The Arabs' Visions of the Upper Realm

Abeer Abdullah Al-Abbasi
King Abdul-Aziz University

"We can no longer afford the stalemate of past centuries between theology and science, for this leaves nature Godless and religion worldless."

Robert John Russell,
Director of the Center for Theology and the Natural Sciences

Introduction

Pre-Islamic (Jāhilī) Arabs viewed the heavens with great respect, admiration and fear. They held the stars responsible for every event that took place in the earthly realm. Accordingly, they shaped their entire lives in accordance with their interpretations of astral configurations and phenomena. They adopted irrigation techniques, for instance, based on their observations of the rising and setting of certain star clusters. They also adapted their pastoral activities to meet the weather expectations of these constellations (*anwā'*). Nonetheless, based on a pagan perception that regarded these heavenly objects as divine mediators, some pre-Islamic pagan Arabs refrained from initiating major or minor activities (such as starting a new business, relationship or even consuming certain types of medicine) without first consulting a soothsayer who was adept at deciphering heavenly signals.

Soon after the emergence of Islam on the Arab Peninsula, there was an ideological shift in society whereby respect, admiration and fear of the heavens was re-directed by Muslims towards their Creator. The Qur'an provides a glimpse into the nature and function of the heavenly bodies based on the recognition of a Great Omnipotent who structured the cosmos for the benefit of mankind. This came in contrast to the Jāhilī view which regarded mankind as being subjected to irrational dogmas and unknowable and arbitrary powers of the universe.

In viewing the cosmos through a monotheistic lens, Islam vehemently opposed the practice of consulting the stars for divinational purposes. This was regarded as being the handmaiden of pagan ideologies. At the same time Muslims were encouraged to take a more scientific approach, a holdover from the pagan era. This shift of Jāhilī's view of the cosmos led to notable contributions to the science of the stars by Medieval Muslim scholars. These contributions contradict a persistent myth which views scientific development and religious faith as mutually exclusive.

This study offers an avenue into specific passages in the Qur'an where cosmological connotations had the purpose of reshaping the mindset of believers by offering guidelines for a comprehensive framework that took into account both the materialistic and spiritual dimensions of the universe. The theological approach employed here examines the similarities and differences between the pre-Islamic view of the universe and the Qur'anic cosmological model that is based upon a set of Qur'anic verses and their traditional interpretations. In regards to this point, it might be sufficient to clarify that this study espouses neither concordistic nor complementarianistic perspectives: it does not attempt to transfer the cosmological implications of the Qur'anic texts into a modern context, nor treat them as being totally independent from such connotations.

In a nutshell, by demonstrating the role Islam played on changing the Arab perception of the universe that led eventually to the notable contributions medieval Muslims made to the science of the stars, the study aims to highlight that what can be gained from bridging the gap between science and religion would far outweigh the previous separation of the two.

The Design of the Cosmos, its Function and Essence: The Pre-Islamic View

The pre-Islamic Arabs, particularly those inhabiting the Arabian Peninsula, had a profound knowledge of the disposition and movement of the stars as they were of crucial importance to those who relied on them to perform activities that were essential to their life. Daniel Varisco notes that: 'individual stars and asterisms were used for defining the directions of the winds, timing of rain, planting crops, pastoral activities, pearling and fishing seasons, and the like'.[1] Thus we will briefly

[1] Daniel Varisco, 'Stars and texts in Arabia', *Essays from Archaeoastronomy & Ethnostronomy News, The Quarterly Bulletin of the Center for Archaeoastronomy*, in http://www.wam.umd.edu/~tlaloc/archastro/index.html (Number 16, June Solstice 1995) [accessed 17/ 03/2008], p. 2.

discuss various aspects of the upper realm – such as certain indigenous Arabic star names, the lunar mansions, the *anwāʾ* (constellations), the planets and the signs of the zodiac– that particularly affected the pre-Islamic Arabs' relationship with the cosmos and that formed the fundamental principles of astronomy known to the ancient Arabs. Yet as investigating the effect of the upper realm on the mundane life is our approach to elaborate on the notion of a 'coherent world', as conceived by the Arabs, it is, therefore, the astrological significance of the stars, which was inseparable from the Arabs' astronomical understanding of their positions and movements, that will be of prime concern here. In this regard, as there are few references to the subject of the astrology of the *Jāhilī* Arabs,[2] the prime sources that will guide our discussion are ʿAbd ar-Raḥmān aṣ-Ṣūfī's *Ṣuwar al-Kawākib*,[3] *al-Āthār al-Bāqiya ʿan al-Qurūn al-Khāliyya* of al-Bīrūnī,[4] al-Marzūqī's *Al-Azmina wa al-Amkina*,[5] and al-Baghdādī's *Khizānat al-Adab*, particularly volume three. The discussion will also rely on a few lexicons.[6]

Although there are no surviving theoretical texts that indicate the extent of astronomical knowledge among the pre-Islamic Arabs, a close examination of their literature reveals that they had a substantial knowledge of the nature of the celestial world and were well acquainted with its natural effects upon the earth.[7] Thus they were familiar with a great many individual stars and clusters of

[2] Jawād ʿAli, *Al-Mufaṣṣal fī Tārikh al-ʿArab qabl al-Islām* (Beirut: Dār al-ʿIlm liʾl-Malāyīn and Baghdad: Maktabat al-Nahḍa, 10 vols, 1970), vol. 8, p. 423.

[3] ʿAbd ar-Raḥmān Ar-Rāzī aṣ-Ṣūfī, *Ṣuwar al-Kawākib ath-Thamāniyya wa al-Arbaʾīn* (Beirut: Dār al-Āfāq al-Jadīda, 1981).

[4] Regarding this work, it is important to draw attention to a number of contradictions. Al-Bīrūnī summarises the information given in the written text in a table designed to make it easy for his readers to understand the subject under discussion. Although the table is indeed very helpful, al-Bīrūnī sometimes classifies certain lunar mansions as considered auspicious or inauspicious, in a way that is incompatible with what is stated in the text. For example, while he states in the text that *Saʿd al-Sūʿūd*, one of the lunar mansions, was considered by the Arabs as a great benefic, we find that in the table it was regarded as a malefic. See the table of '*Aḥwāl al-Manāzil*', or 'The States of the Lunar Mansions', in Abū ar-Rayḥān Muhammad ibn Ahmad al-Bīrūnī, *Al-Āthār al-Bāqiya 'an al-Qurūn al-Khāliya*, ed. C. Eduard Sachau, (Leipzig: Otto Harrassowitz, 1923), pp. 327-328. Therefore, in discussing the astrological implications of the lunar mansions and the stars that form them we choose to rely on the text, as being consistent with other references used in this study.

[5] Abū ʿAli Ahmad ibn Muhammad al-Marzūqī, *Al-Azmina waʾl- Amkina*, ed. Muhammad ad-Dulaymī (Beirut: ʿĀlam al-Kutub, 2 vols, 2002).

[6] These are in particular: Abū al-Faḍl Jamāl ad-Dīn Ibn Manẓūr, *Lisān al-ʿArab* (Beirut: Dār Ṣādir wa Dār Beirut, 15 vols, 1956), and Edward William Lane (ed.), *An Arabic-English Lexicon* (London & Edinburgh: Williams and Norgate, 4 vols, 1863).

[7] See the first three sections of chapter one of Shihāb ad-Dīn Ahmad an-Nuwayrī, *Nihāyat al-Arab fī Funūn al-al-Adab* (Cairo: Maṭābiʿ Kustāmus, 18 vols, 1965), pp. 27-102. To know more about the relation between the ancient Arab and astronomy see ʿAli's *al-Mufaṣṣal*, vol. 8, pp. 423-35.

stars, or asterisms,[8] and in order to have a comprehensive understanding of them, they adopted certain astral systems, and elaborated greatly on them. The lunar mansions, or stations of the Moon[9] are a system of 28 stars, groups of stars, or areas in the sky[10] near which the moon is found in each of the 28 nights of its monthly revolution,[11] was one of the systems, maybe of Indian origin transferred through channels as yet unknown,[12] that Arabs used in pre-Islamic times. Regarding their functions, Nallino comments:

> In their frequent night-journeys the Bedouin often had no other guide than the moon and the bright stars, whose places of rising and setting they knew and from which they could estimate approximately the time by night; they determined also seasons of the year from observing the position of the moon relatively to 28 successive groups of stars called lunar stations (*manāzil al-kamar*).[13]

To determine accurately the period of each lunar mansion, Arabs employed the system of 48 *anwāʾ*, or constellations (singular *nawʾ*),[14] 'which are merely devices for assisting in the location and recognition of a star'.[15] They are groups of stars covering areas larger than the lunar mansions by

---

[8] For information on the auspicious or inauspicious nature of stars as conceived by the Arabs see Paul Kunitzsch, *Stars and Numbers: Astronomy and Mathematics in the Mediaeval Arab and Western World* (Burlington and Vermont: Ashgate Variorum Publishing Limited, 2004), pp. 246-48.

