

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

Paratextual elements in manuscripts often offer surprising clues as to the different stages of transmission a particular copy has undergone. Take, for instance, the Süleymaniye Library Ayasofya Collection MS 2595, a thirteenth-century Persian translation of a popular medieval illustrated star catalogue, *Kitāb şuwar al-kawākib* (The Book of Constellations of Fixed Stars), produced originally in Arabic in the tenth century by ‘Abd al-Rahman al-Sufi (d. 986).¹ 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, Nasir al-Din al-Tusi (d. 1274), completed this Persian translation on Monday, 25 Dhu’l-Qa’da 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-ahwaj 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 şuwar al-kawākib tarjama-i Khwāja Naşir* (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 şuwar al-kawākib bi-al-fārsiyya marqūm bi-annahu bi-khaṭṭ mutarjimihi alladhī huwa al-Naşir 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 ‘Atufi’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).²

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

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 *aḥkām 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 *ṣinā'at*) *aḥkām 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

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 facetiously groups together as "astronomical texts," such as *zīj*es (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 (*aḥkām*) 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*] *aḥkām 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

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 *taqwīms*, 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 *Rūm* 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 *Sī faṣl* or *Mukhtaṣar dar ma’rifat-i taqwīm* (Thirty Chapters on Almanacs), his *Zīj-i ilkhānī* (Ilkhanid Astronomical Handbook of Tables), and his *al-Tadhkira fi ‘ilm al-hay’a* (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. 1513) in Amasya no later than the early 1490s, writes in an autobiographical passage that after studying the basics of the science of the stars (*‘ilm al-nujūm*) with Mevlana Kuçek al-Amasi (d. after 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 (*diyār al-‘Ajam*) 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

‘Ali 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 II 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, better known as Mirim Çelebi (d. 1525), to tutor him in the “mathematical sciences” (i.e., *al-‘ulūm al-riyādiyya*), 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 (*Zij-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. Com-

pleted 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 (*sallamahu*) used in the relevant entry, *Sharḥ-i Zij-i Ulugh Beg li-Mawlānā Mirim Çelebi sallamahu Allāhu ta‘ālā fi 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-uşūl* (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: *şāhibuhu al-Sultān Bāyezīd b. Meḥammed Khān* (“its owner is Sultan Bayezid”), or sometimes *min kutub al-Sultān Bāyezīd b. Meḥammed 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 *şāhibuhu* statements that Bayezid likely studied, we should note the following:

- i. Nasir al-Din al-Tusi's *Sī faṣṭ*;²⁶
- ii. (Tusi's) *Zij-i ilkhānī*;²⁷
- iii. (Tusi's) *Tahrīr al-Majisī* (Recension of Ptolemy's *Almagest*);²⁸
- iv. (Tusi's) *Tadhkira fi 'ilm al-hay'a*;²⁹
- v. *Mukhtaṣar madkhal ilā 'ilm aḥkām al-nujūm* (The Epitome of the Introduction to Astrology), 'Ali b. Ahmad Balkhī's (fl. twelfth century) astrological introduction in both the Arabic original and a Persian rendition;³⁰
- vi. The *Epistle* of Ikhwan al-Safa on mathematical sciences including the science of the stars;³¹
- vii. Anonymous *Risāla al-lubāb fi al-uṣṭurlāb* (The Quintessence on the Astrolabe);³²
- viii. al-Dirini's (d. 1297) *Kitāb yawāqūt al-mawāqūt min qibal al-nujūm* (Rubies of Timekeeping, an introductory work in verse on the astronomical/astrological calculation of time);³³
- ix. Abu al-Hasan 'Ali Marrakushī's (fl. late thirteenth century) *summa* on astronomical instrumentation and computation of time, *Jāmi' al-mabādi' wa-al-ghāyāt fi 'ilm al-miqāt* (Comprehensive Collection of Principles and Goals in the Science of Timekeeping);³⁴
- x. A *majmū'a* (compendium) containing Qusta b. Luqa al-Ba'labakkī's (d. ca. 912–13) *Risāla fi al-'amal bi-al-kura al-falakiyya* (Treatise on Using the Celestial Globe) as well as (pseudo-)Aristotle's *Risāla al-ghālib wa-al-maghlib* (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 *taqwīm* writers.³⁵

TRACING THE ALMANACS (*TAQWĪMS*)

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 uncatalogued in 'Atufi's inventory.³⁶ 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).³⁷ 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 yulda bir zāyi' olmaz*).³⁸ In a similar vein, Katib Çelebi contrasts his *Taqwīm al-tawārikh* (Chronological Tables) with the *taqwīms* of *munajjims*, which, he states, by nature annually become invalid (*taḳvīm-i aṣḥāb-i tencīm gibi mensūḥū'l-'amel*).³⁹

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 Topkapı 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 'Atufi'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 Islamate 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*).⁴⁰

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'*)⁴¹ 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 (*aḥkām*) 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.⁴² 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 *munajjim* 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 *munajjim* determine the required celestial positions more easily and accurately was rather optional, as it was likely unaffordable for many a practitioner.⁴³

While the *zīj* tradition in the Islamate 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 *munajjims* 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.⁴⁴ This period was characterized by a heightened interest in conducting systematic observational programs (*raṣād*) 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 ilkhānī*, 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 ilkhānī* 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-Wabkanawī (d. ca. 1320), and Nizam al-Din al-Nisaburi (d. ca. 1329–30), expressed criticisms of the *Zīj-i ilkhānī* in their own compilations of tables.⁴⁵ 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 sultānī* (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-ilkhānī*) that can be attributed to Wabkanawī, whereas four *taqwīms* made use of the Ulugh Beg tables and only two utilized the Ilkhanid tables.⁴⁶ From the 1510s up until the late sixteenth century, when the most famous Ottoman astronomer of all times, Taqī 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*.⁴⁷

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 Wabkanawī's *Verified Zīj* within the palace holdings, given that most court *munajjims* at the time seem to have based their calculations upon it.⁴⁸ Another remarkable detail about the *zījes* collected in the imperial treasury is the relatively high number of Nizam al-Din Nishaburi's *Kashf-i ḥaqā'iq-i Zīj-i ilkhānī* (Uncovering of the Truths of the Ilkhanid Astronomical Handbook of Tables).⁴⁹ 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-Mas'ūdi*, which can indeed be regarded as a *zīj*—five of them (list of entries [76]–[80]) are Nishaburi's *Kashf-i ḥaqā'iq*, to which contemporary Ottoman *munajjims* seem to have paid little attention. Similarly, there are two copies of Jamshid al-Kashi's *Zīj-i khāqānī fī takmil-i Zīj-i ilkhānī* (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 ilkhānī* 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]).⁵⁰ 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-Jāmi'* (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 mawḍū' 'alā mā ṣahḥaḥahu al-Shaykh Abū al-Wafā' wa-aṣḥābuhu* (Tables Set Forth according to What Was Corrected by the Master Abu al-Wafa' and His Colleagues) (list of entries [24]).⁵¹ As another indication of the supremacy of the Persianate astral tradition in the early sixteenth-century Ottoman world, *al-Zīj al-jadīd* (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 *taqwīms* 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 faṣḥ*;
- iii. Kushyar ibn Labban and his *Mujmal al-uṣūl fī aḥkām al-nujūm* (Compendium of Astrological Principles, also named *al-Mudkhal fī ṣinā'at aḥkām al-nujūm*);⁵³
- iv. Abu Rayhan al-Biruni and his *Kitāb al-tafhīm li-awā'il ṣinā'at al-tanjīm* (Book of Instruction in the First Principles of the Art of Astrology);
- v. 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-mīlāl wa'l-duwal* (Book of Religions and Dynasties), and *Kitāb al-ulūf* (Book of Thousands), are not explicitly cited in the inventory;⁵⁴
- vi. *Kifāyat al-talīm fī ṣinā'at al-tanjīm* (Sufficiency of Learning in the Art of Astrology) of Abu al-Mahamid 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 faṣḥ* 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 *Muwaḍḍiḥ al-rusūm fī '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 (*tārikh*) section of the in-

ventory—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 taḥāwīl sinī al-mawālīd* (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-adwīya fī al-ṭibb* (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-uṣūl* of Kushyar (list of entries [57]–[64]) and five references to the *Kitāb al-tafhīm* 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 *munajjims* to al-Qabisi (fl. second half of the tenth century), whose introduction to astrology (*Kitāb al-mudkhal ilā ṣinā'at 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, *Laṭā'if al-kalām fī aḥkām al-a'wām* (General Astrological Judgments) composed by Sayyid Munajjim (fl. first half of the fifteenth century), is only cited once in the inventory (list of entries

[120]).⁵⁹ 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 *taqwīms* and other types of horoscopes produced in the early modern Ottoman world occasionally refer to him.⁶⁰

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.⁶¹ 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.⁶²

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.⁶³ 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.⁶⁴ 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.⁶⁵

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, *Bist bāb fi'l-usṭurlāb* (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).⁶⁶ This book is sometimes cataloged in the inventory under the rubric of *min qibal al-nujūm* and sometimes as *fi ('ilm) al-nujūm*. Likewise, the *Kitāb al-thamara* corpus is sometimes recorded with the tag *fi ('ilm) al-nujūm* and sometimes with *aḥkām 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.⁶⁷ 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.⁶⁸

Titles on specific branches of astrology—such as interrogations or horary astrology (*masā'il*), which intend to compute and interpret a horoscope for the exact time the client asks questions to the *munajjim*, 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 *aḥkām al-nujūm*. One should highlight here the *Kitāb al-masā'il* 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).⁶⁹ 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.⁷⁰ In addition to Qasrani, Fakhr al-Din al-Razi’s influential work on electional astrology, *al-Ikhtiyārāt al-‘alā’iyya fi aḥkām 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]).⁷¹ 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: *Tafṣīl kutub ‘ilm al-ta‘bīr wa-kutub ‘ilm al-firāsa wa-kutub al-‘ilm al-kīmīyā’ wa-kutub ‘ilm al-ahjār wa-kutub al-raml wa-kutub al-fāl wa-kutub ‘ilm al-nayrinjāt wa-kutub al-ṭilsimāt wa-kutub al-sīmiyā’ wa-kutub al-‘azā’im wa-kutub ‘ilm al-jafr wa-kutub al-ṣinā‘āt al-‘ajība wa-kutub al-ḥiyāl wa-kutub al-siḥr* (The Section on Dream Interpretation/Oneiromancy, Physiognomy, Alchemy, Gemology, Geomancy, Divination, Terrestrial Magic, Celestial Magic or Talismans, Letter Magic, Jinn Magic, Letter Divination, Mechanics and Wondrous Devices, Magic).

‘ATUFI’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-‘alā’iyya, under mathematical sciences, ‘Atufi clearly deviates from the more canonical Avicennan tradition, which typically discusses *aḥkām al-nujūm* under the rubric of natural sciences (*tabī‘iyyāt*) 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 *Jāmi‘ al-‘ulūm* (Compendium of Sciences, also known as *Ḥadā’iq al-anwār fi ḥaqā’iq al-asrār* or *Kitāb-i sittīnī*) 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-‘ulūm al-naqliyya*) and rational sciences (*al-‘ulūm al-‘aqliyya*), or religious sciences versus the sciences of the ancients (*‘ulūm al-awā’il*), 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).⁷² Accordingly, theoretical philosophy (*al-ḥikma 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 unwavering mathematical proofs and geometrical demonstrations, whereas the highest (*alā*) sphere beyond

the celestial orbs concerns metaphysics and theological sciences.⁷³

Within this mainstream Avicennan taxonomy of sciences, astrology (*‘ilm aḥkām 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-ṭabī‘iyya*) 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 prognōstikon*]); 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 Islamic 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 aḥkām al-nujūm*, classifying the former in the mathematical sciences (*al-‘ulūm al-riyādiyya*) and the latter in the natural sciences (*al-‘ulūm al-ṭabī‘iyya*). At times, he uses *‘ilm al-nujūm* and *‘ilm al-hay’a* interchangeably and further emphasizes the distinction between *‘ilm al-nujūm* and *aḥkām al-nujūm* by

saying that the former relies upon mathematics and calculation (*ḥisāb*), 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-zijāt wa’l-taqāwīm* (the science of astronomical tables and almanacs), *‘ilm al-qirānāt* (the science of conjunctions), *‘ilm al-ālāt al-raṣadiyya* (the science of the instruments of celestial observation), and *‘ilm al-malāḥim* (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 scientific practices. In this regard, he seems to have preferred non-Avicennan models, such as al-Razi’s classification in his Persian encyclopedic work, where *aḥkām 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 *aṣṭranūmiyā* (اسطرانوميا) 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 ‘Atufi’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.⁸¹ 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-ta’bīr* (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}).⁸² 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}).⁸³

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*).⁸⁴ The requested items included a complete astrolabe (*uṣṭurlāb-i tām*), the works *Zij-i Ulugh Beg* and *Kitāb-i Majisṭī*, and the horoscope of the sultan (*ṭālī-i ḥazret-i ‘ālem-penāhi*) 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 ‘Atufi’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.⁸⁵ This raises the questions of whether ‘Atufi’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 ‘Atufi’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.

1. The manuscript was published as a facsimile in ‘Abd al-Raḥmān ibn ‘Umar al-Şūfī and Naşīr al-Dīn Muḥammad b. Muḥammad al-Ṭūsī, *Tarjama-i şuvar al-kavākib* (Tehran: Bunyād-i Farhang-i Īrān, 1348/1969).
2. MS Török F. 59, 317 {3–4}.
3. For the story of the two hundred people accompanying ‘Ali al-Qushji during his journey to Istanbul, see Nişāncizāde Muḥyiddīn Mehmed’s (d. 1621) *Mir’atü’l-kā’ināt*, cited in Süheyl Ünver, *Ali Kuşci Hayatı ve Eserleri* (Istanbul: Kenan Matbaası, 1948), 17.
4. The term is borrowed from İhsan Fazlıoğlu. See his “The Samarqand Mathematical-Astronomical School,” *Journal for the History of Arabic Science* 4, no. 1-2 (2008): 3–68.
5. George Saliba, “Astronomy and Astrology in Medieval Arabic Thought,” in *Les doctrines de la science le l’antiquité à l’âge classique*, ed. Roshdi Rashed and Joël Biard (Leuven, 1999), 131–64; George Saliba, “Islamic Astronomy in Context: Attacks on Astrology and the Rise of the *Hay’a* Tradition,” *Bulletin of the Royal Institute for Inter-Faith Studies* 4, no. 1 (2002): 25–46. For a critical overview of the categorization of the astral sciences in medieval Islamic sources, see A. Tunç Şen, “Astrology in the Service of the Empire: Knowledge, Prognostication, and Politics at the Ottoman Court, 1450s–1550s” (PhD diss., University of Chicago, 2016), 59–79. Also see the essay in this volume by Jamil Ragep and the McGill Team.
6. *EL3*, s.v. “Astronomy,” by Jamil Ragep. Although Jamil Ragep does not specifically refer to *aḥkām* in his discussion, relevant sources often mention *aḥkām* 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-*

- ety, n.s., 46, no. 2 (1956): 123–77; *El2*, “Zidj,” by F. C. De Blois, D. A. King, and J. Samsó; David A. King, Julio Samsó, and Bernard R. Goldstein, “Astronomical Handbooks and Tables from the Islamic World (750–1900): An Interim Report,” *Suhayl: International Journal for the History of the Exact and Natural Sciences in Islamic Civilisation* 2 (2001): 9–105; Benno van Dalen, *Islamic Astronomical Tables: Mathematical Analysis and Historical Investigation* (London: Ashgate, 2014).
8. Al-Birūnī, *The Book of Instruction in the Elements of the Art of Astrology*, ed. and trans. Ramsay Wright (London: Luzac & Co., 1934), 1; Tūsī, *Zij-i ilkhānī*, Biblioteca Medicea Laurenziana MS Or. 24, 2b. Rukn al-Din Amulī, a *munajjim* active in the Iranian world in the first half of the fifteenth century who composed his own *zīj* and trained a number of students including Khitabi-i Lahijani, also wrote a treatise on the use of the astrolabe, *Panjāh bāb-i sultānī* (Fifty Chapters). In this treatise, he states that the ultimate fruit and reward (*thamara*) of the mathematical sciences (*‘ilm-i hay’a, handasa va hisāb*) is the science of the judgments [of the stars] (*‘ilm-i ahkām*) and the knowledge of [prayer] time[s] (*ma’rifat-i avqāt*), and that this builds upon the knowledge gleaned from the observation of the [fixed] stars (*ma’rifat-i raṣad-i sitāraqān*), the calculation of the [mean] motions of planets (*istikhrāj-i taqvim-i kavākib*), and the designation of the ascendants of the hours (*ṭavālī-i sā’āt*). See Harvard MS Persian 33, 2a.
 9. Aydın Sayılı, *The Observatory in Islam and Its Place in the General History of the Observatory* (Ankara: TTK, 1960).
 10. The discrepancy in numbers is even more significant considering that some of the *hay’a* books were taught at certain madrasas, and thus more copies of these texts must have been in circulation. See Cevat İzgi, *Osmanlı Medreselerinde İlim*, 2 vols. (Istanbul: İz, 1997), 1:361–412.
 11. For a general overview of Ottoman scientific activity before the sixteenth century, see TDVİA, s.v. “Osmanlılar (İlim ve Kültür. 1. Düşünce Hayatı ve Bilim. Kaynaklar),” by İhsan Fazlıoğlu.
 12. For the early fifteenth-century Turkish translation of *Sī faṣl*, see Aḥmed-i Dā’ī, *Muhtasar fi ilm el-tencim ve marifet el-takvim (Risale-i si faṣl)*, ed. T. N. Gencan and M. Dizer (Istanbul: Boğaziçi Üniversitesi Kandilli Rasathanesi, 1984).
 13. ‘Abdulwajid b. Muhammad was born in Khurasan and came to the lands of Rūm in the later fourteenth century. In addition to his treatise on the uses of astrolabe, he also penned a commentary on Tusi’s *Sī faṣl*. See *Osmanlı Astronomi Literatürü Tarihi = History of Astronomy Literature during the Ottoman Period*, 2 vols. (Istanbul: İslām Tarih, Sanat ve Kültür Araştırma Merkezi, 1997), 1:22–24. See also İhsan Fazlıoğlu, “İthafıtan Enmüzec’e Fetih’ten önce Osmanlı Ülkesi’nde Matematik Bilimleri,” in *Uluslararası Molla Fenârî Sempozyumu (4-6 Aralık 2009 Bursa): bildiriler = International Symposium on Molla Fanârî (4-6 December 2009 Bursa): Proceedings*, ed. Tefkîk Yücedoğru et al. (Bursa: Bursa Büyükşehir Belediyesi, 2010), 131–63; Jamil Ragep, “Astronomy in the Fanârî-Circle: The Critical Background for Qādizāde al-Rūmī and the Samarqand School,” in Yücedoğru et al., *Uluslararası Molla Fenârî Sempozyumu*, 165–76.
 14. TDVİA, s.v. “Kadızade-i Rumi,” by İhsan Fazlıoğlu.
 15. ‘Abdurrahman Munajjim, *Jawhar hiḳḳ al-ṣiḳḳat fi al-ṭibb*, 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 *müteferriḳa*. See Ahmed Refik (Altınay), “Fatih Devrine ait Vesikalar,” *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]).
 16. İdris-i Bidlīsī, *Hasht Bahisht*, SK, Esad Efendi MS 2198, 33b–34a, also quoted in Tofigh Heiderzaideh, “Ali Kuşçu’nun Astronomi Eserleri” (master’s thesis, Istanbul University, 1997), 15.
 17. Robert Westman’s observation regarding the political instrumentality of astronomical/astrological patronage and the active involvement of the patron in learning the science itself in the early modern European context also holds true for the Islamicate realm. See Robert Westman, “The Astronomer’s Role in the Sixteenth Century: A Preliminary Survey,” *History of Science* 18, no. 2 (1980): 105–47.
 18. For an overview of the available sources on al-Qushji’s move to the Ottoman capital and his tenure there, see Heiderzaideh, “Ali Kuşçu’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. 886/1481–918/1512) and His Celestial Interests,” *Arabicā* 64, no. 3–4 (2017): 557–608.
 20. TSMA, E. 6172.
 21. Tashkoprizāde, *al-Shaqā’iq al-nu’māniyya fi ‘ulamā’ al-dawlat al-‘uthmāniyya* (Beirut: Dār al-kitāb al-‘arabi, 1395/1975), 198.
 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. Tashkoprizāde, 249–50. While the familial ties between Mirim Çelebi and Qutb al-Din are not certain, they appear to be the sons of the same father based on their *nisbas* given by Taşköprizade. Qutb al-Din’s supercommentary on al-Samarqandī’s *Propositions for the Foundation* is also listed in the inventory (list of entries [555]/[556]/[565]).
 25. The *in‘amāt 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," *İÜFT 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. 3328. Either [421] or [422] in the list of entries should be the copy in question.
 29. TSMK, A. 3317. [394] in the list of entries might be the copy in question. For *Tadhkira fi 'ilm al-hay'a*, see Naşir al-Dīn al-Ṭūsī's *Memoir on Astronomy = al-Tadhkira fi 'ilm al-hay'a*, ed. Jamil Ragep, 2 vols. (New York: Springer-Verlag, 1993).
 30. SK, Ayasofya MS 2702. [9] and [10] in the list of entries should be the title in question.
 31. TSMK, A. 2128. See Ikhwān al-Şafā', *On Astronomia: An Arabic Critical Edition and English Translation of Epistle 3*, ed. Jamil Ragep and Taro Mimura (Oxford: Oxford University Press, 2015).
 32. SK, Ayasofya MS 2618. [228] in the list of entries is the title in question.
 33. SK, Ayasofya MS 2711. [25] in the list of entries is the title in question.
 34. TSMK, A. 3343, listed as [67] or [68]. For a facsimile edition of the text, see *Traité des instruments astronomiques des Arabes composé au treizième siècle par Abū'l-Ḥasan 'Alī al-Marrākūshī (VII-XIII s.) intitulé Jāmi' al-mabādī wa-l-ghāyāt*, 2 vols., (Frankfurt am Main : Institut für Geschichte der Arabisch-Islamischen Wissenschaften, 1998).
 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 jadāwil 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.
 39. Kātib Çelebi, *Takvīmü't-Tevarih İndeksli Tıpkı Basım* (Ankara: Türk Tarih Kurumu, 2009), 4a.
 40. For more information on the *taqwīm* genre, see Şen, "Astrology in the Service of the Empire," 237–304; *EL2*, s.v. "Takwīm," by M. Hofelich and D. M. Varisco; Hofelich, "The Making of Taqvims in Iran," in *La science dans le monde Iranien à l'époque islamique*, ed. Živa Vesel et al. (Tehran: Institut Français de Recherche en Iran, 1998), 49–51.
 41. *Ṭālī'* 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 *EL2*, s.v. "al-Ṭālī'," by David King and Toufic Fahd. The concept gradually transformed in vernacular Turkish into *ṭālīh*, denoting fortune and luck. It is difficult to ascertain when exactly this transformation occurred, yet as Meniški's *Thesaurus Linguarum Orientalium* reveals, *ṭālīh* was in use as early as the first half of the seventeenth century.
 42. *Ikhtiyārāt* (Elections, or Choices) is a major division of astrology by which the *munajjim* identifies the auspicious time to carry out an activity. *EL3*, s.v. "Astrology," by Charles Burnett.
 43. 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 Amulī's *Panjāh bāb-i sulṭānī* or 'Ali-Shah Bukhari's *Kitāb athmār wa-ashjār fi 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).
 44. For the *zīj* genre, see n7.
 45. See Fateme Savadi and Sajjad Nikfahm-Khubravan, "Ḥarakat-i wasaṭ-i kawākib dar *Zīj-i ilkhānī* wa naqd-hā-yi wārid bar ān" [The mean motion of the planets in *Zīj-i ilkhānī* and its criticisms], in *Ustād-i bashar: pajūhish-hā-yī dar zindigī, rūzīgār, falsafa wa 'ilm-i Khwāja Naşir al-Dīn Ṭūsī* [The teacher of humankind: essays on the life, times, philosophy, and scientific achievements of Khwāja Naşir al-Dīn Ṭūsī], ed. H. Masoumi Hamedani and M. Javad Anvari (Tehran: Mirās-i Maktūb, 1391/2012), 363–470. For Wabkanawī, see Mohammad Mozaffari, "Wabkanawī's Prediction and Calculations of the Annual Solar Eclipse of 30 January 1283," *Historia Mathematica* 40 (2013): 235–61; Jamil Ragep, "New Light on Shams: The Islamic Side of Σάμψ Πουχάρης," in *Politics, Patronage, and the Transmission of Knowledge in 13th-15th Century Tabriz*, ed. Judith Pfeiffer (Leiden: Brill, 2013), 166–80.
 46. For more details, see Appendix C in Şen's dissertation.
 47. For a brief biography of Taqī al-Din, see İhsan Fazlıoğlu, "Taqī al-Dīn," in *The Biographical Encyclopedia of Astronomers*, ed. Thomas Hockey et al. (New York: Springer, 2007), 1122–23.
 48. We should also note, however, that some of the "verified" Ilkhanid tables cited explicitly by contemporary Ottoman *munajjims* in their *taqwīms* might be referring to different, later editions and commentaries of the Ilkhanid tables, instead of to that of Wabkanawī. Mü'eyyedzade (d. 1516) seems to have had a copy of Wabkanawī's *Verified Tables* that he purchased in Ladik in 1477. See SK, Ayasofya MS 2694. This copy does not have the idiosyncratic almond-shaped seal of Bayezid II.
 49. For the contents and astrological significance of this *zīj*, see Robert Morrison, *Islam and Science: The Intellectual Career of Niẓām 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 Mü'eyyedzade (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-Zij al-shāmil* (The Comprehensive Tables).
52. Richard Lemay, "Origin and Success of the *Kitāb Thamara* of Abū Ja'far Aḥmad ibn Yūsuf ibn Ibrāhīm," in *Proceedings of the First International Symposium for the History of Arabic Science: April 5-12, 1976*, ed. Ahmad Y. al-Hassan et al. (Aleppo: University of Aleppo, 1978), 91–107. For Tusi's Persian translation of *al-Thamara*, see *Sharḥ-i Šamarah-i Baṭlamyūs dar aḥkām-i nujūm*, ed. Khalil Akhavan Zanjānī (Tehran: Āyīnah-i Mīrās, 1999).
53. *Kūshyār ibn Labbān's Introduction to Astrology*, ed. Michio Yano (Tokyo: Tokyo University of Foreign Studies, 1997).
54. For Abu Ma'shar's biography and works, see David Pingree, "Abū Ma'shar al-Balkhī, Ja'far ibn Muḥammad," in *Dictionary of Scientific Biography*, 1:32–39.
55. Not much is known about the life of Ghaznawi. For the copies of the text, see C. A. Storey, *Persian Literature: A Bio-Bibliographical Survey*, 5 vols. (London: Luzac, 1927), 2:46–47.
56. SK, Ayasofya MS 2709. This copy should be [55]/[153] in our list of entries.
57. This manuscript should be the one listed in MS Török F. 59, 169 {2}.
58. See al-Qabiṣī (Alcabitius), *The Introduction to Astrology: Editions of the Arabic and Latin Texts and an English Translation*, ed. Charles Burnett, Keiji Yamamoto, and Michio Yano (London: Warburg Institute, 2004); Margaret Gaida, "Encounters with Alcabitius: Reading Arabic Astrology in Premodern Europe" (PhD diss., University of Oklahoma, 2017).
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 *El2*, s.v. "Māshā' Allāh b. Atharī 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 astrological and astronomical 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 eighteenth century. See Kandilli MS 396.
65. TSMK, YY 830 and Beyazit Library MS 4619, *passim*.
66. For Efezade'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-Malḥama al-Turkiyya*, cited (list of entries [209]) in the section on 'ilm al-fiqh. The second is a book on the astrological judgments of solar and lunar eclipses, *Risāla fī aḥkām al-khusūf wa-al-kusūf bi-al-Turkiyya al-manzūma*, recorded (list of entries [257]) in the Turkish poetry section, simply because it is in verse.
68. İhsan Fazlıoğlu, "Qunawī: Muḥammad ibn al-Kātib Sinān," in *The Biographical Encyclopedia of Astronomers*, ed. Thomas Hockey et al. (New York: Springer, 2007), 945–46.
69. TSMK, R. 1705, 2a.
70. Mirim Çelebi's work circulated under different titles, such as *Mesā'il-i Mirim Çelebi* or *Mesā'il-i Te'sirāt dar nujūm*. For his reference to Qasrani, see SK, Bağdatlı Vehbi MS 2005, 38b.
71. This important work has also yet to be published. See Storey, *Persian Literature*, 2:49.
72. Al-Fārābī, *Iḥṣā' al-'ulūm* (Beirut: Dār wa-maktabat al-Hilāl, 1996); Ibn Sinā, *Tis' rasā'il fī-l-ḥikma wa-l-ṭabī'yyāt* (Cairo: Matba'at Hindiyah, 1908). Al-Fārābī also treats the question of the epistemology and efficacy of astrology in a separate treatise, *Risāla fī mā yaṣiḥḥu wa-mā lā yaṣiḥḥu min aḥkām al-nujūm*. See "Bemerkunden des Abū Naṣr über die Richtigen und Falschen astronomischen entscheide," in *Al-Fārābī's Philosophische Abhandlungen*, ed. Fr. Dieterici (Leiden: Brill, 1892).
73. Fazlıoğlu, "Samarqand Mathematical-Astronomical School," 13.
74. For a more detailed discussion, see Şen, "Astrology in the Service of the Empire," 59–79.
75. Taṣḥkopriẓāde, *Miftāḥ al-sa'āda wa misbāḥ al-siyāda*, vol. 1 (Hyderabad: Dā'irat al-Ma'ārif al-'Uthmāniyyā, 1977), 313.
76. In Taṣḥkopriẓāde's elaboration of 'ilm al-qirānāt (the science of conjunctions), for instance, he goes on to say that, as many astral experts 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).
77. Fakhr al-dīn al-Rāzī, *Jāmi' al-'ulūm*, ed. Muḥammad Ḥusayn Tasbiḥī (Tehran: Kitābkhāna-i Asadī, 1346/1967–68). For the importance of Razi's encyclopedia with special regard to the discussion of several occult sciences, including astrology as one of the mathematical sciences, see Matthew Melvin-Koushki, "Powers of One: The Mathematization of the Occult Sciences in the High Persianate Tradition," *Intellectual History of the Islamicate World* 5, no. 1 (2017): 127–99. We should note, however, that unlike Razi, 'Atufi lists geomancy and jinn magic under natural occult sciences.
78. For the medieval Persian taxonomy of the sciences tradition, see Živa Vesel, *Les encyclopédies persanes: essai de typologie et de classification des sciences* (Paris: Editions Recherche sur les civilisations, 1986). For Muhammad Shah Fanari's encyclopedic work, which relies heavily upon Razi's text, see Kemal Faruk Molla, "Mehmed Şah Fenārī'nin *Enmūzecu'l-Ulūm* adlı eserine göre Fetih öncesi dönemde Osmanlılar'da ilim anlayışı ve ilim tasnifi," *Dîvân İlmî Araştırmalar* 18, no. 1 (2005): 245–73.

