AL-SUFI AND SON: IBN AL-SUFI’S POEM ON THE STARS AND ITS PROSE PARENT

The *Urjūza fi’l-kawākib*, or Poem on the Stars, is a short verse text surviving in several illustrated manuscripts, which has long lain in the shadow of a formidable father figure.¹ Written in Arabic, it was composed in the eleventh century, probably in Rayy, by one Abu ‘Ali Husayn b. al-Sufi,² and is dedicated to a late Buyid amir, who used the titles *shāhinshāh fakhr din Allāh* (king of kings, pride of the religion of God).³ Little more is known of this scholar-poet: no further bibliography has been attributed to his name, although two autograph manuscripts (his copies of works by different authors) do survive. One of these two is a key document in Islamic art history, and the earliest extant copy of a well-known uranometry treatise composed by the poet’s father: *Kitāb Ṣuwar al-kawākib al-thābita* (Book of the Fixed Stars, or Constellations) by the astronomer Abu’l-Husayn ‘Abd al-Rahman b. ‘Umar b. Muhammad b. Sahl al-Sufi (henceforth al-Sufi, d. 986), one of many intellectual luminaries welcomed at the Buyid court of ‘Adud al-Dawla (d. 983) in Shiraz.⁴ This copy is the Bodleian Library’s MS Marsh 144, dated 400 (1009–10), a remarkably accomplished if isolated example of manuscript illustration in the Islamic world prior to the twelfth century (fig. 1).⁵ Although precious little survives of illustrated books before this time, contemporary accounts clearly describe the currency of such material by referring to the holdings of famous libraries, or to known copies of illustrated works.⁶ Their rarity makes it difficult to discuss usefully the extant surviving examples in terms of any traditional art historical patterns, such as specific regional, dynastic, or even linguistic categories: their collective survival as “early Islamic book illustration” gives them an artificial association, when each manuscript or fragment may rather be a unicum, requiring the study of its own history as a specific illustrated text, and of the internal evidence of each object.⁷

The Bodleian’s *Kitāb Ṣuwar al-kawākib al-thābita* manuscript has been examined in terms of its iconographic inheritance from late classical and early Islamic mapping imagery, and within the subsequent tradition of illustrating this particular astronomy treatise.⁸ To this may now be added further discussion about the copyist and his connections with the original author.
According to its colophon statement, the 1009–10 copyist, Husayn b. ‘Abd al-Rahman b. ‘Umar b. Muhammad, was responsible for both the transcribed text and the superb line-drawn illustrations. His parental genealogy matches our astronomer, as was noted by Wellesz in 1959: the 1009–10 copyist Husayn and our scholar-poet Abu ‘Ali Husayn b. al-Sufi (henceforth Ibn al-Sufi) may therefore be identified as one and the same. The splendid Bodleian manuscript, produced within forty-five years of al-Sufi’s initial composition of the treatise in 964, shows that the son was contributing to the continuing dissemination of his father’s scholarship in spectacular fashion. Ibn al-Sufi further dedicated himself to this enduring legacy by composing *Urjūza fi’l-kawākib*, its first known derivative work, a poem drawing selectively from the textual content and illustrative format of his father’s *Kitāb Šuwar al-kawākib al-thābita*. There are at least eighteen extant manuscript copies of this poem, of which the earliest is dated 519 (1125) (fig. 2). The exact title of the Poem on the Stars is not consistently cited across these manuscripts. Aside from *Urjūza fi’l-kawākib*, the following alternative titles are also presented: *Urjūza fi Šuwar al-kawākib al-thābita*, *Urjūza Ibn al-Šūfī fi ma‘rifat Šuwar al-kawākib*, Maqāl li-Abī ‘Ali, Maqāl fi’l-kawākib, Qaṣīda fi Šuwar al-kawākib, al-Qaṣīdat al-falakiyya, Kitāb fi ‘ilm al-nujūm, Risālat al-Šūfī fi’l-kawākib, and *Urjūza al-shaykh al-fāṣīl al-faylaṣūf Abū ‘Ali b. Abīl-Husayn al-Šūfī fi Šuwar al-kawākib*. In this poem, the star chart of Ursa Major is depicted (fig. 2). The frontispiece to this manuscript (fig. 3) shows an ornately illuminated page of the Poem on the Stars. In this poem, the star chart of Ursa Major is depicted (fig. 2). The frontispiece to this manuscript (fig. 3) shows an ornately illuminated page of the Poem on the Stars.
al-kawākib al-thābita (fig. 3). The majority of extant copies also have no constellation images, offering gaps where the illustrations should be, usually tantalizingly captioned șārat al- ʿ (the picture of the…), which indicates an understanding that the Poem should correctly include images (fig. 4).11

This article examines the history of how and where the Poem was composed, illustrated, and subsequently transmitted and received. It also investigates how Ibn al-Sufi’s Poem relates to its parental treatise, both in terms of fidelity to and emancipation from the original text, for the son was certainly selective in what he saw fit to extract and versify. Focussing on the finest surviving copy of the Poem, the text and illustrations are analyzed here along a model of two corresponding chronological layers: the initial era of the Poem’s composition, and the later period when this particular copy, and many other illustrated Arabic manuscripts, were produced. The first “layer” examines how Ibn al-Sufi combined versified data and imagery to elucidate a connection between classical Ptolemaic constellations and those of Bedouin Arab usage as two distinct systems of mapping the (same) stars in the night sky. This comparison had already been a major aspect of al-Sufi’s Kitāb Șuwar al-kawākib al-thābita as a learning tool to assist the student’s memorization process. Ibn al-Sufi reformatted that device, deftly exploiting verse as a second mnemonic medium, which could better support the role already required of visual memory.

The second “chronological layer” proceeds to a specific manuscript copy of the Poem, produced about a century and a half afterwards, in order to consider how the work was used and judged in later times. These twelfth-century illustrations and the accompanying double author portrait make clear reference to the influence of the poet’s father, and also strongly position the manuscript among contemporary illustrated works of science and literature. With regard to the author...
portraits in particular, this contextualization allows new consideration of frontispiece portraiture in the twelfth and thirteenth centuries, particularly in works of declared multiple authorship, and those under obvious influence from other earlier sources. The model of chronological layering is then applied to the frontispiece portrait genre to distinguish two categories of typical candidates: the original author with his patron or with influential authors from earlier times, and the later patron of the current manuscript copy. This analysis is intended to justify a new identification of the individuals in this particular manuscript, which is further supported by the character of the illustrated text itself.

Like al-Sufi’s treatise, Ibn al-Sufi’s Poem was designed as an illustrated text from the outset, and among the extant corpus of manuscript copies, the most remarkable is today in the Riza ‘Abbasi Library in Tehran.\textsuperscript{12}
This important manuscript is dated 554 (1159–60), and fully illustrated throughout with forty-one line drawings of the classical constellations (figs. 5–8). Previously little studied, the images’ fluent execution and distinctive Seljuk style provide new chronological evidence for the history of manuscript painting in the twelfth and thirteenth centuries, and are a welcome expansion to the current corpus of what has long been termed “Arab Painting,” a diverse group of illustrated Arabic manuscripts and detached folios, covering many branches of learning, datable up to the Mamluk period. Uniquely among copies of Ibn al-Sufi’s Poem, the Riza ‘Abbasi manuscript commences with a telling double-frontpiece author portrait, depicting an older and a younger scholar facing one another from opposite folios (fig. 9). As will be further discussed below, the pair must be the father and son whose combined scholarship delivered this text, al-Sufi and Ibn al-Sufi.

I. POET AND PATRONAGE UNDER THE BUYIDS

As noted above, to study a mid-twelfth-century copy of an early eleventh-century text involves the perception of two chronological layers. The first lies at the initial time of composition in the late tenth to early eleventh centuries, across various court centers held by the Buyid dynasty (945–1055), where the poet Ibn al-Sufi and his father lived and worked. This was a vibrant period for intellectual patronage: the Buyids hosted major cultural luminaries, including the calligrapher Ibn al-Bawwab (d. 1022), the poets Abu’l-‘Ala’ al-Maarri (d. 1058) and Abu’l-Faraj al-Isfahani (d. 967), and the scientists Buzjani (d. 998), Ibn A’lam (d. 975) and Ibn Sina (d. 1037), among many others. At the same time, further east, Firdausi (d. 1020) was working for Sultan Mahmud of Ghazna (r. 998–1030). I will be looking to this first historical layer for details and documentation of Ibn al-Sufi’s biography, and the overwhelming influence of his father’s illustrated treatise upon his own text.

