Rolling). MANUSCRIPT: This codex (ib) should be the copy now housed as TSMK A. 3336 (Karatay: A 7101).

1c. Same as preceding, 326 (13–14). Bound with al-Ṭūsī’s K. al-Tadhkirat. MANUSCRIPT: This codex should be the copy now housed as TSMK A. 3336 (Karatay: A 7082).

1d. Same as preceding, 326 (14–15).

1e. Same as preceding, 327 (5–6).

2. R. fī al-ḥaraka al-dahraja (Treatise on the Motion of Rolling) [catalogued in the inventory as Sharḥ al-R. fī al-ḥaraka al-dahraja], Arabic, 326 (11–12). Bound with al-Shīrāzī’s Nihāyat al-idrāk. MANUSCRIPT: This codex should be the copy now housed as TSMK A. 3336 (Karatay: A 7101).

3a. K. al-tuḥfa al-shāhiyya (The royal gift regarding the knowledge of the Configuration of the Heavens), Arabic, 1295, 325 (19).

3b. Same as preceding, 330 (1).

3c. Same as preceding, 330 (2).

3d. Same as preceding, 330 (17).

3e. Same as preceding, 331 (2). MANUSCRIPT: One of the five codices (3a–3e) should be the copy now housed as SK Ayasofya 2585.

3f. Same as preceding [catalogued in the inventory as K. al-tuḥfa al-shāhiyya li-al-Quṭb al-Shīrāzī], 330 (2–3).

3g. Same as preceding, language specified as Arabic, 330 (12). MANUSCRIPT: This codex (3g) should be the copy now housed as SK Ayasofya 2587.

3.1a. [ʿAlī al-Qūshjī.] Sharḥ al-tuḥfa al-shāhiyya, Arabic, autograph, 332 (5–6). See → al-Qūshjī, 3, Part II. MANUSCRIPT: This codex (3.1a) might be the copy now housed as SK Ayasofya 2643.


3.3. Same as preceding, 332 (5).


4a. Faʿalta fa-lā talum (You Have Done It, So Do Not Condemn), Arabic, 1300, 326 (18–19). See → al-Ṭūsī, 2.2, Part II. MANUSCRIPT: TSMK A. 3338 (Karatay: A 7094).

4b. Same as preceding, 327 (1–2). MANUSCRIPT: This codex (4b) should be the copy now housed as SK Ayasofya 2668.

AL-SHIRWĀNĪ, Fathallāh b. Abū Yazid b. ‘Abd al-‘Azīz b. Iḥrāhīm al-Shābarānī (d. 1486)
See also al-Shīrāzī in Part Five (‘ilm al-mūsīqī).


THĀBIT B. QURRA (d. 901)


AL-TURKMĀNĪ, Kamāl al-Dīn (d. 1357)

AL-ṬŪSĪ, Naṣīr al-Dīn Abū Jaʿfar Muḥammad b. Muḥammad (d. 1274)
See also al-Ṭūsī in Part One (ʿilm al-nujūm), Part Three (ʿilm al-ḥisāb), and Part Four (ʿilm al-handasa).

[391] 1b. Same as preceding, 332 [1–2]. Bound with al-Shirāzī’s *Ikhtiyārāt-i Muẓaffariyya* and an anonymous astronomical epitome.

[392] 1c. Same as preceding, 332 [4].


[394] 2a. *K. al-Tadhkira fi ‘ibn al-hay’a* (Memoir on Astronomy), Arabic, 1261 [the year Marāgha version was completed], 326 [12]. EDITION: Jamil Ragep, Naṣīr Al-Dīn Abū Jaʿfar Muḥammad b. Muḥammad (d. 1274)
See also al-Ṭūsī in Part One (ʿilm al-nujūm), Part Three (ʿilm al-ḥisāb), and Part Four (ʿilm al-handasa).


[391] 1b. Same as preceding, 332 [1–2]. Bound with al-Shirāzī’s *Ikhtiyārāt-i Muẓaffariyya* and an anonymous astronomical epitome.

[392] 1c. Same as preceding, 332 [4].


[394] 2a. *K. al-Tadhkira fi ‘ibn al-hay’a* (Memoir on Astronomy), Arabic, 1261 [the year Marāgha version was completed], 326 [12]. EDITION: Jamil Ragep, Naṣīr Al-Dīn Abū Jaʿfar Muḥammad b. Muḥammad (d. 1274)
See also al-Ṭūsī in Part One (ʿilm al-nujūm), Part Three (ʿilm al-ḥisāb), and Part Four (ʿilm al-handasa).
A. Tunç Şen and Cornell H. Fleischer

**Astronomy = Al-Tadhkira Fi 'ilm Al-Hay'a**, 2 vols. (New York: Springer-Verlag, 1993). MANUSCRIPT: This codex (2a) might be TSMK A. 3317 (Karatay: 7081).

[395] 2b. Same as preceding, 326 {13}. Bound with al-Shirāzī’s *K. nihāyat al-idrāk*. MANUSCRIPT: This codex (2b) should be the copy now housed as TSMK A. 3333 (Karatay: A 7082).