[9] The twenty-eight lunar mansions that Arabs knew are respectively as follows: the Northern *anwāʿ* (or Shāmiyya) and those are: *ash-Sharṭān*, *al-Buṭayn*, *ath-Thurayyā*, *ad-Dabrān*, *al-Haqʿa*, *al-Hanʿa*, *adh-Dhirāʿ*, *an-Nathra*, *aṭ-Ṭarf*, *al-Jabha*, *Zabrat al-Asad*, *aṣ-Ṣarfa*, *al-ʿAwwāʾ*, *as-Simāk al-Aʿzal*; and the southern *anwāʿ* (or Yanāniyya) and those are: *al-Ghafr*, *az-Zubānā*, *Iklīl al-ʿAqrab*, *Qalb al-ʿAqrab*, *ash-Shawla* (*Ibrat al-ʿAqrab*), *an-Aaʿāʾim*, *al-Balda*, *Saʿd adh-Dhābiḥ*, *Saʿd Bulaʿ*, *Saʿd as-Suʿūd*, *Saʿd al-Akhbiya*, *al-Fargh al-Awwal* (or *Fargh ad-Dalū*), *al-Fargh ath-Thānī*, *ar-Rishāʾ*. For more information about these 28 lunar mansions see al-Bīrūnī, *Al-Athār al-Bāqiya*, pp. 336-47; and Zakariyyā ibn Muhammad al-Qazuīnī, *ʿAjāʿib al-Makhlūqāt wa Gharāʿib al-Mawjūdāt* (Beirut: Dār ash-Sharq al-ʿArabī, 2006), pp. 40-46.

[10] Sometimes the lunar mansion designates a region void of stars, such as *al-Balda*, located between *an-Naʿāʾim* and *Saʿd adh-Dhābiḥ*. (See ibid, p 351).

[11] Ibid., p. 374.

[12] Paul Kunitzsch, 'Al-Manāzil', in *Encyclopaedia of Islam - new edition*, Gibb, H. A. R. *et. al*. (eds.), (Leiden: E. J. Brill and London: LUZAC & Co., 12 vols, 1960- 2004), (henceforth *E.I*.), vol. vi, p. 374.

[13] See C. A. Nallino, 'Astronomy', in Nallino, C. A., 'Astronomy', in *First Encyclopediea of Islam* (henceforth *First E. I*.), ed by M. Th. Houtsma *et al*., (Leiden & New York: E. J. Brill, 9 vols, 1987), vol. 1, p. 498.

[14] The most important resource for such information is aṣ-Ṣūfī's *Ṣuwar al-Kawākib*, in which the author provides two images of each constellation, one a mirror of the other. This is, according to Edson and Savage-Smith, because 'the earth was imagined at the centre of the globe, while the stars were placed on the surface of the globe. The resulting model presented the stars from the viewpoint of an observer placed outside the sphere of stars, with the effect that the relative positions of the stars are the reverse of their appearance when viewed from the surface of the earth'. Edson, E. & Savage-Smith, E., *Medieval Views of the Cosmos* (Oxford: The Bodleian Library, 2004), p. 33.

[15] Ibid.

observing and recording the acronychal setting of a star or constellation and the heliacal rising of its opposite (*raqīb* or watcher), the ancient Arabs managed to mark the beginnings of the periods. Besides being a pre-Islamic system of weather-prediction, particularly for meteorological phenomena such as rains and winds, the *anwāʾ* enabled the Arabs to determine seasons as well. On the function of the *anwāʾ*, Pellat notes that: 'the heliacal rising of […] stars or constellation, at six monthly intervals, marked out the solar year by fixing a number of periods probably 28'.[16] The Arabs adjusted the system of *anwāʾ* to make them coincide with the lunar mansions; this was done by dividing the zodiac into 28 equal parts of approx. 12° 50. Thus the 28 *manāzil* are determined by 28 stars or constellations constituting 14 pairs, the acronychal setting of the one corresponding to the heliacal rising of the other, and marking the beginning of 27 periods of 13 days and one of 14.[17] Thus the solar year of 365 was divided by these 28 constellations, 'which provided an alternative to the twelve divisions of the signs of the zodiac'.[18]

Besides their astronomical and meteorological functions, these two systems were also considered to be of astrological significance.[19] The earthly sphere and the heavens were seen as linked in a relationship in which the former was dependent on the latter. The cosmos was regarded as useful to mankind as well as beautiful, and the heavens' astrological function was crucially important to the *Jāhilīs* as a means of knowing the future. Divination (*kihāna*) of various kinds played a major role in shaping the ideology of the pre-Islamic world. Various forms of supernatural perceptions were practised by the soothsayers (*kuhhān*), to whom people turned when facing problems of both major and minor impact on their life. According to Ibn Khaldūn, 'The Arabs used to repair to soothsayers in order to learn about forthcoming events. They consulted them in their quarrels, to learn the truth by means of supernatural perception. Their literature contains much information

[16] Charles Pellat, 'anwāʾ', in *E. I.*, vol. 1, p. 523.
[17] Pellat comments on this task that: 'these modifications, the date of which cannot be fixed accurately, were definitely completed after Islam, the passage from one system to the other being favoured by the development of astronomy, and by the anathema hurled by the Prophet against *anwāʾ*, which are not mentioned in the Kurʾān' (ibid.). However, the act of attributing the falling of rain to *anwāʾ* and not God is condemned in both the Qurʾān and an authorised Ḥadīth, as will be shown when we come to discuss the orthodox view of the cosmos. This confirms that the two systems were well known in the pre-Islamic Arabs and were the basis upon which mediaeval Islamic astronomy built its principles.
[18] Charles Burnett, 'Weather Forecasting in the Arabic World, in *The Formation of the Classical Islamic World: Magic and Divination in Early Islam* (Aldershot: Ashgate Variorum, 2004), p. 203.
[19] E. Edson & Savage-Smith, *Medieval Views of the Cosmos*, p. 40.

about this matter'.[20] The accuracy of divinatory predictions seems to have been the main factor in the spreading of the good reputation of *kihāna*.[21]

Soothsayers tended to practice several forms of divination to either reveal the future or interpret the past of a client: besides being foretellers of coming events, they were also interpreters of dreams, geomancers or sand writers, and astrologers. Also, among the forms of divination practiced by *kuhhān* were those noted by Ibn Khaldūn in his *Muqaddimah*: gazing into transparent bodies such as mirrors or bowls of water; examining the hearts, livers, and bones of animals; drawing auguries from birds and wild animals; casting pebbles, grains of wheat, or date pips.[22]

Thus, astral phenomena were among the many natural tools that *Jāhilī kuhhān* utilised in making their predictions.[23] Moreover, soothsayers incorporated some astral terminology in their language to gain admiration and power; they would send their divinations to their clients with an oath sworn in the name of some astral phenomena and certain heavenly bodies. A case in point is the famous soothsayer az-Zabbāʾ[24] and the speech she delivered to her tribe when predicting a coming disaster. Here we should note that pre-Islamic *kuhhān* used to proclaim their predictions in rhymed prose of lofty style and cryptic oracular diction for the purpose of making vague but impressive statements, in order to maintain power. A more or less literal translation of her words, which loses much of the rhetorical power of the original, is as follows:

> I swear by the dim dark night, by the clapping ear, by the rising morning, by the knocking star, by the falling rain, that there is a burning disaster laying in ambush behind the trees of the valley, and the stone of the mountain foretells of a