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 rū'yat qurrat al-'uyūn* (On Seeing the Prophet in Dream State), begun in 832/1428–29 and completed Friday, 10 Sha'ban 843/January 16, 1440; and TSMK, A. 1597, an autograph of the important *Nazm al-sulūk fi musāmarat al-mulūk* (Ordering of the Paths for the Accompaniment of Rulers) completed 24 Dhu'l-Qa'da 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 rū'yat qurrat al-'uyūn fi al-ta'bīr*. The latter should be the one listed in MS Török F. 59, 194 {14–15}: *Kitāb nazm al-sulūk fi musāmarat al-mulūk fi al-tawārikh al-ghariba*.
80. SK, Nuruosmaniye MS 4905, 20a.
81. For a brief discussion of the alchemical treatises in 'Atufi's inventory, see Tuna Artun, "Bâyezîd-i Kîmyâ'i: Osmanlı Kimya Metinlerinde Sultan II. Bayezid," *Journal of Turkish Studies/Türklük Bilgisi Araştırmaları* 39 (2013): 181–86.
82. *Encyclopaedia Iranica*, s.v. "Hobayš b. Ebrāhim b. Moḥammad b. Teflisi," by Tahsin Yazıcı. Yazıcı maintains that at least three different Turkish translations of this text were produced during the reigns of Murad II, Selim I, and Süleyman I.
83. For the Arabic renditions of Polemon's text, see Antonella Gheretti and Simon Swain, "Polemon's Physiognomy in the Arabic Tradition," in *Seeing the Face, Seeing the Soul: Polemon's Physiognomy from Classical Antiquity to Medieval Islam*, ed. Simon Swain (Oxford: Oxford University Press, 2007), 309–25.
84. TSMA, E. 10159/6.
85. In an individual register drafted in 10 Sha'ban 910 (January 16, 1505) by Mevlana Kasım Çelebi and Pir Mehmed Çelebi for the purpose of recording the holdings of the imperial inner treasury (*khizāne-i 'āmir-i enderūnī*), numerous astronomical instruments, including astrolabes (*suṭurlāb*), quadrants (*rub' dā'ire*), and armillary spheres (*felek topu*) are listed. See TSMA, D. 10026. 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

(*Taḥṣīlu kutubi ‘ilmi al-nujūmi wa-kutubi ‘ilmi al-hay’ati wa-kutubi ‘ilmi al-ḥisābi wa-kutubi ‘ilmi al-handasati wa-kutubi ‘ilmi 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, .2, .3) indicate separate commentaries on the original work by various commentators. A second decimal number after a first (.1.1, .1.2, .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[isāla]*, *M[aqāla]*, and *K[itāb]* are disregarded in the alphabetization.

PART ONE

The Science of the Stars (*‘ilm al-nujūm*)
(including both *aḥkām al-nujūm* and *min qibal al-nujūm*)

ABŪ MA‘SHAR Ja‘far ibn Muḥammad ibn ‘Umar al-Balkhī (d. 886)

- [1] 1. *K. al-aṣl fī ‘ilm al-nujūm* (The Book of the Foundations in the Science of the Stars), Arabic, 317 {14}. Bound with Abū Ma‘shar’s *Sarā’ir al-asrār*. MANUSCRIPT: SK Hamidiye 824.
- [2] 2. *R. fī iḥtirāqāt al-kawākib* (Treatise on the Combustion of the Stars), Arabic, 314 {9–10}. Bound with Kūshyār b. Labbān’s *al-Zīj al-jāmi‘* and *Mujmal al-uṣūl*. MANUSCRIPT: SK Fatih 3418.
- [3] 3. *K. al-mudhākarāt* (Book of Recollections), Arabic, 319 {3–4}.
- [4] 4. *Muntakhab k. fī aḥkām al-nujūm* (The Selection from Abu Ma‘shar’s Book on Astrology), Arabic, 323 {8}. Bound with other unspecified texts on [the science of the] stars.
- [5] 5. *Muntakhab k. qirānāt* (The Selection from the Book of Conjunctions), Arabic, 322 {6}.
- [6] 6. *Sarā’ir al-asrār* (The Hidden Secrets of Secrets), Arabic, 317 {14–15}. Bound with Abū Ma‘shar’s *K. al-aṣl fī ‘ilm al-nujūm*. MANUSCRIPT: SK Hamidiye 824.

‘ALĪ B. ‘ISĀ AL-UṢṬURLĀBĪ (fl. ninth century)

- [7] 1. *R. fī al-uṣṭurlāb* (Treatise on the Astrolabe), Arabic, 324 {7}. Bound with al-Ṭabarī’s *Firdaws al-ḥikma* and al-Kharaqī’s *K. al-tabṣira*. EDITION: Louis Cheikho, “Kitāb al-‘amal bi-l-aṣṭurlāb li-‘Alī ibn ‘Isā,” *al-Mashriq* 16 (1913): 29–46.

AL-ASHRAF, ‘Umar b. Yūsuf b. ‘Umar b. ‘Alī b. Rasūl (d. 1296)

- [8] 1. *K. manhaj al-ṭullāb fī ‘amal al-uṣṭurlāb* (The Students’ Course on the Use of the Astrolabe), Arabic, 317 {13–14}.

AL-BALKHĪ, ‘Alī b. Aḥmad (fl. twelfth century)

- [9] 1. *Mukhtaṣar madkhal ilā ‘ilm aḥkām al-nujūm* (Abridgment of the Introduction to Astrology), Arabic, 317 {9}. Bound with a Persian translation of the same work. MANUSCRIPT: SK Ayasofya 2702, personal copy of Bayezid II.
- [10] 1(i). Same as preceding, Persian, 317 {10}. Bound with the Arabic original. MANUSCRIPT: SK Ayasofya 2702, personal copy of Bayezid II.

AL-BATTĀNĪ, Abū ‘Abd Allāh Muḥammad b. Jābir b. Sinān al-Ḥarrānī al-Şābi’ (d. 929–30)

- [11] 1a. *Arba‘ maqālāt fī aḥkām al-nujūm* (Commentary of Ptolemy’s *Tetrabiblos*), Arabic, 317 {8}. Bound with *R. al-uṣṭurlāb*.
- [12] 1b. Same as preceding [catalogued in the inventory as *Sharḥ maqālāt Baṭlamyūs fī al-qaḍā’ bi-al-nujūm ‘alā al-ḥawādith*], 323 {11–12}.

AL-BĪRŪNĪ, Abū Rayḥān Muḥammad b. Aḥmad (d. 1048)

- [13] 1a. *Istī‘āb al-wujūh al-mumkina fī ṣan‘at al-uṣṭurlāb* (Understanding All Possible Ways of Constructing the Astrolabe), Arabic, 322 {2–3}. MANUSCRIPT: SK Ayasofya 2576. EDITION: *Istī‘āb al-wujūh al-mumkina fī ṣan‘at al-uṣṭurlāb*, ed. al-Sayyid Muḥammad Akbar Jawādī al-Ḥusaynī (Mashhad: Islamic Research Foundation, 2001/2002).
- [14] 1b. Same as preceding [catalogued in the inventory as *K. al-istī‘āb fī ‘ilm al-uṣṭurlāb*], 320 {1–3}. Bound with Sharaf al-Dīn al-Ṭūsī’s *K. fī ma‘rifat al-uṣṭurlāb al-musaṭṭah*, Qusṭā b. Lūqā’s *K. fī al-‘amal bi-al-kura*, al-Şūfī’s *K. fī al-‘amal bi-al-kura*, 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).¹
- [15] 2a. *al-Qānūn al-Mas‘ūdī* (The Mas‘ūdic Canon), Arabic, 313 {11}. EDITION: *al-Qānūn al-Mas‘ūdī*, ed. ‘Abd al-Karīm Sāmī al-Jundī, 3 vols. (Beirut: Dār al-Kutub al-‘ilmiyya, 2002).
- [16] 2b. Same as preceding, 313 {11–12}.
- [17] 3a. *al-Taḥḥīm li-awā‘il (ṣinā‘at) al-tanjīm* (Book of Instruction in the First Principles of the Art of Astrology), 318 {19}. MANUSCRIPT: TSMK A. 3477 (Karatay: A 7050) and TSMK A. 3478 (Karatay: A 7051) house two copies of *al-Taḥḥīm* bearing Bayezid’s seal. EDITION: Facs. ed. of the Arabic manuscript (London, British Library Or. 8349) and English trans. by R. Ramsay Wright: *The Book of Instruction in the Elements of the Art of Astrology by al-Biruni* (London: Luzac & co., 1934); Persian edition: Jalāl al-Dīn Humā‘ī, ed. (Tehran: Bābak, 1983).
- [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, ‘Alā al-Dīn ‘Alī-Shāh b. Muḥammad b. Qāsim al-Khawārazmī (d. after 1291)

- [22] 1. *Athmār wa ashjār* (Fruits and Trees), Persian, thirteenth century, 313 {16–17}. Bound with a copy of the *Zīj-i ilkhānī*. See → al-Ṭūsī, 6, Part I. MANUSCRIPT: TSMK A. 3513 (Karatay: F 231).

AL-BUKHĀRĪ, ‘Imad al-Dīn (fl. fifteenth century)

- [23] 1. *K. jadwal tashīl al-Qamar wa-jadwal tashīl Uṭārid* (Table for Facilitating [the Calculations of] the Moon and Mercury), 319 {2–3}.

AL-BŪZJĀNĪ, Abū al-Wafā' Muḥammad b. Muḥammad b. Yaḥyā (d. 997 or 998)

See also al-Būzjānī in Part Four (*'ilm al-handasa*).

- [24] 1. *Zij al-wāḍiḥ* (Clear Astronomical Handbook of Tables) [catalogued in the inventory as *Zij mawḍū' 'alā mā ṣaḥḥaḥahu al-Shaykh Abū al-Wafā' wa-aṣḥābuhu* (Tables Set Forth according to What Was Corrected by the Master Abū'l-Wafā' and His Colleagues)], Arabic, 313 {16–17}.

AL-DĪRĪNĪ, 'Abd al-'Azīz b. Aḥmad b. Sa'īd al-Damīrī (d. 1297)

- [25] 1. *K. yawāqūt al-mawāqīt min qibal al-nujūm* (The Rubies of Timekeeping), Arabic, 318 {15}.
MANUSCRIPT: SK Ayasofya 2711, personal copy of Bayezid II.

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

- [26] 1. *Sharḥ bist bāb dar usṭurlāb* (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. Mas'ūd (fl. late twelfth century)

- [27] 1a. *Kifāyat al-ta'lim [fi ṣinā'at al-tanjīm]* (Sufficiency of Learning [in the Art of Astrology]), Persian, 316 {15}. MANUSCRIPT: SK Ayasofya 2699.
[28] 1b. Same as preceding, 316 {16}.

ḤAMZA B. 'ABD AL-KARĪM (d. after 1497)

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

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

See also Ibn al-Haytham in Part Two (*'ilm al-hay'a*) and Part Four (*'ilm al-handasa*).

- [30] 1. *Qawl fi samt al-qibla* (Book on the Azimuth of the Qibla), Arabic, 321 {1}. Bound in a volume containing Ibn al-Haytham's *M. fi istikhrāj khaṭṭ nisf al-nahār* and *M. fi istikhrāj irtifā' al-quṭb*.
[31] 2. *M. fi istikhrāj khaṭṭ nisf al-nahār* (Chapter on Computing the Meridian Line), Arabic, 321 {1}. Bound in a volume containing Ibn al-Haytham's *Qawl fi samt al-qibla* and *M. fi istikhrāj irtifā' al-quṭb*.
[32] 3. *M. fi istikhrāj irtifā' 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 'AṢĪM, Abū Bakr 'Abd Allāh b. Ḥusayn b. Ibrāhīm b. Ḥusayn (d. 1013)

- [33] 1. *K. al-anwā' wa-al-azmina wa-ma'rifat a'yān al-kawākib* (Weather Predicting Stars, Their Periods and Properties), Arabic, 321 {18–19}. MANUSCRIPT: TSMK A. 3508 (Karatay: A 7053).
EDITION: *Kitāb al-Anwā' wa-al-azmina wa-ma'rifat a'yān al-kawākib*, facs. ed. by Fuat Sezgin (Frankfurt: Institut für Geschichte der Arabisch-Islamischen Wissenschaften, 1985).

IDRIS AL-NABĪ or HERMES

- [34] 1a. *R. aḥkām ṭulū' al-shi'rā* (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 aḥkām al-nujūm*], 323 {5–6}. Bound in a volume containing astrological texts.³

IKHWĀN AL-ŞAFĀ' (fl. tenth cent.)

- [38] 1a. *K. Ikhwān al-Şafā' fī funūn al-'ulūm* (The Book of the Sincere Brethren on Different Sciences), Arabic, 319 {9–11}. The description goes on to mention only the mathematical sciences as examples, which may indicate that the MS contained only those. EDITION: *Epistles of the Brethren of Purity. On Astronomia: An Arabic Critical Edition and English Translation of Epistle 3*, ed. Jamil Ragep and Taro Mimura (Oxford: Oxford University Press, 2015).
- [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. Mas'ūd b. Maḥmūd (d. 1429)

See also al-Kāshī in Part Three (*'ilm al-ḥisāb*).

- [44] 1a. *Zīj-i khāqānī fī takmil-i zīj-i ilkhānī* (Astronomical Tables for the Great Khan [prepared for completing Ṭūsī's Tables]), Persian, 1413–14, 313 {14–15}. See → al-Ṭūsī, 6.2, Part I. MANUSCRIPT: SK Ayasofya 2692.
- [45] 1b. Same as preceding, 314 {6–7}.

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

- [46] 1a. *Wilādat-i Iskandar b. 'Umar Shaykh b. Amīr Taymūr* (The Birth Horoscope of Mirzā Iskandar b. 'Umar Shaykh, son of Amir Timur), Persian, 1411, 319 {4–5}. MANUSCRIPT: Wellcome Institute Per. 474.⁴

AL-KHALĪLĪ, Shams al-Dīn Abū 'Abdallāh Muḥammad b. Muḥammad (d. after 1360)

- [47] 1. *al-Jadwal al-āfāqī* (The Table of Horizons), Arabic, 318 {19}–319 {1}. MANUSCRIPT: TSMK A. 3500 (Karatay: A 7120).⁵
- [48] 1(i)a. [al-Qunawī] *Tarjama K. al-jadwal al-āfāqī*, 319 {1}. See → al-Qunawī, 4. MANUSCRIPT: SK Ayasofya 2590.
- [49] 1(i)b. Same as preceding [catalogued in the inventory as *Sharḥ al-şafā'ih al-āfāqīyya* (Commentary on al-Khalīlī'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-şafā'ih al-āfāqīyya*], 321 {4–5}.