My second layer lies in the mid-twelfth to thirteenth centuries, a period that is suddenly rich in illustrated manuscripts on both literary and scientific subjects, mostly written in Arabic. The majority of these are new copies of classic texts composed, compiled, or first translated at least a century or two beforehand, if not more. These also cross-refer to the first chronological layer: they show an ever strong connection with that earlier period—acknowledging classic authors directly in frontispiece portraiture or biographical scenes, and demonstrating the enduring importance of their works, sustained by the continuing transmission of knowledge through attentive production of illustrated copies. The quality and prominence of private non-courtly production is also striking, depreciating the traditional art historical arrangement of manuscript painting by dynastic style.

To start off with the first chronological layer, the poet’s father, Abu’l-Husayn ‘Abd al-Rahman b. ‘Umar b. Muhammad al-Sufi, is well known to art historians of the Islamic world, as well as historians of science. Along
with seven other titles on instruments, astrology, and timekeeping, in 964 he wrote the influential Kitāb Ṣawwar al-kawākib al-thābita, an extensive treatise, which survives in many beautifully illustrated copies, and in translation and abridgement. The work describes the constellations used in classical Ptolemaic astronomy, as well as Arabian nomenclature, directly comparing the different identifications perceived in each culture. There also follows a formidable tabulated catalogue of over a thousand stars, which closely adheres to the structure of Ptolemy’s star catalogue in the Almagest, with al-Sufi’s additional contribution of revised star magnitude values. The star positions, recorded in coordinates of celestial longitude and latitude, are dated to 964, presumably the year in which the treatise was formally presented to its patron. Al-Sufi worked for the Buyid amir ‘Adud al-Dawla (936–983), teaching the prince astronomy and conducting astronomical projects with other scientists at an observatory in Shiraz built by his royal pupil. From his writings and secondary accounts, it can be inferred that he also made astrolabes and celestial globes.

Prior to Buyid Shiraz, al-Sufi seems to have worked in his hometown of Rayy for the eminent statesman Ibn al-‘Amid (d. 970), initially the wazir of the prince’s father Rukn al-Dawla (d. 976), and also a patron of astronomical observation projects. According to al-Sufi himself, he had travelled with the wazir in 946 and 949, and the pair later collaborated on an astrolabe trea-
tise. Known for his diplomatic skills, Ibn al-'Amid was dispatched to Shiraz to educate, advise, and possibly placate the headstrong young 'Adud al-Dawla; al-Sufi seems to have arrived there at the same time, perhaps in the same entourage of 956–57. He was certainly active in Shiraz by the 960s: Kitāb Śuwar ar-kawākib al-thābita was composed in 964, and al-Sufi worked with a team of others at the newly built observatory, where he led a series of solar observations at the winter solstice of 969, the summer solstice of 970, and the autumn equinoxes of 971 and 972, in order to determine the obliquity of the ecliptic. The main instrument used was a large graduated ring, known as al-halqat al-'Adudiyya (the ring of 'Adud), after the princely patron.

Intellectual life in Shiraz was specifically fostered by the ambitious prince, an ideal ruler in the classic bibliophile mode and the most militarily formidable of the Buyid dynasts. He courted scholars, assembled a liophile mode and the most militarily formidable of the ambitious prince, an ideal ruler in the classic bibliophile mode and the most militarily formidable of the Buyid dynasts. He courted scholars, assembled a large library, and built the observatory, as well as hospitals. According to Ibn al-Qiftī, 'Adud al-Dawla liked to boast of the famous resident scholars who had taught him: he specifically mentioned that his tutor in the constellations and their movements was al-Sufi, while another astronomer, Ibn A'lam, was responsible for instructing the prince in the use of zij tables (tables of astronomical data). 'Adud al-Dawla also liked to participate in intellectual debates at court, and apparently went nowhere without his copy of Kitāb al-Aghānī (Book of Songs). His book collecting extended to the diplomatic level—a dispute with his cousin 'Izz al-Dawla Bakhtiyar included the grievance that the cousin, clearly another bibliophile, had refused him some rare documents. His remarkable palace library is described with keen interest and obvious satisfaction by the geographer al-Muqaddasi (ca. 985), who visited during the amir’s lifetime: “There is no book written up to this time in whatever branch of science but the prince has acquired a copy of it.”

'Adud al-Dawla was also ambitious militarily, taking control of ‘Uman, Kirman, and Makran, before moving on Iraq. In 977–78, he moved his court from Shiraz to Baghdad, which he had summarily seized from his weaker cousin 'Izz al-Dawla Bakhtiyar. There he further pursued his cultural policies, building an academy and a teaching hospital (named bimarīstān 'Adudi after him) and restoring the infrastructure of the dilapidated city. He died in 983, not yet fifty years old, of epilepsy. Though in advanced age, al-Sufi had also moved to the new court capital, where he died three years later. This then was the rarefied environment in which our poet Ibn al-Sufi grew up. Baghdad and the Abbasid caliphate remained under the care of the (Shi'i) Buyids until 1055, when the Seljuks invaded. Private and princely libraries and academic institutions, where the presence of scientists and scholars was courted, were widespread. Celebrated librarians were employed at these places, including the historian Ibn Miskawayh (d. 1030) in the library of Ibn al-'Amid in Rayy, and the calligrapher Ibn al-Bawwab in Shiraz. The political currency of intellectual company and materials was highly rated, as shown by the feud between the two Buyid cousins over ancient manuscripts. A further likely example of cultural politics is an astrolabe (now in Doha), designed for use at the latitude of Baghdad by Abu Mahmud b. al-Khidr al-Khujandi (d. 1000), an astronomer based in Buyid Rayy, who was in the service of the amir Fakhr al-Dawla (d. 997). The instrument dates to 374 (984–85), the year in which Fakhr al-Dawla officially reconciled with his nephew, Samsam al-Dawla (r. 982–90), the paramount Buyid amir, in Baghdad. It would have made the perfect diplomatic gift. Like Baghdad and Shiraz, Rayy was the location of celebrated libraries, including that of Ibn al-'Amid. Many were shortly to fall foul of invaders, both Ghaznavid and Seljuk.

In historiographical terms, the emergence of the poet Ibn al-Sufi from the shadow of his famous father was gradual and hazy. This is principally because the material treated in the Poem and the treatise is so very similar, as of course are the two scholars’ names. This muddled early attributions to Ibn al-Sufi in his own right: according to Ibn al-Qiftī’s Ta’rikh al-ḥukamā, an illustrated Urjūza on the constellations (Kitāb al-Urjūza fil-kawākib al-thābita al-muṣawwara) was listed squarely within the father’s bibliography. Later scholars agreed that this attribution was in error, but differ widely on the author’s real identity, their debate revolving around the identity of the patron cited in the opening verses of Ibn al-Sufi’s Poem: li-malik al-amlāk, li-malik al-umma shāhīns̄hāh [Abi] al-Ma′ali Fakhr Din Allāh (To the king of kingdoms, the king of the Islamic community, the king of kings, Abu al-Ma‘ali Fakhr Din Allah). Various identities have been volunteered for this figure, including
a Fatimid wazir, an Artuqid prince, and even the older brother of Salah al-Din.30 None is anything like a perfect fit, chiefly because although the title shâhinshâh was demonstrably used by several people of greater or lesser political importance, nowhere does it seem to be found in conjunction with the full title fakhr dîn Allâh.