[396] 2c. Same as preceding, 327 {2}. Bound with al-Nisābūrī’s *Tawdīḥ (or Sharḥ) al-tadhkira*. MANUSCRIPT: One of these two codices (2c and 2d) should be the copy now housed as SK Ayasofya 2589.


[399] 2.1a. [al-Nisābūrī] *Tawdīḥ (or Sharḥ) al-tadhkira* (Elucidation of the Memoir), Arabic, 1311, autograph, 329 {9–10}. See → al-Nisābūrī, 1, Part II.

[400] 2.1b. Same as preceding, 327 {2–3}. Bound with al-Ṭūsī’s *K. al-tadhkira fī 'ilm al-hay'a*. MANUSCRIPT: One of the codices (2.1b or 2.1c) should be the copy now housed as SK Ayasofya 2648.

[401] 2.1c. Same as preceding, 327 {19}. Bound with al-Ṭūsī’s *K. al-tadhkira fī 'ilm al-hay'a*. MANUSCRIPT: This codex (2.1c) should be the copy now housed as SK Ayasofya 2646.

[402] 2.1d. Same as preceding [catalogued in the inventory as *Tawdīḥ al-tadhkira*], 327 {11}. MANUSCRIPT: This codex (2.1d) should be the copy now housed as SK Ayasofya 2647.

[403] 2.1e. Same as preceding [catalogued in the inventory as *Sharḥ al-tadhkira*], 328 {5}. MANUSCRIPT: One of the two codices (2.1f, 2.1g) should be the copy now housed as SK Ayasofya 2645.

[404] 2.1f. Same as preceding [catalogued in the inventory as *Sharḥ al-tadhkira al-musammā bi-tawdīḥ al-tadhkira*], 330 {3–4}. MANUSCRIPT: One of the two codices (2.1f, 2.1g) should be the copy now housed as SK Ayasofya 2647.

[405] 2.1g. Same as preceding, 330 {4–5}. MANUSCRIPT: One of the two codices (2.1f, 2.1g) should be the copy now housed as SK Ayasofya 2647.


[407] 2.2b. Same as preceding, 327 {1–2}. MANUSCRIPT: The second book (2.2b) should be the copy now housed as SK Ayasofya 2668.


[410] 2.4. *Sharḥ al-Tadhkira fī 'ilm al-hay'a,* 325 {17}. Bound with *K. fī 'ilm al-ḥisāb*.

[411] 2.5. Same as preceding, 326 {9}.

[412] 2.6. Same as preceding, 327 {5}.

[413] 2.7. Same as preceding, 330 {7}. MANUSCRIPT: One of the three copies (2.5, 2.6, 2.7) should be the one now housed as SK Ayasofya 2646.

[414] 2.8. *Sharḥ al-Tadhkira fī al-hay'a,* 329 {10}.

[415] 2.9. Same as preceding, 326 {14}.

[416] 2.10. Same as preceding, the autograph copy of its commentator, 331 {13}.

[417] 3a. *Taḥrīr al-Majisṭī* (Recension of Ptolemy’s Almagest), Arabic, 1247, 326 {1}.

[418] 3b. Same as preceding, 328 {17–18}.

[419] 3c. Same as preceding, 329 {7}.

[420] 3d. Same as preceding, 329 {7}.

[421] 3e. Same as preceding, 330 {9–10}.

[422] 3f. Same as preceding, 330 {13–14}. MANUSCRIPT: One of the two codices (3e, 3f) should be the copy now housed as TSMK A. 3328 (Karatay: A 7095), personal copy of Bayezid II.
[423] 3g. Same as preceding [catalogued in the inventory as Tahrîr Majîṣī fi 'ilm al-hay'â', 331 {1}. MANUSCRIPT: This codex (3g) should be the copy now housed as SK Ayasofya 2583.

[424] 3h. Same as preceding, 331 {18–19}. Bound in a miscellaneous volume containing K. Uqlîdus, al-Mutawassîsûtî al-handasîyya, and al-Tadhkhîra fi al-hay'â'. MANUSCRIPT: This codex (3h) might be TSMK A. 3453 (Karatay: A 7005).


[427] 3.3. Same as preceding, 328 {18}.


[430] 5b. Same as preceding, 326 {17}. Bound with al-Ṭûsî's R. Muʿîniyya and Sharḥ-i Muʿîniyya. MANUSCRIPT: This codex (5b) should be the copy now housed as SK Ayasofya 2670.

[431] 5c. Same as preceding, 329 {15–16}.

[432] 5d. Same as preceding, 332 {13}. Bound with al-iṣfahâni's Talkhīs al-makhrûtât, al-Ṭûsî's Jawâmiʿ al-ḥisâb, K. miʿyâr al-ashʿâr, and other treatises. MANUSCRIPT: This codex (5d) should be the copy now housed as TSMK A. 3455 (Karatay: A 8752).