AL-KHIṬĀBĪ AL-ḤUSAYNĪ, Ḥusām b. Shams al-Dīn al-Lāhijānī al-Gilānī (d. after 1495)

- [51] 1. *R. Tashrīḥ al-ālāt fī sha'n al-imtiḥānāt* (Description of Instruments Pertaining to Testing), Persian, 1483, 317 {2}. MANUSCRIPT: MS Tehrān, Majlis-i Shūrā-yi Islāmī 6376. EDITION: Mortaza Somi and Mohammad Bagheri, "Risāla-i tashrīḥ al-ālāt fī sha'n al-imtiḥānāt az Sayyid Munajjim Ḥusaynī," *Mirās-i 'ilmī-yi Islām va Īrān* 2, no. 1 (2013): 181–205.
- [52] 2. *K. ṭālī'-i wilādat-i Sulṭān Meḥmed b. Sulṭān Murād* (Birth Horoscope of Mehmed II, son of Murad II), Persian, 1480, 319 {6–7}. MANUSCRIPT: TSMK YY. 830 (Karatay: F 246).

- [53] 3a. *Jāmi' al-qismayn min al-riyāqī wa-al-ṭabī' fi al-nujūm wa-al-ṭibb* (Collection of Two Parts from Mathematical and Medical Sciences), Persian, 1479–80, autograph, 319 {16–17}.
- [54] 3b. Same as preceding [catalogued in the inventory as *R. bi-al-fārisiyya fi al-nujūm wa-al-ṭibb*], 318 {16–17}. MANUSCRIPT: This particular copy (3b) is at SK Ayasofya 2414–M.
- [55] 4. *Sharḥ Sī faṣl al-musammā bi-muwaḍḍiḥ al-rusūm fi 'ilm al-nujūm* (Commentary on [al-Ṭūsī's] Thirty Chapters on the Knowledge of the Almanac), Persian, 1479, autograph, 319 {17–18}. See → al-Ṭūsī, 3.1, Part I. MANUSCRIPT: SK Ayasofya 2709.

AL-KŪHISTĀNĪ, Fasīh al-Dīn Muḥammad b. 'Abd al-Karīm Nizāmī (d. 1530)

- [56] *K. mi'yār-i āfitāb fi sharḥ-i bīst bāb* (The Scale of the Sun), Persian, 1490–91, 319 {5–6}. MANUSCRIPT: SK Ayasofya 2677. See → al-Ṭūsī, 1.4, Part I.

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

- [57] 1a. *Mujmal al-uṣūl* (Compendium of [Astrological] Principles) [also known as *al-Mudkhal fi ṣinā'at aḥkām al-nujūm* (Introduction to Astrology)], Arabic, 992, 314 {8–9}. Bound with Kūshyār b. Labbān's *al-Zīj al-jāmi'* and Abū Ma'shar's *R. fi ihtiraqāt al-kawākib*. MANUSCRIPT: SK Fatih 3418. EDITION: *Kūshyār ibn Labbān's Introduction to Astrology*, ed. Michio Yano (Tokyo: Tokyo University of Foreign Studies, 1997).
- [58] 1b. Same as preceding, 322 {6–7}.
- [59] 1c. Same as preceding [catalogued in the inventory as *K. mudkhal al-nujūm*], 316 {19}. Bound with two anonymous treatises, *K. zubdat al-raml* and *K. ṭālī' al-waqt*.
- [60] 1d. Same as preceding, 317 {1}. Bound with an anonymous *K. uṣūl al-malāḥim*.
- [61] 1e. Same as preceding, language specified as Persian, 313 {12–13}.
- [62] 1f. Same as preceding [catalogued in the inventory as *K. fi 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 Beyazit Library Beyazit 4640.
- [63] 1g. Same as preceding, 319 {8}. Bound with *Burhān al-hay'a* and two anonymous treatises on the science of the stars.
- [64] 1h. Same as preceding, 322 {4}. Bound with al-Ṭūsī's *Tarjama K. Thamara-i Baṭlamyūs*.
- [65] 2. *al-Zīj al-jāmi'* (Comprehensive Astronomical Handbook with Tables), Arabic, 314 {8}. Bound with Kūshyār b. Labbān's *Mujmal al-uṣūl* and Abū Ma'shar's *R. fi ihtiraqāt al-kawākib*. MANUSCRIPT: SK Fatih 3418.
- [66] 3. *R. al-'amal [bi-] al-uṣṭurlāb* (Treatise on the Use of the Astrolabe), Arabic, 321 {4}. Bound in a volume containing *R. fi 'amal al-ṣafīḥa* and other treatises. MANUSCRIPT: This codex should be the copy now housed as SK Ayasofya 2671.⁶ EDITION: Persian translation: *Risāla-yi Uṣṭurlāb-i Kūshyār Gīlānī*, ed. Muḥammad Bāqirī (Tehran: Mirās-i Maktūb, 2014).

AL-MARRĀKUSHĪ, Sharaf al-Dīn Abū 'Alī al-Ḥasan b. 'Alī (fl. late thirteenth century)

- [67] 1a. *Jāmi' al-mabādī' wa-al-ghāyāt fi 'ilm al-mīqāt* (Comprehensive Collection of Principles and Goals in the Science of Timekeeping), Arabic, 1276–82, 318 {4–5}.⁷
- [68] 1b. Same as preceding, 318 {6}. MANUSCRIPT: These two codices (1a, 1b) should be the copies now housed as SK Ayasofya 2669 and TSMK A. 3343 (Karatay: A 7079), personal copy of Bayezid II. EDITION: *Jāmi' al-mabādī' wa-l-ghāyāt fi 'ilm al-mīqāt*, facs. ed. of TSMK A. 3343, ed. Fuat Sezgin, 2 vols. (Frankfurt: Institut für Geschichte der Arabisch-Islamischen Wissenschaften, 1984).

MAWLĀNĀ KŪCHAK, Yazdānbakhsh b. Pīr ‘Alī al-Amāsī (d. after 1476)

- [69] 1. *Zij-i Mujmal* (Summary Handbook of Astronomical Tables), Arabic, 1476, autograph, 314 {1–2}. MANUSCRIPT: TSMK R. 1713 (Karatay: A 7126).

AL-MIZZĪ, Zayn al-Dīn Abū ‘Abd Allāh Muḥammad b. Aḥmad b. ‘Abd al-Raḥīm (d. 1349)

- [70] 1a. *R. Kashf al-rayb fi al-‘amal bi-al-jayb* (Dispelling Doubt in Working with the Sine Quadrant), Arabic, fourteenth century, 316 {11}.
- [71] 1b. Same as preceding, 324 {9–10}. Bound with al-Mizzī’s *al-Rawḍāt al-muzaharrāt fi al-‘amal bi-al-muqaṭṭarāt* and Jamāl al-Dīn al-Turkistānī’s *R. ‘alā’iyya fi al-ḥisāb*. MANUSCRIPT: This codex (1b) should be the copy now housed as TSMK A. 3119 (Karatay: A 7037).⁸
- [72] 2. *al-Rawḍāt al-muzaharrāt fi al-‘amal bi-al-muqaṭṭarāt* (Flower-Filled Gardens for Using the Almucantars Quadrant), Arabic, 324 {9}. Bound with al-Mizzī’s *R. Kashf al-rayb fi al-‘amal bi-al-jayb* and Jamāl al-Dīn al-Turkistānī’s *R. ‘alā’iyya fi al-ḥisāb*. MANUSCRIPT: This codex should be the copy now housed as TSMK A. 3119 (Karatay: A 7037).⁹
- [73] 3. *R. fi al-rub‘ al-dā’ira* (Treatise on the Circular Quadrant), 318 {3–4}. Bound with al-Ṭūsī’s *R. bīst bāb, Sī faṣl*, and *R. fi al-rub‘ al-mujayyab*. MANUSCRIPT: SK Ayasofya 2621.

MĪRĪM ÇELEBĪ, Maḥmūd b. Muḥammad b. Qāḍizāde al-Rūmī (d. 1525)

- [74] 1. *Sharḥ-i Zij-i Ulugh Beg* (Commentary on Ulugh Beg’s Astronomical Handbook of Tables), Persian, 1499, autograph, 315 {17–18}. See → Ulugh Beg, 1.2, Part I. MANUSCRIPT: SK Ayasofya 2697.

MUNAJJIM BĀLĪ (d. after 1481)

- [75] 1. *R. Tuḥfat al-faqīr fi rub‘ al-dā’ira* (Treatise of the Gift of the Impoverished on the Quadrant), Persian, 1481, autograph, 323 {19}. MANUSCRIPT: SK Ayasofya 2588.

AL-NĪSĀBŪRĪ, al-Ḥasan b. Muḥammad b. al-Ḥusayn Nizām al-Dīn al-A’raj (d. ca. 1329–30)

See also al-Nīsābūrī in Part Two (*‘ilm al-hay’a*) and Part Three (*‘ilm al-ḥisāb*).

- [76] 1a. *Kashf-i ḥaqā’iq-i Zij-i ilkhānī* (Uncovering of the Truths of the Ilkhānid Astronomical Handbook of Tables), Persian, 1308–9, autograph, 315 {19}–316 {1}. See → al-Ṭūsī, 6.3, Part I.
- [77] 1b. Same as preceding, 315 {13–14}.
- [78] 1c. Same as preceding, 315 {14–15}.
- [79] 1d. Same as preceding, 315 {15–16}.
- [80] 1e. Same as preceding, 315 {18–19}. MANUSCRIPT: This last book (1e) should be the copy now housed as SK Ayasofya 2696.¹⁰

PTOLEMY (d. 170)

- [81] 1a. *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-sīyar wa-al-tawārīkh*, etc.]
- [82] 1b. Same as preceding [catalogued in the inventory as *K. al-shajara wa-al-thamara fi aḥkām al-nujūm*], 322 {11}. Bound with *R. fi al-ḥisāb*.
- [83] 1c. Same as preceding, 324 {13}. Bound with *R. min qibal al-nujūm*, *R. fi aḥkām al-nujūm*, *R. al-wafq*, and *K. al-ṣibyān fi al-lughā*.
- [84] 1.1a. “*Sharḥ Thamara-i Baṭlamyūs*” (Commentary on the Centiloquium), 320 {17–18}.

- [85] 1.1b. Same as preceding, 322 {10}.
- [86] 1(i)a. [al-Ṭūsī] *Tarjama-i Thamarah-i Baṭlamyūs* (The Translation of the Centiloquium), Persian, 316 {18}. Bound with Kūshyār's *K. aḥkām al-nujūm*. See → al-Ṭūsī, 5, Part I.
- [87] 1(i)b. Same as preceding, 318 {18}.
- [88] 1(i)c. Same as preceding, 321 {8}. MANUSCRIPT: This codex (1(i)c) should be the copy now housed as SK Ayasofya 2695.
- [89] 1(i)d. Same as preceding, 322 {3}. Bound with Kūshyār's *Mujmal al-uṣūl*.
- [90] 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. 'Alī (fl. likely ninth century)

- [91] 1a. *K. al-Masā'il* (Book of Interrogations), Arabic, 320 {14–15}. MANUSCRIPT: TSMK A. 3492 (Karatay: A 7114).
- [92] 1b. Same as preceding, 320 {15}.
- [93] 1c. Same as preceding, 320 {16}.
- [94] 1d. Same as preceding, 320 {17}.

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

- [95] 1. *R. mūdīh al-awqāt fī ma'rifat al-muqanṭarāt* (Elucidator of Times on Understanding the Almucantars [Quadrant]), Arabic, 318 {7}. MANUSCRIPT: TSMK A. 3481 (Karatay: A 7122).
- [96] 2. *R. tabyīn al-awqāt fī ma'rifat waḍ' al-rukhāmāt* (Treatise on Explanation of Times for Understanding the Setting up of Sundials), Arabic, 318 {12–13}. MANUSCRIPT: TSMK A. 3501 (Karatay: A 7121).
- [97] 3. *Tarjama r. al-jayb* (Turkish Translation of a Treatise on the Sine Quadrant), Turkish, 316 {10}. MANUSCRIPT: SK Ayasofya 2594.
- [98] 4a. *Tarjama K. al-jadwal al-āfāqī* (Translation of [al-Khalīlī's] Table of Horizons), Turkish, 319 {1}. MANUSCRIPT: SK Ayasofya 2590. See → al-Khalīlī, 1(i).
- [99] 4b. Same as preceding [catalogued in the inventory as *Tarjama r. al-ṣafā'ih al-āfāqīyya*], 321 {4–5}.
- [100] 4c. Same as preceding [catalogued in the inventory as *Sharḥ al-ṣafā'ih al-āfāqīyya*], 318 {17}. MANUSCRIPT: TSMK A. 3499 (Karatay: T 1618).
- [101] 5. *Tuḥfat al-fuqarā' fī rub' al-dā'ira* (The Gift of the Impoverished on the Quadrant of the Circle), Arabic, 318 {7–8}.

QUṢṬĀ B. LŪQĀ AL-BA'LABAKKĪ (d. ca. 912–13)

- [102] 1a. *K. fī al-'amal bi-al-kura [al-nujūmiyya]* (Book on Using the Celestial Globe), Arabic, 317 {16–17}. Bound with *R. fī al-farq bayn al-dāq wa-al-zā'* and other unspecified treatises.¹¹ EDITION: Richard Lorch and José Martínez Gázquez, "Qusta ben Luca: De sphere uolubili" [edition of its Latin translation], *Suḥayl* 5 (2005): 9–62.
- [103] 1b. Same as preceding, 320 {1}. Bound with Sharaf al-Dīn al-Ṭūsī's *K. fī ma'rifat al-uṣṭurlāb al-musaṭṭah*, al-Ṣūfī's *K. fī al-'amal bi-al-kura*, al-Bīrūnī's *K. fī isti'āb al-wujūh*, 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.mpiwg-berlin.mpg.de/>), this codex might be TSMK A. 3505 (Karatay: A 7046).¹²

- [104] 1c. Same as preceding, 320 {6}. Bound with an anonymous treatise on the spherical astrolabe, an anonymous treatise on the astrolabe, and *R. al-‘amal bi-al-rub‘ al-mawḍū‘ fīhi al-muqantarāt*. MANUSCRIPT: This codex (1c) should be the copy now housed as SK Ayasofya 2638.
- [105] 1d. Same as preceding [catalogued in the inventory as *K. al-‘amal bi-al-kura fī al-nujūm*], 322 {17}. Bound with *R. fattāḥ fī al-inshā‘* and *R. al-‘adad bi-awḍā‘ al-aṣābi‘*.
- [106] 1e. Same as preceding, 319 {16}. MANUSCRIPT: This codex (1e) should be the copy now housed as TSMK A. 3475 (Karatay: A 7040).
- [107] 1f. Same as preceding [catalogued in the inventory as *R. al-‘amal bi-al-kura al-falakiyya*], 324 {10–11}. Bound with *K. da‘āwā Uqlīdus*. MANUSCRIPT: This codex (1f) should be the copy now housed as SK Ayasofya 2635.
- [108] 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.
- [109] 1h. Same as preceding, 311 {3}. Bound with *Sharḥ Mīrak li-ḥikmat al-Hidāya*, *R. fī al-mūsīqī*, *K. fī ma‘rifat al-ghālib wa-al-maghlūb*. [Catalogued under *kutub ‘ilm al-ta‘bīr*, etc.] MANUSCRIPT: SK Ayasofya 2432, personal copy of Bayezid II.
- [110] 2a. *K. fī al-‘amal 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.
- [111] 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 ‘Alā’ al-Dīn ‘Alī b. Muḥammad (d. 1474)

See also al-Qūshjī in Part Two (*‘ilm al-hay‘a*) and Part Three (*‘ilm al-ḥisāb*).

- [112] 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.
- [113] 1b. Same as preceding, 316 {1–2}. MANUSCRIPT: One of these copies should be TSMK A. 3318.¹³

AL-RĀZĪ, Fakhr al-Dīn Abū ‘Abdallāh Muḥammad b. ‘Umar b. al-Khaṭīb (d. 1210)

- [114] 1a. *Ikhtiyārāt al-aḥkām al-‘alā‘iyya* (On the Selection of Propitious Times for Various Acts and Affairs), Arabic/Persian, 318 {1}.
- [115] 1b. Same as preceding, 318 {1–2}.
- [116] 1c. Same as preceding, language specified as Persian, 320 {8–9}. MANUSCRIPT: TSMK R. 1705 (Karatay: F 228).
- [117] 1d. Same as preceding, 318 {11}. Bound with al-Sijzī’s *K. al-dalā‘il fī aḥkām al-nujūm*.

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

- [118] 1. *Rawḍat al-munajjimīn* (The Garden of Astrologers), Persian, 314 {3}. Bound with al-Ṭūsī’s *Zīj-i ilkhānī*, al-Shīrāzī’s *Fann Uqlīdus min K. durrat al-tāj*, Sayyid Munajjim’s *K. aḥkām al-a‘wām*, al-Bakrī’s *Burhān al-kifāya*, and *Tuḥfat al-gharā‘ib*. EDITION: *Rawḍat al-munajjimīn*, ed. Khalīl Akhavan Zanjanī (Tehran: Mīrās-i Maktūb, 2003/2004).

IBN ABĪ AL-RIJĀL (d. after 1037)

- [119] 1. *K. al-Bārī‘* (Summa on Astrology), Arabic, 316 {17}. EDITION: Aly Aben Ragel, *El Libro conplido de los iudizios de las estrellas* (Spanish translation), ed. and trans. Gerold Hilty (Madrid: Real Academia Española, 1954).

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

- [120] 1. *K. aḥkām al-aʿwām* (General Astrological Judgments), Persian, 314 {5}. Bound with al-Rāzī's *Rawḍat al-munajjimīn*, al-Ṭūsī's *Zīj-i ulkhānī*, al-Shirāzī's *Fann Uqlīdus min K. durrat al-tāj*, al-Bakrī's *Burhān al-kifāya*, and *Tuḥfat al-gharāʾib*.

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

- [121] 1. *K. al-dalāʾil fī aḥkām al-nujūm* (Book of the Signs in Astrological Judgments), Arabic, 318 {11–12}. Bound with al-Rāzī's *K. Ikhtiyārāt al-aḥkām al-ʿalāʾiyya*.
[122] 2. *R. al-uṣṭurlāb al-zawraqī* (Treatise on Mariners' Astrolabe), Arabic, 322 {7–8}.

AL-ṢŪFĪ, Abū al-Ḥusayn ʿAbd al-Raḥmān b. ʿUmar (d. 986)

- [123] 1a. *K. ṣuwar al-burūj wa-al-kawākib fī al-nujūm* (Book of the Images of the Constellations and Fixed Stars), 326 {5–6}. EDITION: *Kitāb ṣuwar al-kawākib*, facs. ed. by Fuat Sezgin (Frankfurt: Institut für Geschichte der Arabisch-Islamischen Wissenschaften, 1986).
[124] 1b. Same as preceding, Persian, 321 {15–16}.
[125] 1.1. "Mukhtaṣar fī ṣuwar al-kawākib," Persian, 321 {16–17}.
[126] 1.2. [al-Ṭūsī] *Tarjama-i k. suwar al-kawākib*, Persian, 1250, autograph, 317 {3–4}. See → al-Ṭūsī, 4, Part I. MANUSCRIPT: SK Ayasofya 2595.
[127] 2a. *K. al-ʿamal bi-al-uṣṭurlāb* (Book on the Use of the Astrolabe), Arabic, 317 {11}. Bound with Ḥamid b. ʿAlī al-Wāsiṭī's work on the use of the astrolabe. MANUSCRIPT: TSMK A. 3509 (Karatay: A 7045). EDITION: *Kitābān fī al-ʿamal bi-al-aṣṭurlāb* (Two Books on the Use of the Astrolabe), ed. Fuat Sezgin (Frankfurt: Institut für Geschichte der Arabisch-Islamischen Wissenschaften, 1986). [Text 1: *Kitāb al-ʿamal bi-l-aṣṭurlāb* in 402 chapters, facsimile of TSMK A. 3509. Text 2: *Risāla fī l-ʿamal bi-l-aṣṭurlāb* in 170 chapters, facsimile of SK Ayasofya 2642.]
[128] 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).
[129] 3. *K. fī al-ʿamal bi-al-kura* (Book on Using the Sphere), Arabic, 319 {18}. Bound with Sharaf al-Dīn al-Ṭūsī's *K. fī maʿrifat al-uṣṭurlāb al-musattaḥ*, Qusṭā b. Lūqā's *K. fī al-ʿamal bi-al-kura*, al-Birūnī's *K. fī istiʿāb al-wujūh*, an anonymous treatise on the astrolabe, and 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).¹⁴

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

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

- [130] 1a. *R. Bīst bāb fī maʿrifat dar uṣṭurlāb* (Twenty Chapters on Understanding the Astrolabe), Persian, 318 {2}. Bound with al-Ṭūsī's *Sī faṣl*, al-Mizzī's *R. fī al-rubʿ al-dāʾira*, and *R. fī al-rubʿ al-mujayyab*. MANUSCRIPT: SK Ayasofya 2621. EDITION: *Risāla-i bīst bāb dar maʿrifat-i aṣṭurlāb*, ed. Mudarris Riḏavī and Muḥammad Taqī (Tehran: Intishārāt-i Dānishgāh-i Tih-rān, 1956).
[131] 1b. Same as preceding, 322 {12–13}. Bound with *R. fī naẓm Rashīd al-Dīn al-Waṭwāt fī ʿilm al-ʿarūḍ*. MANUSCRIPT: SK Ayasofya 2620.
[132] 1c. Same as preceding [catalogued in the inventory as *R. al-uṣṭurlāb*], 317 {7}. Bound with al-Ṭūsī's *Sī faṣl* and *Madkhal-i manzūm*. MANUSCRIPT: This codex (1c) should be the copy now housed as SK Ayasofya 2701.