A misidentification of our poet as the twelfth-century scientist and poet Abu /lefthalfringAli al-Muhandis al-Misri had contributed a further red herring to the puzzle, causing scholars to search for patrons exclusively within the twelfth century.31 The best conclusion remains that of Emmy Wellesz, that the poet was obviously and simply the astronomer’s son32—as the Poem itself states with some pride in several instances. Following the bismillah, the incipit states, “This is the account by Abu /lefthalfringAli/Son (nâjl) of Abu Husayn al-Sufi,” and the Poem concludes with the line, “My father (wâlidnâ) mentions [these matters] in his books. And so I seek them diligently according to his wishes.”33 Given the poet’s family connection with Buyid patronage, and the well-known history of that dynasty’s preference for the aspirationally-imperial title shâhinshâh, it seems more acceptable to identify the Poem’s patron with a minor Buyid who used the exact title shâhinshâh fakhr dîn Allâh on his coinage: Abu Kalijar Fanna/righthalfring Khusrau (1009–d. after 1047), the son of Majd al-Dawla (d. after 1029), the last Buyid amir of Rayy.34

The title shâhinshâh was touted as a propaganda weapon by several Buyid family contenders.35 The dynasty organized its territories with different branches ruling from various amirate courts, including Rayy, Shiraz, and Baghdad. Although Shi’i, they nonetheless strategically protected and controlled the Abbasid caliphate, following their seizure of Baghdad in 945. The obliging caliph in turn acknowledged them, granting honorific titles, which legitimized their dominion.36 Given how many Buyid amirs assumed the title of shâhinshâh, it does not connote any particular supremacy on the part of the user, as would seem to be the case with Ibn al-Sufi’s likely patron, who only briefly grasped any control of Rayy, once his father’s capital. Aside from Shahinshah Fakhr Din Allah’s credit in Ibn al-Sufi’s Poem, his titulature is recorded on a unique gold dinar, minted at al-Muhammadiyya (Rayy) in 432 (1040–41): Sharaf al-Mulâk Abû Kâlijâr […] Shâhinshâh Fakhr Din Allah

b. Majd al-Dawla Buwayh, together with that of the then current Abbasid caliph, al-Qa’im (r. 1031–75) (fig. 10).34 This surprisingly late date shows that a Buyid must have regained a measure of power in Rayy following its sack by Mahmud of Ghazna in 1029 (Rabi’ II 420).38

In terms of building our poet’s wider biography, we have rather bare bones to go on. We know that Ibn al-Sufi composed this poem and may infer from the text and his full name that his father was indeed the famous astronomer ‘Abd al-Rahman al-Sufi. As the Poem constitutes a close editorial analysis and précis of his father’s treatise, it seems that Ibn al-Sufi was also a scholar. Quite remarkably for an eleventh-century individual, there survive to this day two signed manuscripts in his handwriting, which further testify to his scientific interests. The first is his copy of Ibn al-Daya’s Tafsîr kitâb al-thamara li-Batinotbelowlamiyus, a commentary on the astrological treatise Centiloquium attributed to Ptolemy, located in the Malek Library in Tehran.39 According to its colophon, this unillustrated manuscript, which is dated Sha’ban 392 (August 1002), was copied in a library in Rayy and signed al-Husayn b. ‘Abd al-Rahman b. ‘Umar al-Sufi.40 The second manuscript, copied only
seven years later, is better known, being the Bodleian’s illustrated copy of Kitāb Șuwar al-kawākib al-thābita discussed above, his father’s constellation treatise.41 The colophon, dated 400 (1009–10), is signed al-Husayn b. ‘Abd al-Rahman b. ‘Umar b. Muhammad.

It seems, then, that besides being a poet and scholar, Ibn al-Sufi copied scientific texts for himself and may have also been an extremely accomplished artist. Two of his known projects deal with the reception and dissemination of his father’s treatise on the constellations, one being the Bodleian’s luxury copy of that text, the other being our poetic recension. The Ibn Daya commentary manuscript shows that he was active in a Rayy library in 1002, while his Poem’s apparent dedication to the Buyid prince Abu Kalijar Fanna’ Khusrau b. Majd al-Dawla suggests that he was still there after that amir had succeeded his father—therefore no earlier than 1029, some twenty-seven years later, when Majd al-Dawla died.42 There is an interesting implication here for the provenance of the intermediate 1009–10 Bodleian manuscript—was it also produced in Rayy?43

II. POEM AND ILLUSTRATIONS: THE INVISIBLE LAYER

Kitāb Șuwar al-kawākib al-thābita was and remains an important landmark in the history of uranometry, prompting many derivative works—of which Ibn al-Sufi’s Poem must certainly be the first, and the closest to home. Perhaps spurred by his father’s instant success, the son composed this greatly condensed adaptation, a poem of rhyming couplets in rajaz meter, in forty-eight verses of differing length, one for each constellation. There are a few questions worth posing about this interrelationship, and the extent to which the Poem can be described as purely derivative. Does it not have independent merit? There is a long intellectual history of writing poetic accounts of astronomy and astrol-ogy (particularly of the constellations), going back to classical and late classical literature: the Phaenomena by Aratus of Soli (third century B.C.) was particularly influential.44 Al-Fazari, Ibn al-Shatir, and Ibn Sina wrote didactic verses on scientific data, astrology, astronomy, and medicine.45 In relation to the treatise, should Ibn al-Sufi’s Poem be characterized as a dilution or a distillation?

The Poem describes both Arabian (Bedouin) and classical (Ptolemaic) conventions for naming and visualizing the stars, offering much the same intercultural tally as did the treatise. Both texts treat the forty-eight classical constellations in separate chapters following the same order, each illustrated in a linear style with identical constellation iconography and the constituent stars clearly painted. A close comparison of both texts and their illustrations, however, reveals how a long story was cut short. Ibn al-Sufi’s omissions are somewhat telling: the content has been greatly shorn of scientific conventions for referencing star positions, drawing the reader away from instrumentation and written records—and towards memorization and fluency. For example, the poet omits the tables of star positions for the year 964. Thus, in the Poem’s illustrations, the stars are not numbered, whereas in the treatise, they are fastidiously labelled in reference to the catalogue table.46 Without the catalogue, the Poem cannot be used as a basis for calculating new star positions (unlike the treatise). The Poem also avoids the long account of every star’s magnitude, which makes for rather prolix reading in the prose of the treatise chapters.47 In the Poem’s illustrations, we are shown only one version of each constellation figure, dispensing with al-Sufi’s innovative double format, which clarified the tricky fact that the figure outlined on a celestial globe is a mirror image of the same constellation when perceived in the starry sky. In the 1159–60 manuscript, the great majority of the images depict the constellation only as it would be seen on a globe.48 Exceptionally, three of the smallest constellations, Delphinus (the dolphin) (fig. 6), Sagitta (the arrow), and Triangulum (the triangle), are illustrated twice, as juxtaposed mirroring pairs, even though the Poem’s content in no way supports or explains such a format. This lapse indicates that the artist’s ultimate source of reference was indeed a copy of al-Sufi’s original treatise.

Thus stripped down, Ibn al-Sufi’s work can be used purely for information about the corresponding names of constellations from classical and Arabian systems. Here his choice of a rhyming versification becomes pertinent, as the material is intended to be committed to memory, for use away from the written text—presumably in the dark of night when observing the stars themselves.49 This is the purpose of scientific poetry:
rhyming cadence greatly facilitates the memorization process, which graduates the student from his text. This much is laid bare in the title of al-Fazari’s astrological poem: Urjūza fi l-hindūd ‘amala al-Fazārī li-yusahhila ḥifzahā: Urjūza on the Terms, written by al-Fazari to make memorizing them easy.⁵⁰

The forty-eight animals and people illustrated in Ibn al-Sufi’s Poem are the constructs of classical Greek astronomy, retained and developed in the Islamic world thanks to the enlightened court cultures of the Translation Movement. Although the work is organized as a catalogue of classical constellations, the accompanying verses do not recount any Greek legends associated with the likes of Hercules and Cassiopeia; instead they deal exclusively with the alternative star names and identities used in Arabian tradition for the same stars. Arabian culture had long employed a system of astronomy distinct from that of the Greeks, preserved in oral tradition. This system was also organized around the measurement of time: it delivered an annual and monthly calendar, based on the rising and setting of principal stars at dusk and dawn, and on the lunar mansions, a series of twenty-eight “mini-constellations,” which demonstrate the monthly circuit of the moon.

Being essentially imaginary, constellation groups tend to be the distinct designation of each star-gazing culture. Thus, constellation identities often deliver an interesting index of the people who created them—a cultural Rohrschach test, as it were, reflecting deeper concerns and truths. The classical Greeks elevated their heroes and their exploits to the stars, e.g., Perseus, the gallant rescuer of Andromeda, along with monsters, such as Cetus and Hydra. By contrast, the uranometry of the Bedouin Arabs employs far fewer people or even human artefacts, principally figuring a wide range of animals in their constellations, such as ostriches, wolves, and camels. This cultural index reveals the interests of a non-urban reality—i.e., nomadic concerns about pasture and the wilderness. A rare instance of a man-made construction is the small triangular constellation al-athāfī, the temporary campfire hearth, built out of three stones laid in a triangle (this being the only trace of a departed tent settlement), found in the constellation Draco. Very occasional human traffic includes travelling horsemen (within Cygnus), and a lone shepherd with his dog (in Cepheus).