[20] ʿAbd ar-Raḥmān ibn Khaldūn, *The Muqaddimah: An Introduction to History,* Franz Rosenthal (trans.), (Princeton & Oxford: Bollingen Series, Princeton University Press, 2005), p.84.
[21] See the story of Hind bint ʿUtba and the Yemeni soothsayer: he declared her innocent of a charge of adultery brought by her husband, al-Fākih ibn al-Mughīra and foretold to her that she would give birth to a boy who would become a king and rule the entire Arab world. The prophecy came true, since the child was Muʿāwiya ibn Sufyān, the founder of the Umayyad Empire. This incident demonstrates clearly how the soothsayers of that time were greatly feared and respected as they were considered to be possessors of esoteric knowledge that could contribute to the formation of one's fate. (See Shihāb ad-Dīn Muhammad al-Ibshīhī, *Al-Mustaṭraf fī kulli Fannin Mustaẓraf* (Beirut: Muʾassassat Dār an-Nadwa, 2 vols., n.d.), vol. 2, pp. 87-88.
[22] Ibn Khaldūn, *The Muqaddimah,* Rosenthal (trans.), p.84.
[23] For more information regarding the different approaches of *kihāna* see as-Sayyid Mahmūd Shukrī al-Baghdādī al-Alūsī, *Bulūgh al-Arab fī Maʿrifat Aḥwāl al-ʿArab*, ed. Muhammad Bahjat al-Athīrī (Cairo: Maṭābiʿ Dār al-Kitāb al-ʿArabī, 3 vols, 1964), vol. 3, pp. 269-70.
[24] She was one of the famous sorceresses of the pre-Islamic era. For her biography see ibid., pp. 288-91.

> destructive death that will leave a great number of widows. It is an inescapable curse.[25]

It is, then, in the pre-Islamic tradition of connecting natural phenomena to human fortunes that the roots of the Arabs' astrology can be identified.

Roughly speaking, the scope of *Jāhilī* Arab astrology was twofold: (1) natural: this aimed at predicting events that would have a major effect on the whole population, such as war, natural disasters, or epidemics (az-Zabbāʾ's speech refers to such an incident); and (2) nativity or *mawālīd*: this was another popular form of astrological prediction, relating all the major events of a person's life to a chart of the planetary positions at the moment of the individual's birth. Evidence of the latter is given by al-Masʿūdī in his *Murūj adh-Dhahab*: one of the methods of choosing a soothsayer (*kāhin*) was linked to a supposed astral effect; the ancient Arabs believed that a person born under the sign of Mercury or at a time of a great conjunction would become a significant soothsayer.[26] However, in the absence of any historical material that can illustrate how the ancient Arabs were able to chart stellar movements, and how they were able to elaborate the characteristics of the planets and their influences upon those born under their signs, the early history of Arab astrology remains deeply obscure. The rare material we have regarding the methods employed by pre-Islamic *kuhhān* to predict the future by reference to astral phenomena demonstrates that they relied heavily on the lunar mansions, constellations, and comets and meteors and rarely on the planets and the signs of zodiac; this will be discussed shortly.

Al-Bīrūnī in his *al-Āthār al-Bāqiya* comments briefly on the lunar mansions and gives a brief explanation of the stars that form each of them. Yet as the concern of this paper is to investigate the Arabs' view of the heavens, particularly in relation to their being a means of knowing the hidden

---

[25] Ibid., pp. 288-89. The original text reads as follows: "*wa'l-layili al-ghāsiq; wa 'l-lawḥi al-khāfiq; wa 'ṣ-ṣubḥi ash-shāriq; wa'n-najmi aṭ-ṭāriq; wa 'l-muzni al-wādiq, in-na shajara al 'l-wādī la-ya'dū khatlā, wa- yaḥriqu anyāban 'uṣlā; wa in-na ṣakhr 'aṭūdi la yundhiru thukalā, la tajidūna 'anhu mu'lā*." It is related that some people did not take her prediction seriously and mocked her, while others believed her and left the place where the disaster was expected to take place. The prediction came true and the mockers perished. (See ibid.)

[26] See Abū al-Ḥasan ʿAli al-Masʿūdī, *Murūj adh-Dhahab wa Maʿādin al-Jawhar* (Beirut: al-Maktaba al-ʿAṣriyya, 4 vols, 2005), vol. 2, p. 134.

future, it is only the lunar mansions that have astrological significance that will be considered here.[27]

It seems that the astrological significance of a particular lunar mansion was sometimes deduced from the 'effect' of the *anwāʾ* associated with its appearance. The most important and well known of the mansions was probably *ath-Thurayyā* (the Pleiades), the third lunar mansion, which consists of a group of six stars that look like a cluster of grapes. *Ath-Thurayyā* was especially significant because of its supposed meteorological effect resulting from the *nawʾ* associated with the abundance of rain that followed a season of intense drought,[28] and even the word *Thurayyā*, derived from the roots th (ث), r (ر), and w (و) signified the wealth that would be gained by those working in agriculture. Moreover, in regard to the purely human frame, it was believed to be especially beneficial, mainly because of the dangers to health associated with that period of the year.[29] It is related that the healers of that period used to say 'If you could guarantee for me safety from infections during the appearance of that lunar mansion, I would guarantee good health for the whole year'.[30] It should be noted that *an-Najm* (the Star) always signifies *ath-Thurayyā*. *Ath-Thurayyā* is always followed by the star called *ad-Dabrān* (Aldebaran), also known as *at-Tābiʿ* (the follower). So, whenever the expression *an-Najm wa Tābiʿuh* (the Star and its follower) is encountered in a text then it should be understood as identifying *ath-Thurayyā* and *ad-Dabrān*. The interstices between two mansions are generally called *furja* or *ḍayqa*.[31] The ancient Arabs regarded all of

[27] Here we should draw the reader's attention to the fact that predicting the future in pre-Islamic period did not depend on using astronomical tools such as astrolabe* and other devices that later became known to the Mediaeval Islamic world; rather *kuhhān* relied on observations of the sky (and the aid of jinn).
* The astrolabe was a Hellenistic invention, but its design and production were perfected in the Islamic world. Ibn Khallikān's account of the origin of the astrolabe is colourful but dubious: 'Ptolemy invented the astrolabe by accident. He was out riding his horse one day and dropped the celestial globe he was carrying, whereupon his mount stepped on it and crushed it and so the astrolabe was created'. (Cited in E. Edson & Savage-Smith, *Medieval Views of the Cosmos*, pp. 42-43). Discussion of Ibn Khallikān's passage is to be found in David King, 'Origin of the Astrolabe according to the Medieval Islamic Sources', *Journal for the History of Arabic Sciences* 5 (1981): pp. 48-83, (particularly pp. 60-61).
[28] This dry season was associated with *nawʿ al-Buṭayn* which was regarded as the worst of all *anwāʿ* mainly for this reason.
[29] To give a more scientific explanation: this association was made because the Moon is in this lunar mansion on 12 November; at this time of year the change in the weather from hot to cold causes certain infections to become more active.
[30] Al-Bīrūnī, *Al-Āthār al-Bāqiya*, p. 342.
[31] Paul Kunitzsch, 'Al-Manāzil', in *E. I.*, vol. vi, p. 375.

these as auspicious except one: whenever the Moon passed across the *ḍayqa* between *ath-Thurayyā* and its follower *ad-Dabrān* bad omens would be drawn.[32]

Another mansion that had a bad reputation was the tenth, *al-Jabha*, consisting of four stars, two pairs parallel to each other, forming the neck and heart of Leo. It was claimed that staring at these stars might have harmful consequences and could even deprive a person of his sight. *Al-Ghafr*, however, the fifteenth lunar mansion, which is a cluster of three moderately bright stars, was believed to be particularly auspicious and the most beneficial of all the lunar mansions, mainly because it is situated in the left foot of Virgo, far from the Leo whose claws and fangs are attacking Scorpio. At this time the Moon stands in Leo, its governor and its domicile (*bayt*), where its influence was regarded as particularly great. Yet when in Taurus, the Moon attains its maximum influence or 'exaltation' (*sharaf*) and was thus considered a sign of the most auspicious time for initiating ventures. In contrast, the Moon is regarded as inauspicious when it stands in the sign diametrically opposite to its exaltation, as it is said to stand in its dejection, or 'depression' (*hubūṭ*); it was believed that marriage and travel in particular should be avoided when the Moon is in Scorpio.[33] Among the other lunar mansions regarded as auspicious was the twenty-fourth, *Saʿd as-Suʿūd* (the greatest of the benefices), a group of three stars, one of which is much brighter than the others. The Arabs greatly welcomed the appearance of those stars as they signaled the end of the cold season and the beginning of the rainy season. One can imagine the importance of that seasonal change for the nomadic people of the desert and its significance for almost all their activities.