- [133] 1d. Same as preceding [catalogued in the inventory as *Mukhtaşar fî ma'rifat al-uşurlāb*], 317 {15–16}. Bound with Book 7 of Qusṭā's *'Amal bi-al-kura, R. fî al-farq bayn al-dād wa-al-zā'*, and other unspecified treatises.
- [134] 1.1a. "*Sharḥ-i bīst bāb fî ma'rifat al-uşurlāb*" (Commentary on Twenty Chapters), 317 {19}.
- [135] 1.1b. Same as preceding, 318 {8–9}. Bound with *R. fî kayfiyyat al-'amal bi-al-uşurlāb al-kurī*. MANUSCRIPT: This codex (1.1b) should be the copy now housed as SK Ayasofya 2642.
- [136] 1.2. "*K. bīst bāb al-muḥashshā*" (Twenty Chapters with Glosses) 321 {17–18}.
- [137] 1.3. [Efezāde] *Sharḥ-i bīst bāb fî ma'rifat al-uşurlāb*, 321 {12}. See → Efezāde. MANUSCRIPT: This codex (1.3) should be the copy now housed as SK Ayasofya 2641.
- [138] 1.4. [al-Kūhistānī] *K. mi'yār-i āfitāb fî sharḥ-i bīst bāb* (The Scale of the Sun), Persian, 1490–91, 319 {5–6}. See → al-Kūhistānī. MANUSCRIPT: SK Ayasofya 2677.
- [139] 2a. *Madkhal-i manzūm* (On the Propitious Hours for the Beginning of Various Undertakings [often attributed to al-Ṭūsī]), Persian, 317 {6}. Bound with al-Ṭūsī's *Sī faşl* and *R. al-uşurlāb*. MANUSCRIPT: SK Ayasofya 2701.
- [140] 2b. Same as preceding, 321 {2–3}. Bound with al-Ṭūsī's *Sī faşl* and other unspecified treatises.
- [141] 2c. Same as preceding, 148 {12}. Bound with *K. al-fiqh bi-al-fārisiyya al-manzūma* and *Sharḥ al-Farrā' al-lāmiyya fî al-taşawwuf*. [Catalogued under *Kutub al-taşawwuf*, etc.]
- [142] 2d. Same as preceding, 227 {13–14}. Bound with *Qaşīdat Salmān al-muşanna'āt* and *Munsha'āt al-Waḥīd al-Tabrīzī*. [Catalogued under *al-dawāwīn al-'arabiyya*, etc.]
- [143] 2e. Same as preceding, 363 {5–6}. Bound with *Tuḥfa-i shāhī fî ma'rifat al-uşurlāb*, *Sharḥ al-Namaṭ al-tāsi' min al-Ishārāt, R. fî al-raml*, and *Sharḥ al-qaşīda al-mansūba ilā Ibn Sīnā fî al-ḥikma*. [Catalogued under *kutub al-ḥikma al-islāmiyya*.]
- [144] 3a. *R. Sī faşl*, also known as *Mukhtaşar dar ma'rifat-i taqwīm* (Thirty Chapters on the Knowledge of the Almanacs), Persian, 1260, 316 {12}. Bound with al-Zanjānī's *R. al-kāfiyya fî al-ḥisāb*. MANUSCRIPT: SK Ayasofya 2732. EDITION: *Muhtasar fî ilm el-tencim ve-ma'rifet el-takvim = Risale-i Sī faşl* (fourteenth-century Turkish translation of Ahmed-i Dai), ed. Tahir Nejat Gencan and Muammer Dizer (Istanbul : Boğaziçi Üniversitesi Kandilli Rasathanesi, 1984).
- [145] 3b. Same as preceding, 316 {14}. Bound with *K. al-hidāya fî al-ḥikma al-falsafiyya* and al-'Ubaydī's *Sharḥ k. al-Chaghminī*. MANUSCRIPT: SK Ayasofya 2474, personal copy of Bayezid II.
- [146] 3c. Same as preceding, 317 {6}. Bound with al-Ṭūsī's *Madkhal-i manzūm* and *R. al-uşurlāb*. MANUSCRIPT: SK Ayasofya 2701.
- [147] 3d. Same as preceding, 318 {3}. Bound with al-Ṭūsī's *R. bīst bāb fî ma'rifat al-uşurlāb*, al-Mizzī's *R. fî al-rub' al-dā'ira*, and *R. fî al-rub' al-mujayyab*. MANUSCRIPT: SK Ayasofya 2621.
- [148] 3e. Same as preceding, 318 {10–11}. Bound with al-Ṭūsī's *Zubdat al-idrāk*.
- [149] 3f. Same as preceding, 321 {2}. Bound with al-Ṭūsī's *Madkhal-i manzūm* and other unspecified treatises.
- [150] 3g. Same as preceding, language specified as Arabic, 321 {9}.
- [151] 3h. Same as preceding, 322 {14–15}. Bound with Suhrawardī's *K. al-alwāḥ al-'imādiyya fî al-ḥikma al-falsafiyya*.
- [152] 3i. Same as preceding [catalogued in the inventory as *Mukhtaşar fî ma'rifat al-taqwīm fî al-nujūm*], 321 {15}.
- [153] 3.1. [al-Khiṭābī] *Muwaddīḥ al-rusūm*, Persian, 1478, 319 {17–18}. See → al-Khiṭābī, 4. MANUSCRIPT: SK Ayasofya 2709.
- [154] 3.2a. "*Sharḥ-i Sī faşl*," 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 *Ḥall shukūk fi K. al-Majisī*.
- [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
- [158] 4. *Tarjama-i k. šuwar al-kawākib* (Translation of al-Šūfi's Star Catalogue), Persian, 1250, autograph, 317 {3–4}. See → al-Šūfi, 1.2. MANUSCRIPT: SK Ayasofya 2595.
- [159] 5a. *Tarjama-i Thamarah-i Baṭlamyūs* (The Translation of the Centiloquium), Persian, 316 {18}. Bound with Kūshyār's *K. aḥkām al-nujūm*. See → Ptolemy, 1.1. EDITION: *Sharḥ-i Thamarah-i Baṭlamyūs dar aḥkām-i nujūm*, ed. Khalil Akhavan Zanjanī (Tehran: Āyīna-i Mirās, 1999).
- [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 *Mujmal al-uṣūl*.
- [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-tawārikh*, etc.]
- [164] 6a. *Zīj-i ilkhānī* (Ilkhanid Astronomical Handbook of Tables), Persian, autograph, 313 {19}–314 {1}. EDITION: *Zīj-i ilkhānī*, facs. ed. of the Persian manuscript (Kitābkhānah-i Majlis-i Shūrā-yi Islāmī), ed. Yūsof Bayg Bābāpūr and Mas'ūd Ghulāmīyah (Tehran: Majma'-i Zakhā'ir-i Islāmī, 2012).
- [165] 6b. Same as preceding, 313 {16}. Bound with *K. athmār wa ashjār*. See → al-Bukhārī, Part I. MANUSCRIPT: TSMK A. 3513 (Karatay: F 231).
- [166] 6c. Same as preceding, 313 {18}.
- [167] 6d. Same as preceding, 313 {18}.
- [168] 6e. Same as preceding, 314 {3–4}. Bound with al-Rāzī's *Rawḍat al-munajjimīn*, al-Shīrāzī's *Fann Uqlīdus min K. durrat al-tāj*, al-Bakrī's *Burhān al-kifāya*, Sayyid Munajjim's *K. aḥkām al-a'wām*, and *Tuḥfat al-gharā'ib*.
- [169] 6.1. "*Sharḥ-i zīj-i ilkhānī*," 315 {18}.
- [170] 6.2a. [al-Kāshī] *Zīj-i khāqānī fi takmil-i zīj-i ilkhānī* (Astronomical Tables for the Great Khan [prepared for consummating Tūsī's Tables]), Persian, 1413–14, 313 {14–15}. See → al-Kāshī, Ghiyāth al-Dīn, Part I.
- [171] 6.2b. Same as preceding, 314 {6–7}. MANUSCRIPT: SK Ayasofya 2692.
- [172] 6.3a. [al-Nīsābūrī] *Kashf-i ḥaqā'iq-i Zīj-i ilkhānī* (Uncovering of the Truths of the Ilkhanid Astronomical Handbook of Tables), Persian, 1308–9, autograph, 315 {19}–316 {1}. See → al-Nīsābūrī, Part I.
- [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 ilkhānī al-musammā bi-kashf-i zīj-i ilkhānī*], 315 {18–19}. MANUSCRIPT: This codex (6.3e) should be the copy now housed as SK Ayasofya 2696.¹⁶

AL-ṬŪSĪ, Sharaf al-Dīn Muẓaffar b. Muḥammad b. al-Muẓaffar (d. 1213)

- [177] 1. *K. fi ma'rifat al-uṣṭurlāb al-musaṭṭah* (Book about the Knowledge of the Flat Astrolabe), 319 {18–19}. Bound with Qusṭā b. Lūqā's *K. fi al-'amal bi-al-kura*, al-Šūfi's *K. fi al-'amal bi-al-kura*, al-Birūnī's *K. fi isti'āb 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, Muḥammad Taraghāy b. Shāhrukh b. Tīmūr (d. 1449)

- [178] 1a. *Zīj-i Ulugh Beg* (Astronomical Handbook of Tables of Ulugh Beg), Persian, 313 {15}. MANUSCRIPT: SK Hamidiye 844. EDITION: *Uluğ Beğ'in Astronomi Cetvelleri = Zic-i Uluğ Bey*, facs. ed. and Turkish trans. Mustafa Kaçar and Atilla Bir, 2 vols. (Ankara: Kültür ve Turizm Bakanlığı, 2012).
- [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}.
- [183] 1.1a. [‘Alī al-Qūshjī] *Sharḥ-i Zīj-i Ulugh Beg* (Commentary on Ulugh Beg’s Astronomical Handbook of Tables), Persian, 315 {16–17}. See → ‘Alī al-Qūshjī, Part I.
- [184] 1.1b. Same as preceding, 316 {1–2}.
- [185] 1.2. [Mīrim Çelebī] *Sharḥ-i Zīj-i Ulugh Beg* (Commentary of Ulugh Beg’s Astronomical Handbook of Tables), Persian, 1499, autograph, 315 {17–18}. See → Mīrim Çelebī. MANUSCRIPT: SK Ayasofya 2697.

AL-‘URDĪ, Mu‘ayyad al-Dīn al-‘Āmirī al-Dimashqī (d. ca. 1266)

- [186] 1. *R. al-‘amal bi-al-kura [al-kāmila]* (Treatise on Using the Sphere), Arabic, 320 {13}. Bound with al-Şūfī’s *K. al-‘amal bi-al-uşṭurlāb*. MANUSCRIPT: This codex should be the copy now housed as TSMK A. 3491 (Karatay: A 7047).
- [187] 2a. *R. fī kayfiyyat al-arşād* (Treatise on the Method of Observations), Arabic, 1262–74, 323 {3}. Bound in a miscellaneous volume containing *R. fī kayfiyyat ‘amal ālāt al-raşad wa-kayfiyyat isti‘mālihā*. MANUSCRIPT: This codex (2a) should be the copy now housed as SK Ayasofya 2673. EDITION: Sevim Tekeli, “Al-Urdī’nin ‘Risalet-ün fi Keyfiyet-il-Ersad’ Adlı Makalesi,” *Araştırma* 8 (1970): 1–169.
- [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).
- [189] 2c. Same as preceding, 118 {17–18}. Bound with *R. al-uşṭurlāb*, *R. al-‘amal bi-dhāt al-ḥalaq*, and al-Qāshānī’s *K. al-işṭilāḥāt fi al-taşawwuf*. [Catalogued under *Kutub al-taşawwuf*, etc.]

AL-WĀSITĪ, ḤĀMĪD B. ‘ALĪ (fl. ca. 950)

- [190] 1. *R. fī al-‘amal bi-al-uşṭurlāb al-kurī* (Treatise on Using the Spherical Astrolabe), 317 {11–13}. Bound with al-Şūfī’s *K. al-‘amal bi-al-uşṭurlāb*. MANUSCRIPT: TSMK A. 3509 (Karatay: A 7045). EDITION: *Kitābān fī al-‘amal bi-al-aşṭurlāb* (Two Books on the Use of the Astrolabe), ed. Fuat Sezgin (Frankfurt: Institut für Geschichte der Arabisch-Islamischen Wissenschaften, 1986). [Text 1: *Kitāb al-‘amal bi-l-aşṭurlāb* in 402 chapters, facsimile of TSMK A. 3509. Text 2: *Risāla fī l-‘amal bi-l-aşṭurlāb* in 170 chapters, facsimile of SK Ayasofya 2642.]

ANONYMOUS/UNIDENTIFIED AUTHORS

- [191] 1. *K. zīj* (Book of Astronomical Handbook of Tables), 314 {2}. Bound with a treatise on how to calculate the ascendant.

- [192] 2. *R. fī al-ṭālī' wa-aḥkām al-nujūm* (Treatise on the Ascendant and Astrological Judgments), 314 {2–3}. Bound with an anonymous *zīj*.
- [193] 3. *K. ṭālī' al-waqt* (Book on Calculating the Ascendant of the Time), 316 {19}–317 {1}. Bound with an anonymous treatise on geomancy and Kūshyār's *Mujmal al-uṣūl*.
- [194] 4a. *Ṭālī'-i wilādat-i Meḥemmed Khān b. Murād Khān* (The Birth Horoscope of Mehmed II, son of Murad II), Persian, 1451, 321 {9–11}. MANUSCRIPT: Beyazit Library Beyazit 4619.¹⁸
- [195] 4b. "*R. fī wilādat-i Sulṭān Meḥemmed Khān b. Sulṭān Murād Khān*," 323 {12–13}.
- [196] 5. *R. wilādat-i Cem b. Meḥemmed Khān* (The Birth Horoscope of Cem Sultan, son of Sultan Mehmed II), 317 {4–5}.
- [197] 6. *R. ṭālī'-i Sulṭān Bāyezīd Khān* (The Horoscope of Sultan Bayezid II), 27 {2–3}. Bound with *R. fī al-handasa* and *R. fī al-tafsīr*. [Catalogued under *Kutub al-tafāsīr wa-kutub 'ilm al-qirā'a*.]
- [198] 7. *R. wilādat-i Shāh-zādah-i a'zam-i Meḥemmed b. Sulṭān al-Salāṭīn Sulṭān Bāyezīd Khān* (The Birth Horoscope of the Great Prince Mehmed, son of Sultan Bayezid II), 321 {5–7}.
- [199] 8. *aḥkām al-mawālīd* (Treatise on the Judgments of the Births), 160 {8–9}. Bound with *Sharḥ al-mukhtaṣar fī 'ilm al-tashrīḥ min qibal al-ṭibb*. [Catalogued under *al-Kutub al-ṭibbiyya*.]
- [200] 9a. *R. fī aḥkām al-nujūm* (Treatise on the Judgments of the Stars), 323 {7}. Bound with *R. fī 'amal al-ustūrlāb* and other treatises. MANUSCRIPT: This particular book (9a) should be the copy now housed as SK Ayasofya 2672.¹⁹
- [201] 9b. Same as preceding, language specified as Persian, 322 {9–10}.
- [202] 9c. Same as preceding, 324 {13}. Bound with *R. min qibal al-nujūm*, *K. al-shajara wa-al-thamara*, *R. al-wafq*, and *K. al-ṣibyān fī al-luḡha*.
- [203] 9d. "*R. fī 'ilm aḥkām al-nujūm*," 324 {16}. Bound with Ibn Sīnā's *K. fī al-mantiq wa-al-ḥikma al-falsafiyya*, al-Ṭūsī's *Zubdat al-idrāk*, and several other texts.
- [204] 10. *al-Mukhtār min kutub al-ikhtiyārāt al-falakiyya* (Compilation on the Selection of the Propitious Times for Various Acts and Affairs), Arabic, 316 {15–16}.
- [205] 11. *Mujmal al-ikhtiyārāt* (Epitome of the Elections), 318 {10}.
- [206] 12. *Bustān al-ḥikma fī ikhtiyārāt al-nujūm* (The Garden of Wisdom on Astrological Elections), 320 {9–10}.
- [207] 13. *K. al-ikhtiyārāt bi-al-'arabiyya al-manzūma fī aḥkām al-nujūm* (Book on Elections in Verse), Arabic, 320 {18–19}.
- [208] 14. *K. uṣūl al-malāḥim* (Book on the Principles of Weather Prognostications), 317 {1–2}. Bound with Kūshyār's *Mujmal al-uṣūl*.
- [209] 15. *K. al-malḥama al-turkiyya min qibal al-nujūm* (The Book of Weather Prognostications), Turkish, 98 {18}. Bound with Quṭb al-Dīnzāde's *Muqaddima*, *Dīwān 'Āshiq*, *Gulshan-i Rāz*, *Khurshīdnāma*, and *Khusraw u shūrīn*. [Catalogued under *Kutub al-fiqh wa-kutub manāqib al-a'imma*.]
- [210] 16. *R. malḥamat al-sana allati allafahā Dhū-al-Qarnayn fī aḥkām al-sana min qibal al-nujūm* (Treatise on Annual Weather Prognostications Attributed to Dhū-al-Qarnayn [Alexander the Great]), 132 {10–11}. Bound with *K. al-fanā' fī al-mushāhada*, *K. al-qism al-ilāhī*, *K. inshā' al-jadāwil*, *R. al-amr al-marbūṭ*, *K. al-'azama*, *K. maqam al-qurba*, *K. mafātīḥ al-ghayb*, *R. fī sharḥ al-alfāz*, *K. al-yā'*, *K. fī sharḥ al-asmā' al-ḥusnā*, *K. ḥilyat al-abdāl*, *K. al-tadbīrāt al-ilāhiyya*, *R. ashkāl dawā'ir al-'awālīm*, and some of the treatises of Muḥyī al-Dīn al-'Arabī on Sufism. [Catalogued under *Kutub al-taṣawwuf wa-kutub al-naṣā'ih*, etc.]
- [211] 17a. *R. fī samt al-qibla* (Treatise on the Azimuth of the Qibla), 313 {13}.
- [212] 17b. Same as preceding, 323 {9}.

- [213] 17c. Same as preceding, 85 {19}. Bound with al-Qaramānī's *Hāshiyat Şadr al-Sharī'a*. [Catalogued under *Kutub al-fiqh wa-kutub manāqib al-a'emma*.]
- [214] 18a. *R. al-uşṭurlāb* (Treatise on the Astrolabe), 118 {17}. Bound with *R. ma'rifat kayfiyyat al-irşād*, *R. al-'amal bi-dhāt al-ḥalaq*, and al-Qāshānī's *K. al-iştilāḥāt fī al-taşawwuf*. [Catalogued under *Kutub al-taşawwuf wa-kutub al-naşā'ih*, etc.]
- [215] 18b. Same as preceding, 317 {8–9}. Bound with *K. arba' maqālāt fī aḥkām al-nujūm*.
- [216] 18c. Same as preceding, 320 {1}. Bound with Sharaf al-Dīn al-Ṭūsī's *K. fī ma'rifat al-uşṭurlāb al-musaṭṭah*, al-Şūfī's *K. fī al-'amal bi-al-kura*, Qusṭā b. Lūqā's *K. fī al-'amal bi-al-kura*, al-Bīrūnī's *K. fī isti'āb al-wujūh*, and an anonymous treatise on 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).²⁰
- [217] 18d. Same as preceding, 320 {7}. Bound with Qusṭā b. Lūqā's *R. al-'amal bi-al-kura al-falakiyya*, an anonymous treatise on the spherical astrolabe, and *R. al-'amal bi-al-rub' al-mawḍū' fīhi al-muqanṭarāt*. MANUSCRIPT: This codex (18d) should be the copy now housed as SK Ayasofya 2638.
- [218] 18e. Same as preceding, language specified as Persian, 321 {14}.
- [219] 18f. "*R. fī 'ilm al-uşṭurlāb*," language specified as Arabic, 322 {1–2}.
- [220] 18g. "*R. al-'amal al-uşṭurlāb*," 323 {7}. Bound with *R. fī aḥkām al-nujūm* and other treatises.
- [221] 18h. "*K. fī al-uşṭurlāb fī 'ilm al-nujūm*," 62 {15}. Bound with *K. anwār al-afkār fī al-ḥikma al-falāsiyya*, *Sharḥ khuṭba Ibn Sīnā*, al-Ghazālī's *K. tahāfut al-falāsifa*, *K. lawāmi' al-bayyināt fī sharḥ al-asmā' wa-al-şifāt*. [Catalogued under *kutub 'ilm uşūl al-dīn*.]
- [222] 19a. *R. fī kayfiyyat al-'amal bi-al-uşṭurlāb al-kurī* (Treatise on Using the Spherical Astrolabe), 318 {9}. Bound with an anonymous commentary of al-Ṭūsī's *Bist bāb*. MANUSCRIPT: This codex (19a) should be the copy now housed as SK Ayasofya 2642. EDITION: *Kitābān fī al-'amal bi-al-aşṭurlāb* (Two Books on the Use of the Astrolabe), ed. Fuat Sezgin (Frankfurt: Institut für Geschichte der Arabisch-Islamischen Wissenschaften, 1986). [Text 1: *Kitāb al-'amal bi-l-aşṭurlāb* in 402 chapters, facsimile of TSMK A. 3509. Text 2: *Risāla fī l-'amal bi-l-aşṭurlāb* in 170 chapters, facsimile of SK Ayasofya 2642.]
- [223] 19b. Same as preceding, 319 {15}.
- [224] 19c. "*K. fī al-'amal bi-al-uşṭurlāb al-kurī*," 319 {19}. Bound with Sharaf al-Dīn al-Ṭūsī's *K. fī ma'rifat al-uşṭurlāb al-musaṭṭah*, al-Şūfī's *K. fī al-'amal bi-al-kura*, Qusṭā b. Lūqā's *K. fī al-'amal bi-al-kura*, al-Bīrūnī's *K. fī isti'āb al-wujūh*, and an anonymous treatise on the astrolabe. MANUSCRIPT: According to the Islamic Scientific Manuscript Initiative database (<https://ismi.mpiwg-berlin.mpg.de/>), this codex is probably TSMK A. 3505 (Karatay: A 7046).²¹
- [225] 19d. "*R. al-uşṭurlāb al-kurī*," 320 {7}. Bound with Qusṭā b. Lūqā's *R. al-'amal bi-al-kura al-falakiyya*, an anonymous treatise on the astrolabe, and *R. al-'amal bi-al-rub' al-mawḍū' fīhi al-muqanṭarāt*. MANUSCRIPT: This codex (19d) should be the copy now housed as SK Ayasofya 2638.
- [226] 20. *R. al-M. al-ḥādī 'ashara fī 'amal al-uşṭurlāb*, 322 {15–16}.
- [227] 21. *Tuḥfa-i shāhī fī ma'rifat al-uşṭurlāb* (Royal Gift on the Knowledge of the Astrolabe), Persian, 363 {5}. Bound with *Sharḥ al-Namaṭ al-tāsi' min al-Ishārāt*, *R. fī al-raml*, al-Ṭūsī's *Madkhal-i manzūm*, *Sharḥ al-qaşida al-mansūba ilā Ibn Sīnā fī al-ḥikma*. [Catalogued under *kutub al-ḥikma al-islāmiyya*.]
- [228] 22. *R. al-uşṭurlāb 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.