For example, Ibn al-Sufi’s second verse, about the constellation Ursa Major, is duly illustrated by a drawing of a large bear traced around the stars. Having first described the bear, the text then gives an alternative account for the same stars, as perceived in Arabian tradition. Arabic proverbs about particular stars are also included. The following extract describes seven different names given to single stars or small groups, corresponding to the bear’s torso, tail, and paws (fig. 8):⁵¹

The stars for this figure are many
They shine brightly
In number they are twenty-seven
This was known through observation
The Greeks called it a Great Bear
They liken it to the previous figure⁵²
In the bear’s body, there are four stars
They form a square
It turns around the [North] Pole like a wheel
The Arabs call it the Bier (na’š)
Three stars are in a line⁵³
At dusk they appear to the eye
The Arabs call them the Daughters (al-banāt)
This follows the traditional narrators
Of the stars beside the square,
One of these three [stars in a row]
Is known as the Gulf (al-jūn) to the Arabs
Thus it is described by the wise
Then the one following after this star
Is a shining star of bright light
The Arabs know it as a female Goat-kid (anāq)
Above which is a small dim star
Some Arabs call it the Overlooked (al-suhā)
It is mentioned in some traditional accounts […]
By this star, the eyesight can be tested
Also, it seems to twinkle
The man said “I can see al-suhā”
While staring stupidly at the full moon
After this star is a solitary star
It shines brilliantly, and is called the Governor (al-qā’id)
Below the stars of na’š and al-banāt
There are the stars known as the Galloping Leaps (al-qafzāt)
They are along the edges of this Bear. Nearby to al-banāt and al-suhā, they are in pairs. Truly, it is said according to the Arabs, they are called the Bolting Animals (al-nawāfir). They are the tracks of leaping gazelle. These stars are named the Leaps (al-qafzāt).

The two systems are thus presented at once, as an intercultural tally, but they require the reader’s active participation for their fullest content to be exposed. There are no drawings here of the running gazelles, nor of any of the other Arabian identities, only the Great Bear in profile. Silently embroidered across the classical image, these undrafted Arabian groups form an “invisible layer,” which is only revealed by reading the accompanying poetry. Rather than forming a physical silhouette, the Arabian nomenclature tends to identify single stars with individual references: each of the three stars along the bear’s tail is one of three daughters following a funeral bier. Another minor narrative episode is next: we follow the leaping gazelles’ footprints (qafzāt) as they reach a safe place with their young (awlād al-dhibā/lefthalfring)—the name given to the group of stars beyond the bear’s nose. Thus, the tiny trail of stars records a mapped vector of movement, not a figural shape as such. Truly to digest the verses, the student reader must be able to grasp both concepts—which requires a strong simultaneous grip on memory, visual imagination, and celestial orientation. The purpose is educational, for presumably the intended reader is an eleventh-century student coming to classical astronomy and its many constellations for the first time. Perhaps the story and location of the Arabian gazelles were already a familiar anchor. Thus their apparent demotion—denied the privilege of visual representation—is in fact an acknowledgement of their preestablished position in the reader’s memory.

A direct comparison with the corresponding prose section in al-Sufi’s treatise demonstrates that the poet has added no further data, and indeed has omitted information about each star’s individual magnitude. Yet, by delivering his material in a format more conducive to memorization, the poet’s text has arguably more value as a tool of learning for the student. This purpose harmonizes all the better with the illustrations, which also serve a mnemonic function, graphic rather than performative.

The critical impact of this poem is difficult to assess, and early confusions of the poet for his more famous father (such as Ibn al-Qifti’s attribution) may account for that, as well as the apparent lack of supplementary content contributed by the Poem itself. We do find a critical assessment in the 1318 copy of the Poem, which includes a unique compendium of commentaries. Following each constellation verse, the anonymous compiler compares how Ibn al-Sufi’s account diverges from or agrees with a series of earlier and later astronomers.

III. THE RIZA ‘ABBASI LIBRARY MANUSCRIPT

Having examined the authorship, patronage, and content of the original text, we can jump forward to our second chronological layer to see how posterity treated the Poem on the Stars. The earliest known copy, dated 519 (1125), was transcribed in Baghdad. In that manuscript, Ibn al-Sufi’s Poem literally comes second, appearing as an appendix to a copy of al-Sufi’s treatise Kitāb Suwar al-kawākib al-thābita (fig. 2). The earliest independent copy is the manuscript in the Riza ‘Abbasi Library, dated 554 (1159–60) according to the copyist’s note inserted above the text incipit, and signed Abu’l-Husayn b. ‘Ali b. Ahmad. The colophon on folio 37v is complete, but offers no information about provenance, patronage, or date. As stated above, the poem’s title is not consistently used among the many copies of the text, and three different versions are offered within this manuscript alone: a gold shamsa medallion on folio 1r
has *Risālat al-Ṣūfi fiʾl-kawākib*, then the preface prefers *Maqāl li-Abī ‘Ali najl Abīʾl-Ḥusayn al-Ṣūfī*, and finally the colophon gives *Qaṣīdat al-falakiyya*. The manuscript consists of thirty-seven folios, with eleven lines per page, clearly written in a dark brown *naskh* script. Verse titles are written in a larger dark red *naskh*. The folios measure approximately 22.5 x 15 cm and are weathered along the edges; the brown leather binding with blind-tooled decoration appears to be original to the codex. Folios 1v–2r feature a double-page frontispiece of two author portraits (discussed further below), which is unique to this copy of Ibn al-Sufi’s Poem (fig. 9). Aside from these two paintings, there are forty-one illustrations—very fine, black line drawings of the constellation figures, with the constituent stars marked as gold circles outlined in black. The external stars, which lie beyond the outline of the constellation figure, are painted as red circles. Light red underdrawing is frequently discernible around the figures. Approximately five folios are missing, which included entries and images for the constellations Perseus, Capricorn, Aquarius, Canis Major, and Canis Minor.

The illustrations and margins bear the evident intervention of a rather keen later owner, which only confirms the overbearing impact of the parent treatise upon Ibn al-Sufi’s Poem: to the original images have been added star numbers (using the alphanumeric system of *abjad*) and labels, corresponding to data in al-Sufi’s text—not the Poem itself. Additional information is inserted throughout: chapter numbers are placed (as ciphers, not in *abjad*) above the Poem’s verse titles, and long text entries in Persian fill the margins by the illustrations, systematically describing al-Sufi’s account of star magnitudes, which Ibn al-Sufi had originally omitted. Neat new red frames have also been set around all text blocks. A late-nineteenth-century copy of the Poem, also in Tehran, is a near-perfect facsimile of this same manuscript, which reproduces the later owner’s additions, showing that the earlier manuscript was in Iran at that date.

The images are fluently drawn in refined detail, depicting human figures, animals, birds, mythical creatures, and inanimate objects one by one. The taxonomic format of showing the single specimen against a blank paper folio background is a strong feature of twelfth- and thirteenth-century scientific illustration, used also
in works of natural history, automata mechanics, pharmacy, and toxicology. Thus presented as a microform of information, the specimen—in this case, a selective map of a small part of the night sky—lacks environmental context here, such as relative scale, celestial location, or orientation to other constellations; but its isolation also allows for scrutiny without distraction, which is arguably more important on an initial level of acquaintance.

Students of this period will recognize that the figural style mastered throughout this twelfth-century manuscript is an idiom found in a number of other illustrated books. The Seljuk sharbūsh (a fur-trimmed cap with a triangular front) is worn by the constellations Serpentarius and Centaurus, and is also frequently cited in other twelfth- and thirteenth-century manuscripts (figs. 11[a–c]). The most remarkable stylistic similarity is with the illustrations of two early-thirteenth-century manuscripts: the 1224 dispersed Dioscorides folios (figs. 11[c] and 12) and the undated Kitāb Na’īr al-hayawān (Treatise on the Characteristics of Animals) in the British Library. Animals, human figures, furniture, and even garment folds, fabric patterns, and palette are almost identical, particularly with the paintings of the latter manuscript, so much so that the attributed date of around 1220 for the (undated) bestiary might now come under question. At the very least, if the Poem’s 1159–60 dating may be trusted as secure, the potential longevity of a figural style (between 1159 and 1224) must inform our understanding of artists’ training and conservatism in this period. Certainly the 1159–60 Poem’s illustrations are not stylistic anomalies for their given date, given that there are identifiable parallels with several contemporary dated manuscripts. The light garment folds with pale red underpainting recall the 1131 al-Sufi illustrations, which employ subtle blue and red highlights (fig. 13). In spite of their zoological variety, the Poem’s animal constellations share a distinctive facial type, in that a curling line encircles the cheek and passes around the eye, which usually “hangs” from the line itself (figs. 6–8, 14, and 15). This type is produced throughout the magnificent paintings of the British Library bestiary and the 1224 Dioscorides, but also features in the 1171 Mosul al-Sufi manuscript (fig. 16).