AL-ʿUBAYDĪ, Jalāl al-dīn Faḍl Allāh (d. 1350)


ANONYMOUS/UNIDENTIFIED AUTHORS


[440] 2. K. burhān [al-]hay'â (Book on the Demonstrations of the Configurations), 319 {8}. Bound with two anonymous treatises on [the science of] the stars.

[442] 3b. Same as preceding, language specified as Arabic, 332 {9}.

[443] 3c. Same as preceding, 121 {18–19}. Bound with *K. al-ṣiḥāḥ fī al-furs* and *K. qurrat al-ʿayn min qibal al-laṭāʾif wa-al-taṣawwuf*. [Catalogued under Kutub al-taṣawwuf, etc.]

[444] 3d. "*K. fī al-hayʾa*" (Book on the Configurations [of the Heavens]), 328 {1}. Bound with Qāḍīzāde al-Rūmī’s *Sharḥ al-Chaghmīnī*.


**PART THREE**

Arithmetic (ʿilm al-ḥisāb)

AL-BAGHDĀDI, Abū Bakr ʿAbd Allah al-Ḥusayn al-shaqqāq (d. 1117)


AL-FĀRISĪ, Kamāl al-Dīn al-Ḥasan b.ʿAli b. al-Ḥasan (d. 1319)


[451] 1b. Same as preceding, 333 {10–11}.

[452] 1c. Same as preceding, 333 {13–14}.

[453] 1d. Same as preceding, 333 {17}. MANUSCRIPT: Three of the four codices should be the copies now housed as TSMK A. 3132 (Karatay: A 6996), A. 3140 (Karatay: A 6997), A. 3155 (Karatay: A 6998).

AL-GHARĪBĪ, Jalāl al-Dīn ʿAlī (fl. ca. 1350)


AL-GHAZNAWĪ, Muḥammad b.ʿAbd al-Karīm (fl. thirteenth century)


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AL-KASHGĀRI, ʿAbd Allāh b. Asʿad b. ʿUmar (fl. fourteenth century)

[456] 1. R. al-ʿimādiyya fī al-ṭuruq al-ḥisābiyya (The ʿImādiyya Treatise on Arithmetic Methods), Arabic, 334 {17–18}. MANUSCRIPT: This codex should be the copy now housed as SK Ayasofya 2739.

AL-KĀSHĪ, Ghiyāth (al-Milla wa-) al-Dīn Jamshīd b. Masʿūd b. Maḥmūd (d. 1429)

See also al-Kāshī in Part One (ʿilm al-nujūm).

[457] 1a. Miṣṭāḥ al-ḥisāb (The Key to Arithmetic), Arabic, 1427, 334 {10}.


AL-KĀSHĪ, ʿimād al-dīn Yahyā b. Aḥmad (fl. ca. 1343)


[461] 2. K. al-lubāb fī al-ḥisāb (Quintessence on Arithmetic), Arabic, 334 {8}. MANUSCRIPT: This codex should be the copy now housed as SK Ayasofya 2757.

AL-KARAJĪ, Abū Bakr Muḥammad b. al-Ḥusayn (fl. ca. 1000)


IBN AL-KHAWWĀM, ʿimād al-dīn Abū ʿAli ʿAbdallāh b. Muḥammad al-Baghdādī (d. 1328)


[466] 1.1b. Same as preceding, 333 {10–11}.

[467] 1.1c. Same as preceding, 333 {13–14}.

[468] 1.1d. Same as preceding, 333 {17}.


KHAYR AL-DĪN KHALĪL B. IBRĀHĪM (d. late fifteenth century)

1. Mushkil-gushāy-i hussāb fī ‘ilm al-ḥisāb (Problem Solver for Arithmeticians), Persian, 334 [12].

AL-KIRMĀNĪ, Abū Ishāq (fl. late fifteenth century)


AL-NĪSĀBŪRĪ, al-Ḥasan b. muḥammad b. al-Ḥusayn niẓām al-dīn al-Aʿraj (d. ca. 1329–30)

See also al-Nisābūrī in Part One (‘ilm al-nujūm) and Part Two (‘ilm al-hayʾa).

1a. R. al-shamsiyya fī ‘ilm al-ḥisāb (The Shamsiyya Treatise), Arabic, 328 [15]. Bound with Qāḍīzāde al-Rūmī’s Sharḥ al-Chaghmīnī and an anonymous Persian treatise. MANUSCRIPT: This codex (1a) should be the copy now housed as SK Ayasofya 2659. EDITION: Elif Baga, “Nizamuddin Nisaburi ve Şemsiyye Fi'l-Hisab Adlı Matematik Rısalesinin Tahkik, Tercüme ve Tarihi Bir Değerlendirmesi” (master’s thesis, Sakarya University, 2007).

1b. Same as preceding, 334 [5]. Bound with al-Zanjānī’s R. kāfiya fī al-ḥisāb. MANUSCRIPT: This should be TSMK A. 3152 [Karatay: A 7016].