Astrological omens were not limited to the lunar mansions; certain stars and constellations were also a source of divination. Among the many stars that the pre-Islamic Arabs identified was *Raʾs al-Ghūl* (*Caput Algol*), a fixed star in the head of the dragon (*ghūl*) in the constellation of Perseus (between Taurus and Cassiopeia)[34] *Raʾs al-Ghūl* was the most evil star in the heaven and of dreadful astrological significance as it was believed to presage decapitation. So, for pre-Islamic Arabs the appearance of Perseus denoted bloodshed and beheading.[35]

---

[32] Al-Marzūqī, *Al-Azmina wa 'l- Amkina*, vol. l, p. 175; and al-Bīrūnī, *Al-Āthār al-Bāqiya*, p. 315.
[33] See Abū al-Qāsim ʿAli ibn Mūsā ibn Ṭāwūs, *Faraj al-Mahmūm fī Taʿrīkh ʿUlamāʿ an-Nujūm* (Qumm: Manshūrārt ar-Riḍā, 1363 H.), p. 113, and al-Qazuīnī, *ʿAjāʾib al-Makhlūqāt*, p. 44.
[34] See aṣ-Ṣūfī, *Ṣuwar al-Kawākib*, p. 81.
[35] See Vivian Robson, *The Fixed Stars & Constellations in Astrology* (Abingdon: Astrology Classics, 2005), p. 124.

Extraordinary celestial events were also of astrological significance in *Jāhilī* astrology. The appearance of comets for example was considered to be especially ominous. They were regarded in particular as signs of great historical events. In an anonymous early eleventh-century Arabic treatise, *Kitāb Gharāʾib al-Funūn wa Mulaḥ al-ʿUyūn* (*The Book of Curiosities of the Sciences and Marvels for the Eyes*), we find the following:

> If the comet known as 'The Lamp' appears in the east, it is a sign of a great famine in that region, fires, civil wars, bloodshed, and abundance of thunderbolts. It also foretells flames of no known cause destroying forests and inhabited regions, setting ablaze the mansions of kings and especially those which they have erected for themselves, corrupting the fruits, drying up the springs and the rivers and bringing heat to the horizons. And there is a multitude of shooting stars. If this comet appears in the west and the south, it is a sign of civil war erupting in the midst of the region in which it appeared, bringing cruelty, wars and the corruption of crops in the west.[36]

Indeed comets played a great role particularly in predicting events of great historical impact. A Jewish sage who was claimed to have predicted the coming of the Prophet Muhammad, based his prediction on the rise of a red comet, whose rising soothsayers always associated with the birth of a Prophet.[37]

Besides the fixed stars, the pre-Islamic Arabs also knew the seven planets,[38] which they referred to as the movable stars, *an-Nujūm as-Sayyāra*, as they moved, the Arabs believed, forwards and

---

[36] The passage is cited in Edson & Savage-Smith, *Medieval Views of the Cosmos*, pp. 41-42. Online access to the manuscript of *The Book of Curiosities* is provided by the University of Oxford's Bodleian Library, which has in collaboration with the Oriental Institute, mounted the publication on a dedicated website, [accessed November 11, 2007],<http://www.bodley.ox.ac.uk/bookofcuriosities>.

[37] Abū al-Fidāʾ al-Ḥāfiẓ ad-Dmashqī ibn Kathīr, *Al-Bidāya wa ʾl-Nihāya* (Beirut: Dār al-Kutub al-ʿĪlmiyya, 15 vols, 1997), vol. 2, pp. 212-13. This celestial omen evokes the Star of Bethlehem's prediction that is mentioned in the Gospel, according to Mathew, and announced the coming of the Saviour-King (Jesus Christ). See *Encyclopædia Britannica Online*, s. v. "Star of Bethlehem,", http://www.britannica.com/EBchecked/topic/63440/Star-of-Bethlehem. [accessed December 09, 2013].

[38] The table below gives the names of the seven planets known to the pre-Islamic Arabs and the equivalents in English and Persian, and the descriptions assigned to some of them regarding either their physical appearance or behaviour, whenever possible, as believed in pre-Islamic Arabia.

backwards, in accordance with and against their spheres.[39] But the planets, with the exception of the Moon, did not play a significant role in pre-Islamic astrology. It was the Moon, in particular, that was of crucial importance for pre-Islamic astrology, as the 28 lunar mansions and the constellations associated with them that formed the art's basic principles. This is not to say that the planets played no role in predictions of the future. Some significant historical events were predicted from the appearance of certain planets. We mentioned above that Arabs believed that those born under the influence of Mercury were more likely to become soothsayers.

The signs of the zodiac were also known to the pre-Islamic Arabs. However, the conception of pre-Islamic *kuhhān* was different from that of the astrologers of the later periods, particularly the Abbasid.[40] They were familiar with the twelve signs of the zodiac, giving them names equivalent in meaning to the Latin, sometimes with slight differences: Pisces is called the two fishes; Aquarius, the pourer of water, Gemini, the twins; Aries, the ram; Capricorn, the goat. Virgo, however, was called *as-Sunbula*, an ear of corn, though it was also known as *al-ʿAdhrāʾ*, the Arabic for virgin.[41] However, they seem to have lacked knowledge of the division of the ecliptic into 12 equal segments, each of 30°, as was the case later in the Abbasid period; hence they divided the ecliptic into 28 segments as it was the lunar mansions that were of significance to them. Thus Leo and Scorpio were extended so that Cancer, Virgo, and Libra were not included in their ecliptic. Thus, in the explanation of the constellation az-Zabānā, given in the *Book of Curiosities*, we find

The Arabic term	the Arabic description	English	Persian
Qamar	___	Moon	*māh*
ʿUṭārid	*al-Kātib,* or the writer	Mercury	*tīr*
Az-Zahra	___	Venus	*anāhīd*
Ash-Shams	___	Sun	*mihr, khurshīd*
Al-Marrīkh	*al-Ahmar,* the red.	Mars	*bahrām*
Al-Mushtarī	___	Jupiter	*hurmus*
Zuḥal	*al-Muqātil,* the fighter	Saturn	*kaywān.*

See Paul Kunitzsch, 'Al-Nudgūm - II. The Planets', in *E. I.*, vol. viii, p. 101.

[39] Al-Marzūqī, *Al-Azmina wa al-Amkina*, vol. 1, p. 182.

[40] Al-Bīrūnī, *Al-Āthār al-Bāqiya*, pp. 238- 39.

[41] See As-Sayyid Mahmūd Shukrī al-Baghdādī al-Alūsī, *Bulūgh al-Arab fī Maʿrifat Aḥwāl al-ʿArab*, ed. Muhammad Bahjat al-Athīrī (Cairo: Maṭābiʿ Dār al-Kitāb al-ʿArabī, 3 vols, 1964), vol. 3, pp. 241-43. Commenting on the modifications the pre-Islamic Arabs made to the names and forms of the constellations in accordance with their own ideas and beliefs, Edson and Savage-Smith suggest that they did so to fit their Bedouin environment. They state that 'in the Arabic treatises, the Greek mythological prototypes for these constellations (Orion, Perseus, Andromeda, etc.) were transformed, with garments, hair-styles, and jewelry changed to confirm to the fashions and artistic conventions at the time and place of production. So, the lion's skin which according to Greek tradition hung cover the hunter Orion in his constellation was converted in the Islamic world into a very long sleeve'. (Edson & Savage-Smith, *Medieval Views of the Cosmos,* p. 34). Thus, these modifications had been done to make appeal to the pre-Islamic life-style.

the following information: it is 'a large star in the constellation of Libra. In antiquity the constellation now known as Libra was seen as the two claws of a scorpion, with Scorpio and Libra essentially combined into one constellation'.[42] Moreover, another example on the limited knowledge of the pre-Islamic Arabs regarding the signs of the zodiac, is that they mistakenly identify some signs of the zodiac with certain fixed stars: for instance, they identified a star in the constellation of al-Jabbār (Orion) as the Twins (al-Jawzāʾ).[43]

Literary evidence shows that the Arabs of *Jāhilī* society were well acquainted with the geocentric model of the universe, yet what they knew about the astrological meanings associated with the zodiac and planets was extremely limited or at least was exclusive to the *kuhhān* and hidden from the public. References in poetry are evidence of this. The pre-Islamic poet, ʿAntara al-ʿAbsī (d. 8 B.H./ 614 A.D.), in praising the Persian king, Anūsharwān compares him to the Moon when in conjunction with Kaywān, or Saturn:

yā qiblat al-quṣṣādi ya tāj al-ʿulā ... ya badra hadha al-ʿaṣri fī kīwānihi. [44]

[Oh you, you are is a Mecca for pilgrims and the Crown of the highest honour; you are the Moon in conjunction with Saturn.]