IV. A DOUBLE AUTHOR PORTRAIT: FATHER AND SON

The first set of pages of the Riza ‘Abbasi manuscript reveals a magnificent double frontispiece, not found in any other copy of this text (fig. 9). Here Ibn al-Sufi’s
parental legacy is rather more declared, in two facing author portraits. On each side, a scholar sits comfortably on a majestic high-backed couch covered with textiles and cushions, each man framed under an archway hung with knotted curtains. On the left-hand page, an older man in profile reads from a book, while the younger man on the right-hand page raises an astrolabe, about to take a reading. The pair can only be the father and son whose combined scholarship delivered this text, al-Sufi and Ibn al-Sufi.

Like many an academic prologue, this double frontispiece acknowledges the author’s scholarly debts and simultaneously credits his own achievement. The author portrait was a late classical genre that was retained and developed in the Islamic world, most successfully during the twelfth and thirteenth centuries, after which the ruler portrait increasingly stole the limelight. The portrait was typically located at the start of a book, either immediately in the frontispiece paintings, or within a few pages, as a visual preface. The scholar appears in some formal magnificence, seated upon a throne and holding a copy of his book, consistently posed within an architectonic frame. The compositional convention echoes late classical portraits of authors and consuls, and Gospel portraits of the Evangelists.

In the case of compendia, multiple authors were depicted, often organized in a number of complex
arrangements: in a set of bust portraits laid out in a matrix grid together, in the mid-thirteenth-century Vienna Kitāb al-Diryāq (Book of Antidotes),72 in a group portrait showing the different scholars in conference together, as in the 1287 Rasā‘îl ikhwān al-ṣafā‘ (Treatises of the Brethren of Purity),73 or in a strange hybrid of both, as in the double frontispiece and finis-piece paintings in the mid-thirteenth-century Mukhtār al-ḥikam wa-maḥāsīn al-ḵalim (Choice Judgments and Finest Sayings), in which perching scholars occupy the cavities around a decorative lattice and converse across the divide.74 Such implied assemblies may be anachronistic, referring to intellectual relationships that span generations, such as the nine doctors in Kitāb al-Diryāq, whose successive scholarship contributes to the development of theriac as a universal antidote. The double portrait in Ibn al-Sufi’s Poem belongs to this category of multiple, intergenerational acknowledgement, and makes a strong statement about the single major influence on the author’s work.75

Celebrating and commemorating intellectual achievement, the genre of author portraiture did not endure. Robert Hillenbrand has observed that the extraordinary Rasā‘îl ikhwān al-ṣafā‘ group scene of 1287 is the last double frontispiece to honor only the scholar: the author portrait was overtaken in the late thirteenth century by the princely frontispiece, which was to enjoy a long history in Persian painting.76 Mamluk painting also embraced ruler portraiture in frontispiece scenes: the ca. 1350 Sulwān al-muṭā‘ fī udwān al-atbā‘ (The Comforts of Rulers during the Hostility of Subjects) manuscript opens with a courtly scene of an enthroned prince approached by three deferential falconers prepared for a day of sport,77 and the 1334 Maqāmāt commences with a portrait of a ruler surrounded by a bevy of attendants and entertainers.78 Even during the thirteenth century, this exchange of pen for crown was in progress, although it must be noted that there are very few proven princely commissions among extant illustrated manuscripts of this early period.79 Colophon information indicates production for private patrons (albeit obviously those with the means for luxury illustrated manuscripts) far more often than for ambitious rulers, but often gives no indication of any patron.80 Another occluding factor is

Fig. 14. The constellation Hydra. Ibn al-Sufi, Urjūza fī-l-kawākib, dated 554 (1159–60). Tehran, Riza ‘Abbasi Library, Ms. M. 570, fol. 34v. (Photo: Moya Carey)
the physical vulnerability of the initial and final folios of a codex: colophon statements and frontispiece paintings may long be lost, which might have revealed much more about the production and patronage of illustrated books in this period.81 Where a royal sponsor is indeed responsible for the new manuscript, the presence of a princely patron certainly intrudes on the traditional author portrait format, by the insertion of the ruler’s portrait as a formal enthronement scene.82 These royal figures are not the original historical sponsors of the text’s composition, but the benevolent financiers of the current prestigious copy.

There are two chronological levels of production, and therefore two options for due acknowledgement in front-matter portraiture: original authorial genesis and the reality of current production.83 When a manuscript does not abound in paintings, these two levels conflict—and the author portrait suffers first. In the ca. 1217–19 multivolume set of Kitāb al-Aghānī, the original and renowned compiler, Abu’l-Faraj al-Isfahāni (d. 967), is completely absent from the surviving frontispiece paintings, while the contemporary sponsor, Badr al-Din Lu’lu’, the Atabeg ruler of Mosul (d. 1259), takes center stage.84 In many cases, the genesis of the work is discussed and described in the preface text, where due credit is noted for the original historical partnership of an enlightened patron and the scholar resident at his court. Major literary manuscripts might also illustrate these special relationships in the course of the introduction, such as sixth-century Burzoy with Khusrau Anushirwan for Kalīla wa Dimna,85 and eleventh-century Firdausi with Sultan Mahmud of Ghazna for the Shāhnāma (Book of Kings). This type of historical ruler portrait remains an acknowledgement of the text’s composition, and places the original patron and scholar together in the same painting. Portraits of the current patron focus instead on the environment of the new copy, in which the classic text is being enjoyed and treasured anew. These portraits tend to vie with visual acknowledgements for the original author, eventually replacing them altogether. Historical and intellectual achievement is outshone by the financial lights of the
material world and the glamour of contemporary political power. Incidentally, although prefaces usually finish with a short concluding prayer, spiritual credit is almost never acknowledged in visual terms, the sole exception being the group portrait of the Prophet Muhammad with his Companions, in the 1299 Marzubānnāma (Book of the Margrave).86

Produced then with no apparent fanfare, written or visual, for a contemporary patron, the 1159–60 copy of Ibn al-Sufi’s Poem nonetheless commences with its dramatic double frontispiece. The pair do not portray a princely patron with his resident scholar, as was suggested by Mahboubian and ‘Azizzada, who both identified ‘Adud al-Dawla with ‘Abd al-Rahman al-Sufi (thereby dismissing the poet Ibn al-Sufi from enquiries altogether),87 and by Contadini, who proposes the poet Ibn al-Sufi with his Buyid patron.88 Neither sitter has headgear or attributes related to contemporary political authority, such as a Seljuk sharbūsh, a drinking cup, or armed attendants; rather, they are two scholars, one holding a book, the other an astrolabe, sitting face to face.89 Although the pair may appear to receive equal credit for the verses that follow, they are portrayed according to a classic thirteenth-century iconographic convention wherein a young student attends the words of an elderly learned sage. The student-assistant repeatedly depicted in the dispersed 1224 Dioscorides folios follows the same personal appearance: a younger man in three-quarter face, turbaned with black beard and long hair, typically following directions or standing
at attention, while his teacher, usually in profile, with a white beard and either a turban or a hooded cloak, delivers instructions or generally holds forth from a reclining position (fig. 12). The pairing also echoes the mismatched duo in the picaresque adventures told in al-Hariri’s Maqāmāt: throughout the illustrations of the 1237 al-Wasīṭī manuscript, for example, wily Abu Zayd has a white beard, while the earnest al-Harith is younger, dark-haired and, of course, rather greener, in the naive sense of the word. Ibn al-Sufi would certainly have learned much from his father, perhaps working under him at the observatory in Shiraz, and of course by studying his treatise.