1c. Same as preceding, 334 [8].

1d. Same as preceding, 335 [9]. MANUSCRIPT: The two codices (1c, 1d) should be two of the three copies now housed as SK Ayasofya 2725, TSMK A. 3149 (Karatay: A 7014), and A. 3150 (Karatay: A 7015).

1e. Same as preceding [catalogued in the inventory as R. al-niẓāmiyya fī al-ḥisāb], 334 [14].


1.2. Sharḥ al-shamsiyya, language specified as Persian, 334 [1–2].

QĀḌĪ AL-HUMĀMĪYĀ, Jamāl al-dīn Ahmad al-ʿAbbās Ahmad b. Thābit (d. 1272)


AL-QŪSḤJĪ, Abū al-Qāsim ʿAlāʾ al-dīn ʿAlī b. muḥammad (d. 1474)

See also al-Qūshjī in Part One (‘ilm al-nujūm) and Part Two (‘ilm al-hayʾa).


ṢALĀḤ AL-DĪN MŪSĀ (fl. late fourteenth century?)


1.1b. “Sharḥ al-mukhtaṣar al-Ṣalāḥ fī al-ḥisāb,” 334 {6}.

1.1c. "K. sharḥ al-Ṣalāḥ fī ʿilm al-ḥisāb,” 333 {11}. MANUSCRIPT: These two codices (1.1b, 1.1c) should be the copy now housed as SK Ayasofya 2751 and TSMK A. 341 (Karatay: A 7011).

AL-SAMAW’AL, Abū Naṣr b. Yahyā b. ‘Abbās al-Mağhrībī (d. 1174–75)


AL-SAJĀWĀNDĪ, Sirāj al-Dīn Abū Ṭāhir Muḥammad (d. ca. 1203)

1. R. fī l-ḥisāb, Arabic, 335 {1–2}. MANUSCRIPT: This might be the copy now housed as SK Ayasofya 4855.

AL-ṬABĀRĪ, Abū Jaʿfar Muḥammad b. Ayyūb b. Ḥāsib (fl. eleventh century)

1. Miftāḥ al-muʿāmalāt fī ʿilm al-ḥisāb (The Key to Transactions in the Science of Arithmetic), Persian, 335 {2}. MANUSCRIPT: This codex should be the copy now housed as SK Ayasofya 2763.

AL-TURKISTĀNĪ, Jamāl al-Dīn Saʿīd b. Muḥammad (fl. ca. 1300)

1a. al-R. al-ʿalāʾiyya fī al-maṣāʾil al-ḥisābiyya (The ʿAlāʾiyya Treatise on Arithmetic Problems), Arabic, 334 {3}. Bound with R. Ajwībat Ibn Sinā li-maṣāʾil Abī al-Rayḥān [al-Bīrūnī]. MANUSCRIPT: This codex (1a) should be the copy now housed as SK Ayasofya 2737.

1b. Same as preceding, 334 {4}.

1c. Same as preceding, 324 {8}. Bound with al-Mizṣī’s al-Rawdāt al-muzaharrāt fī al-ʿamal bi-al-muqantarāt and R. kashf al-rayb fī al-ʿamal bi-al-jayb. MANUSCRIPT: This codex (1c) might be the copy now housed as TSMK A. 3119 (Karatay: A 7037).


AL-ṬŪSĪ, Naṣīr al-Dīn Abū Jaʿfar Muḥammad b. Muḥammad (d. 1274)

See also al-Ṭūsī in Part One (ʿilm al-najūm), Part Two (ʿilm al-hayʾa), and Part Four (ʿilm al-handasa).


1b. Same as preceding [catalogued in the inventory as K. jawāmiʿ al-ḥisāb fī ʿilm al-ḥisāb], 160 {9}. Bound with K. fī ʿilm al-tashrīḥ min qibal al-ṭibb. [Catalogued under al-Kutub al-ṭibbiyya.]

2. R. al-jabr wa-al-muqābala fī al-ḥisāb (Treatise of Algebra), 335 {6}.
AL-WĀLISHTĀNĪ, Maḥmūd b. Muhammad b. Qawām al-Hirawī (fl. ca. 1445)

[500] 1. Mukhtarās dar ʿilm-i hisāb (Compendium in the Science of Arithmetic) [catalogued in the inventory as R. fārisiyya fī ʿilm al-hisāb (A Persian Treatise on the Science of Arithmetic)], Persian, 333 {18}. Bound with al-Shirwānī’s translation of ʿAlī al-Dīn al-Urmawī’s work on music. MANUSCRIPT: This codex should be the copy now housed as SK Ayasofya 2735.

AL-ZANJĀNĪ, ʿizz al-dīn ʿAbd al-Wahhāb ibrāhīm (fl. ca. 1262)


[503] 2a. ʿUmdat al-ḥisāb (Pillar of Arithmetic), Arabic, 335 {8}. MANUSCRIPT: TSMK A. 3455 (Karatay: A 7008).