- [229] 23a. *R. fī al-rubʿ al-mujayyab* (Treatise on the Sinical Quadrant), 318 {3}. Bound with al-Ṭūsī's *R. bīst bāb, Sī faṣl*, and al-Mizzī's *R. fī al-rubʿ al-dā'ira*. MANUSCRIPT: SK Ayasofya 2621.
- [230] 23b. Same as preceding, language specified as Arabic, 255 {11}. Bound with *Nazm al-farā'id fī al-fiqh* and *R. fī ma'rifat ṣafhat al-muqanṭarāt*. [Catalogued under *al-dawāwīn al-fārisiyya*.]
- [231] 24. *R. fī ʿamal al-ṣafīḥa* (Epistle on the Operation of the Tympan), 321 {4}. Bound in a volume containing *R. al-ʿamal [bi-]al-uṣṭurlāb* attributed to Kūshyār and other treatises. MANUSCRIPT: SK Ayasofya 2671.²²
- [232] 25. *Jadwal [...] ṭab'ahā burjahā* (Table Showing the Qualities of Zodiac Signs), 322 {4–5}. Bound in a miscellaneous compilation of tables.
- [233] 26. *R. ma'rifat al-irtifā' bi-ghayr al-uṣṭurlāb* (Treatise on Calculating the Altitude without Using the Astrolabe), Persian, 320 {5–6}. MANUSCRIPT: SK Ayasofya 2627.
- [234] 27. *R. al-ʿamal bi-al-rubʿ al-mawḍū' fīhi al-muqanṭarāt* (Treatise on the Use of Almucantar), 320 {7–8}. Bound with Qusṭā b. Lūqā's *R. al-ʿamal bi-al-kura al-falakīyya*, an anonymous treatise on the spherical astrolabe, and an anonymous treatise on the astrolabe. MANUSCRIPT: This codex (27) should be the copy now housed as SK Ayasofya 2638.
- [235] 28. *Khams rasā'il fī al-ʿamal bi-al-rubʿ* (Five Treatises on the Use of the Quadrant), 320 {11}. Bound with Qusṭā b. Lūqā's *R. fī al-ʿamal bi-al-kura dhāt al-kursī*.
- [236] 29. *R. baḥṭh azlāl al-maqāyīs min qibal al-nujūm* (The Measure of Shadows), 321 {13}.
- [237] 30. *K. al-azmān wa-al-shuhūr* (The Book of Epochs and Months), 321 {13–14}.
- [238] 31. *R. fī al-ʿamal bi-ashal āla* (A Short Work on the Operation of the Easiest Instrument Having to Do with the Planets), Persian, 1481–1512, 321 {19}. MANUSCRIPT: Princeton University Garrett Collection 75 [44b]. EDITION: E. S. Kennedy, *The Planetary Equatorium of Jamshīd Ghiyāth al-Dīn al-Kāshī* (d. 1429), *An Edition of the Anonymous Persian Manuscript 75 [44b] in the Garrett Collection at Princeton University* (Princeton: Princeton University Press, 1960).
- [239] 32. *K. jadāwil al-tawārikh wa-al-nujūm* (Tables on Chronology and [Position of the] Stars), 322 {1}.
- [240] 33. *Muntakhab k. anwār al-jawāhīr fī manāzil al-Qamar* (Selections from the Book of the Illuminations of Jewels regarding the Lunar Mansions), 322 {17–18}. Bound with *R. al-wafq* and *R. mukātabāt al-Shaykh Ṣadr al-Dīn al-Qunawī ma'a al-Naṣīr al-Ṭūsī*.
- [241] 34. *Majmū'a min rasā'il fī al-rubʿ* (Collection of Treatises on the Quadrant), 323 {1}.
- [242] 35. *R. fī al-daraj wa-al-daqa'iq fī al-nujūm* (Treatise on Degrees and Minutes), 323 {10}. Bound with *R. fī al-hay'a* and *R. fī al-ḥisāb*.
- [243] 36. *R. ʿalā ṭarīq al-su'āl wa-al-jawāb fī al-nujūm* (Treatise on [the science of] the Stars through Questions and Answers), 323 {14–15}. Bound with *K. al-mi'a wa-al-ʿishrīn fī ḥisāb al-ḍarb* and other treatises.
- [244] 37. *R. fī al-ālat al-nujūmiyya al-ghayr al-mashhūra* (Treatise on a Little-Known Astronomical Instrument), Arabic, 323 {17}. MANUSCRIPT: TSMK A. 3487 (Karatay: A 7124).
- [245] 38. *K. jadwal ʿuyyina fīhi shuhūr al-kabīsa al-qamariyya bi-sinḥā* (Book of Tables in which Leap Years are Designated According to the Lunar Calendar), 324 {1}.
- [246] 39. *R. fī al-ʿamal bi-al-basīṭa al-ẓilliyya* (Treatise on the Use of the Instrument Measuring Shadows), 324 {2}.
- [247] 40. *R. min qibal al-nujūm* (Treatise regarding [the science of] the Stars), 324 {12}. Bound with *R. fī aḥkām al-nujūm*, *K. al-shajara wa-al-thamara*, *R. al-wafq*, and *K. al-ṣibyān fī al-lughā*.
- [248] 41a. *R. al-ʿamal bi-dhāt al-ḥalaq* (Book on the Use of the Armillary Sphere), 328 {12}.

- [249] 41b. Same as preceding, 118 {17–18}. Bound with *R. al-uşurlāb*, *R. maʿrifat kayfiyyat al-irşād*, and al-Qāshānī's *K. al-iştilāhāt fi al-taşawwuf*. [Catalogued under *Kutub al-taşawwuf wa-kutub al-naşāʾih*, etc.]
- [250] 42. *R. fi kayfiyyat ʿamal ālāt al-raşad wa-kayfiyyat istiʿmālīhā* (Treatise on the Use of Instruments for Celestial Observation), 323 {3–4}. Bound in a miscellaneous volume containing al-ʿUrđī's *R. fi kayfiyyat al-arşād*. MANUSCRIPT: This codex (42) should be the copy now housed as SK Ayasofya 2673.
- [251] 43. *al-Qaşīdat al-gharrāʾ fi ḥarakāt al-aflāk* (The Splendid Qasida on the Movements of the Orbs), Arabic, 331 {7}. MANUSCRIPT: SK Ayasofya 2666.
- [252] 43.1 *Sharḥ al-Qaşīdat al-gharrāʾ*, 331 {6}.
- [253] 44. *R. fāl al-kawākib* (Treatise on Fortune-Telling Based on the Stars), 135 {12}. Bound with *K. ḥaqq al-yaqīn fi al-taşawwuf*, *K. gulshan-i rāz*, *K. kanz al-rumūz*, *Qaşīdat Firdawsī*, *K. jamʿ mukhtaşar fi ʿilm al-arūḍ*, *K. fi al-şalāt*, *K. maqşad al-Aqşā fi al-taşawwuf*, and *arbaʿ rasāʾil*. [Catalogued under *kutub al-taşawwuf*, etc.]
- [254] 45. *K. fīmā yaḥtāju ilayhi al-mutaṭabbib min ʿilm al-nujūm fi al-ṭibb* (Book on what the Physician Needs to Know about the Science of the Stars), 153 {6}. Bound with Hippocrates's *K. al-fuşūl*, Muḥammad b. Zakariyyā's *K. fi al-qūlanj*, *K. al-luʿluʿat fi tadbīr al-şihḥa*, *K. al-khadar wa-sabʿat ʿashar*. [Catalogued under *al-kutub al-ṭibbiyya*.]
- [255] 46. *R. fi maʿrifat şafihāt al-muqanṭarāt* (Epistle on the Knowledge of the Plate of Almucantar), Persian, 255 {10–11}. Bound with *Nazm al-farāʾid fi al-fiqh* and *R. al-rubʿ al-mujayyab*. [Catalogued under *al-dawāwīn al-fārisiyya*.]
- [256] 47. *R. al-manzūma fi al-aḥwāl al-falakiyya min qibal al-nujūm* (Treatise in Verse on Celestial Influences), Persian, 257 {13–14}. Bound with *R. manzūma fi awşāf al-azhār*. [Catalogued under *al-Dawāwīn al-fārisiyya*.]
- [257] 48. *R. fi aḥkām al-khusūf wa-al-kusūf al-manzūma* (Treatise in Verse on the Decrees of the Solar and Lunar Eclipse), language specified as Turkish, 263 {5}. [Catalogued under *al-dawāwīn al-turkiyya*, etc.]
- [258] 49. *R. jadāwil al-tawāriḫ wa-ikhtiyārāt al-aʿmāl bi-ḥisāb ittişālāt al-qamar* (Tables of Chronology and Elections on the Basis of the Moon's Positions vis-à-vis Other Planets), 310 {9–10}. Bound in a volume that contains *Thalāth maqālāt min K. Ayran fi rafʿ al-ashyāʾ al-thaqīla*, *R. al-dawāʾir al-mutaḥarrīka min dhawātihā*, *R. ʿamal al-sāʾāt allatī tarmī bi-al-banādiq*, *K. al-qirānāt wa-ittişālāt al-kawākib*. [Catalogued under *kutub ʿilm al-taʾbīr*, etc.]
- [259] 50. *K. al-qirānāt wa-ittişālāt al-kawākib* (Book of Conjunctions and Stellar Aspects), 310 {10–11}. Bound in a volume that contains *Thalāth maqālāt min K. Ayran fi rafʿ al-ashyāʾ al-thaqīla*, *R. al-dawāʾir al-mutaḥarrīka min dhawātihā*, *R. ʿamal al-sāʾāt allatī tarmī bi-al-banādiq*, *R. jadāwil al-tawāriḫ wa-ikhtiyārāt al-aʿmāl bi-ḥisāb ittişālāt al-qamar*. [Catalogued under *kutub ʿilm al-taʾbīr*, etc.]
- [260] *R. jihād al-mulūk ʿalā ṭarīqat aḥkām al-nujūm*, 311 {6–7}. Bound with *al-Durr al-maṭlūb fi sirr al-ghālib wa-al-maghlūb* and *R. fi al-kharazāt al-khams min al-jafr*. [Catalogued under *kutub ʿilm al-taʾbīr*, etc.]

PART TWO

The Science of the Configuration [of the Heavens] (*'ilm al-hay'a*)

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

- [261] 1. *Turar al-mulakhkhaṣ fi al-hay'a* (Commentary of Chaghmīnī's *Mulakhkhaṣ*), Arabic, 1335, 330 {18–19}. See → al-Chaghmīnī, 1.3. MANUSCRIPT: TSMK A. 3308 (Karatay: A 7060).

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

- [262] 1. *Tarjamat Chaghmīnī bi-al-fārisiyya fi 'ilm al-hay'a* (Persian Translation of Chaghmīnī's *Mulakhkhaṣ*, Persian, 326 {19}). See → al-Chaghmīnī, 1(i). MANUSCRIPT: This codex should be the copy now housed as SK Ayasofya 2592.²³

AL-BIṬRŪJĪ, Nūr al-Dīn Abū Ishāq Ibrāhīm b. Yūsuf (d. 1185)

- [263] 1a. *K. [murta'ish] fi al-hay'a* (Book of Trembling on Hay'a) [catalogued in the inventory as *K. 'ajīb fi al-hay'a*], Arabic, 332 {14}. Bound with other anonymous treatises. MANUSCRIPT: TSMK A. 3302 (Karatay: A7055). EDITION: Biṭrūjī, *On the Principles of Astronomy: An Edition of the Arabic and Hebrew Versions with Translation, Analysis, and an Arabic-Hebrew-English Glossary*, ed. Bernard Goldstein (New Haven: Yale University Press, 1971).
- [264] 1b. Same as preceding, 332 {15}. Bound with other anonymous treatises.

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

- [265] 1a. *Sharḥ al-Tabṣira* (Commentary of al-Kharaqī's *Tabṣira*), Arabic, autograph, 328 {8–9}. See → al-Kharaqī, 1.1. MANUSCRIPT: SK Ayasofya 2582.
- [266] 1b. Same as preceding, bound with 1a.

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

- [267] 1a. *al-Mulakhkhaṣ fi al-hay'a al-basīṭa* (Epitome of Plain Theoretical Astronomy), Arabic, 61 {12–13}. Bound with al-Khayālī's *K. ḥāshiyat sharḥ al-'aqā'id*. [Catalogued under *Kutub 'ilm uṣūl al-dīn*.] EDITION: Sally P. Ragep, *Jaghmīnī's Mulakhkhaṣ: An Islamic Introduction to Ptolemaic Astronomy* (New York: Springer-Verlag, 2016).
- [268] 1b. 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).
- [270] 1d. Same as preceding, 327 {10}. Bound with *Matn ādāb al-baḥth fi 'ilm al-jadal*.
- [271] 1e. Same as preceding, 331 {4}. Bound with al-Jurjānī's *Sharḥ al-Mulakhkhaṣ*. MANUSCRIPT: TSMK, A. 3296 (Karatay: A 7057).
- [272] 1(i). [al-Andiqānī.] *Tarjamat Chaghmīnī bi-al-fārisiyya fi 'ilm al-hay'a*, Persian, 326 {19}. See → al-Andiqānī. MANUSCRIPT: This codex (1(i)) should be the copy now housed as SK Ayasofya 2592.²⁴
- [273] 1(ii). [Ḥamza b. Ḥājj b. Sulaymān.] Same as preceding, Persian, 327 {8}. Bound with an anonymous Persian commentary of al-Chaghmīnī's *Mulakhkhaṣ*. See → Ḥamza b. Ḥājj Sulaymān. MANUSCRIPT: This codex (1(ii)) should be the copy now housed as SK Ayasofya 2593.
- [274] 1.1a. [al-Jurjānī.] *Sharḥ al-Mulakhkhaṣ*, Arabic, 331 {4–5}. Bound with al-Chaghmīnī's *al-Mulakhkhaṣ*. See → al-Jurjānī, 1, Part II.

- [275] 1.1b. Same as preceding, 326 {8}. MANUSCRIPT: This codex (1.1b) should be the copy now housed as SK Ayasofya 2651.
- [276] 1.1c. Same as preceding, 327 {7–8}.
- [277] 1.1d. 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.
- [278] 1.1e. Same as preceding, 328 {4}. Bound with al-Jurjānī's *Hāshiyat sharḥ al-Ṭawālī'* (Supercommentary on al-Bayḍāwī's *Rising Light from Far Horizons*).
- [279] 1.1f. Same as preceding, 328 {15–16}. Bound with al-Turkmānī's commentary on al-Chaghmīnī's *Mulakhkhaṣ*.
- [280] 1.1g. Same as preceding, 329 {3}. MANUSCRIPT: This codex (1.1g) should be the copy now housed as SK Ayasofya 2654.
- [281] 1.1h. Same as preceding, 330 {19}–331 {1}.
- [282] 1.1(i). Turkish translation of al-Jurjānī's *Sharḥ al-Mulakhkhaṣ*, 329 {6}.
- [283] 1.2a. [Qāḍīzāde al-Rūmī.] *Sharḥ al-Mulakhkhaṣ*, Arabic, 1412, 328 {1–2}. Bound with *K. fī al-hay'a*. See → Qāḍīzāde al-Rūmī, Part II.
- [284] 1.2b. Same as preceding, 328 {2}.
- [285] 1.2c. Same as preceding, 328 {12–13}.
- [286] 1.2d. Same as preceding, 328 {13–14}. Bound with *R. al-ishq bi-al-fārisiyya* and al-Nīsābūrī's *R. al-Shamsiyya*. MANUSCRIPT: This (1.2d) should be the copy now housed as SK Ayasofya 2659.
- [287] 1.2e. Same as preceding, 329 {2}.
- [288] 1.2f. Same as preceding, 329 {16–17}.
- [289] 1.2g. Same as preceding, 330 {10–11}. Bound with miscellaneous treatises.
- [290] 1.2h. Same as preceding, 330 {14–15}.
- [291] 1.2i. Same as preceding, 330 {16}.
- [292] 1.2j. Same as preceding, 332 {6–7}. Bound with Qāḍīzāde al-Rūmī's *Sharḥ Ashkāl al-ta'sīs*.
- [293] 1.2.1. [al-Niksāri.] *Hāshiyat sharḥ al-Chaghmīnī*, Arabic, 326 {15–16}. See → al-Niksāri. MANUSCRIPT: SK Ayasofya 2656.
- [294] 1.2.2. [al-Shirwānī.] *Hāshiyat sharḥ Qāḍīzāde li-l-Chaghmīnī*, 329 {1–2}. See → al-Shirwānī, Part II. MANUSCRIPT: TSMK A. 3294 (Karatay: A 7077).²⁵
- [295] 1.2.3. [Sinān Pasha.] *Hāshiyat sharḥ Qāḍīzāde li-l-Chaghmīnī*, 330 {15}. See → Sinān Pasha. MANUSCRIPT: TSMK A. 3299 (Karatay: A 7074).²⁶
- [296] 1.3. [al-Alānī.] *Ṭurar al-mulakhkhaṣ fī al-hay'a*, Arabic, 1334, 330 {18–19}. See → al-Alānī. MANUSCRIPT: TSMK A. 3308 (Karatay: A 7060).
- [297] 1.4a. [al-'Ubaydī.] *Sharḥ al-mulakhkhaṣ*, Arabic, 327 {3–4}. Bound with al-'Ubaydī's *Bayān al-Tadhkira*. See → al-'Ubaydī. MANUSCRIPT: TSMK A. 3325 (Karatay: A 7058).
- [298] 1.4b. Same as preceding, 316 {13}. Bound with *K. al-hidāya fī al-ḥikma* and al-Ṭūsī's *Sī faṣl*. MANUSCRIPT: SK Ayasofya 2474.
- [299] 1.5 [al-Turkmānī.] *Sharḥ k. al-Chaghmīnī*, Arabic, 328 {16}. Bound with al-Jurjānī's *Sharḥ al-Mulakhkhaṣ*. See → al-Turkmānī. MANUSCRIPT: SK Ayasofya 2653.
- [300] 1.6 [Qarā Sinān.] *Sharḥ al-Chaghmīnī*, 326 {2}. See → Qarā Sinān.
- [301] 1.7a. "*Sharḥ al-Mulakhkhaṣ*," Persian, 327 {8}. Bound with Ḥamza b. Ḥājj b. Sulaymān's Persian translation of al-Chaghmīnī's *Mulakhkhaṣ*. MANUSCRIPT: This codex (1.7a) should be the copy now housed as SK Ayasofya 2593.
- [302] 1.7.1a. "*Hāshiyat sharḥ al-Chaghmīnī*," 325 {19}–326 {1}.
- [303] 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 fī sharḥ 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).

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

- [307] 1. *Tarjamat Chaghmīnī bi-al-fārisiyya* (Persian translation of al-Chaghmīnī’s *Mulakhkhaṣ*), Persian, 327 {8}. See → al-Chaghmīnī, 1(ii). Bound with an anonymous Persian commentary of al-Chaghmīnī’s *Mulakhkhaṣ*. MANUSCRIPT: This codex should be the copy now housed as SK Ayasofya 2593.

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*).

- [308] 1. *Hall shukūk fī k. al-Majisṭī* (Solution of Difficulties in the Almagest), Arabic, 323 {2}. Bound with *Sharḥ Sī faṣl*.
- [309] 2. *Sharḥ k. Majisṭī Baṭlamyūs* (A Commentary of Ptolemy’s Almagest), Arabic, 329 {11}. Bound with another commentary on Almagest and al-‘Urḍī’s *Kayfiyyat al-arṣād*. MANUSCRIPT: TSMK A. 3329 (Karatay: A 7140).

AL-KHARAQĪ, ‘Abd al-Jabbār (d. 1158)

- [310] 1a. *al-Tabṣirā fī ‘ilm al-hay’a* (Conspectus of the Science of the Configurations of the Heavens), Arabic, 1132–33, 324 {6–7}. Bound with al-Ṭabarī’s *Firdaws al-ḥikma* and ‘Alī b. ‘Īsā al-Uṣṭurlābī’s *R. fī al-uṣṭurlāb*.
- [311] 1b. Same as preceding, 328 {6}.
- [312] 1c. Same as preceding, 329 {5}.
- [313] 1d. Same as preceding, 329 {13}. MANUSCRIPT: The last three codices (1b, 1c, 1d) should be the copies now housed as SK Ayasofya 2578, Ayasofya 2579, and Ayasofya 2581.
- [314] 1.1a. [al-Bukhārī, Mubārakshāh.] *Sharḥ al-Tabṣira*, Arabic, autograph, 328 {8–9}. See → al-Bukhārī, Part II. MANUSCRIPT: SK Ayasofya 2582.
- [315] 1.1b. Same as preceding, bound with 1.1a.
- [316] 2. *‘Umda Khwārazmshāhī*, Persian, thirteenth century, 328 {17}.

AL-JĀJARAMĪ, Mu’ayyad Muḥammad (fl. thirteenth century)

- [317] 1. *K. faṣṣ al-khātam fī hay’at al-‘ālam* (The Ring Stone on the Configuration of the World), Persian, 326 {1–2}. MANUSCRIPT: TSMK A. 3337 (Karatay: F 227).

AL-JURJĀNĪ AL-SAYYID AL-SHARĪF, ‘Alī b. Muḥammad (d. 1413)

- [318] 1a. *Sharḥ al-Mulakhkhaṣ* (Commentary on al-Chaghmīnī’s Epitome), Arabic, 331 {4–5}. Bound with al-Chaghmīnī’s *al-Mulakhkhaṣ*. See → al-Chaghmīnī, 1.1.
- [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}.

- [321] 1d. Same as preceding, 328 {3}. MANUSCRIPT: One of the two codices (1c, 1d) should be the copy now housed as SK Ayasofya 2653.
- [322] 1e. Same as preceding, 328 {4}. Bound with al-Jurjānī's *Hāshiyat sharḥ al-Ṭawālī'* (Supercommentary on al-Bayḍāwī's *Rising Light from Far Horizons*).
- [323] 1f. Same as preceding, 328 {15–16}. Bound with al-Turkmānī's commentary on al-Chaghmīnī's *Mulakkhkhaṣ*.
- [324] 1g. Same as preceding, 329 {3}. MANUSCRIPT: This codex (1g) should be the copy now housed as SK Ayasofya 2654.
- [325] 1h. Same as preceding, 330 {19}–331 {1}.
- [326] 1(i). Turkish translation of al-Jurjānī's *Sharḥ al-Mulakkhkhaṣ*, 329 {6}.
- [327] 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-MAS'ŪDĪ, Sharaf al-Dīn Muḥammad b. Mas'ūd (fl. thirteenth century)

- [328] 1a. *K. jahān-dānish* (Book of Knowledge of the World), Persian translation of his *al-Kifāya fī 'ilm hay'at al-'ālam*, 1246, 325 {17–18}. EDITION: *Jahān-i dānish*, ed. Khalīl Akhavān Zanjanī (Tehran: Mīrāṣ-i Maktūb, 2003).
- [329] 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.
- [330] 1c. Same as preceding, 327 {1}. MANUSCRIPT: This codex (1c) should be the copy now housed as SK Ayasofya 2602.
- [331] 1d. Same as preceding, 328 {6–7}. Bound with *R. fāl-i Qur'an*, *R. fārisiyya fī munāzarat Baghdād wa-Isfahān*, and *R. munsha'āt al-ṣāhib al-marhūm*.

AL-NIKSĀRĪ, Muḥyī al-Dīn Muḥammad b. Ibrāhīm b. Ḥasan al-Rūmī (d. 1495)

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

AL-NĪSĀBŪRĪ, al-Ḥasan b. Muḥammad b. al-Ḥusayn Nizām al-Dīn al-A'raj (d. ca. 1329–30)

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

- [333] 1a. *Tawḍīḥ* (or *Sharḥ*) *al-tadhkira* (Elucidation of the Memoir), Arabic, 1311, autograph, 329 {9–10}. See → al-Ṭūsī, 2.1, Part II.
- [334] 1b. Same as preceding, 327 {2–3}. Bound with al-Ṭūsī's *K. al-tadhkira fī 'ilm al-hay'a*.
- [335] 1c. Same as preceding, 327 {19}. Bound with al-Ṭūsī's *K. al-tadhkira fī 'ilm al-hay'a*. MANUSCRIPT: One of the two codices (1b, 1c) should be the copy now housed as SK Ayasofya 2589.
- [336] 1d. Same as preceding [catalogued in the inventory as *Tawḍīḥ al-tadhkira*], 327 {11}.
- [337] 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.
- [338] 1f. Same as preceding [catalogued in the inventory as *Sharḥ al-tadhkira al-musammā bi-tawḍīḥ al-tadhkira*], 330 {3–4}.
- [339] 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.
- [340] 2. *Tafsīr* [or *Sharḥ*] *al-Tahrīr al-Majisti'* (Exegesis of al-Ṭūsī's Recension of the *Almagest*), Arabic, 1305, 329 {14–15}.

