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The Hands of the Pleiades: The Celestial Clock in the Classical Arabic Poetry of Dhū al-Rumma

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Abstract. In the desert poetry of Dhū al-Rumma (d. 117 AH/735 CE), astronomical phenomena sometimes function as familiar celestial timepieces that indicate the poetic timeframe literally and accurately. The literary, lexical, floral and astronomical analyses of a selection from this poetry illustrate the role of the Pleiades star cluster as a celestial clock and illuminate the utility of naked-eye astronomy in interpreting Arabic poetry of the early Islamic period.

1. Introduction and Background

Classical Arabic literature is full of astronomical imagery, much of which is figurative, yet many poetic descriptions of celestial bodies, their movement across the sky and their orientations at specific times reveal that these poets possessed intimate knowledge of the night sky. The Bedouin poet Ghaylān ibn ʻUqba, known as Dhū al-Rumma (77-117 AH/696-735 CE), is known for his vivid descriptions of desert life, and he is often regarded as the last poet to continue the pre-Islamic style of desert poetry: "Dhū 'l-Rummah's poetry is the finest continuation in the Umayyad period of the pre-Islamic poetic tradition, perfected to its fullest capacity and illuminated by this great poet's special interest and outlook"[1]. In addition to desert flora and fauna, the poetry of Dhū al-Rumma contains many references to the appearance and contents of the night sky, which is why it is cited more than that of any other poet in the Abbasid histories of traditional Arab astronomy[2]. The goal of this paper is to reconnect the Arabic poetry with the celestial scenes that it describes and by so doing shed light on the usefulness of considering these celestial scenes in the interpretation of early Islamic poetry.

The ability to reconstruct the night sky as Dhū al-Rumma saw it in his lifetime is critical to the present study, and *Starry Night Professional* astronomical software suited this purpose. The position of a star in the night sky is most dependent upon three factors: the time of night, the day of the year and the latitude of the observer on the Earth. The rotation of the Earth causes stars to appear to move throughout the night such that their full circuit around the observer is accomplished in about 24 hours. Yet

[1]S. K. Jayyusi, *Umayyad Poetry*, in A. F. L. Beeston-T. M. Johnstone-R. B. Serjeant-G. R. Smith (eds.), *Arabic Literature to the End of the Umayyad Period. The Cambridge History of Arabic Literature*, Cambridge, Cambridge University Press, 1983, pp. 387-432:430.

[2]See, e.g., Abū Muḥammad ʻAbdallah b. Muslim Ibn Qutayba, *Kitāb al-Anwā' (fī mawāsim al-ʻArab)*, Hyderabad, Maṭbaʻat Majlis Dā'irat al-Maʻārif al-ʻUthmāniyya, 1956.

because the Earth is also moving around the Sun as it rotates about its axis, the positions of the stars shift slightly when observed at the same hour from night to night, a cycle that takes one year to complete. The location of an observer on Earth also plays a role in the way the sky appears at night, but in this latitude alone matters. Higher northern latitudes will reveal more of the northern sky, and lower northern latitudes will reveal more of the southern sky. Beyond these three factors, the precession of the equinoxes is a 26,000-year cycle in which the positions of stars change as a result of the wobbling of the Earth's polar axis. Although the 1300-year interval since Dhū al-Rumma's time has resulted in noticeable changes in the appearance of the night sky, the change within any individual's lifetime is imperceptible, and so the year of Dhū al-Rumma's death (735 CE) is used for all calculations within the present study. The poetry of Dhū al-Rumma has been published in two editions of his *dīwān*: the 1919 edition of C. H. H. Macartney[3] and the 1973 (reprinted in 1993) edition of 'Abd al-Quddūs Abū Ṣāliḥ[4].

2. The Hands of the Pleiades

8. alā ṭaraqat Mayyun hayūman bi dhikrihā
   wa aydī 'l-Thurayyā junnaḥun fī'l-maghāribi
9. akhā shuqqatin zawlan ka'anna qamīṣahu
   'alā naṣli hindiyyin jurāzi 'l-maḍāribi
10. anākha fa aghfā waq'atan 'inda ḍāmirin
    maṭiyyati raḥḥālin kathīri 'l-madhāhibi
11. bi rīḥi 'l-khuzāmā hayyajathā wa khabṭatun
    min al-ṭalli anfāsu 'l-riyāḥi 'l-lawāghibi[5].

8. Won't Mayya come at night to one amorously mystified by the mention of her [name], when the hands of the Pleiades reach for the western places of sunset,
9. To the perennial fellow of long journeys, vigorous and agile, as if his garment [had been shred] upon the sharp-edged blade of a fine Indian sword,
10. Who made his camel lie down, and took a brief pre-dawn nap next to the lean camel, a riding camel of a skilled and frequent traveler,
11. With the scent of lavender that has been stirred up by the puffs of languid winds and the beads of dew?