Anonymous/unidentified

[506] 1a. K. al-mī’a wa-al-ʿishrīn fī hisāb al-ḍarb (The Book of the One Hundred and Twenty in Arithmetic Multiplication), 318 {15–16}.


[510] 2c. Same as preceding, 334 {7}.

[511] 2d. Same as preceding, language specified as Persian, 335 {9}.


[514] 2g. Same as preceding, 327 {16}. Bound with al-Ṭūsī’s K. Uqlīdus and al-Ahwāzī’s Sharḥ al-M. al-ʿāshira min K. Uqlīdus.

[515] 2h. Same as preceding, 333 {19}.

[516] 2i. Same as preceding, language specified as Persian, 327 {12}. Bound with ‘Alī al-Qūshjī’s R. dar ʿilm-i hayʾa and Qāḍizāde al-rūmī’s Sharḥ ashkāl al-taʾsīs. MANUSCRIPT: This codex should be SK Ayasofya 2640.

[517] 2j. Same as preceding, language specified as Persian, 333 {9}. Bound with Qāḍī al-Humāmīya’s K. ghunyat al-ḥussāb. MANUSCRIPT: This codex (2j) should be the copy now housed as SK Ayasofya 2728.

Astrology, Astronomical Tables, and Almanacs in the Library Inventory of Bayezid II

21. Same as preceding, 334 {1}.
22. “K. fi al-ḥisāb,” language specified as Arabic, 334 {4}. MANUSCRIPT: This codex (22) should be the copy now housed as SK Ayasofya 2723.

2.1a. “Sharḥ R. fi ‘ilm al-ḥisāb,” 333 {14–15}. MANUSCRIPT: This codex (2.1a) should be the copy now housed as TSMK A. 3154 [Katay: A 7013].

2.1c. “Sharḥ mukhtaṣar fī al-ḥisāb,” 334 {10–11}.

4. K. al-kifāya fī ʿilm al-ḥisāb (The Book of Sufficiency in Arithmetic), 328 {19}–329 {1}. Bound with al-Nasawi’s K. al-tajrīd fī-uṣūl al-ḥandasa (Abstract of Euclid’s Elements) and K. Uqlīdus. MANUSCRIPT: This codex should be SK Fatih 3441.
5. Sharḥ al-shamsiyya (Commentary of the Shamsiyya Treatise), language specified as Persian, 334 {1–2}.


8. R. fī al-siyāqa min qibal ʿilm al-ḥisāb (Persian Treatise on Accounting Arithmetic), Persian 334 {9}.
9. R. fī maʿrifat al-ḥisāb al-hindi (Treatise on Understanding Indian Arithmetic), 335 {5–6}.
12. R. al-taṭām fī ʿilm al-ḥisāb, 358 {3}. Bound with Ibn Mubārak Shāh’s Sharḥ Hikmat al-hidāya and other treatises. [Catalogued under kutub al-hikmat al-islāmiyya, etc.]

PART FOUR
Geometry (ʿilm al-handasa)

AL-AHWĀZĪ, Abūl-Ḥasan (fl. ca. 1000)

1. Sharḥ al-M. al-ʿāshira min k. Uqlīdus (Commentary of Book X of Euclid’s Work), Arabic, 327 {15–16}. Bound with al-Ṭūsī’s K. Uqlīdus and R. fiʿilm al-ḥisāb. MANUSCRIPT: This codex should be the copy now housed as SK Ayasofya 2742.
APOLLONIUS OF PERGA (fl. second half of third century BCE)


[537] 1b. Same as preceding, 330 {8–9}. MANUSCRIPT: One of the two codices (1a, 1b) should be the copy now housed as SK Ayasofya 2762.

[538] 1c. Same as preceding, 331 {10–11}. Bound as the first book of a volume containing books of astronomy and geometry.


[541] 1.2b. Same as preceding, 331 {11–12}. MANUSCRIPT: One of the two copies should be SK Ayasofya 2724.


AL-BŪZJĀNĪ, Abū al-Wafāʾ Muḥammad b. Muḥammad b. Yahyā (d. 997 or 998)

See also al-Būzjānī in Part One (ʿilm al-nujūm).


IBN AL-HAYTHAM, Abū ʿAlī al-Ḥasan b. al-Ḥasan (d. ca. 1040)

See also Ibn al-Haytham in Part One (ʿilm al-nujūm) and Part Two (ʿilm al-hayʿa).


AL-ĪṢFAHĀNĪ, Abū al-Fatḥ Muḥammad b. Qāsim b. Faḍl (fl. ca. 1120)


[547] 1b. Same as preceding, 331 {11–12}. MANUSCRIPT: SK Ayasofya 2724.


AL-NASAWĪ, Abū al-Ḥasan ʿAlī b. Aḥmad (fl. eleventh century)

[549] 1. K. al-tajrīd fī uṣūl al-ḥandasa (Abridgment of the Elements of Geometry), Arabic, 328 {19}. Bound with al-Ṭūsī’s Taḥrīr uṣūl Uqlīdus and K. al-kifāya fī ʿilm al-hisāb. MANUSCRIPT: This codex should be the copy now housed as SK Fatih 3441.
QĀḌĪZĀDE AL-RŪMĪ (d. after 1440)
See also Qāḍīzāde al-Rūmī in Part Two (ʿilm al-hay'a).