QĀDĪZĀDE AL-RŪMĪ, Şalāh al-Dīn Mūsā b. Muḥammad b. Maḥmūd al-Rūmī (d. after 1440)

See also Qāḏīzāde al-Rūmī in Part Four (*‘ilm al-handasa*).

- [341] 1a. *Sharḥ al-Mulakkhaṣ*, Arabic, 1412, 328 {1–2}. Bound with *K. fī al-hay’a*. See → al-Chaghmīnī, 1.2.
- [342] 1b. Same as preceding, 328 {2}.
- [343] 1c. Same as preceding, 328 {12–13}.
- [344] 1d. Same as preceding, 328 {13–14}. Bound with *R. al-ishq bi-al-fārisiyya* and al-Nīsābūrī’s *R. al-Shamsiyya*. MANUSCRIPT: This codex (1d) should be the copy now housed as SK Ayasofya 2659.
- [345] 1e. Same as preceding, 329 {2}.
- [346] 1f. Same as preceding, 329 {16–17}.
- [347] 1g. Same as preceding, 330 {10–11}. Bound with miscellaneous treatises.
- [348] 1h. Same as preceding, 330 {14–15}.
- [349] 1i. Same as preceding, 330 {16}.
- [350] 1j. Same as preceding, 332 {6–7}. Bound with Qāḏīzāde al-Rūmī’s *Sharḥ Ashkāl al-ta’sīs*.
- [351] 1.1. [al-Niksāri.] *Hāshiyat sharḥ al-Chaghmīnī*, Arabic, 326 {15–16}. See → al-Niksāri. MANUSCRIPT: SK Ayasofya 2656.
- [352] 1.2. [al-Shirwānī.] *Hāshiyat sharḥ Qāḏīzāde li-l-Chaghmīnī*, 329 {1–2}. See → al-Shirwānī, Part II. MANUSCRIPT: TSMK A. 3294 (Karatay: A 7077).²⁸
- [353] 1.3. [Sinān Pasha.] Same as preceding, 330 {15}. See → Sinān Pasha. MANUSCRIPT: TSMK A. 3299 (Karatay: A 7074).²⁹

QARĀ SINĀN (d. ca. 1480–81)

- [354] 1. *Sharḥ al-Chaghmīnī* (Commentary on Chaghmīnī’s *Mulakkhaṣ*), 326 {2}. See → al-Chaghmīnī, 1.6.

AL-QŪSHJĪ, Abū al-Qāsim ‘Alā’ al-Dīn ‘Alī b. Muḥammad (d. 1474)

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

- [355] 1a. *R. al-faḥḥiyya fī ‘ilm al-hay’a*, 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.
- [357] 1c. Same as preceding, 151 {18–19}. Bound with al-Nīsābūrī’s *R. fī al-ṭibb al-nabawī*, al-Fanārī’s *Sharḥ Īsāghūjī*, ‘Alī al-Qūshjī’s *R. muḥammadiyya*. [Catalogued under *al-kutub al-tibbiyya*.]
- [358] 1.1. [Ghulām Sinān.] *Faḥḥ al-faḥḥiyya fī sharḥ al-Faḥḥiyya*, 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 ‘ilm al-hay’a*, Persian, 1458, 327 {11–12}. Bound with a treatise in Persian on Arithmetic and *Sharḥ Ashkāl al-ta’sīs*. 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-Shīrāzī, 3.1, in Part II. MANUSCRIPT: This codex might be the copy now housed as SK Ayasofya 2643.

AL-SĀLĀR, ‘Alī b. Faḍl Allāh Ḥusām al-Dīn (fl. ca. mid-eleventh century)

- [362] 1. *K. jāmi‘ al-qawānīn [fī] ‘ilm al-hay’a* (Book Comprising the Rules of the Science of *Hay’a*), 318 {13–14}. Bound with other treatises on the study of heavens and other topics. MANUSCRIPT: TSMK A. 3342 (Karatay: A 7141).³⁰

SINĀN PASHA, Sinān al-Dīn Yūsuf b. Khiḍr Beg b. Jalāl al-Dīn ‘Ārif (d. 1486).

- [363] 1. *Hāshiyat sharḥ al-Mulakkhaṣ*, Arabic, 330 {15}. See → al-Chaghminī, 1.2.3; Qāḍizāde al-Rūmī, 1.3. MANUSCRIPT: TSMK A. 3299 (Karatay: A 7074).³¹

AL-SHĪRĀZĪ, Quṭb al-Dīn Maḥmūd b. Mas‘ūd b. Muṣliḥ (d. 1311)

See also al-Shīrāzī in Part Four (*‘ilm al-handasa*)

- [364] 1a. *Nihāyat al-idrāk fī dirāyat al-aflāk* (The Utmost Attainment in Comprehending the Orbs), Arabic, 1281, 325 {16}.
- [365] 1b. Same as preceding, 326 {10–11}. Bound with *R. ‘alā al-ḥaraka al-dahraja* (Commentary of the Treatise on the Motion of Rolling). MANUSCRIPT: This codex (1b) should be the copy now housed as TSMK A. 3336 (Karatay: A 7101).
- [366] 1c. Same as preceding, 326 {13–14}. Bound with al-Ṭūsī’s *K. al-Tadhkirat*. MANUSCRIPT: This codex (1c) should be the copy now housed as TSMK A. 3333 (Karatay: A 7082).
- [367] 1d. Same as preceding, 326 {14–15}.
- [368] 1e. Same as preceding, 327 {5–6}.
- [369] 2. *R. fī alā al-ḥaraka al-dahraja* (Treatise on the Motion of Rolling) [catalogued in the inventory as *Sharḥ al-R. fī alā 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).
- [370] 3a. *K. al-tuḥfa al-shāhiyya* (The Royal Gift regarding the Knowledge of the Configuration of the Heavens), Arabic, 1295, 325 {19}.
- [371] 3b. Same as preceding, 330 {1}.
- [372] 3c. Same as preceding, 330 {2}.
- [373] 3d. Same as preceding, 330 {17}.
- [374] 3e. Same as preceding, 331 {2}. MANUSCRIPT: One of the five codices (3a–3e) should be the copy now housed as SK Ayasofya 2585.
- [375] 3f. Same as preceding [catalogued in the inventory as *K. al-tuḥfa al-shāhiyya li-al-Quṭb al-Shīrāzī*], 330 {2–3}.
- [376] 3g. Same as preceding, language specified as Arabic, 330 {12}. MANUSCRIPT: This codex (3g) should be the copy now housed as SK Ayasofya 2587.
- [377] 3.1a. [‘Alī 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.
- [378] 3.2. “*Sharḥ al-Tuḥfa al-shāhiyya*,” 330 {16–17}.
- [379] 3.3. Same as preceding, 332 {5}.
- [380] 3.4. “*Hawāshī al-Tuḥfa al-shāhiyya*,” 331 {3–4}.
- [381] 4a. *Fa’alta 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).
- [382] 4b. Same as preceding, 327 {1–2}. MANUSCRIPT: This codex (4b) should be the copy now housed as SK Ayasofya 2668.

- [383] 5. *Ikhtiyārāt-i Muẓaffariyya* (The Muzaffarid Elections), Persian, 1282, 332 {1}. Bound with an anonymous astronomical epitome and al-Ṭūsī's *R. Mu'iniyya*. MANUSCRIPT: TSMK A. 3310 (Karatay: F 233).

AL-SHIRWĀNĪ, Fathallāh b. Abū Yazīd b. 'Abd al-'Azīz b. Ibrāhīm al-Shābarānī (d. 1486)

See also al-Shirwānī in Part Five (*'ilm al-mūsīqī*).

- [384] 1. *Hāshiyat sharḥ Qāḍizāde li-l-Chaghmīnī*, Arabic, 1473, 329 {1–2}. See → al-Chaghmīnī, 1.2.2; Qāḍizāde al-Rūmī, 1.2. MANUSCRIPT: TSMK A. 3294 (Karatay: A 7077).³²
- [385] 2. *Sharḥ al-Tadhkira*, Arabic, 1475. See → al-Ṭūsī, 2.4–2.10, Part II.³³ MANUSCRIPT: This codex should be TSMK, A. 3314 (Karatay: A 7093).

THĀBIT B. QURRA (d. 901)

- [386] 1. *K. fī ta'līf al-nisab* (Book on the Composition of Ratios), Arabic, 329 {17}. Bound with Thābit b. Qurra's *R. fī al-shakl al-qattā'* (Treatise on the Secant Figure) and a commentary on the preceding work. EDITION: Pascal Crouzet, "Thābit ibn Qurra et la composition des rapports. Texte et traduction: *Livre sur la composition des rapports*," in *Thābit ibn Qurra: Science and Philosophy in Ninth-Century Baghdad*, ed. Roshdi Rashed (Berlin: Walter de Gruyter, 2009): 391–535.
- [387] 2. *R. fī al-shakl al-mulaqqab bi-al-qattā' min K. al-Majisī* (On the Figure Called the Secant from the *Almagest*), Arabic, 329 {18–19}. Bound with Thābit b. Qurra's *K. fī ta'līf al-nisab* and a commentary on *R. fī al-shakl al-qattā'*. EDITION: Hélène Bellosta, "Le traité de Thābit ibn Qurra sur *La figure secteur*. Traduction: *Sur la figure secteur*," in *Thābit ibn Qurra: Science and Philosophy in Ninth-Century Baghdad*, ed. Roshdi Rashed (Berlin: Walter de Gruyter, 2009): 335–90.
- [388] 2.1. "*Sharḥ al-shakl al-mulaqqab bi-al-qattā'*," 329 {17–18}. Bound with Thābit b. Qurra's *K. fī ta'līf al-nisab* and *R. fī al-shakl al-qattā'*.

AL-TURKMĀNĪ, Kamāl al-Dīn (d. 1357)

- [389] 1. *Sharḥ k. al-Chaghmīnī* (Commentary on al-Chaghmīnī's *Mulakhkhaṣ*), Arabic, 1354, 328 {16}. Bound with al-Jurjānī's *Sharḥ al-Mulakhkhaṣ*. See → al-Chaghmīnī, 1.5; al-Jurjānī, 1. MANUSCRIPT: SK Ayasofya 2653.

AL-ṬŪSĪ, Naṣīr al-Dīn Abū Ja'far Muḥammad b. Muḥammad (d. 1274)

See also al-Ṭūsī in Part One (*'ilm al-nujūm*), Part Three (*'ilm al-ḥisāb*), and Part Four (*'ilm al-handasa*).

- [390] 1a. *R. Mu'iniyya*, Persian, 1235, 326 {16}. Bound with al-Ṭūsī's *Sharḥ-i Mu'iniyya* and the *Zubdah-i hay'a*. MANUSCRIPT: This codex (1a) should be the copy now housed as SK Ayasofya 2670. EDITION: *al-Riṣāla al-mu'iniyya*, facs. ed. of Persian manuscript with introduction by Muḥammad Taqī Dānishpazhūh (Tehran: Chāpkhānah-i Dānishgāh-i Tih-rān, 1956).
- [391] 1b. Same as preceding, 332 {1–2}. Bound with al-Shīrāzī's *Ikhtiyārāt-i Muẓaffariyya* and an anonymous astronomical epitome.
- [392] 1c. Same as preceding, 332 {4}.
- [393] 1.1. [al-Ṭūsī] *Sharḥ-i Mu'iniyya*, also known as *Hall-i mushkilāt-i Mu'iniyya* (A Solution to the Problems of the *Mu'iniyya*), 1245, Persian, 326 {16–17}. Bound with al-Ṭūsī's *R. Mu'iniyya* and *Zubdat al-idrāk*. MANUSCRIPT: This codex (1.1) should be the copy now housed as SK Ayasofya 2670. EDITION: *Hall mushkilāt-i mu'iniyya*, facs. ed. of Persian manuscript with introduction by Muḥammad Taqī Dānishpazhūh (Tehran: Chāpkhāna-i Dānishgāh-i Tih-rān, 1956).
- [394] 2a. *K. al-Tadhkira fī 'ilm al-hay'a* (Memoir on Astronomy), Arabic, 1261 [the year Marāgha version was completed], 326 {12}. EDITION: Jamil Ragep, *Naṣīr Al-Dīn Al-Ṭūsī's Memoir on As-*

- tronomy* = *Al-Tadhkira Fī '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-Shīrāzī'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-Nīsābūrī's *Tawḍīḥ* (or *Sharḥ*) *al-tadhkira*.
- [397] 2d. Same as preceding, 327 {19}. Bound with al-Nīsābūrī's *Tawḍīḥ* (or *Sharḥ*) *al-tadhkira*. MANUSCRIPT: One of these two codices (2c and 2d) should be the copy now housed as SK Ayasofya 2589.
- [398] 2e. Same as preceding, 331 {19}. Bound in a miscellaneous volume containing *K. Uqlīdus*, *al-Mutawassiṭat al-handasiyya*, and *K. Tahṛīr al-Majisṭī*. MANUSCRIPT: This codex (2e) might be TSMK A. 3453 (Karatay: A 7005).
- [399] 2.1a. [al-Nīsābūrī] *Tawḍīḥ* (or *Sharḥ*) *al-tadhkira* (Elucidation of the Memoir), Arabic, 1311, autograph, 329 {9–10}. See → al-Nīsābūrī, 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*.
- [401] 2.1c. Same as preceding, 327 {19}. 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 2589.
- [402] 2.1d. Same as preceding [catalogued in the inventory as *Tawḍīḥ al-tadhkira*], 327 {11}.
- [403] 2.1e. Same as preceding [catalogued in the inventory as *Sharḥ al-tadhkira*], 328 {5}. MANUSCRIPT: This codex (2.1e) should be the copy now housed as SK Ayasofya 2646.
- [404] 2.1f. Same as preceding [catalogued in the inventory as *Sharḥ al-tadhkira al-musammā bi-tawḍīḥ al-tadhkira*], 330 {3–4}.
- [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.
- [406] 2.2a. [al-Shīrāzī.] *K. fa'alta fa-lā talum* (You Have Done It, So Do Not Condemn), Arabic, 326 {18–19}. See → al-Shīrāzī, 4, in Part II. MANUSCRIPT: TSMK A. 3338 (Karatay: A 7094).
- [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.
- [408] 2.3a. [al-'Ubaydī.] *Bayān al-Tadhkira* (Explanation of the *Tadhkira*), Arabic, 326 {7}. See → al-'Ubaydī. MANUSCRIPT: TSMK A. 3315 (Karatay: A 7084).
- [409] 2.3b. Same as preceding, 327 {4–5}. Bound with *Sharḥ al-Chaghmīnī*. MANUSCRIPT: TSMK A. 3325 (Karatay: A 7058).
- [410] 2.4. "*Sharḥ al-Tadhkira fī 'ilm al-hay'a*," 325 {17}. Bound with *K. fī 'ilm al-hisāb*.
- [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 2645.
- [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. *Tahṛīr 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 *Tahrīr Majisṭī fī ‘ilm al-hay’a*], 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. Uqlīdus, al-Mutawassīṭat al-handasiyya*, and *al-Tadhkira fī al-hay’a*. MANUSCRIPT: This codex (3h) might be TSMK A. 3453 (Karatay: A 7005).
- [425] 3.1. [al-Nisābūrī.] *Tafsīr* [or *Sharḥ*] *al-Tahrīr al-Majisṭī*, Arabic, 1305, 329 {14–15}. See → al-Nisābūrī, 2, Part II.
- [426] 3.2. “*Sharḥ Tahrīr al-Majisṭī*,” 326 {6–7}.
- [427] 3.3. Same as preceding, 328 {18}.
- [428] 4. *Zubdat al-idrāk fī hay’at al-aflāk* (The Essential Understanding of the Configuration of the Orbs), Arabic, 324 {15–16}. Bound with Ibn Sinā’s *K. fī al-mantiq wa-al-ḥikma al-falsafiyya*, an anonymous treatise on astrology, and several other texts. MANUSCRIPT: This codex should be the copy now housed as TSMK A. 3430 (Karatay: A 8749). EDITION: *Zubdat al-idrāk fī hay’at al-aflāk: ma’a dirāsāt al-manhaj al-Ṭūsī al-‘ilmī fī majāl al-falak*, ed. ‘Abbās Muḥammad Ḥasan Sulaymān (Alexandria: Dār al-Ma’rifat al-Jāmi’yah, 1994).
- [429] 5a. *Zubdah-i hay’a* (The Essence of *Hay’a*), Persian, 318 {10}. Bound with al-Ṭūsī’s *Sī faṣl*.
- [430] 5b. Same as preceding, 326 {17}. Bound with al-Ṭūsī’s *R. Mu’iniyya* and *Sharḥ-i Mu’iniyya*. 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-Iṣfahānī’s *Talkhīs al-makhrūṭāt*, al-Ṭūsī’s *Jawāmi’ al-ḥisāb, K. mi’yār al-ash’ār*, and other treatises. MANUSCRIPT: This codex (5d) should be the copy now housed as TSMK A. 3455 (Karatay: A 8752).
- [433] 5e. Same as preceding, 163 {14–15}. Bound with *K. [al-] khuff [al-] ‘Alā’ī fī al-ṭibb*. [Catalogued under *al-Kutub al-ṭibbiyya*.]
- [434] 5(i). *K. tarjamat al-zubda fī ‘ilm al-hay’a* (Arabic translation of *Zubdah-i hay’a*), Arabic, 290 {10–11}. Bound with *K. tashīl al-fawā’id, R. fī bayān ṭuruq al-ḥadīth, R. al-‘alā’iyya fī ‘ilm al-ḥisāb*, and *R. fī al-ḥadīth*. [Catalogued under *kutub ‘ilm al-ṣarf wa-al-naḥw*.]

AL-‘UBAYDĪ, Jalāl al-Dīn Faḍl Allāh (d. 1350)

- [435] 1a. *Bayān al-Tadhkira wa-tibyān al-tabṣira* (Explanation of the *Tadhkira* and Exposition of the Enlightenment), Arabic, 1328, 326 {7}. See → al-Ṭūsī, 2.3, Part II. MANUSCRIPT: TSMK A. 3315 (Karatay: A 7084).
- [436] 1b. Same as preceding, 327 {5}. Bound with al-‘Ubaydī’s *Sharḥ al-mulakhkhaṣ*. MANUSCRIPT: TSMK A. 3325 (Karatay: A 7058).
- [437] 2a. *Sharḥ al-mulakhkhaṣ*, Arabic, 327 {3–4}. Bound with al-‘Ubaydī’s *Bayān al-Tadhkira*. See → al-Chaghmīnī, 1.4. MANUSCRIPT: TSMK A. 3325 (Karatay: A 7058).
- [438] 2b. Same as preceding, 316 {13}. Bound with *K. al-hidāya fī al-ḥikma* and al-Ṭūsī’s *Sī faṣl*. MANUSCRIPT: SK Ayasofya 2474.

ANONYMOUS/UNIDENTIFIED AUTHORS

- [439] 1. *Sharḥ k. Majisṭī Baṭlamyūs* (A Commentary on Ptolemy’s *Almagest*), 329 {11}. Bound with Ibn al-Haytham’s commentary on *Almagest* and al-‘Urḍī’s *Kayfiyyat al-arṣād*. MANUSCRIPT: TSMK A. 3329 (Karatay: A 7140).
- [440] 2. *K. burhān [al-]hay’a* (Book on the Demonstrations of the Configurations), 319 {8}. Bound with two anonymous treatises on [the science of] the stars.

- [441] 3a. *R. fī al-hay'a* (Treatise on the Configurations [of the Heavens]), 323 {9–10}. Bound with *R. fī al-daraj wa-al-daqa'iq fī al-nujūm* (Treatise on Degrees and Minutes) and *R. fī al-ḥisāb* (Treatise on Arithmetic).
- [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-'ayn min qibal al-laṭā'if wa-al-taṣawwuf*. [Catalogued under *Kutub al-taṣawwuf*, etc.]
- [444] 3d. "*K. fī al-hay'a*" (Book on the Configurations [of the Heavens]), 328 {1}. Bound with Qāḍizāde al-Rūmī's *Sharḥ al-Chaghminī*.
- [445] 4. *K. al-dawā'ir fī 'ilm al-hay'a* (Book on Circles in the Science of the Configuration [of the Heavens]), 328 {5}.
- [446] 5. *Mukhtaṣar fī al-hay'a* (Abridgment of the Configurations [of the Heavens]), 332 {1}. Bound with al-Ṭūsī's *R. mu'iniyya*.
- [447] 6. *R. fī ḥill al-miqyās min qibal al-hay'a wa-al-nujūm* (Treatise on the Shadow [of the Instrument] of the Measurement), 123 {6–7}. Bound with *K. al-qalā'id wa-al-farā'id min qibal al-naṣā'ih wa-al-taṣawwuf*. [Catalogued under *Kutub al-taṣawwuf*, etc.]
- [448] 7. *R. min qibal al-hay'a*, 335 {7}. Bound with *R. Najm al-milla wa-al-dīn fī al-ḥisāb al-hawā'ir*.

PART THREE

Arithmetic (*'ilm al-ḥisāb*)

AL-BAGHDĀDĪ, Abū Bakr 'Abd Allah al-Ḥusayn al-Shaqqāq (d. 1117)

- [449] 1. *Sharḥ al-kāfi fī 'ilm al-ḥisāb* (Commentary on al-Karajī's Sufficient on the Science of Arithmetic), Arabic, 333 {15–16}. Bound with al-Karajī's *K. al-kāfi*. MANUSCRIPT: TSMK A. 3135 (Karatay: A 7033). See → al-Karajī.

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

- [450] 1a. *K. asās al-qawā'id fī uṣūl al-fawā'id* (The Basis of the Rules Regarding the Principles of the *Fawā'id*), Arabic, 333 {8}. See → Ibn al-Khawwām, 1. EDITION: *Asās al-Qawā'id fī uṣūl al-fawā'id*, ed. Muṣṭafā Mawālidi (Cairo: Ma'had al-Makhtūṭāt al-'Arabīyah, 1994).
- [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-GHARBĪ, Jalāl al-Dīn 'Alī (fl. ca. 1350)

- [454] 1. *K. al-mu'jizāt al-naḥibīyya fī sharḥ al-R. al-'alā'īyya* (*Nahibīyya* Miracles in Commenting on [al-Turkistānī's] *'Alā'īyya* Treatise on Arithmetic), 334 {11–12}. MANUSCRIPT: TSMK A. 3117 (Karatay: A 7012). See → al-Turkistānī.

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

- [455] 1. *Tuḥfat al-ṣudūr fī al-ḥisāb* (Gift from the Hearts), Persian, 228 {1}. Bound with *Rawḍat al-faṣāḥa fī ṣanā'ic al-badī'īyya al-shi'riyya* and *Qurrat al-'uyūn fī al-nawādir*. [Catalogued under *al-dawāwīn al-'arabīyya*, etc.]

AL-KASHGĀRĪ, ‘Abd Allah b. As‘ad b. ‘Umar (fl. fourteenth century)

- [456] 1. *R. al-‘imādiyya fī al-ṭuruq al-ḥisābiyya* (The *‘Imādiyya* 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. Mas‘ūd b. Maḥmūd (d. 1429)

See also al-Kāshī in Part One (*‘ilm al-nujūm*).