The poem begins with the poet seeking the house of Mayya, his beloved, yet when he and his companions call on her, there is no answer. In verse 7, Dhū al-Rumma is shedding tears for her in al-Zurq[6], a sandy part of the desert of al-Dahnā', a narrow

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[3]Ghaylān b. 'Uqba Dhū al-Rumma, in C. H. H. Macartney (ed.), *The Dīwān of Ghailān ibn 'Uqbah known as Dhu 'r-Rummah*, Cambridge, Cambridge University Press, 1919.

[4]Ghaylān b. 'Uqba Dhū al-Rumma, in 'Abd al-Quddūs Abū Ṣāliḥ (ed.), *Dīwān Dhī al-Rumma, with the Commentary of Abī Naṣr Aḥmad b. Ḥātim al-Bāhilī*, Beirut, Mu'assasat al-Risāla, 1973, (3rd ed. 1993).

[5]*Ibid.*, 1, pp. 190-193, no. 5, vv. 8-11.

[6]Yāqūt b. 'Abd Allāh al-Ḥamawī al-Rūmī al-Baghdādī, *Mu'jam al-Buldān*, Beirut, Dār Ṣādir, 3, 1984, p. 137.

desert of red sand that extends from Yabrīn in the central region of modern-day Saudi Arabia toward the northwest in a curving arc[7], and this sets up the apparition of Mayya in verses 8-11.

Al-Thurayyā in this selection is the Pleiades, a very bright cluster of between six and fourteen stars visible to the naked eye, and many more viewable through binoculars or telescopes. In his description of the stars related to *al-Thurayyā*, Ibn Qutayba[8] states that it has two hands, one of which is *al-Kaff al-Jadhmā'* ("the Amputated Hand") and the other *al-Kaff al-Khaḍīb* ("the Henna-Dyed Hand"; see Figure 1). The former hand is identified by the 10th century CE astronomer 'Abd al-Raḥmān al-Ṣūfī as the six brightest stars of the eastern portion of the Greek constellation of Cetus[9]. The latter is represented by the brightest stars of the Greek constellation of Cassiopeia[10]. These ancient designations survive today in the internationally recognized astronomical star names of Kaffaljidhmah (γ Ceti) and Caph (β Cassiopeiae).

The second part of verse 8 contains the information regarding the position of the hands of *al-Thurayyā* in the sky. The phrase *junnaḥun fī'l-maghāribi* ("inclined toward the western places of sunset") indicates that the hands of *al-Thurayyā* have descended toward the western horizon and are on the verge of setting. The identification of the term *maghrib* with the place of sunset (and by extension the time when the Sun has reached that location) is well-understood. Yet the technical prowess of Dhū al-Rumma is revealed by his choice in verse 8 of the plural *maghārib* ("places of sunset") over the singular *maghrib*, for it reveals an early Arab knowledge of the solstices, the furthest points of sunset north or south, and the movement of the Sun along the horizon between these points. Since the end stars of the two hands of the Pleiades (Menkar, which is α Ceti, and Ceph, which is β Cassiopeiae) lie just over 64° part, their simultaneous setting, or inclination toward setting, so far apart would certainly invoke the use of the plural *maghārib*.

Dhū al-Rumma indicates time of night in verse 8 with the verb *ṭaraqat* ("she came at night"). Time of night is more specifically indicated in verse 10, and it is here that the two recensions differ. Although the *dīwān* edited by Abū Ṣāliḥ reads "He made the camel lie down, and so he took a pre-dawn nap", the *dīwān* edited by Macartney reads *sarā thumma aghfā waq'atan* ("He traveled by night, and then he took a pre-dawn nap"[11]). Whether Dhū al-Rumma originally composed *sarā* or *anākha* in this verse, the core meaning is the same: after traveling for some time by night, he made the camel lay down so he could take a nap shortly before dawn. This is also consistent with verse 11, which indicates the presence of dew. The low humidity of desert environments means that dew points are relatively low, and so dew is most likely to form at the end of the night when the temperature has reached its lowest point.

Season is indicated in verse 11, which continues the action of Mayya in verse 8: "Won't Mayya come at night [v.8] … with the scent of *al-khuzāmā*? [v.11]" The

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[7] *Ibid.*, 2, p. 493.

[8] Ibn Qutayba, *Kitāb al-Anwā'* (cit. note 2), p. 32.