[551] ib. Same as preceding, 329 {14}.

[552] ic. Same as preceding, 330 {18}. MANUSCRIPT: The two copies (ib, ic) should be those now housed as SK Ayasofya 2743 and SK Ayasofya 2744.

[553] id. Same as preceding, 332 {2–3}. Bound with al-Samarqandi’s Ashkāl al-taʾsīs and al-Abhari’s Ḥikmat al-hidāya.

[554] ie. Same as preceding, 332 {6–7}. Bound with the author’s Sharḥ al-mulakhkḥas.


QUṬB AL-DĪN ÇELEBĪ, Muḥammad b. Muḥammad b. Qāḍīzāde al-Rūmī (fl. late fifteenth century)

[556] 1. Ḥāshiyyat sharḥ ashkāl al-taʾsīs (Supercommentary on al-Samarqandi’s Propositions for the Foundation), Arabic, 327 {17–18}. See → Qāḍīzāde al-Rūmī, 1.1, Part IV.

AL-SAMARQANDĪ, Shams al-Dīn Muhammad b. Ashraf al-Ḥusaynī (d. ca. 1322)


[558] ib. Same as preceding, 64 {12}. Bound with K. al-maʿārif fī sharḥ al-Ṣahāʾif fī ʿilm al-kalām. [Catalogued under Kutub ʿilm uṣūl al-dīn.]

[559] ic. Same as preceding, 166 {13}. Bound with Mukhtaṣar sharīf fī ʿināʾat al-ṭibb. [Catalogued under al-Kutub al-ṭibbiyya.]


[561] 1.1b. Same as preceding, 329 {14}.

[562] 1.1c. Same as preceding, 330 {18}. MANUSCRIPT: The two codices (1.1b, 1.1c) should be the copies housed as SK Ayasofya 2743 and SK Ayasofya 2744.

[563] 1.1d. Same as preceding, 332 {2–3}. Bound with Samarqandi’s Ashkāl al-taʾsīs and al-Abhari’s Ḥikmat al-hidāya.

[564] 1.1e. Same as preceding, 332 {6–7}. Bound with Qāḍīzāde al-Rūmī’s Sharḥ al-mulakhkḥas.


AL-SARĪ, Najm al-Dīn Abū al-Futūḥ Aḥmad (d. 1154)


AL-SHIRĀZĪ, ʿAbd al-Malīk (d. ?)

AL-SHĪRĀZĪ, Quṭb al-Dīn Maḥmūd b. Masʿūd b. Muṣliḥ (d. 1311)
See also al-Shirāzī in Part Two (ʿilm al-hayʾa).


[569] 1b. Same as preceding, 329 {4–5}. [Only the Persian translation of the Book of Euclid.]

AL-ṬŪSĪ, Naṣīr Al-dīn Abū Jaʿfar muḥammad b. muḥammad (d. 1274)
See also al-Ṭūsī in Part One (ʿilm al-nujūm), Part Two (ʿilm al-hayʾa), and Part Three (ʿilm al-ḥisāb).


[571] 1b. Same as preceding, 331 {17}. Bound with other texts in geometry.


[574] 2b. Same as preceding, 329 {8}.

[575] 2c. Same as preceding, 329 {9}.

[576] 2d. Same as preceding, 326 {18}. Manuscript: One of the four copies (2a, 2b, 2c, 2d) should be the manuscript now housed as SK Ayasofya 2722.

[577] 2e. Same as preceding, 326 {8–9}.

[578] 2f. Same as preceding, 326 {10}.

[579] 2g. Same as preceding, 327 {14}. Bound with al-Ahwāzī’s Sharḥ al-M. al-ʿāshirat min K. Uqlīdus and an unspecified treatise on arithmetic. Manuscript: This codex (2g) should be the copy now housed as SK Ayasofya 2742.


[581] 2i. Same as preceding, 330 {5}. Bound with unspecified treatises on different subjects treated in K. Uqlīdus.

[582] 2j. Same as preceding, 331 {9}. Bound in a miscellaneous volume containing unspecified treatises on geometry and other subjects. Manuscript: One of the two copies (2i or 2j) might be Millet Feyzullah 1359.


ANONYMOUS/UNIDENTIFIED

ASTROLOGY, ASTRONOMICAL TABLES, AND ALMANACS IN THE LIBRARY INVENTORY OF BAYEZID II

2a. *K. daʿāwā Uqlīdus min qibal al-handasa*, Arabic, 324 {11}. Bound with *R. alʿamal bi-al-kura al-falakīyya*. MANUSCRIPT: This codex (2a) should be the copy now housed as SK Ayasofya 2635.

2b. "*K. Uqlīdus fī al-handasa*," 326 {4}.