- [457] 1a. *Miftāḥ al-ḥisāb* (The Key to Arithmetic), Arabic, 1427, 334 {10}.
 [458] 1b. Same as preceding, 335 {3}. MANUSCRIPT: One of the codices should be TSMK A. 3479 (Karatay: A 7019). EDITION: *Miftāḥ al-ḥisāb*, ed. Nādir al-Nābulī (Damascus: Wizārat al-Ta‘līm al-‘Āli, 1977).

AL-KĀSHĪ, ‘Imād al-Dīn Yahyā b. Aḥmad (fl. ca. 1343)

- [459] 1a. *K. al-īdāḥ fī sharḥ al-Fawā'id al-bahā'iyya* (Elucidation of Goals in Commenting on the *Fawā'id*), 333 {12}. See → Ibn al-Khawwām, 1.2. MANUSCRIPT: SK Ayasofya 2716.
 [460] 1b. Same as preceding [catalogued in the inventory as *K. īdāḥ al-maqāšid fī sharḥ al-Fawā'id*], 334 {14–15}. Bound with *Sharḥ mantiq al-maṭālī'*. MANUSCRIPT: TSMK A. 3142 (Karatay: A 6999).
 [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)

- [462] 1. *K. al-kāfi fī 'ilm al-ḥisāb* (The Sufficient on the Science of Arithmetic), Arabic, 333 {15}. Bound with al-Baghdādī's commentary on it. MANUSCRIPT: TSMK A. 3135 (Karatay: A 7033). EDITION: *al-Kāfi fī al-ḥisāb*, ed. Samī Shalhūb (Aleppo: Jāmi'at Ḥalab, Ma'had al-Turāth al-‘ilmī al-‘Arabī, 1986).
 [463] 1.1. [al-Baghdādī.] “*Sharḥ al-kāfi fī 'ilm al-ḥisāb*,” 333 {15–16}. Bound with al-Karajī's *K. al-kāfi*. MANUSCRIPT: TSMK A. 3135 (Karatay: A 7033). See → al-Baghdādī.

IBN AL-KHAWWĀM, ‘Imād al-Dīn Abū ‘Alī ‘Abdallāh b. Muḥammad al-Baghdādī (d. 1328)

- [464] 1. *R. al-fawā'id al-bahā'iyya fī al-qawā'id al-ḥisābiyya* (The Bahā'i Scholia on Rules of Arithmetic), Arabic, 1259, 334 {18}. MANUSCRIPT: SK Ayasofya 2729. EDITION: İhsan Fazlıoğlu, “İbn el-Havvam (öl. 724/1324) ve Eseri el-Fevaid el-Bahaiyye fi el-Kavaid el-Hisabiyye Tenkitli Metin ve Tarihi Değerlendirme” (master's thesis, Istanbul University, 1993).
 [465] 1.1a. [al-Fārisī.] *K. asās al-qawā'id fī uşul al-fawā'id* (The Base of the Rules in the Principles of Uses in Arithmetic), Arabic, 333 {8}. See → al-Fārisī.
 [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}.
 [469] 1.2a. [al-Kāshī, Yahyā b. Aḥmad.] *K. al-īdāḥ fī sharḥ al-fawā'id al-bahā'iyya* (Elucidation of Goals in Commenting on the *Fawā'id*), 333 {12}. See → al-Kāshī, Yahyā. MANUSCRIPT: SK Ayasofya 2716.
 [470] 1.2b. Same as preceding [catalogued in the inventory as *K. īdāḥ al-maqāšid fī sharḥ al-Fawā'id*], 334 {14–15}. Bound with *Sharḥ mantiq al-maṭālī'*. MANUSCRIPT: TSMK A. 3142 (Karatay: A 6999).
 [471] 1.3. “*Sharḥ* [al-] *bahā'iyya fī al-ḥisāb*,” 335 {3}.

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

- [472] 1. *Mushkil-gushāy-i ḥussāb fī ‘ilm al-ḥisāb* (Problem Solver for Arithmeticians), Persian, 334 {12}.

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

- [473] 1. *Sharḥ al-shamsiyya* (Commentary on al-Nisābūrī’s treatise on Arithmetic), Arabic, 333 {16}.
See → al-Nisābūrī, 1.1, Part III. MANUSCRIPT: TSMK A. 3153 (Karatay: A 7017).

AL-NĪSĀBŪRĪ, al-Ḥasan b. Muḥammad b. al-Ḥusayn Nizām al-Dīn al-A’raj (d. ca. 1329–30)

See also al-Nisābūrī in Part One (*‘ilm al-nujūm*) and Part Two (*‘ilm al-hay’a*).

- [474] 1a. *R. al-shamsiyya fī ‘ilm al-ḥisāb* (The *Shamsiyya* Treatise), Arabic, 328 {15}. Bound with Qāḍizāde 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 Risalesinin Tahkik, Tercüme ve Tarihi Bir Değerlendirmesi” (master’s thesis, Sakarya University, 2007).
- [475] 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].
- [476] 1c. Same as preceding, 334 {8}.
- [477] 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).
- [478] 1e. Same as preceding [catalogued in the inventory as *R. al-nizāmiyya fī al-ḥisāb*], 334 {14}.
- [479] 1(i). [al-Shīrāzī, Maḥmūd b. Muḥammad b. Maḥmūd (not the better known al-Shīrāzī).] *Tarjamat al-R. al-Shamsiyya* (Translation of the *Shamsiyya* Treatise), Persian, 334 {13}. MANUSCRIPT: TSMK A. 3118 (Karatay: F 226).
- [480] 1.1. [al-Kirmānī.] *Sharḥ al-shamsiyya* (Commentary on the *Shamsiyya* Treatise), Arabic, 333 {16}.
See → al-Kirmānī. MANUSCRIPT: TSMK A. 3153 (Karatay: A 7017).
- [481] 1.2. *Sharḥ al-shamsiyya*, language specified as Persian, 334 {1–2}.

QĀDĪ AL-HUMĀMĪYA, Jamāl al-Dīn Ahmad al-‘Abbās Ahmad b. Thābit (d. 1272)

- [482] 1. *Ghunyat al-ḥussāb fī ‘ilm al-ḥisāb* (The Wealth of the Arithmeticians), Arabic, 333 {9–10}.
Bound with *R. fī ‘ilm al-ḥisāb*. MANUSCRIPT: SK Ayasofya 2728.

AL-QŪSHJĪ, Abū al-Qāsim ‘Alā’ al-Dīn ‘Alī b. Muḥammad (d. 1474)

See also al-Qūshjī in Part One (*‘ilm al-nujūm*) and Part Two (*‘ilm al-hay’a*).

- [483] 1a. *R. al-Muḥammadiyya fī al-ḥisāb* (The *Muḥammadiyya* Treatise on Arithmetic), Arabic, 1473, 332 {11–12}. Bound with *R. al-fathiyya fī ‘ilm al-hay’a*. MANUSCRIPT: SK Ayasofya 2733.
- [484] 1b. Same as preceding, 151 {19}. Bound with al-Nisābūrī’s *R. fī al-ṭibb al-nabawī*, al-Fanārī’s *Sharḥ Ṭisāghūjī*, ‘Alī al-Qūshjī’s *R. fathiyya*. [Catalogued under *al-Kutub al-tibbiyya*.]

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

- [485] 1. *al-R. al-şalāḥiyya fī al-qawā’id al-ḥisābiyya* (Şalāḥ’s treatise on the rules of Arithmetic) [catalogued in the inventory as *Mukhtaşar al-Şalāḥ fī al-ḥisāb*], 334 {19}. Bound with its anonymous commentary. MANUSCRIPT: TSMK A. 3133 (Karatay: A 7010).³⁴
- [486] 1.1a. “*Sharḥ mukhtaşar al-Şalāḥ fī al-ḥisāb*,” 334 {19}–335 {1}. Bound with *al-R. al-şalāḥiyya*. MANUSCRIPT: TSMK A. 3133 (Karatay: A 7010).

- [487] 1.1b. “*Sharḥ al-mukhtaṣar al-Ṣalāḥ fī al-ḥisāb*,” 334 {6}.
- [488] 1.1c. “*K. sharḥ al-Ṣalāḥ fī ‘ilm 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. 3141 (Karatay: A 7011).³⁵

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

- [489] 1. *K. al-bāhir fī ‘ilm al-ḥisāb* (The Brilliant in the Science of Arithmetic), Arabic, 333 {13}. MANUSCRIPT: SK Ayasofya 2718. EDITION: *al-Bāhir en Algèbre d’as-Samaw’al*, ed., notes, and introduction by S. Ahmad and Roshdi Rashed (Damascus: Presses de l’Université de Damas, 1973).

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

- [490] 1. *R. fī l-ḥisāb*, Arabic, 335 {1–2}.³⁶ MANUSCRIPT: This might be the copy now housed as SK Ayasofya 4855.

AL-ṬABARĪ, Abū Ja’far Muḥammad b. Ayyūb b. Ḥāsib (fl. eleventh century)

- [491] 1. *Miftāḥ al-mu‘āmalāt fī ‘ilm 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 Sa’īd b. Muḥammad (fl. ca. 1300)

- [492] 1a. *al-R. al-‘alā’iyya fī al-masā’il al-ḥisābiyya* (The ‘Alā’iyya Treatise on Arithmetic Problems), Arabic, 334 {3}. Bound with *R. Ajwibat Ibn Sīnā li-masā’il Abī al-Rayḥān [al-Bīrūnī]*. MANUSCRIPT: This codex (1a) should be the copy now housed as SK Ayasofya 2737.
- [493] 1b. Same as preceding, 334 {4}.
- [494] 1c. Same as preceding, 324 {8}. Bound with al-Mizzī’s *al-Rawḍāt al-muzaharrāt fī al-‘amal bi-al-muqanṭarāt* and *R. kashf al-rayb fī al-‘amal bi-al-jayb*. MANUSCRIPT: This codex (1c) might be the copy now housed as TSMK A. 3119 (Karatay: A 7037).
- [495] 1d. Same as preceding, 290 {10}. Bound with *K. tashīl al-fawā’id fī al-naḥw*, *R. fī bayān ṭuruq al-ḥadīth*, *K. tarjamat al-zubda fī ‘ilm al-hay’a*, and *R. fī al-ḥadīth*. [Catalogued under *kutub ‘ilm al-ṣarf wa-al-naḥw*.]
- [496] 1.1. [Jalāl al-Dīn ‘Alī al-Gharbī.] *K. al-mu’jizāt al-najībiyya fī sharḥ al-R. al-‘alā’iyya (Najībiyya Miracles in Commenting on the ‘Alā’iyya Treatise on Arithmetic)*, 334 {11–12}. MANUSCRIPT: TSMK A. 3117 (Karatay: A 7012). See → al-Gharbī.

AL-ṬŪSĪ, Naṣīr al-Dīn Abū Ja’far Muḥammad b. Muḥammad (d. 1274)

See also al-Ṭūsī in Part One (*‘ilm al-nujūm*), Part 2 (*‘ilm al-hay’a*), and Part Four (*‘ilm al-handasa*).

- [497] 1a. *Jawāmi‘ al-ḥisāb bi-al-takht wa-al-turāb* (Comprehensive Arithmetic on Using the Dust Board) [catalogued in the inventory as *Risāla al-ḥisāb*], 332 {13}. Bound with al-Iṣfahānī’s *Talkhīṣ al-makhrūṭāt*, *K. mi’yār al-ash‘ār*, and al-Ṭūsī’s *Zubdat al-idrāk*. MANUSCRIPT: TSMK A. 3455 (Karatay: A8752), EDITION: Ahmad S. Saidan, “Al-Ṭūsī, *Jawāmi‘ al-Ḥisāb*,” *Al-Abḥāth* 20 (1967): 91–163.
- [498] 1b. Same as preceding [catalogued in the inventory as *K. jawāmi‘ al-ḥisāb fī ‘ilm al-ḥisāb*], 160 {9}. Bound with *K. fī ‘ilm al-tashrīḥ min qibal al-ṭibb*. [Catalogued under *al-Kutub al-ṭibbiyya*.]
- [499] 2. *R. al-jabr wa-al-muqābala fī al-ḥisāb* (Treatise of Algebra), 335 {6}.

AL-WĀLISHĪTĀNĪ, Maḥmūd b. Muḥammad b. Qawām al-Hirawī (fl. ca. 1445)

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

AL-ZANJĀNĪ, ‘Izz al-Dīn ‘Abd al-Wahhāb Ibrāhīm (fl. ca. 1262)

- [501] 1a. *R. al-kāfiyya fī al-ḥisāb* (The Sufficient Treatise on Arithmetic), 316 {11–12}. Bound with al-Ṭūsī’s *Sī faṣl*. MANUSCRIPT: SK Ayasofya 2732.
- [502] 1b. Same as preceding, 334 {5–6}. Bound with al-Nisābūrī’s *al-R. al-Shamsiyya*. MANUSCRIPT: TSMK A. 3152 [Karatay: A. 7016].
- [503] 2a. *‘Umdat al-ḥisāb* (Pillar of Arithmetic), Arabic, 335 {8}. MANUSCRIPT: TSMK A. 3145 (Karatay: A 7009).³⁷
- [504] 2b. Same as preceding, 335 {4}. Bound with *Madkhal Babūs fī al-ḥiyal* and al-Zanjānī’s *K. quṣṭās al-mu‘ādala fī ‘ilm al-jabr wa-al-muqābala*. MANUSCRIPT: TSMK A. 3457 (Karatay: A 7008). EDITION: Maryam Zamani, *Two Treatises of ‘Izz al-Dīn Zanjānī, Facsimile Edition of Manuscript no. 3457, Library of Sultan Ahmad III, Topkapi (Istanbul)* (Tehran: Mirāth-i Maktūb, 2016).
- [505] 3. *K. quṣṭās al-mu‘ādala fī ‘ilm al-jabr wa-al-muqābala* (The Scale of Equality on the Science of Algebra), Arabic, 335 {4–5}. Bound with *Madkhal Babūs fī al-ḥiyal* and al-Zanjānī’s *‘Umdat al-hussāb/ḥisāb*. MANUSCRIPT: TSMK A. 3457 (Karatay: A 7008).

ANONYMOUS/UNIDENTIFIED

- [506] 1a. *K. al-mī‘a wa-al-‘ishrīn fī ḥisāb al-ḍarb* (The Book of the One Hundred and Twenty in Arithmetic Multiplication), 318 {15–16}.
- [507] 1b. Same as preceding, 323 {14}. Bound with *R. ‘alā ṭarīq al-su‘āl wa-al-jawāb fī al-nujūm* and other treatises.
- [508] 2a. *R. fī al-ḥisāb* (Treatise on Arithmetic), 99 {15}. Bound with *K. fī ‘ilm al-farā‘id*. [Catalogued under *Kutub al-fiqh wa-kutub manāqib al-a‘imma*.]
- [509] 2b. Same as preceding, 322 {11}. Bound with *K. al-shajara wa-al-thamara fī aḥkām al-nujūm*.
- [510] 2c. Same as preceding, 334 {7}.
- [511] 2d. Same as preceding, language specified as Persian, 335 {9}.
- [512] 2e. “*K. fī al-ḥisāb*,” 323 {10–11}. Bound with *R. fī al-hay’a* and *R. fī al-daraj wa-al-daqa‘iq fī al-nujūm*.
- [513] 2f. “*R. fī ‘ilm al-ḥisāb*,” 98 {19}–99 {1}. Bound in a volume containing *R. ‘ilm al-wafq* and *K. al-masā’il al-dawriyya al-wāqi‘a fī al-aḥkām al-shar‘iyya fī al-fiqh*. [Catalogued under *Kutub al-fiqh wa-kutub manāqib al-a‘imma*.]
- [514] 2g. Same as preceding, 327 {16}. Bound with al-Ṭūsī’s *K. Uqlīdus* and al-Ahwāzī’s *Sharḥ al-M. al-‘āshira 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 ‘ilm-i hay’a* and Qāḍizāde al-Rūmī’s *Sharḥ ashkāl al-ta’sīs*. MANUSCRIPT: This codex should be SK Ayasofya 2640.
- [517] 2j. Same as preceding, language specified as Persian, 333 {9}. Bound with Qāḍī al-Humāmiya’s *K. ghunyat al-hussāb*. MANUSCRIPT: This codex (2j) should be the copy now housed as SK Ayasofya 2728.³⁸
- [518] 2k. “*K. fī ‘ilm al-ḥisāb*,” 325 {16}. Bound with *Sharḥ al-Tadhkira*.

- [519] 2l. Same as preceding, 334 {1}.
- [520] 2m. “*K. fī al-ḥisāb*,” language specified as Arabic, 334 {4}. MANUSCRIPT: This codex (2m) should be the copy now housed as SK Ayasofya 2723.
- [521] 2.1a. “*Sharḥ R. fī ‘ilm al-ḥisāb*,” 333 {14–15}. MANUSCRIPT: This codex (2.1a) should be the copy now housed as TSMK A. 3154 [Karatay: A 7013].³⁹
- [522] 2.1b. Same as preceding, 285 {13}. Bound with *R. kāshifat al-mushkilāt al-‘alā’iyya* and *Hāshiyat k. al-wāfiya al-ma’rūf bi-al-mutawassit fī al-naḥw*. [Catalogued under *kutub ‘ilm al-ṣarf wa-al-naḥw*.]
- [523] 2.1c. “*Sharḥ mukhtaṣar fī al-ḥisāb*,” 334 {10–11}.
- [524] 3a. *R. al-‘adad bi-awḍā‘ al-aṣābi‘* (Treatise on Counting by Finger Reckoning), 322 {16–17}. Bound with *K. al-‘amal bi-al-kura* and *R. Fattāḥī fī al-inshā‘*.
- [525] 3b. *R. al-ḥisāb bi-‘aqd al-aṣābi‘* (Treatise on Counting by Fingers), 118 {18–19}. Bound with al-Qāshānī’s *R. nūriyya*, *K. al-iṣṭilāḥāt*, *R. zamāniyya*, *R. fī taḥqīq al-kalām*, *R. fī mas’ala kullīyya fī al-ḥaqā’iq*, *R. fī jawāb al-masā’il al-madhkūra*, *R. fī sharḥ su’āl Kumayl b. Ziyād ‘an Amīr al-Mu’minīn ‘Alī min qibal al-taṣawwuf*. [Catalogued under *Kutub al-taṣawwuf wa-kutub al-naṣā’ih*, etc.]
- [526] 4. *K. al-kifāya fī ‘ilm al-ḥisāb* (The Book of Sufficiency in Arithmetic), 328 {19}–329 {1}. Bound with al-Nasawī’s *K. al-tajrīd fī-uṣūl al-ḥandasa* (Abstract of Euclid’s Elements) and *K. Uqlīdus*. MANUSCRIPT: This codex should be SK Fatih 3441.
- [527] 5. *Sharḥ al-shamsiyya* (Commentary of the *Shamsiyya* Treatise), language specified as Persian, 334 {1–2}.
- [528] 6. *Iqnā‘ fī al-misāḥa min qibal al-ḥisāb* (Persuasive Argument concerning Surveying), Arabic, fifteenth century, 334 {7}. MANUSCRIPT: SK Ayasofya 2715. EDITION: İhsan Fazlıoğlu, *Uygulamalı Geometrinin Tarihine Giriş: El-İkna fī ilmi’l-misaha* (Istanbul: Dergah, 2004).
- [529] 7. *K. jāmi‘ uṣūl al-ḥisāb* (Compendium of Principles of Arithmetic), 334 {16}. Bound with *K. ‘umdat al-kuttāb*.⁴⁰
- [530] 8. *R. fī al-siyāqa min qibal ‘ilm al-ḥisāb* (Persian Treatise on Accounting Arithmetic), Persian 334 {9}.⁴¹
- [531] 9. *R. fī ma’rifat al-ḥisāb al-hindi* (Treatise on Understanding Indian Arithmetic), 335 {5–6}.
- [532] 10. *R. Najm al-milla wa-al-dīn fī al-ḥisāb al-hawā’i* (Treatise by Najm al-Dīn on Mental Arithmetic), 335 {7–8}. Bound with an anonymous *R. min qibal al-hay’a*.
- [533] 11. *Mukhtaṣar fī qawā’id al-ḥisāb* (Abridgment of the Rules of Arithmetic), 226 {6–7}. Bound with Sharaf al-Rāmi’s *Anīs al-‘ushshāq*. [Catalogued under *Kutub al-siyar wa-al-tawārikh*, etc.]
- [534] 12. *R. al-taṭām fī ‘ilm al-ḥisāb*, 358 {3}. Bound with Ibn Mubārak Shāh’s *Sharḥ Ḥikmat al-hidāya* and other treatises. [Catalogued under *kutub al-ḥikmat al-islāmiyya*, etc.]

PART FOUR

Geometry (*‘ilm al-handasa*)

AL-AHWĀZĪ, Abū’l-Ḥasan (fl. ca. 1000)

- [535] 1. *Sharḥ al-M. al-‘āshira min k. Uqlīdus* (Commentary of Book X of Euclid’s Work), Arabic, 327 {15–16}. Bound with al-Ṭūsī’s *K. Uqlīdus* and *R. fī ‘ilm 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)

- [536] 1a. *K. Ablūniyūs fī al-makhrūṭāt* (Book of Apollonius *On Conics*), 330 {8}. EDITION: *Apollonius de Perge, Coniques: Texte grec et arabe*, ed. Roshdi Rashed (New York: Walter de Gruyter, 2008).
- [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.
- [539] 1.1. [Ibn al-Haytham.] *K. Ablūniyūs fī al-makhrūṭāt* (Book of Apollonius *On Conics*), Arabic, 332 {10 11}. Bound with several other unnamed treatises of Ibn al-Haytham. See → Ibn al-Haytham, 1, Part IV.
- [540] 1.2a. [al-Iṣfahānī.] *Talkhīs al-makhrūṭāt* (Abridgment of the Conics), Arabic, 327 {7}. See → al-Iṣfahānī.
- [541] 1.2b. Same as preceding, 331 {11–12}. MANUSCRIPT: One of the two copies should be SK Ayasofya 2724.
- [542] 1.2c. Same as preceding, 332 {12}. Bound with *R. al-ḥisāb*, *K. mi'yār al-ash'ār*, al-Ṭūsī's *Zubdat al-idrāk*, and other treatises. MANUSCRIPT: TSMK A. 3455 (Karatay: A 8752).
- [543] 1.3. [al-Shirāzī, 'Abd al-Malik.] *Taşaffūḥ al-makhrūṭāt* (Examining the Conics), 331 {8}. MANUSCRIPT: TSMK A. 3463 (Karatay: A 6995). See → al-Shirāzī, 'Abd al-Malik.

AL-BŪZJĀNĪ, Abū al-Wafā' Muḥammad b. Muḥammad b. Yaḥyā (d. 997 or 998)

See also al-Būzjānī in Part One (*'ilm al-nujūm*).

- [544] 1. *K. fī mā yuḥtāj ilayhi min a'māl al-handasa* (Book on What Is Required of Geometric Operations), Arabic, 326 {5}. MANUSCRIPT: SK Ayasofya 2753. EDITION: *Mā yuḥtāj ilayhi al-ṣānī' min 'ilm al-Handasah*, ed. Şāliḥ Aḥmad 'Alī (Baghdad: Jāmi'at Baghdād, Markaz Ihyā' al-Turāth al-'ilmī al-'Arabī, 1979).