Because he is praising a Persian king, the poet used the Persian term for Saturn, which shows that the Persian equivalents were already known to the Arabs of that time, possibly through a Persian channel; i. e. the Lakhmids of al-Hirah (Southern Iraq and Northern Arabia), who were Persian allies.[45] Knowledge of the physical Greek model of the universe is also included in this line, but with an apparent lack of understanding of the fundamental astrological significance of the image. To express Anūsharwān's exalted position the poet places the Moon, the emblem of kings in classical Arabic literature, in conjunction with Saturn, the highest of all planets in the Ptolemaic model of the universe, despite its being the worst of the malefic planets, and a sign of misfortune. The ʿAntara presents a malignant configuration: Anūsharwān is a misfortune to his nation, a

[42] This information is to be found in Emilie Savage-Smith and Yossef Rapport (eds.), *The Book of Curiosities: A critical edition*, World-Wide-Web publication. www.bodley.ox.ac.uk/bookofcuriosities (March 2007), Chapter 4: 'On knowledge of thirty stars with occult influences', fol. 11b, (folio side: the right column), [accessed 11 November 2007].
[43] Al-Bīrūnī, *Al-Āthār al-Bāqiya*, p. 238.
[44] *Kitāb ʿAntara ibn Shaddād*, (Beirut: al-Maṭbaʿa al-Adabīyah, 5 vols, 1883, Author is not cited), vol. 1, p. 138.
[45] See C. E. Bosworth, "ʿARAB i. Arabs and Iran in the pre-Islamic period", in *Encyclopæda Iranica*, online version: http://www.iranicaonline.org/articles/arab-i, [accessed November 25th, 2013].

meaning far from the poet's intention. ʿAntara's lack of proper knowledge of the astrological significance of this heavenly configuration would have made his panegyric seem like a satire to a late mediaeval reader.

Regarding the physical aspects of the cosmos, the pre-Islamic Arabs' knowledge of their nature was not limited to the fixed and movable stars; they saw *al-Majarra* (the Galaxy, known in Europe as the Milky Way), merely as a white stain shown on the heavens, and called it *umm an-Nujūm ash-Shawābik* (the mother of the netted, or interwoven, stars), and hence also as *Farj as-Samāʾ* (the vagina of the heavens).[46] No evidence survives for any mythical significance that might explain the motivation behind this particular term. However, this does not mean that the pre-Islamic Arabs did not mix their knowledge of the physical cosmos with myth. According to Seyyed Hossein Nasr, 'the pre-Islamic Arabs […] had a great love for Nature and like all the nomads who wander endlessly in the great expanses of virgin Nature had a deep intuition of the presence of the invisible in the visible'; [47] and indeed, although the pre-Islamic Arabs seem to have had a deep knowledge of certain aspects of the visible heavens, their intuition of the structure of the cosmos was built on a mythical understanding. In their attempt to understand the apparent order and stability of the universe, they pictured the primordial Earth as rolling like a ship; so the Creator ordered an angel of great power to hold it on his back, his right hand grasping the east side of the earth, his left gripping on the west. To enable him to stand firmly, God then created underneath the angel's feet a great stone made of red ruby with seven thousand holes, each containing a huge sea. A giant bull, called Kayūth, with 4,000 ears, noses, eyes, tongues, and limbs was ordered to hold the stone between his horns. To make this still precarious structure more stable, a gigantic whale, called Bahmūt, was ordered to hold the bull on its back. Under the whale was water, under the water, air, under which was also water; finally, below the lower water was darkness, which no human knowledge could approach.[48]

---

[46] Al-Qazuīnī, *ʿAjāʾib al-Makhlūqāt*, pp. 20-21.

[47] Seyyed Hossein Nasr, *An Introduction to Islamic Cosmological Doctrines: Conceptions of Nature and Methods Used for its Study by the Ikhwān al-Ṣafāʾ, Al-Bīrūnī, and Ibn Sīnā* (Albany: State University of New York Press, 1993), pp. 6-7.

[48] Kamāl ad-Dīn Muhammad ibn Mūsā ad-Dumayrī, *Ḥayāt al-Ḥayawān al-Kubrā* (Beirut: Dār wa Maktabat al-Hilāl, 4 vols, 2007), vol. 1, p. 362. The *Jāhilī* poet Umayya ibn Abī aṣ-Ṣalt (d. 5/ 626), who was of great knowledge on Torah, composed a line in which he invokes the *Jāhilī* view of the universe:

Rajulun wa thawrun taḥta yumnā rijlihi, wa an-nisru lil-yusrā wa laythun murṣidu.

(Ibn Kathīr, *Al-Bidāya wa 'n-Nihāya*, vol. 1, p. 181).

Cosmological myths were a rich source of inspiration to poets even of later periods, a factor that allowed this pagan legacy to survive. Indeed, the metaphorical significance of such material made it impossible for poets to ignore those myths. The Abbasid poet Ibn ar-Rūmī (d.283/ 896), annoyed that a friend had failed to keep his promise to invite him to share a meal of seafood, expresses his irritation in the following verse:

hal al-ḥūtu ḥūtu al-arḍi am ḥūtu yūnusi,
laka al-khayru, am ḥūtu as-samā'i arūmu? [49]

[Tell me, for God's sake, which whale am I waiting for? Is it the whale of the Earth, the whale of Jonah,[50] or the whale of heaven?]

In mocking the delinquent, the poet sarcastically refers to the mythical, the Qurʾanic and the astrological sources in each of which 'the whale' has a different significance. Whether it is the whale upon which the globe is placed, or the whale that swallowed the Prophet Jonah (Yūnus), or Pisces, the sign of the zodiac that was depicted as a whale as well as two fishes, in each case the whale is far from being edible.

The View of the Heavens from an Orthodox Islamic Perspective

With the coming of Islam, a new ideology was adopted and the perspective from which the universe was viewed changed radically. As Nasr puts it:

[There is standing a Man, beneath his right foot there is a Bull; beneath his left there is an Eagle, and there is a Lion lying in ambush.]
Some religious scholars claim that upon hearing this line, the Prophet Muhammad commented on it approvingly. However, the Ḥadīth is dubious and Ibn Rushd doubted its authenticity. (See Abū al-Walīd al-Qurṭubī ibn Rushd, *Al-Bayān wa ʾt-Taḥṣīl wa ʾsh-Sharḥ wa ʾt-Tawjīh wa ʾt-Taʿlīl fī Masāil al-Mustakhraja*, ed. Muhammad Ḥajjī, (Beirut: Dār al-Gharb al-Islāmī, 20 vols, 1988), vol. 18, pp. 395-96.

[49] ʿAbbās Maḥmūd al-ʿAqqād, *Ibn ar-Rūmī: Ḥayātuh min Shiʿrih* (Cairo: al-Maktaba at-Tijāriyya al-Kubrā, 1973), p. 103.

[50] The poet refers to the story of the Prophet Jonah (Yūnūs) and the whale mentioned in the Qurʾān, from which we quote the following verses: 'Jonah, too, was one of Our apostles. He fled to the laden ship, cast lots with the crew, and was condemned. A whale swallowed him, for he had done amiss; and had he not devoutly praised Allah he would have stayed in its belly till the Day of Resurrection. We threw him, gravely ill, upon a desolate shore and caused a gourd-tree to grow over him. Thus We sent him to a nation a hundred thousand strong or more. They believed in him and We let them live at ease awhile'. See Qurʾān, aṣ-Ṣāfāt (the Ranks) 23, 37, 139-48; this translation is from *The Koran*, trans, N. J. Dawod, (Middlesex: Penguin Books, 1964), pp. 168-69.