Such juxtapositions illustrate the process of transmitting knowledge down the intellectual hierarchy from master to apprentice. Still in the shade of his father’s great work, Ibn al-Sufi’s Poem offers an abbreviated version of the treatise that was such a milestone in the history of uranometry. In this double portrait, we can read that seniority and precedence of the famous astronomer over the lesser-known poet, as well as the implied age difference between father and son. Their staged encounter recalls another form of textual transmission: knowledge was also passed down on a more literal basis when the author might dictate his book to a student, and then listen to the student reading back the text, before conferring his ijāza (literally “permission,” a formal attestation of master status) indicating that the text was sound.90 The father here surveys the son’s project with a similar air of authority, his presence implying a degree of master status (henceforth Gé) indicating that the text was sound.90

The father here surveys the son’s project with a similar air of authority, his presence implying a degree of approval. The personal iconography implies that the son’s scholarship is very much secondary to that of the father. And yet, Ibn al-Sufi’s combination of mnemonic systems both visual and verbal gives the Poem a didactic force that the treatise did not previously offer. These portrait poses may therefore be interpreted as mutually challenging in intellectual terms: the younger man holds an astrolabe up to eye-level, as though putting it to use, demonstrating—even protesting—his proficiency as a scientist and as an author of valuable material. In answer, the older scholar on the left simply holds up a copy of his classic treatise.

London, England

NOTES

1. I first came across references to this poem while researching the early copies of al-Sufi’s illustrated Book on the Constellations. See Moya Carey, “Painting the Stars in a Century of Change: A Thirteenth-Century Copy of al-Sufi’s Treatise on the Fixed Stars, British Library Or. 5323” (PhD diss., SOAS, University of London, 2001). In two instances, the Poem was actually inserted as an appendix to the treatise, i.e., within the same manuscript, bringing itself directly to my attention, and characterizing a relationship wherein the treatise overshadowed the far shorter poem. The Poem is also placed as an appendix in the 1954 Arabic edition of al-Sufi’s treatise. I noted it briefly in my thesis and have since worked on a fuller study of this little-known text and its history of illustration. This article therefore builds upon papers delivered between 2004 and 2007 at: an internal staff research seminar (Dept. of Art & Archaeology, SOAS), a meeting of Maps & Society (Warburg Institute), a conference entitled “The Image of Maps: Maps of the Imagination” (Oxford University), the HIAA Majlis (NYU), and the Islamic Art Circle (SOAS). I am very grateful to the Iran Heritage Foundation and to the Barakat Trust for generously supporting my travel research on this project.

2. A slightly different version, al-Shaykh al-Fāsīl al-Faylāsūf Abu ‘Alī b. Abl’-Hādūsayn al-Sūfī, is used in a 1318 (718) copy of the Poem: Istanbul, Süleymaniye Library, Ms. Lâlîlî 2698, fols. 1r, 5v (fig. 3).

3. For the array of alternative identities that has been volunteered for this otherwise obscure patron, see n. 30 below.


7. For the numerous Fatimid folio fragments, see Ernst Grube “Part I: Fostat Fragments,” in Islamic Painting and the Arts of the Book, ed. B. W. Robinson, Keir Collection (London: Faber and Faber, 1976), 25–110. Aside from these, one may also cite the 1037 Geography by Muhammad b. Mūsā al-Khwārizmī (d. ca. 846) (Strasbourg, Bibliothèque nationale et universitaire, Ms. Cod. 4247, reproduced in Gerald Tibbetts, “The Beginnings of a Cartographic Tradition,” in Harley and Woodward, Cartography in the Traditional Islamic and South Asian Societies, figs. 4.8 and 4.9; pls. 4 and 5), and the 1083 De Materia Medica (Kitāb al-Ḥasha ’ish fi ḥayālā ’lāj al-tibb, or Kitāb Khwāṣṣ al-ashḥāj) by Dioscorides (Leiden University Library, Ms. Cod. Or. 289, reproduced in M. M. Sadek, The Arabic Materia Medica of Dioscorides [Quebec: Sphinx, 1983]).


9. The colophon is reproduced in the 1866 facsimile of the manuscript (see n. 5 above). The phrase katabahu wa sawwarahu indicates at the least that having copied out the entire text, Ibn al-Sufi plotted, marked, and labelled the stars’ points for each constellation-image. It may even mean that he drew the figures, too. See Carey, “Painting the Stars,” chap. 4, “Recent Re-Assessment of Marsh 144.”

10. I have assembled a provisional catalogue of these eighteen: Bologna, Bologna University Library, Ms. no. 2953 (dated 956 [1549], unillustrated); Cairo, Dar al-kutub 4172, Ms. Miqat 163, and Miqat 831/1 (all unillustrated); Doha, Museum of Islamic Art, Ms. MI-02-98-90 (dated 519 [1125], 4 illustrations only, appended to al-Sufi’s illustrated treatise); Gotha, Forschungsbibliothek, Ms. Orient. A.1398 (undated, unillustrated); Istanbul, Süleymaniye Library, Ms. Lāleli 2698 (dated 718 [1318], unillustrated); London, Khalili Collection, Ms. 730 (undated, fully illustrated); London, SOAS Library, Ms. 45806/6 (undated, unillustrated); Munich, Staatsbibliothek, Ms. 870 (undated, fully illustrated); Paris, Bibliothèque nationale, Ms. Ar. 2561/4 (undated); Princeton, N.J., Princeton University Library, Garrett Collection, Ms. 356 (undated, unillustrated) and Ms. 211 (dated 1204 [1789–90], unillustrated); Tehran, Riza ‘Abbasi Library, Ms. M. 570 (dated 554 [1159–60], fully illustrated); Tehran, Majles Library, Ms. 198 (dated 1312 [1895], fully illustrated); Tunis, Zaituna, Ms. 415 (undated); Vatican Library, Ms. Rossiani 1033/2 (dated 621 [1224], unillustrated; appended to al-Sufi’s illustrated treatise); and a copy sold at Christie’s in October 1990 (dated 1224 [1809]). See Brockelmann, GAL, S1:863 no. 4a; Sezgin, GAS, 6:232; Heinrich Suter, Die Mathematiker und Astronomen der Araber und ihre Werke (Leipzig: Teubner, 1900), no. 138.

11. A copyist would include a caption and space for a picture, either because a painter was expected subsequently to complete the reproduction-work from an illustrated exemplar manuscript (and never did), or perhaps because the copyist’s exemplar was similarly incomplete. Some of the Poem’s copies (such as the 1125 Doha manuscript) leave the caption but no space for a picture—which suggests the latter.


15. As well as Kitāb Ṣuwar al-kawākib al-thābita by al-Ṣūfī (d. 986) and Urjūza fīl-kawākib by Ibn al-Ṣūfī (early eleventh century), this eleventh-to-thirteenth-century illustrated manuscript group includes numerous copies of the following titles: *Maqāmāt* of al-Ḥarīrī (d. 1122), which draws strongly from al-Hamadhānī (d. 1008); Kitāb al-Ḥashāʾish fi ḥayāla īlāj al-ṣīb, os Kitāb Khwāsī al-ashjār, also known as *De Materia Medica* by Dioscorides (first century A.D.), translated and possibly also appended by Hunayn ibn Ishaq (d. 893); Kitāb al-Diryāq, attributable to a pseudo-Galenic tenth-century Arabic source; Kitāb Manāfī al-ḥayawān, which combines Aristotelian sources with Ibn Bakhtishū’ (eleventh century); Kadila wa Dimna by Ibn al-Muqaffa’ (d. 756); and different geographical treatises by al-Ṭakhtāwī (tenth century), al-Khwārizmī (ninth century), and others. There are also single illustrated copies of: Kitāb al-Aghānī (in one twenty-volume set) by Abū’l-Faraj al-Iṣfahānī (d. 967); Mukhtār al-ḥikam wa-maḥāsīn al-kalīm by al-Mubashshir (eleventh century); Rasāʾil ikhwān al-ṣaḥāʾ, compiled by the Brethren of Purity group (tenth century); and Warqa wa Gulsḥā by Āyyūqī (early eleventh century).


17. Carey, “Painting the Stars,” Appendix 1, provides a provisional catalogue of extant copies, listing seventy-one manuscripts.

18. Carey, “Painting the Stars,” chap. 2, includes a discussion of al-Ṣūfī’s biography and bibliography. The astronomer wrote treatises on the construction and use of the astrolabe and the celestial globe, and it was reported that in 435 (1043–44) there was a silver celestial globe made by al-Ṣūfī for ‘Adud al-Dawla, among the holdings of the Fatimid library; see Ibn al-Qifti, *Taʾrîkh*, 440.