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 Two (*'ilm al-hay'a*).

- [545] 1. *K. Ablūniyūs fī al-makhrūṭāt* (Book of Apollonius *On Conics*), Arabic, 332 {10–11}. Bound with several other unnamed treatises of Ibn al-Haytham. EDITION: J. P. Hogendijk, *Ibn al-Haytham's Completion of the Conics* (New York: Springer-Verlag, 1985). See → Apollonius of Perga, 1.1.

AL-IŞFAHĀNĪ, Abū al-Faṭḥ Muḥammad b. Qāsim b. Faḍl (fl. ca. 1120)

- [546] 1a. *Talkhīs al-makhrūṭāt* (Abridgment of the Conics), Arabic, 327 {7}. See → Apollonius of Perga, 1.2.
- [547] 1b. Same as preceding, 331 {11–12}. MANUSCRIPT: SK Ayasofya 2724.
- [548] 1c. Same as preceding, 332 {12}. Bound with al-Ṭūsī's *Jawāmi' al-ḥisāb* and *Zubdat al-idrāk*, *K. mi'yār al-ash'ār*, and other treatises.

AL-NASAWĪ, Abū al-Ḥasan 'Alī 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 *Tahrīr uṣūl Uqlīdus* and *K. al-kifāya fī 'ilm al-ḥisāb*. MANUSCRIPT: This codex should be the copy now housed as SK Fatih 3441.

QĀDĪZĀDE AL-RŪMĪ (d. after 1440)

See also Qāḏīzāde al-Rūmī in Part Two (*‘ilm al-hay’a*).

- [550] 1a. *Sharḥ ashkāl al-ta’sīs* (Commentary on al-Samarqandī’s Compendium of Geometry), Arabic, 327 {12–14}. Bound with ‘Alī al-Qūshjī’s *R. dar ‘ilm-i hay’a* and a Persian treatise on Arithmetic. EDITION: *Ashkāl Al-Ta’sīs li’l-Samarqandī & Sharḥ Qāḏī Zādah al-Rūmī*, ed. Muḥammad Suwaysī (Tunis: Bayt al-Ḥikmah, 1984).
- [551] 1b. Same as preceding, 329 {14}.
- [552] 1c. Same as preceding, 330 {18}. MANUSCRIPT: The two copies (1b, 1c) should be those now housed as SK Ayasofya 2743 and SK Ayasofya 2744.
- [553] 1d. Same as preceding, 332 {2–3}. Bound with al-Samarqandī’s *Ashkāl al-ta’sīs* and al-Abharī’s *Ḥikmat al-hidāya*.
- [554] 1e. Same as preceding, 332 {6–7}. Bound with the author’s *Sharḥ al-mulakhkhaṣ*.
- [555] 1.1. [Quṭb al-Dīn Çelebī.] *Hāshiyat sharḥ ashkāl al-ta’sīs*, Arabic, 327 {17–18}. See → Quṭb al-Dīn Çelebī.

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

- [556] 1. *Hāshiyat sharḥ ashkāl al-ta’sīs* (Supercommentary on al-Samarqandī’s Propositions for the Foundation), Arabic, 327 {17–18}. See → Qāḏīzāde al-Rūmī, 1.1, Part IV.

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

- [557] 1a. *Ashkāl al-ta’sīs* (The Propositions for the Foundation), Arabic, 332 {2}. Bound with Qāḏīzāde al-Rūmī’s *Sharḥ Ashkāl al-ta’sīs* and al-Abharī’s *Ḥikmat al-hidāya*. EDITION: Gregg De Young, “The *Ashkāl al-Ta’sīs* of al-Samarqandī: A Translation and Study,” *Zeitschrift für Geschichte der arabisch-islamischen Wissenschaften* 14 (2001): 57–117.
- [558] 1b. Same as preceding, 64 {12}. Bound with *K. al-ma’ārif fi sharḥ al-Şahā’if fi ‘ilm al-kalām*. [Catalogued under *Kutub ‘ilm uşul al-dīn*.]
- [559] 1c. Same as preceding, 166 {13}. Bound with *Mukhtaşar sharīf fi şinā’at al-tibb*. [Catalogued under *al-Kutub al-tibbiyya*.]
- [560] 1.1a. [Qāḏīzāde al-Rūmī.] *Sharḥ ashkāl al-ta’sīs*, Arabic, 327 {12–14}. Bound with ‘Alī al-Qūshjī’s *R. dar ‘ilm-i hay’a* and a Persian treatise on arithmetic. See → Qāḏīzāde al-Rūmī, 1.1, Part IV.
- [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 Samarqandī’s *Ashkāl al-ta’sīs* and al-Abharī’s *Ḥikmat al-hidāya*.
- [564] 1.1e. Same as preceding, 332 {6–7}. Bound with Qāḏīzāde al-Rūmī’s *Sharḥ al-mulakhkhaṣ*.
- [565] 1.1.1. [Quṭb al-Dīn Çelebī.] *Hāshiyat sharḥ ashkāl al-ta’sīs*, Arabic, 327 {17–18}. See → Quṭb al-Dīn Çelebī.

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

- [566] 1. *Rasā’il fi al-handasiyya* (Treatises on Geometry), 331 {16}. Bound with *R. Abī al-Futūḥ*. MANUSCRIPT: SK Ayasofya 4830.

AL-SHIRĀZĪ, ‘Abd al-Malik (d. ?)

- [567] 1. *Taşaffiḥ al-makhrūṭāt* (Examining the Conics), 331 {8}. MANUSCRIPT: TSMK A. 3463 (Karatay: A 6995). See → Apollonius of Perga, 1.3.

AL-SHĪRĀZĪ, Quṭb al-Dīn Maḥmūd b. Mas'ūd b. Muṣliḥ (d. 1311)

See also al-Shirāzī in Part Two (*‘ilm al-hay’a*).

- [568] 1a. *K. durrat al-tāj* (The Pearly Crown), Persian, 1306, 314 {4}. [Only the part on Euclid's Geometry.] Bound with Rāzī's *Rawḍat al-munajjimīn*, al-Ṭūsī's *Zij-i ilkhānī*, Sayyid Munajjim's *K. aḥkām al-a'wām*, al-Bakrī's *Burhān al-kifāya*, and *Tuḥfat al-gharā'ib*. EDITION: *Durrat al-tāj*, ed. Muḥammad Mushkāt (Tehran: Intishārāt-i Ḥikmat, 1990).
- [569] 1b. Same as preceding, 329 {4–5}. [Only the Persian translation of the Book of Euclid.]

AL-ṬŪSĪ, Naṣīr Al-Dīn Abū Ja'far Muḥammad b. Muḥammad (d. 1274)

See also al-Ṭūsī in Part One (*‘ilm al-nujūm*), Part Two (*‘ilm al-hay’a*), and Part Three (*‘ilm al-ḥisāb*).

- [570] 1a. *Majmū'a min al-mutawassīṭāt* (Middle Books), Arabic, 1265, 331 {2–3}. Bound with other texts in geometry. EDITION: *Tahrīr-i mutawassīṭāt-i khvāja Naṣīr al-Dīn Ṭūsī*, with introduction by Ja'far Āqāyānī Chāvushī (Tehran: Pazhūhishgāh-i 'Ulūm-i insānī wa Muṭāla'at-i farhangī, 2004/2005).
- [571] 1b. Same as preceding, 331 {17}. Bound with other texts in geometry.
- [572] 1c. Same as preceding, 331 {18}. Bound in a miscellaneous volume containing *K. Uqlīdus*, *K. tahrīr al-Majisṭī*, and *al-Tadhkira fī al-hay'a*. MANUSCRIPT: This codex might be TSMK A. 3453 (Karatay: A 7005).
- [573] 2a. *K. Tahrīr usūl Uqlīdus* (Recension of Euclid's Elements), Arabic, 1248, 326 {3–4}. EDITION: *Tahrīru usūli'l-hendese ve'l-hisāb: Eukleides'in Elemanlar Kitabının Tahriri, Inceleme-Tıpkıbasımı*, facs. of manuscript in Arabic, ed. İhsan Fazlıoğlu (Istanbul: Türkiye Yazma Eserler Kurumu Başkanlığı, 2012).
- [574] 2b. Same as preceding, 329 {8}.
- [575] 2c. Same as preceding, 329 {8–9}.
- [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-āshirat min K. Uqlīdus* and an unspecified treatise on arithmetic. MANUSCRIPT: This codex (2g) should be the copy now housed as SK Ayasofya 2742.
- [580] 2h. Same as preceding, 328 {19}. Bound with al-Nasawī's *K. tajrīd fī usūl al-handasa* and *K. al-kifāya fī 'ilm al-ḥisāb*. MANUSCRIPT: SK Fatih 3441.
- [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.
- [583] 2k. Same as preceding, 331 {18}. Bound in a miscellaneous volume containing *al-Mutawassīṭāt al-handasiyya*, *K. Tahrīr al-Majisṭī*, and *al-Tadhkira fī al-hay'a*. MANUSCRIPT: This codex might be TSMK A. 3453 (Karatay: A 7005).

ANONYMOUS/UNIDENTIFIED

- [584] 1. *K. al-ḥawāshī fī al-'ilm al-riyādī* (Book of Supercommentaries on Mathematical Science), 324 {12}. MANUSCRIPT: SK Ayasofya 2609.

- [585] 2a. *K. da'āwā Uqlīdus min qibal al-handasa*, Arabic, 324 {11}. Bound with *R. al-'amal bi-al-kura al-falakīyya*. MANUSCRIPT: This codex (2a) should be the copy now housed as SK Ayasofya 2635.
- [586] 2b. "*K. Uqlīdus fī al-handasa*," 326 {4}.
- [587] 3. *K. al-handasa wa-al-hay'a wa-ghayrihimā* (Anonymous Volume containing books on Geometry and the Science of the Configurations [of the Heavens]), 330 {12–13}.
- [588] 4. *R. al-birkār al-tāmm min qibal al-handasa* (Treatise on the Perfect Compass), 331 {14–15}. Bound with *R. fī al-tashwīq ilā al-hayāt al-dā'ima*.
- [589] 5a. "*R. fī al-handasa wa-ghayrihā*," 332 {8–9}.
- [590] 5b. "*R. fī al-handasa*," 27 {1–2}. Bound with *R. tālī' Sulṭān Bāyezīd Khan* and *R. fī al-tafsīr*. [Catalogued under *Kutub al-tafsīr wa-kutub 'ilm al-qirā'at*.]
- [591] 5c. "*K. fī al-handasa*," 51 {14–15}. Bound with *R. fī al-wafq*. [Catalogued under *Kutub al-ad'iya wa-kutub khawāṣṣ al-Qur'ān wa-kutub 'ilm al-wafq*.]
- [592] 6. *R. fī iṣṭilāhāt 'ulamā' al-hay'a 'alā al-lughā al-yūnāniyya* (Treatise on the Terminology in Greek of the Scholars of Astronomy), Greek with translations, 296 {7–8}. Bound with *K. tuḥfā al-hādīya al-mutarjam bi-al-turkiyya wa-al-rūmiyya wa-al-afranjiyya*, *K. Īsāghūjī 'alā al-lughā al-'arabiyya al-mutarjam bi-al-yūnāniyya*, *R. al-amthila al-muṭṭarida al-mutarjama bi-al-fārisiyya*, *R. fī al-'ulūm al-ḥikamiyya*, *R. fī taṣṣīḥ asāmī al-ḥukamā' al-yūnāniyya*. [Catalogued under *kutub al-lughā al-'arabiyya wa-al-fārisiyya wa-ghayrihimā*.] MANUSCRIPT: TSMK A. 2698 (Karatay: A 8732).
- [593] 7. *al-Fann al-awwal fī al-handasa wa-al-fann al-thānī fī al-hay'a min riyāḍiyyāt K. al-Shifā'* (Geometry and Astronomy from the Mathematics Part of Ibn Sīnā's *The Cure*), 351 {11–12}. MANUSCRIPT: SK Ayasofya 2720.
- [594] 8. *K. al-uṣūl al-aṣliyya fī al-handasa* (Book on the Fundamental Principles in Geometry), 327 {6}.

PART FIVE

Music ('*ilm al-mūsīqī*)

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

- [595] 1. *K. al-malāhī wa-asmā'ihā* (Book of Musical Instruments and Their Names), Arabic, 337 {1–2}. MANUSCRIPT: TSMK A. 2286 (Karatay: A 7423).

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

- [596] 1a. *al-R. al-Faḥḥiyya* (The *Faḥḥiyya* Treatise), Arabic, fifteenth century, 336 {11–12}. [Catalogued in the inventory as *K. Mawlānā Muḥyī al-Dīn al-Lādhīqī fī al-mūsīqī*.]
- [597] 1b. Same as preceding, 336 {15}. [Catalogued in the inventory as *R. Faḥḥiyya li-Mawlānā Muḥyī al-Dīn al-Lādhīqī fī al-mūsīqī*.]
- [598] 2. *Zayn al-alḥān* (The Adornment of Melodies in Turkish on Music), Turkish, fifteenth century, 337 {3–4}. MANUSCRIPT: SK Nuruosmaniye 3655 contains the Arabic version of *Zayn al-alḥān* that bears Bayezid II's seal.

AL-MARĀGHĪ, 'Abd al-'Azīz b. 'Abd al-Qādir b. Ghaybī (fl. late fifteenth century)

- [599] 1a. *Naqāwat al-adwār* (Best of the Modes), Persian, 335 {16}.
- [600] 1b. Same as preceding, 336 {18}.

- [601] 1c. Same as preceding, 337 {3}. MANUSCRIPT: One of these three codices should be the copy now housed as TSMK A. 3462 (Karatay: F 278).

AL-MARĀGHĪ, ‘Abd al-Qādir b. Ghaybī (d. 1435)

- [602] 1a. *Jāmi‘ al-alḥān* (Compendium of Melodies), Persian, 1415, 336 {3–4}. EDITION: *Jāmi‘ al-alḥān*, ed. Taqī Bīnīsh (Tehran: Mu‘assasa-yi Muṭāla‘at va Taḥqīqāt-i Farhangī, 1987).
- [603] 1b. Same as preceding, 336 {4–5}. MANUSCRIPT: These two codices (1a and 1b) should be SK Nuruosmaniye 3644 and 3645.
- [604] 2a. *Maqāṣid al-alḥān* (Meaning of Melodies), Persian, 1418, 335 {17}.
- [605] 2b. Same as preceding, 336 {7–8}. MANUSCRIPT: One of the two copies (2a and 2b) should be TSMK R. 1726 (Karatay: F 279). EDITION: *Maqāṣid al-alḥān*, ed. Taqī Bīnīsh (Tehran: Bungāh-i Tarjama va Nashr-i Kitāb, 1966).
- [606] 3a. *Sharḥ k. al-adwār*, Persian, 335 {19}–336 {1}. See → al-Urmawī, 1.1. MANUSCRIPT: TSMK A. 3470 (Karatay: F 280). EDITION: *Sharḥ-i adwār (bā matn-i adwār wa-zawā‘id al-fawā‘id)*, ed. Taqī Bīnīsh (Tehran: Markaz-i Nashr-i Dānīshgāhī, 1992).
- [607] 3b. Same as preceding, 336 {1–2}. Bound with al-Marāghī’s *R. fawā‘id-i ‘ishra*.⁴²
- [608] 4a. *R. fawā‘id-i ‘ashara* (Ten Scholia), Persian, 336 {2–3}. Bound with al-Marāghī’s *Sharḥ k. al-adwār*.
- [609] 4b. Same as preceding, 336 {10–11}.
- [610] 5. *R. laḥnīyya* (Treatise on Melodies), 336 {9–10}.
- [611] 6. “K. ‘Abd al-Qādir al-Marāghī fī al-mūsīqī,” 336 {6–7}. Bound in a miscellaneous volume.

AL-SHIRWĀNĪ, Faṭḥ Allāh b. Abū Yazīd b. ‘Abd al-‘Azīz b. Ibrāhīm al-Shābarānī (d. 1486)

See also al-Shirwānī in Part Two (*‘ilm al-hay‘a*).

- [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 (Karatay: 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).
- [614] 2. *Tarjama-i adwār-i Khoja Ṣafī al-Dīn* (Translation of al-Urmawī’s Epitome), Persian, 333 {18–19}. Bound with al-Wālishtānī’s *Mukhtaṣar dar ‘ilm al-ḥisāb*. MANUSCRIPT: SK Ayasofya 2735. See → al-Urmawī, 1(i).

AL-URMAWĪ, Ṣafī al-Dīn ‘Abd al-Mu‘min b. Yūsuf b. Fākhīr (d. 1294)

- [615] 1a. *al-Mukhtaṣar fī ma‘rifat 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 Uygün, *Safyüddin Abdumumin 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 ma‘rifat al-nagham*.]
- [618] 1(i). [al-Shirwānī.] *Tarjama-i adwār-i Khoja Ṣafī al-Dīn*, Persian, 333 {18–19}. Bound with al-Wālishtānī’s *Mukhtaṣar dar ‘ilm al-ḥisāb*. MANUSCRIPT: SK Ayasofya 2735. See → al-Shirwānī.
- [619] 1(ii). “*Tarjama-i mukhtaṣar-i Ṣafī al-Dīn fī al-mūsīqī*,” Persian, 336 {14–15}.

- [620] 1.1. [al-Marāghī.] *Sharḥ k. al-adwār*, Persian, 335 {19}–336 {1}. See → Al-Marāghī, ‘Abd al-Qādir b. Ghaybī, 3. MANUSCRIPT: TSMK A. 3470 (Karatay: F 280).
- [621] 2a. *al-R. al-sharāfiyya fī al-nisab al-ta’līfiyya* (The *Sharāfiyya* Treatise on Musical Proportions), Arabic, 1267, 335 {16}. EDITION: Fazlı Arslan, *Safiyüddin Urmevi ve Şerefiyye Risalesi* (Ankara: Atatürk Kültür Merkezi, 2007).
- [622] 2b. Same as preceding, 335 {18–19}.
- [623] 2c. Same as preceding, 336 {17–18}.

ANONYMOUS/UNIDENTIFIED AUTHORS

- [624] 1. *Kashf al-humūm wa-al-kurab fī sharḥ āla al-ṭarab* (Dispelling Worries and Distress on the Description of a Musical Instrument), Arabic, fourteenth century, 336 {8}. MANUSCRIPT: TSMK A. 3465 (Karatay: A 7424). EDITION: Mehmet Tıraşçı, “Kitābü Keşfü’l-Hümûm ve’l-Kürab fī şerhi âleti’t-ṭarab isimli Anonim Mûsikî Eseri (Edisyon Kritik ve İnceleme)” (PhD diss., Marmara University, 2013).
- [625] 2. *Mukhtaşar fī al-mūsīqī* (Compendium of Music), language specified as Arabic, 336 {9}.
- [626] 3. *Sharḥ al-mukhtaşar fī al-mūsīqī* (Commentary of the Musical Compendium), 336 {12}.
- [627] 4a. *R. fī al-mūsīqī* (Treatise on Music), language specified as Persian, 336 {12–13}.
- [628] 4b. Same as preceding, language specified as Turkish, 337 {4–5}.
- [629] 4c. “*K. fī al-mūsīqī*,” language specified as Arabic, 337 {4}.
- [630] 5. *Muwashshaḥ jāmi’ al-maqāmāt wa-ghayrihā min qibal al-mūsīqī* (A Compendium of *Muwashshaḥ* Works on [musical] Rhythms), 336 {16}.
- [631] 6a. *Gharā’ib al-adwār fī al-mūsīqī* (Unusual Modes), 336 {13}.
- [632] 6b. Same as preceding, 337 {2}.
- [633] 7. *Adwār al-mūsīqī* (Musical Modes), 336 {19}. Bound with an anonymous *R. manzūma fī hikāya mūsīqiyya*.
- [634] 8. *R. manzūma fī hikāya mūsīqiyya* (Treatise in Verse on the Story of Music), Persian, 336 {19}. Bound with an anonymous *Adwār al-mūsīqī*.

PART SIX

Amusement (*kutub al-lahw*)

AL-ḤASAN AL-BAŞRĪ, Abū Sa’īd al-Ḥasan b. Yasār al-Başrī (d. 728)

- [635] 1a. *K. al-shaṭranj li-l-Başrī* (The Book of Chess), Arabic, 337 {12}.
- [636] 1b. Same as preceding, 337 {12}.
- [637] 1c. Same as preceding, 337 {13}.

ANONYMOUS/UNIDENTIFIED

- [638] 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. Qurrā'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-Dīn (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-Shīrāzī'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 *Miftāḥ bīst bāb dar ma'rīfat-i usṭurlāb* attributed to al-Şūfī.
16. Although 'Atufi does not mention it in the relevant entry, the copy also includes a section from Book 4 of al-Shīrāzī'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-uşūl*.
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. Qurrā'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'iniyya*, *Sharḥ R.-i mu'iniyya*, and *Mukhtaşar dar ma'rīfat-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'iniyya*, *Sharḥ R.-i mu'iniyya*, and *Mukhtaşar dar ma'rīfat-i usṭurlāb*.
25. 'Atufi's entry does not specify its authorship to Faṭḥ Allāh al-Shirwānī, but given that in addition to al-Niksārī's supercommentary, there are two additional supercommentaries in the palace library, one written by al-Shirwānī and the other by Sinān Pasha, one of these two entries must be referring to al-Shirwānī's work.
26. 'Atufi's entry does not specify its authorship to Sinān Pasha, but given that in addition to al-Niksārī's supercommentary, there are two additional supercommentaries in the palace library, one written by al-Shirwānī 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-Shirwānī's work.

34. Although the work has been attributed to Qāḏizāde al-Rūmī, İhsan Fazlıođlu notes that it should belong to another Şalāḥ al-Dīn Mūsā who lived and flourished before Qāḏizāde al-Rūmī. See Fazlıođlu, "Kadıızade-i Rumi," *Türkiye Diyanet Vakfı İslam Ansiklopedisi*.
35. 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.
36. Cevat İzgi records the title as *al-Tajnis fī al-ḥisāb*. See Cevat İzgi, *Osmanlı Medreselerinde İlim*, vol. 1 (Istanbul: İz, 1997), 245–46.
37. 'Atufi registers the title as *ḥussāb*.
38. The catalogue of the Süleymaniye Library attributes it to al-Ṭūsī.
39. Jamil Ragep et al. note that the codex contains Fanārīzāde 'Alī Çelebī's commentary on Sajāwāndī's *al-Tajnis*. The listing on the title page corresponds with 'Atufi's entry in the inventory.
40. This could be the work of Ibn al-Haytham.
41. This could be 'Abd Allāh b. Muḥammad b. Kiyā al-Māzandarānī's *Risāla-i falakiyya*. See *Die Resalā-ye falakiyyā des 'Abdollah ibn Mohammad ibn Kiyā al-Mazandarani: Ein persischer Leitfaden des staatlichen Rechnungswesens (um 1363)*, ed. Walther Hintz (Wiesbaden, 1952).
42. While MS Török F. 59 transliteration reads it as *'ishra*, the entry on Marāghī in the *Türkiye Diyanet Vakfı İslam Ansiklopedisi* reads it as *'ashara*.