5a. "*R. fī al-handasa wa-ghayrihā*," 332 {8–9}.


PART FIVE
Music (ʿilm al-mūsīqī)

IBN SALAMA, Abū Ṭālib al-Mufaḍḍal (d. ca. 903)


AL-LĀDHIQĪ, Muḥammad b. ʿAbd al-Ḥamīd (fl. ca. 1483)


1b. Same as preceding, 336 {15}. [Catalogued in the inventory as R. Fatḥiyya li-Mawlānā Muḥyī al-Dīn al-Lādhiqī fī al-mūsīqī.]


AL-MARĀḠĪ, ’Abd al-ʿAzīz b. ʿAbd al-Qādir b. Ghaybi (fl. late fifteenth century)

1a. *Naqāwat al-adwār* (Best of the Modes), Persian, 335 {16}.

600 ib. Same as preceding, 336 {18}.
AL-MARĀGHĪ, 'Abd al-Qādir b. Ghaybī (d. 1435)
[601] 1c. Same as preceding, 337 [3]. MANUSCRIPT: One of these three codices should be the copy now housed as TSMK A. 3462 (Karataf: F 278).

[603] 1b. Same as preceding, 336 [4–5]. MANUSCRIPT: These two codices (1a and 1b) should be SK Nuruoṣmaniye 3644 and 3645.


[610] 5. R. laḥniyya (Treatise on Melodies), 336 [9–10].


AL-SHIRWĀNĪ, Faṭḥ Allāh b. Abū Yazīd b. ʿAbd al-ʿAzīz b. ibrāhīm al-Shābarānī (d. 1486)
See also al-Shirwānī in Part Two (ʿilm al-hayʾa).

[612] 1a. Majalla fī al-mūsīqī (Codex on Music), Arabic, 335 [18].

[613] 1b. Same as preceding, 336 [5]. MANUSCRIPT: One of these two codices should be the copy now housed as TSMK A. 3449 (Karataf: A 7428). EDITION: Majalla fī al-mūsīqī = Codex on Music, facs. ed. of TSMK A. 3449, ed. Fuat Sezgin (Frankfurt: Institut für Geschichte der Arabisch-Islamischen Wissenschaften, 1986).


AL-URMAWĪ, Ṣafī al-Dīn ‘Abd al-Muʿmin b. Yusuf b. Fākir (d. 1294)

[615] 1a. al-Mukhtaṣar fī maʿrifat al-nagham wa-al-adwār (Epitome on Understanding Musical Tunes and Modes), better known as K. al-adwār (The Book of the Modes), Arabic, 1236, 336 [13–14]. [Catalogued in the inventory as Mukhtaṣar Ṣafī al-Dīn fī al-mūsīqī.] MANUSCRIPT: This codex (1a) should be the copy now housed as SK Ayasofya 2735. EDITION: Mehmed Nuri Uygun, Şafiyüddin Abdulmumin Urmevi ve Kitabü'l-Edvar’ı (Istanbul: Kubbealtı, 1999).

[616] 1b. Same as preceding, 336 [17].

[617] 1c. Same as preceding, 337 [1]. [Catalogued in the inventory as Mukhtaṣar fī maʿrifat al-nagham.]


1.1. [al-Marāghī.]


2b. Same as preceding, 335 {18–19}.

2c. Same as preceding, 336 {17–18}.

**ANONYMOUS/UNIDENTIFIED AUTHORS**


2. *Mukhtaṣar fī al-mūsīqî* (Compendium of Music), language specified as Arabic, 336 {9}.


4b. Same as preceding, language specified as Turkish, 337 {4–5}.

4c. *“K. fī al-mūsīqî,”* language specified as Arabic, 337 {4}.


6a. *Gharāʾib al-adwār fī al-mūsīqî* (Unusual Modes), 336 {13}.

6b. Same as preceding, 337 {2}.


**PART SIX**

Amusement (*kutub al-lahw*)

AL-HASAN AL-BAŞRĪ, Abū Saʿīd al-Hasan b. Yasār al-BAşrī (d. 728)


1b. Same as preceding, 337 {12}.

1c. Same as preceding, 337 {13}.

**ANONYMOUS/UNIDENTIFIED**

1. *K. al-shaṭranj, 337 [13].*

**NOTES**

*Authors’ note:* This list includes helpful contributions from Jamil Ragep and the McGill Team (Sally Ragep, Sajjad Nikfahm-Khubravan, Fateme Savadi, and Hasan Umut).