20. As al-Ṣūfī names the halqat al-ʿAdudiyya in his Constellations treatise (964), the observational activity may have begun before the major projects of 969 to 972. According to al-Biruni, the other participating astronomers included Abu Sahil Wajjan b. Rustam al-Qulhi, Ahmad b. Muhammād ʿAbd al-Jalil al-Sīzī, ʿAbd Allāh b. Yumm al-Yunani, and Abuʾl-Qasim Ghulam Zuhūl ("the Slave of Saturn"). Sayılı, *Observatory in Islam*, 106.


24. “In the upper part [of the palace] was the library, a compartment by itself. There is a manager, a librarian and a supervisor from among the people of good repute in the town…It consists of a long oblong gallery in a large hall, with rooms on every side. He attached to all the walls of the gallery and of the rooms bookcases six feet in height and three cubits long, made of wood, and decorated. On the bookcases are doors that open from above, and the books are arranged on shelves. For every subject there are bookcases, and catalogues in which are the names of the books; and noone has access to them except he be a person of distinction.” Muḥammad ibn Muḥammad al-Muqaddasī, *The Best Divisions for Knowledge of the Regions: A Translation of Aḥsan al-taqāṣīm fi maʿrījat al-aqālīm*, trans. Basil A. Collins (Garnet, 1994), 395. The library gradually fell into neglect,
and the calligrapher Ibn al-Bawwab complained to the later Buyid ruler Baha' al-Dawla that a precious Qur'an copied by Ibn Muqla had been allowed to fall apart. Yaqût’s Irshâd, as quoted in Olga Pinto, “The Libraries of the Arabs during the Time of the Abbasides,” *Islamic Culture* (April 1929): 235.

25. One such private library was the *Dar al-'ilm bayn al-sârayn* in western Baghdad, founded in 993 by the Buyid wazir Abu Nasr Shapur b. Ardashir (d. 1025). This short-lived institution reportedly held over ten thousand volumes, provided scholarly stipends, and hosted symposia; it was burned down in 1059 following the Seljuk conquest of the city. See Moya Carey, “Shapur’s House of Science: The *Dar al-'ilm bayn al-sârayn* library in Baghdad,” forthcoming.

26. The cultural capital of books and libraries in Abbasid times is described and analyzed in Touati, *L’armoire à sagesse*.


28. Fakhr al-Dawla was also granted the additional title of *falak al-umma* by Caliph al-Ta’i.

29. Ibn al-Qifti, *Ta’rikh*, 226. The Poem is not mentioned in the *Fihrist* of Ibn al-Nadim, compiled in Baghdad, which is contemporary with al-Sufi, and therefore slightly too early to record the output of the next generation.


31. Needless to say, the occurrence of the name Abu ‘Ali in two places is hardly compelling.


33. This translation and further passages below are based on my collation of several manuscripts: the Goa, Munich, Doha, and Tehran copies. Three copies of the Poem (Tehran Riza ‘Abbasli, London Khalili, and Gotha) use the word *shaykhnā* meaning “my master,” instead of *wālidnā*.

34. I think it less convincing to propose an earlier member of the Buyid family, Abu’l-Hasan ‘Ali Fakhr al-Dawla (d. 997), who intermittently ruled the dynasty’s jibal branch from Rayy, and dared assume the title *shāhinshāh* only following the death of his half-brother, ‘Adud al-Dawla, in 983.


36. With territory distributed among jostling brothers and nephews, the death of the paramount amir was perennially followed by a power struggle and protracted negotiations, sometimes arbitrated by the caliph and concluded with the granting of further titles.


38. Miles, *Numismatic History*, 194, citing Ibn al-Athir, provides these further details: following the Ghaznavid sack, Abu Kalijar made an unsuccessful attempt to retake Rayy in 421 (1030), fought with the Ghuzz against Hamadhan in 430 (1038–39), and seized Amid from Tughril Beg’s guard in 439 (1047–48). Miles notes that this coin “is material for a monograph in itself,” and also that the titles *shāhinshāh*, *fakhr din Allah*, and *sharaf al-malik* are otherwise unrecorded for Abu Kalijar.

39. Tehran, Malek Library, Ms. 5924, as noted in Sezgin, GAS, 7:157, where the colophon date is read as 371 (981–82). The codex therefore remains extremely close to Rayy, its place of production over a thousand years earlier. I would like to thank Saeid Khoddari Naini of the Malek Library for his kind help.

40. I would like to thank Tim Stanley for discussing the Malek Ms. colophon, and comparing the scripts of these two manuscripts (from photographs) with me (October 2007). The sheer felicity of finding two early-eleventh-century manuscripts in the same hand might seem astonishing, but even though the manuscripts are of different size and presentation level, the two scripts bear comparison.

41. Oxford, Bodleian Library, Ms. Marsh 144; see n. 5 above.

42. Aside from the connection with the maturity of Fakhr Din Allah, the Poem’s date of composition is not known. Contadini misquotes Sezgin, GAS, 6:232 by stating the composition date to be 371: Sezgin is actually discussing the date of the Ibn Daya commentary manuscript. See Contadini, “Question in Arab Painting,” n. 11.

43. To date, little discussion of the Bodleian manuscript has dwelt upon its likely provenance, although Melikian-Chirvani attributed it firmly to “une tradition conservatrice purement iraniene issue du Tabarestan”; see Asadollah Souren Melikian Chirvani, “Trois manuscrits de l'Iran seldjoukide,” *Artasiatiques* 16 (1967): 9.

45. Al-Sufi’s Treatise notes that he has added 12°42’ to Ptolemy’s celestial longitude values to make the star positions correct for the year 1276 in the Alexandrian calendar (964). As described below, the illustrations in the 1159–60 Riza ‘Abbasi copy have been overwritten by a later owner, who collated the chapters against a copy of al-Sufi’s treatise.

46. That is, Ursa Minor, the smaller bear, described in the previous chapter.

47. Translation made based on collation of the Gotha, Munich, Istanbul, Tehran, and Doha texts.

48. As mentioned above, the magnitudes were the fruit of al-Sufi’s personal observations, and original research.

49. As it would be seen in the sky.

50. A simple explanation for this apparent preference may be that in copies of al-Sufi’s treatise, the globe version tends to be illustrated first in the text-sequence, followed by the sky version: the artist referred to the first one encountered. The exceptions in the Riza ‘Abbasi illustrations are Ursa Minor, Equuleus, Pegasus, Taurus, Scorpio, Cetus, Centaurus, Lupus, and Piscis Austrinis, which show the constellation as it would be seen in the sky.

51. That is, along the bear’s tail.

52. Translation made based on collation of the Gotha, Munich, Istanbul, Tehran, and Doha texts.

53. That is, along the bear’s tail.

54. The sequence of pairs, left by the gazelles’ cloven hoofs, corresponds to the paws of the bear.

55. Exceptions to this are a group of extra-large Arabian constellations, including the female figure of al-Thurayyya, the Horse (near Andromeda), and the She-Camel (near Cassiopeia).

56. “Being already familiar with the stars by their Arabian identities, the student could therefore rely on such labels as useful pinpoints while getting to know the layout and locations of the classical constellations. The direct juxtaposition of the two systems is presented as a deliberate principle in the final lines of [al-Sufi’s] preface: ‘We will now discuss in detail the stars of each constellation, noting their numbers, proper names, and other names according to the astronomers and according to the Arabs, so that [learning about] one system [of nomenclature] may facilitate learning about the other.’” Carey, “Mapping the Mnemonic,” 65–66.

57. “Being already familiar with the stars by their Arabian identities, the student could therefore rely on such labels as useful pinpoints while getting to know the layout and locations of the classical constellations. The direct juxtaposition of the two systems is presented as a deliberate principle in the final lines of [al-Sufi’s] preface: ‘We will now discuss in detail the stars of each constellation, noting their numbers, proper names, and other names according to the astronomers and according to the Arabs, so that [learning about] one system [of nomenclature] may facilitate learning about the other.’” Carey, “Mapping the Mnemonic,” 66.

58. Istanbul, Süleymaniye Library, Ms. Lâleli 2698, dated 22 Rabi’ II 718 (June 22, 1318), 66 folios, 13 lines per page, unillustrated. On the illuminated frontispiece (fig. 3), the patron is named as Kamāl al-Dīn Muhāammad walad al-Shaykh Shihāb al-Dīn Ahmad al-Sandqāfī (?) (according to its colophon, copied from an exemplar collated against an autograph manuscript, and then corrected against another manuscript dated 519 [1125–26]). See also Max Krause, “Stambuler Handschriften islamischer Mathematiker,” Quellen und Studien zur Geschichte der Mathematik, Astronomie und Physik, Abt. B 3 (1936): 464.