[9] Abū al-Ḥusayn 'Abd al-Raḥmān b. 'Umar al-Ṣūfī, *Kitāb Ṣuwar al-Kawākib al-Thamāniya wa 'l-Arba'īn*, Beirut, Dār al-Āfāq al-Jadīda, 1981, p. 260.

[10] *Ibid.*, p. 77.

[11] Macartney (ed.), *The Dīwān of Dhu 'r-Rummah* (cit. note 3), p. 55.

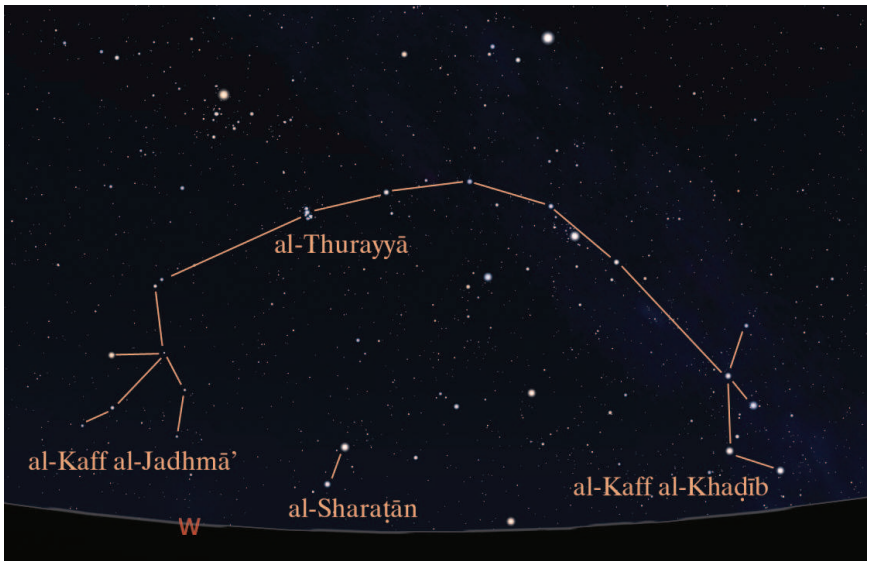

Figure 1. The Pleiades and its two hands as seen from Yabrīn, central Arabia (latitude 23.3° N), looking west-northwest (azimuth 291°), at 4:34 am on 21 October 735 CE. Field of view is 80° wide. Star chart image captured using *Stellarium*.

commentators for both recensions attest to this combined reading of verses 8 and 11[12]. The difficulty with this verse is the word *khuzāmā*, which according to some scholars refers to the lavender, particularly *Lavandula spica*[13]. Other botanical texts, however, identify this plant as *Horwoodia dicksoniae*, a fragrant annual herb with purple flowers[14]. The disparity among the possible identifications for *khuzāmā* makes an enormous difference in the outcome of this study. Flowering in Kuwait February-March[15] or January-April[16], *Horwoodia dicksoniae* is endemic to the Arabian peninsula and Iraq and is consumed by camels in the spring, giving their milk a sweet aroma[17]. Data for the flowering schedule of lavender in the Middle East was available only for the following species: March-October for *Lavandula stoechas*, February-June for *Lavandula pubescens* and March-May for *Lavandula coronopifolia*, all of which prefer arid habi-

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[12]Macartney (ed.), *The Dīwān of Dhu 'r-Rummah* (cit. note 3), p. 55; Abū Ṣāliḥ (ed.), *Dīwān Dhī al-Rumma* (cit. note 4), 1, p. 193.

[13]E. W. Lane, *An Arabic-English Lexicon*, London, Williams and Norgate, 1863-1893, repr. Beirut, Librairie du Liban, 2, 1997, p. 734, *"khuzāmā"*; A. K. Bevedian, *Illustrated Polyglottic Dictionary of Plant Names*, Cairo, Madbouli Bookshop, 1994, pp. 354-355.

[14]V. Dickson, *The Wild Flowers of Kuwait and Bahrain*, London, George Allen and Unwin Ltd, 1955, pp. 53-54; J. P. Mandaville, *Flora of Eastern Saudi Arabia*, London, Kegan Paul International, 1990, pp. 141-143.

[15]H. S. Daoud, *Flora of Kuwait, Vol. 1: Dicotyledoneae*, London, Kegan Paul International, 1985, p. 86.

[16]Dickson, *The Wild Flowers of Kuwait and Bahrain* (cit. note 14), p. 53.

[17]Mandaville, *Flora of Eastern Saudi Arabia* (cit. note 14), pp. 141-142.

tats[18]. Although flowering schedules for lavender were available only for the Levant, the presence of lavender in the Arabian peninsula is well-documented[19]. If *khuzāmā* is identified as *Horwoodia dicksoniae*, then the seasonal context for the selected verse must be spring; if lavender, then the seasonal context could be spring, summer or fall, depending upon the species.