1. Karatay does not list all the works in the volume.

2. This codex is not catalogued in Karatay.
3. ’Atufi notes that the book is also known as *K. al-tāj*.
4. Since we did not have the chance to see the original manuscript, we are not sure whether this codex bears Bayezid II’s seal.
5. Karatay says the work is anonymous.
6. Although ’Atufi does not assign its authorship to Kūshyār, the extant volume contains his treatise on the astrolabe along with Ptolemy’s *Tasṭīḥ basīṭ al-kura* (Flattening the Surface of the Sphere) and Thābit b. Qurra’s translation of Autolykos (*K. al-kura al-mutaḥarriqa*).
7. ’Atufi notes that the copy lacks the last part of Book 4.
8. The codex has the seal of Bayezid II and is listed by Zeynep Atbaş. But as Jamil Ragep et al. have noted, Karatay also lists a treatise by Taqī al-Din (d. 1585) bound in the same volume. This codex might have been rebound at a later date.
9. See the above footnote.
10. Although ’Atufi does not mention it in the relevant entry, the copy also includes a section from Book 4 of al-Shirāzī’s *Durrat al-tāj*.
11. ’Atufi notes that the copy contains only Chapter 7.
12. Karatay does not list all the works in the volume.
13. This codex is not catalogued in Karatay.
14. Karatay does not list all the works in the volume.
15. Although ’Atufi does not mention it in the relevant entry, this codex also contains *Miḥṭāḥ bist bāb dar ma’rifat-i usṭurlāb* attributed to al-Ṣūfī.
16. Although ’Atufi does not mention it in the relevant entry, the copy also includes a section from Book 4 of al-Shirāzī’s *Durrat al-tāj*.
17. Karatay does not list all the works in the volume.
18. The manuscript also contains the Turkish translation of the same horoscope.
19. Although ’Atufi does not mention it in the relevant entry, this volume contains a copy of Kūshyār’s *Mujmal al-uşul*.
20. Karatay does not list all the works in the volume.
21. Karatay does not list all the works in the volume.
22. Although ’Atufi does not specify its authorship to Kūshyār, the extant volume houses his treatise on the astrolabe along with Ptolemy’s *Tasṭīḥ basīṭ al-kura* (Flattening the Surface of the Sphere) and Thābit b. Qurra’s translation of Autolykos’s *K. al-kura al-mutaḥarriqa*.
23. Although ’Atufi does not mention it in the inventory, the extant copy also contains three additional texts on astral sciences: *al-Ṭūsī*’s *al-R. al-mu‘īniyya*, *Sharḥ R.-i mu‘īniyya*, and *Mukhtaṣars dar ma’rifat-i usṭurlāb*.
24. Although ’Atufi does not mention it in the relevant entry, the extant copy also contains three additional texts on astral sciences: *al-Ṭūsī*’s *al-R. al-mu‘īniyya*, *Sharḥ R.-i mu‘īniyya*, and *Mukhtaṣars dar ma’rifat-i usṭurlāb*.
25. ’Atufi’s entry does not specify its authorship to Fath Allāh al-Shirvānī, but given that in addition to al-Niksāri’s supercommentary, there are two additional supercommentaries in the palace library, one written by al-Shirvānī and the other by Sinān Pasha, one of these two entries must be referring to al-Shirvānī’s work.
26. ’Atufi’s entry does not specify its authorship to Sinān Pasha, but given that in addition to al-Niksāri’s supercommentary, there are two additional supercommentaries in the palace library, one written by al-Shirvānī and the other by Sinān Pasha, one of these two entries must be referring to Sinān Pasha’s work.
27. Based on extant manuscript record, one of the unidentified commentaries listed under al-Ṭūsī should be al-Jurjānī’s work.
28. See note xxv above.
29. See note xxvi above.
30. As far as the relevant catalog entry of Karatay is concerned, the manuscript contains different treatises, including that of al-Ṭūsī and al-Sijzī.
31. See note xxvi above.
32. See note xxv above.
33. Based on extant manuscript record, one of the unidentified commentaries listed under al-Ṭūsī should be al-Shirvānī’s work.
Although the work has been attributed to Qāḍīzāde al-Rūmī, İhsan Fazlıoğlu notes that it should belong to another Şalāḥ al-Dīn Mūsā who lived and flourished before Qāḍīzāde al-Rūmī. See Fazlıoğlu, "Kadızade-i Rumi," Türkiye Diyanet Vakfı İslam Ansiklopedisi.

According to both the Karatay catalogue and the catalogue of the Süleymaniye Library, the author of this work bearing Bayezid II’s seal is a certain Shams al-Dīn Muḥammad al-Khaṭībī. No information has been found about this individual.

Cevat İzgi records the title as al-Tajnīs fī al-ḥisāb. See Cevat İzgi, Osmanlı Medreselerinde İlim, vol. 1 (İstanbul: İz, 1997), 245–46.

ʿAtufi registers the title as ḥussāb.

The catalogue of the Süleymaniye Library attributes it to al-Ṭūsī.

Jamil Ragep et al. note that the codex contains Fanārizāde ʿAlī çelebī’s commentary on Sajāwāndi’s al-Tajnīs. The listing on the title page corresponds with ʿAtufi’s entry in the inventory.

This could be the work of ibn al-Haytham.


While MS Török F. 59 transliteration reads it as ḥisra, the entry on Marāḡī in the Türkiye Diyanet Vakfı İslam Ansiklopedisi reads it as ʿashara.