> The question of the Divine Principle and the consequent unicity of Nature is particularly important in Islam where the idea of Unity (*al-tawḥīd*) overshadows all others and remains at every level of Islamic civilization the most basic principle upon which all else depends.[51]

The sources from which the Islamic view of the universe is to be understood need to be identified first. Gulzar Haider observes that: 'Any attempt to grasp the nature of Islamic cosmological thought has to begin by accepting the Qurʾanic cosmogony, [… which should be drawn] from Qurʾanic verses and the utterances of the Prophet, especially the Hadith al-Qudsi'.[52] Thus, in discussing this subject, our sources will be the Qurʾān, Ḥadīth, and the lexicons and interpretations concerned with scriptural references to the cosmos.

We have to bear in mind that the cosmology of the Qurʾān and Ḥadīth is not intended to be read as scientific theory, though they make definite observations regarding the structure and evolution of the universe. They do not endeavour to explain in detail cosmological concepts or phenomena. They are fundamental, however, in that they affirm unequivocally that God is the only absolute. The Islamic world-view of the cosmos, particularly the orthodox view, is characterised by its constant reference to the cosmic phenomena as signs of the existence of One All-Powerful God. Exploring this orthodox worldview whose grand scheme is that 'no act is free of an ethical dimension, and no domain escapes connection with the sacred',[53] is the subject of the following discussion.

With the coming of Islam, although the pagan Arabs' mythological view of the architecture of the cosmos was discarded, certain basic cosmological theories retained their validity, particularly that of the unity of the world, as this was evidence of the unity of the Divine principle. Indeed, Islam accepted and incorporated the architectural aspects of the universe inherited from previous

---

[51] Nasr, *An Introduction to Islamic Cosmological Doctrines*, p. 4.
[52] S. Gulzar Haider, 'Islam, cosmology and architecture', in Margaret Bentley Sevcenko (ed.), *Theories and Principles of the Design in the architecture of Islamic Societies* (Cambridge and Massachusetts: Aga Khan Program for Islamic Architecture, 1988), pp. 73- 85, see particularly, p. 75.
[53] Ibid., p. 73.

monotheistic religions, rejecting the conceptualisation of the pagan Arabs. S. Gulzar Haider notes that:

> Islam reaffirmed the essential cosmological framework of the sacred texts and traditions of the Abrahamic faith. The grand scheme of creation, the orderly and law-abiding universe, the original state of the Garden and the earthly exile of man, the temporality of this life, the eternity of the hereafter, the final judgment, heaven, and hell, all remained essentially the same as they had been in the Judeo-Christian tradition. This is understandable because Islam claimed the unbroken flow of revelation from Adam to Noah, to Abraham, his progeny, Moses, Jesus, and Muhammad. Every subsequent revelation affirmed the ones before, clarified the concepts that had been clouded, established the ones that had been erased, corrected the heresies that had crept in, and refined the law to an ever-increasing level of timelessness.[54]

Moreover, Islam retained much of the systematic cosmological knowledge inherited from the *Jāhilī* legacy, such as the lunar mansions and the zodiacal constellations. For instance, predicting the weather from the rising or setting of certain constellations was acknowledged by the Prophet Muhammad, but Islam objected to the attribution of the effect of that constellation to the stars themselves and not to God.[55]

The new religion acknowledged the importance of the upper realm, not only as a Divine domain in itself but also as a sign of and guidance to that domain. The heavenly bodies could be used for miraculous proof of the prophecy of the Messenger of Allah: it is related that the people of Mecca asked the Prophet Muhammad to produce a miracle, and 'he showed them the splitting of the moon into two parts, until they saw (the mount of) Ḥirāʾ between them'.[56] This miracle is also confirmed by the Qurʾān in the following verse: 'the Hour has drawn near, and the Moon has been cleft asunder'.[57] Moreover, the cosmic realm is regarded as being among the great signs of God and thus

[54] Ibid., p. 74.
[55] Islam rejected the pagan belief that regarded the stars as the cause of rain; those who attributed the cause of any natural phenomenon or event to the stars and not to Allah would be accused of atheism. See Ibn Rushd, A*l-Bayān wa ʾt-Taḥṣīl*, vol. 17, p. 407.
[56] Shaykh Safiur-Rahman al-Mubarakpuri (supervisor), *Al-Miṣbāḥ al-Munīr fī Tahdhīb Ibn Kathīr*, (abridged version), (Riyadh, Houston, New York, Lahore: Darussalam, 10 vols, 2000), vol. 9, pp. 347.
[57] The Qurʾān, al-Qamar (The Moon), 27, 54, 1.

as suitable for Divine oaths: there are a number of such verses, including 'I swear by the position of the Stars';[58] 'By the Moon […]';[59] 'By the Heaven with its constellation […]';[60] 'By the Star while falling […]'.[61] The Prophet also used cosmic phenomena to help people comprehend certain religious truths such as the relative closeness of the Day of Judgment. One evening, as the Sun was about to set, Muhammad spoke of this to his companions: 'By He in Whose Hand is my soul! Not much of this world is left compared to what has already passed of it, except as much as what is left in this day of yours compared to what has already passed of it'.[62] In another gathering the Prophet found the sunset a good occasion to remind his companions of the shortness of human life: 'what remains of your time, compared to what has passed, is as long as what remains of this day compared to what has passed of it'.[63]

Most Qurʾānic verses that refer to the cosmos aim to emphasise two essential facts: the existence of One All-powerful God, the Creator of all things; and the existence of the hereafter and the Day of Judgment. Those who deny bodily resurrection should find in the creation of the heavens above them a sign of the ability of the Creator to resurrect the dead. 'The creation of the heavens and the earth is indeed greater than the creation of mankind, yet most men know not';[64] 'Have not they seen that Allāh, who created the heavens and the earth, and was not wearied by their creation, is able to give life to the dead? Yea, verily He has power over all things'.[65] But how is this great construction of the heavens and the Earth revealed in the Qurʾān? The Qurʾānic model of the universe is expressed in fragmentary verses, and so to present it we must refer to a number of verses scattered throughout the Qurʾān which discourse upon the structure of the universe. According to the Qurʾān, before the foundation of the universe, the heavens and the Earth were compound as one piece of material, which God later separated and created seven earths and seven heavens:

> We inspired all the apostles whom We sent before you, saying: 'There is no god but Me. Therefore serve Me.' […] Are the disbelieves unaware that the heavens

[58] The Qurʾān, al-Wāqiʿa (The Inevitable Event), 27, 56, 75.
[59] The Qurʾān, al-Muddathir (the One who Wrapped Up), 29, 74, 32.
[60] The Qurʾān, al-Burūj (The Constellations), 30, 85, 1.
[61] The Qurʾān, an-Najm (the Star), 27, 53, 1.
[62] Al-Mubarakpuri (supervisor), *Al-Miṣbāḥ al-Munīr*, vol. 9, p. 345.
[63] Ibid.
[64] The Qurʾān, Ghāfir (Thee Who Forgiveth), or al-Mu'min (the Believer) as titled in some versions 24, 40, 57.
[65] The Qurʾān, al-Aḥqāf (Winding Sand-tracts), 26, 46, 33.

> and the earth were one solid mass which We tore asunder, and that We made every living thing of water? Will they not have faith? We set firm mountains upon the earth lest it should move away with them, and hewed out highways in their rock so that they might be rightly guided. We spread the heaven like a canopy and provided it with strong support: yet of its signs they are heedlees. It was He who created the night and the day, and the sun and the moon: each moves swiftly in an orbit of its own.[66]

These and other verses reveal certain aspects of the Islamic view of the universe. According to the interpretation of this verse by Ibn ʿAbbās (3-68/ 619-87),[67] the celestial bodies are conceived by the Qurʾanic model as 'revolving like a spinning wheel, in a circle'.[68] With regard to the four elements, it is to be understood from the longer passage quoted above that water was the most important among them, as from this substance every living being is created. With regard to the elements of darkness and light, a man once asked the famous orthodox Qurʾanic interpreter Ibn ʿAbbās: 'Did the night come first or the day?' to which he replied: 'Do you think that when the heavens and the earth were joined together, there was anything between them except darkness? Thus you may know that the night came before the day'.[69] Ibn ʿAbbās also comments on the beginning of the world when interpreting these verses: 'The heavens were joined together and it did not rain, and the earth was joined together and on it nothing grew. When living beings were created to populate the earth, rain came forth from the heavens and vegetation came forth from the earth'.[70] In addressing the disbelievers, God draws attention to the creation of the universe as one

---

[66] The Qurʾān, Al-Anbiyāʾ (The Prophets), 17, 21, 25 and 30-33. (This translation is from Dawud (trans.), *The Koran*, pp. 289-90).