The astronomical analysis of this excerpt begins with the textual requirement that the hands of *al-Thurayyā* be on the verge of setting, but not having set yet. Since the geographical setting for this poem cannot be determined precisely, the whole latitude range of the desert of al-Dahnā' (23°-28° N) must be considered. As seen from central Arabia (latitude 25.5° N) in 735 CE, the first star (ξ Ceti) of *al-Kaff al-Jadhmā'* set 13 minutes before the first star (β Cassiopeiae) of *al-Kaff al-Khaḍīb*. From the latitude of Yabrīn (23.3°), where Dhū al-Rumma was born, the two lowest stars of the hands of *al-Thurayyā* set just one minute apart. Since the whole complex of *al-Thurayyā* and its two hands should be on the verge of setting, *al-Thurayyā* itself should be in the lower half of the sky with a maximum altitude of 45°. When *al-Thurayyā* was in such a position in 735, the lowest star of its two hands (β Cassiopeiae) had an altitude of 14°. That the poet took a "pre-dawn" nap requires that the stars be in the aforementioned positions at the end of the night after a long period of traveling by camel, but before astronomical twilight, when the sky begins to brighten.

Working with the astronomical software *Starry Night Professional* reveals that, as seen from latitude 25.5° in the year 735 CE, *al-Thurayyā* and its hands did not get low enough in the western sky before astronomical twilight began until 6 October. Three weeks later, on 27 October, the two lowest stars of *aydī al-Thurayyā* began to set just as astronomical twilight began. Adjusting the latitude in these scenarios to allow for the full latitude range of the desert of al-Dahnā' (23°-28° N), the resulting range expands by about half a day. The conditions required by the poetry of Dhū al-Rumma, including the flowering of *al-khuzāmā*, correlate with this three-week timeframe, 6-27 October. Figure 1 represents the appearance of the sky over Yabrīn, central Arabia (latitude 23.3° N) on 21 October 735 at 4:34 am.

3. Conclusion: Astronomy as an Interpreter and Influencer of Classical Arabic Poetry

Astronomical analysis for this excerpt demonstrates that Dhū al-Rumma was indeed speaking of literal events in the sky at the time of the action of the selected verses. The stated position of the hands of the Pleiades (*aydī al-Thurayyā*) matches the timing of rest after lengthy night travels, as well as the flowering schedule for one of the varieties of lavender (*al-khuzāmā*). In the case of *Horwoodia dicksoniae*, one of the possible identifications of *al-khuzāmā*, it would contradict the length of night travel, as this flowers only during the spring, when the hands of the Pleiades are already low in the west at the beginning of the evening. Thus, the celestial elements of this excerpt are essential to understanding its seasonal context.

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[18]G. E. Post, *Flora of Syria, Palestine and Sinai*, 2nd ed., Beirut, American Press, 2, 1932, pp. 328-329.

[19]A. M. Migahid, *Flora of Saudi Arabia*, 3rd ed., Riyadh, King Saud University Libraries, 2, 1988, pp. 127-129; K. H. Batanouny, *Plants in the Deserts of the Middle East*, Berlin, Springer, 2001, pp. 78, 113.

This study has demonstrated that the description of celestial objects used in one of the poems of Dhū al-Rumma reflected the actual night sky as it would have been observed at the time in which the poetry was set. Although additional analyses of other examples are beyond the scope of this brief paper, there are many more examples in the poetry of Dhū al-Rumma that demonstrate that he wrote about real astronomical vistas with which he was quite familiar. His knowledge of the night sky and its changing appearance throughout the year is evident in his technical usage of these astronomical objects as celestial timepieces within his poetry. The contents and appearance of the night sky did indeed influence and inspire portions of the poetry of Dhū al-Rumma.

Beyond the poetry of Dhū al-Rumma, the preceding astronomical analysis could be carried out on many other excerpts of classical Arabic poetry. That Arabic poetry is full of astronomical description is not a novel thought. However, this study suggests that poets like Dhū al-Rumma intentionally used well-known stars and established astronomical terminology to set the timeframe for their poetry in a way that would have been readily understood by their audiences. Invoking "the hands of the Pleiades" would have immediately resonated with the hearers of this poetry, and furthermore describing their position as "inclined to the places of sunset" would have generated a rather specific image in their minds. Reuniting the poetry with the astronomical knowledge that inspired it leads to a more complete understanding of the poetry itself. With this understanding, it is fitting that astronomy should now serve the academic community as an interpreter of classical Arabic poetry's celestial clock.

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