59. Ibn al-Salah did, however, strongly critique al-Sufi’s star-catalogue from Kitāb Šuwar al-kawākīb al-thābita. He condemned many previous scholars’ examinations of Ptolemy’s star positions as too uncritical. Analyzing potential causes of accidental textual distortion by copyists, he showed how the figures in Ptolemy’s tables easily became obscured as the star catalogue was copied successively: certain letters were misread for one another, and ambiguities arose between coordinates for degrees and minutes. Al-Sufi had chosen to ignore many of Ptolemy’s errors, and had also been inconsistent by depending on different available versions of the Almagest. See Carey, “Painting the Stars,” 82–83, discussing Ahmad b. Muhāammad Ibn al-Salah, Zur Kritik der Koordinatenüberlieferung im Sternkatalog des Almagest (Qawl fi sabab al-khitā’ wa’t-taşīf al-‘ārid āyay fi jādāwil al-maqālatayn al-sābi’ā wa’t-thāmina min Kitāb al-majāisti wa tāṣīfi mā ankana tasāḥihu min dhālika), ed. and trans. Paul Kunitzsch (Göttingen: Vandenhoeck and Ruprecht, 1975), 109–11.

60. Reproduced in Contadini, “Question in Arab Painting,” figs. 10 and 11; 39 folios measuring 24.8 x 16.3 cm, 11 lines per page. This codex reproduces the marginal glosses as well as the original text and its illustrations—except for the double frontispiece paintings. It does not carry over the additional labels and star-numbers made to the Riza ‘Abbasi MS illus-


62. Reproduced in Contadini, “Question in Arab Painting,” fig. 27.

63. Tehran, Majles Library, Ms. 198 (dated 1312 [1895]), reproduced in Contadini, “Question in Arab Painting,” figs. 10 and 11; 39 folios measuring 24.8 x 16.3 cm, 11 lines per page. This codex reproduces the marginal glosses as well as the original text and its illustrations—except for the double frontispiece paintings. It does not carry over the additional labels and star-numbers made to the Riza ‘Abbasi MS illus-
trations. See also Yûsûf l’tîşāmî, Catalogue des manuscrits persans et arabes de la bibliothèque du Madjless (Tehran: Majlis, 1933–1), 1:109. I would like to thank Mr. Abhari and Mr. Shokrollahi at the Majlesi Library, for permission to study this and other manuscripts.

64. Note, for example, that the sharbûsh worn by Centaurus (fig. 11[b]) shows two spiked finials, while those of Serpentinus (fig. 11[a]) and the Seljuk officer depicted in the 1224 Dioscorides (fig. 11[c]) have a single finial.


66. London, British Library, Ms. Or. 2784, undated; reproduced and discussed in detail in Contadini “Question in Arab Painting,” fgs. 5, 6, 9, 13, 15, 17, 21, 23, 25.


69. Animals are illustrated in the following folios from the 1224 manuscript: the gazelle fleeing a wolf behind the atraghalus plant (Rogers, “Dioscorides,” fig. 5), the rabid dog (Freer 53.91r, reproduced in Dietrich Brandenburg, Islamic Miniature Painting in Medical Manuscripts [Basel: Roche, 1982], no. 27), the fish in the riverboat scene, the fox by the lablab plant (Brandenburg no. 38), the rabbit by the tombolos bitkisi plant (Brandenburg no. 36), and various birds and insects around plant specimens (reproduced in Brandenburg nos. 35, 37, 39, 40, 53; Rogers “Dioscorides,” fgs. 6, 8).


72. Vienna, Nationalbibliothek, Ms. A.F. 10, reproduced in Jaclyne Kerner, “Art in the Name of Science: The Kitâb al-Dîrîyâq in Text and Image,” in Contadini, Arab Painting, 25–39, fig. 2. In the 1199 Paris copy of Kitâb al-Dîrîyâq, the doctors are portrayed in single vignettes, “pigeon-holed” in a sequence of illuminated tables over three consecutive folios.


75. Hillenbrand’s close analysis of double frontispieces focuses on the 1237 Maqâmât paintings; see Hillenbrand, “Schefer Harîrî.” He notes that double-page frontispiece portraits are relatively rare (118–19).

76. Hillenbrand, “Erudition Exalted,” 212, describes this as a “sea change in the subject matter of Islamic painting.” See also M. S. Simpson, “In the Beginning: Frontispieces and Front Matter in Ilkhanid and Injuid Manuscripts,” in Komaroff, Beyond the Legacy, 213–47.

77. Undated codex (Doha, Museum of Islamic Art) and dispersed folios (Freer Collection, Washington D.C.; Aga Khan Collection, Toronto; al-Sabah Collection, Kuwait). The right-hand folio (1v) is in the collection of the Aga Khan, while the left-hand folio (2r) remains in the codex, now in Doha. Facsimile edition: A. S. Melikian-Chirvani, Sulwân al-mujâ fi ‘udwân al-âlbâ: A Rediscovered Masterpiece of Arab Literature and Painting (Kuwait: T. R. L., 1985).

78. Vienna, Nationalbibliothek, Ms. A.F.9, dated Rajab 734 (March 1334), reproduced in Ettinghausen, Arab Painting, 148, 150–51.

79. For example, in my provisional survey of extant manuscript copies of al-Ṣûfî’s Kitâb Suwar al-kawâkib al-ḥâbîtâ (Carey, “Painting the Stars,” Appendix 1), only one out of the seventeen datable up to the fourteenth century is dedicated to a known patron, namely, Sayf al-Dîn Ghâzî II, Zangîd Atabeg of Mosul (r. 1169–80): Oxford, Bodleian Library, Hunt 212, dated 566 (1171).

80. Referring to the spectacular 1237 Maqâmât copied and illustrated by al-Wasîtî, Hillenbrand, “Schefer Harîrî,” 132 suggests that the omission of a named patron indicates production for the open market.

81. Hillenbrand, “Schefer Harîrî,” n. 7. Similarly, Pancaroğlu notes that the Vienna Kitâb al-Dîrîyâq might originally have possessed a second frontispiece painting to complement the court scene, as two folios are missing from the start of the codex; see Pancaroğlu, “Socializing Medicine,” 169.

82. Pancaroğlu discusses this “assertion of royal affiliation with learning” as a deliberate attempt to magnify the ruler’s status and image by appropriating scholarly prestige, and thus satisfy a model of ideal kingship; see Pancaroğlu, “Socializing Medicine,” 168–69.

83. Hillenbrand identifies the two 1237 portraits as the author al-Harîrî opposite the prospective patron of the 1237 copy; see Hillenbrand, “Schefer Harîrî,” 132.

84. There are six surviving codices from a twenty-volume set, each with one frontispiece painting: vol. 2 (Cairo National Library, Ms. Adab 579/2), vol. 4 (Cairo National Library, Ms. Adab 579/4), vol. 11 (Cairo National Library, Ms. Adab 579/11), vol. 17 (Istanbul Millet Library, Ms. Feyzullah Efendi 1566), vol. 19 (Istanbul Millet Library, Ms. Feyzullah Efendi 1565), and vol. 20 (Copenhagen Royal Library, Ms.
Cod. Ar. 168). These are the only illustrations in the whole anthology.

85. See the two patron/scholar scenes depicting Bidpai with the Indian king, and Burzoy with Khusraw Anushirwan, in the early-thirteenth-century Paris copy (Bibliothèque nationale, Ms. Ar. 3465, fols. 14v, 23v). See also the double frontispiece of an early-thirteenth-century Persian translation of the fables (Istanbul, Topkapı Palace Museum, Ms. H. 363), which depicts the translator Nasr Allah Munshi delivering his book to his Ghaznavid patron, Bahram Shah; see Pancaroglu, “Socializing Medicine,” 162 and fig. 9a, b.


88. Contadini, “Question in Arab Painting,” 53. She identifies Ibn al-Sufi’s patron Fakhr Din Allah as Fakhr al-Dawla, another (earlier) Buyid amir, grandfather of Abu Kalijar. Her discussion rather misreads the pose of the right-hand figure holding the astrolabe: not so much “irreverent” or “curious,” the figure deftly lifts the instrument high in order to take a reading.

89. Hillenbrand, “Erudition Exalted,” 189–90, reaches the same conclusion, but prefers Vesel’s identification of the pair as al-Sufi and Ptolemy.