[67] Ibn 'Abbās was the son of a wealthy merchant named 'Abbās ibn 'Abd al-Muṭṭalib, the parental uncle of the prophet Muhammad. He had memorised the Qur'ān and was an expert in its exegesis, as well as an authority on the Sunna due to his zeal in acquiring new knowledge. He was known among Sunnis as the best commentator of the Qur'ān. See Khayr ad-Dīn az-Ziriklī, *Al-Aʿlām: Qāmūs Tarājim li Ashhar ar-Rijāl wa ʾn-Nisāʾ min al-ʿArab wa ʾl-Mustaʾribīn wa ʾl-Mustashriqīn* (Beirut: n.p., 12 vols, 1969), vol. 4, pp. 228-29.

[68] Al-Mubarakpuri (supervisor), *Al-Miṣbāḥ al-Munīr*, vol., 6, p. 444.

[69] Al-Mubarakpuri (supervisor), *Al-Miṣbāḥ al-Munīr*, vol., 6, p. 441. It is interesting to contrast this orthodox view with one in which astrological theory is used to explain a mystery of creation. In the Abbasid period when a man addressed the same query to ʿAli ibn Musā al-Kāẓim, the eighth Shīʿī Imam of the Twelvers (153- 203/ 770-818), the Imam responded: 'According to the Stars, the ascendant of the worldly life is Cancer, and planets were in their exaltations; Saturn in Libra, Jupiter in Cancer, the Sun in Aries, the Moon in Taurus. The Sun thus was exactly in the tenth House of the ascendant thus in the middle of the sky: so day was created before night.' Abū Ḥayyān ʿAli ibn Muhammad at-Tawḥīdī, *Al-Baṣāʾr wa ʾdh-Dhakhāʾr*, ed. Widād al-Qāḍī (Beirut: Dār Ṣādir li ʾṭ-Ṭibāʿa wa ʾn-Nashr, 4 vols, 1988), vol. 1, p. 390- 91.

[70] Al-Mubarakpuri (supervisor), *Al-Miṣbāḥ al-Munīr*, vol., 6, p. 441.

of the signs that should guide them to the conviction of the existence of a unique and all-powerful Creator:

> Say: 'would deny Him Who created the earth in two days, and make other gods his equals? He alone is the Lord of the creation.' He set upon the earth mountains towering high above it. He pronounced his Blessing upon it and in four days provided it with sustenance for all alike. Then He made his way to the heaven, which was but a cloud of vapour, and to it and to the earth he said: 'Will you obey Me willingly, or shall I compel you?' 'Willingly,' they answered. In two days He formed the sky into seven heavens, and to each heaven He assigned its task. We decked the lowest with lamps [stars] and guardians [comets]. Such is the design of the Mighty One, the All-knowing.[71]

So the universe consists of seven heavens[72] and the same number of earths: 'It is Allāh Who has created seven heavens and of the earth the like thereof […]',[73] and the last heaven, which God refers to as the 'lower heaven', the mundane one, is the one which has been adorned with luminaries, which are the stars and planets. This view is different from that of the Greek model, and also of that flourished in the mediaeval Muslim world, which placed a planet in each of the heavens and the fixed stars in the farthest heaven from the Earth. Moreover, the construction of the universe is not complete, since it is still expanding.[74]

---

[71] The Qurʾān, Fuṣṣilat (Revelations Well Expounded), 24, 41, 9-12.

[72] The Prophet Muhammad's Night Journey, in which he was ascended to the heavens, narrates how the angel Gabriel took him to these seven heavens, in each of which he encountered the previous prophets, until he reached the Lote Tree (*Sidrat al-Muntahā*), beyond which none can pass. (For the whole story and its interpretation see Al-Mubarakpuri (supervisor), *Al-Miṣbāḥ al-Munīr*, vol. 5, 552-80). References to this journey are also to be found in the Qurʾān in which a full chapter is entitled al-Isrāʾ (The Night Journey), 15, 17, 1; and in other chapters in which God defends his messenger from the accusation of insanity which the unbelievers mocked on hearing the news of that journey. See also at-Takwīr (The Cessation), 30, 81, 17-29 and an-Najm (The Star), 27, 53, 1-18.

[73] The Qurʾān, Aṭ-Ṭalāq (The Divorce), 28, 65, 12.

[74] 'And We constructed the heaven with Hands (power) and We will expand it', (The Qurʾān, Adh-Dhāriyāt (Revelations Well Expounded), 27, 51, 47).

According to the Qurʾān, the alteration of days and nights is due to the spinning motion of the spherical Earth,[75] '[…] And He ceases night to overtake day and ceases day to overtake night, and has subjected the Sun and the Moon (to His law): each running for an appointed term. He is the Mighty, the Benignant one'.[76] Although the physical object that performs the spherical movement is not stated clearly in this verse, it could be a reference to the movement of the Earth around its axis.

References to the lunar mansions and the orbits of the Sun and Moon are found in the Qurʾān:

> And a sign for them is the night: from the night We lift the day – and they are plunged in darkness. And the sun hastens to its resting-place: its course is laid for it by the Mighty One, the All-knowing. We have ordained phases for the moon, which daily wanes and in the end appears like a bent and withered twig. It is not permitted for the Sun to overtake the moon, nor does the night outpace the day. Each swim in its own orbit'.[77]

Moreover, the signs of the zodiac are also encountered in the Qurʾān: 'And indeed, We have put *burūjan* (big stars, constellations, or signs of the zodiac) [78] in the heaven and We beautified it for the beholders';[79] 'Blessed be He Who has made *burūj* in the heaven'.[80]

With regard to the nature and function of the heavenly bodies, Haider notes that in pagan societies 'natural phenomena have been given the status of deities, while monotheistic religions have looked upon the cosmos as the wondrous handiwork of God and have treated nature as a treasure chest of Divine portents'.[81] Indeed, with the coming of Islam a new perspective within which the whole universe had to be viewed created a new ideology uniquely distinguished from that of the pagan

---

[75] See ʿAli ibn Ḥazm al-Andalusī's refutation of those who denied the spherical shape of the Earth in his *Al-Fiṣāl fī al-Milal wa ʾl-Ahwāʿ wa ʾl-Niḥal*, ed. Ahmad Shams ad-Dīn (Beirut: Dār al-Kutub al-ʿIlmiyya, 3 vols, 1996), vol. 1, pp. 352-61.
[76] The Qurʾān, az-Zumur (The Hordes), 23, 39, 5.
[77] The Qurʾān, Yā-Sīn (The Two Letters: Yā, Sīn), 23, 36, 37-40.
[78] 'Burūjan' can mean all three.
[79] The Qurʾān, al-Ḥijr, 14, 15, 16.
[80] The Qurʾān, al-Furqān (The Criterion), 19, 25, 61.
[81] Haider, 'Islam, Cosmology and Architecture', p. 74.

world, though not all ideas of the upper realm were rejected, because, as stated earlier, Islam recognised the validity of certain pre-Islamic conceptions. This perspective absolutely denied the belief in the divinity of the heavenly bodies: followers of the new religion were to bear witness that God is the Creator and Commander of the whole universe including that of the upper realm, whose objects are scattered westward and eastward, and it is He alone who deserves to be worshipped. The denial that astral bodies are deities is found in many places in the Qurʾān and the Prophet's traditions. For example, when the Prophet Abraham considered the heavens in his search for the Divine, he looked upward in wonder to the planets, the Moon and the Sun. Being sceptical of their divinity, he dismissed them and the truth was revealed to him when he appealed to the true God to guide him. He understood that although they were great and glorious, yet their rising and setting were preordained by a greater power, and their presence pointed to the truly divine and eternal. Thus the prime function of the heavenly bodies is as evidence of the existence of One All-Powerful God.[82]

In the Islamic view, the heavens and Earth are presented as superior to mankind regarding their formation and creation, as mentioned above. However, God elevated mankind above them and, moreover, subjected the whole universe to the service of mankind.[83] Thus, the prime purpose of the creations is to lead mankind to the right path; the absolute God.

Yet, although the new religion strongly opposed certain conceptions of the heavenly bodies dominant in the *Jāhiliyya,* Islam accepted the validity of a number of ideas and practices that were free from idolatry. Thus the astral bodies were still considered efficient tools for precisely marking the passage of time and determining directions, particularly for certain religious purposes.[84] Islam also valued the knowledge that enabled the stars to be used as navigational aids, and in weather forecasting, which is the only aspect of prediction that Islam allows, because of its vital importance

[82] See Al-Mubarakpuri (supervisor), *Al-Miṣbāḥ al-Munīr*, vol. 3, pp. 387-89.

[83] 'We have bestowed blessing on Adam's children and guided them by land and sea. We have provided them with good things and exalted them above many of our creatures'. (The Qurʾān, al-Isrāʾ, (The Night Journey), 15, 17, 70). See also Muḥyī ad-Dīn ibn ʿArabī's view regarding this matter in his *Al-Futūḥāt al-Makkiyya*, ed. by ʿUthmān Yaḥyā and Ibrāhīm Madkūr, (Cairo: al-Hayʾa al-Mīṣriyya li ʾl-Kitāb, 14 vols, 1985), vol. 3, p. 65.

[84] This such as calculating the time of prayer, and the orientation of the mosque's *qibla* (so that Muslims may direct their prayer towards the *Kaʿba* in Mecca); and other religious activates that require precise determination of time, such as fasting during the month of Ramadan, celebrating the two Eids, and performing Hajj.

in the daily life of the people and because it does not encroach on the realm of the unseen.[85] Yet, this permission is given under one condition: Muslims always have to bear in mind that it is God's will that ultimately prevails. Regarding the notion of the possible effect of the upper realm on the terrestrial world, Islam did not oppose this way of thought altogether, but set certain guidelines. The effect of the phases of the Moon on human health, for example, is acknowledged by the Prophet Muhammad, who, it is related, said: 'The best day on which you can be cupped [be cured by letting blood] is the seventeenth, or the nineteenth, or on the twenty-first day [of every lunar month]'.[86]

It is therefore clear that Islam acknowledged the usefulness of many functions of the upper realm that had been recognised by the pre-Islamic Arabs, including its aesthetic function, which is to adorn the lowest heaven. But Islam vigorously opposed and prohibited judicial astrology; that is the discipline based on the belief that the heavenly bodies' disposition and relationships could be a source of knowing the future of human individuals or groups.

We have seen that in the *Jāhiliyya* the heavenly bodies were regarded either as deities that themselves bring life to the terrestrial realm (a belief that give rise to the astral religion practised at that time), or as animate objects that totally lack the quality of soul, a quality that Islam restores to them but in a quite different manner. Their possession of soul, the essence of their being was in the pre-Islamic era somewhat vague. Islam, however, was much clearer in determining the aspects of this quality. The Qurʾān contains a number of passages which identify the precise character of the heavenly bodies. From the Islamic perspective, the heavenly realm is living and rational: the heavenly bodies receive divine commands and they are united in the worship of God: 'The seven heavens and the earth and those in them declare His glory, and there is nothing but extols His praise, but you do not comprehend their praise'.[87] It is to be understood from this verse that the seven heavens are inhabited as well as the Earth.

---

[85] Islam's encouragement of these practices had a significant effect on astronomy. As S. Nomanul Haq notes: 'indeed, astronomy is the only natural science that escaped the censure of the medieval Muslim opponents of secular science (*ʿulūm al-awāʾl*) and found a home in mosques, receiving the blessing of mainstream religious circles; and it is virtually the only Islamic hard science that lasted well into the modern period, continuing vigorously and fruitfully long after the Mongol sack of Baghdad, when much of Islamic scientific activity began to decline'. S. Nomanul Haq, 'Astronomy', *The Oxford Encyclopedia of the Modern Islamic World*, ed. by Esposito, John *et. al.*, (New York and Oxford: Oxford university Press, 4 vols., 1995), vol. 1, p. 145.

[86] Ibn Qayyim al-Jawziyya, *Medicine of the Prophet*, trans. by Penelope Johnstone, (Cambridge: The Islamic Texts Society, 2004), p. 41.

[87] The Qurʾān, Al-Isrāʾ (The Night Journey), 15, 17, 44.

The heavens and the Earth are even portrayed as being more rational than man: when God asked who among his creatures was able to bear the responsibility of trust,[88] heavens, earth and mountains all refused to accept such a great responsibility. Man, however, being ignorant, offered to bear the burden.[89] Thus the heavenly bodies also have a degree of free will, though it is very limited; they can choose when a choice is offered, or if they are commanded, can obey willingly or unwillingly: when God finished separating the heaven from the Earth He then 'took hold of the heaven when it was smoke and said to it and to the Earth, 'Come willingly or unwillingly.' They both said, 'We come willingly'.[90] By nature they are created to commit no sins but to obey the Divine command and act according to the law ordained by God. Were they to do otherwise no life could exist. The limiting of their free will, thus, is for the benefit of the entire universe, as it maintains the upper world in great peace and order, in contrast to the troubles which plague life below and which result from the freedom mankind enjoys; hence disorder in the upper realm will be the sign of the end of this world.[91] They thus react with horror to any expression of polytheistic belief:

> Those who say: 'The Lord of Mercy has begotten a son,' preach a monstrous falsehood, at which the very heavens might crack, the earth break asunder, and the mountains crumble to dust in complete ruin. That they should ascribe a son to the Merciful, when it does not become Him to beget one! There is none in the heavens or in the earth but shall return to Him in utter submission. He Has kept count of all

[88] The interpretation of this word is given as follows: 'The trust is something given to a person, over which he has a power of disposition; he is expected to use it as directed or expected, but he has the power to use it otherwise. There is no trust if the trustee has no power, and the trust implies that the giver of the trust believes and expects that the trustee would use it in according to the wish of the creator, and not otherwise'. (See *The Glorious Qurʾān: English translation of the meanings and commentary*, Abdullah Yusuf Ali (trans. and commentator), (Canada: The Muslim Students' Association, 1975), p. 1129, footnote 3777.

[89] The Qur'ān, al-Aḥzāb (The Confederates), 21, 33, 72.

[90] For reference to the Qurʾanic verse see footnote 72.

[91] On the Day of Judgment, the whole universe will be destroyed as promised by God in the Qurʾān:
'When the Heaven is cleft, and when the planets fall down in fragments, and when the seas have apertures to one another, and when the tombs are strewn abroad, a soul will then know what it did formerly and latterly'. (The Qurʾān, Al-Infiṭār (The Cleavage), 30, 82, 1-5); and 'He [man] asks, 'When is the Day of Resurrection?', so when the sight is dazzled, and the Moon is eclipsed, and the Sun and the Moon are brought together, man shall say on that day, 'where is the escape?'. (The Qurʾān, Al-Qiyāma (The Resurrection), 29, 75, 6-10). The heavenly bodies are thus, from the Islamic point of view, mortal and subject to annihilation.

> his creatures, and one by one they shall approach Him on the Day or Resurrection.[92]

Moreover, although Islamic doctrine holds that the stars are alive and have sense and reason, they have no sympathy for mankind, they neither mourn nor rejoice at human happiness or grief, death or birth. When it happened that there was an eclipse of the Sun on the day of the death of Ibrāhīm, the son of the Prophet Muhammad, the Prophet warned his people not to link the two incidents, though to do so seemed to do honour to his son. He said: 'The Sun and Moon do not weep for the death of any one of you or rejoice at his birth'.[93] In Islam such celestial phenomena should not be thought of as indicating that the upper realm is sympathetic to mankind, rather they are signs of the Omnipotence's power that remind man of their Creator. Therefore, whenever there is a lunar or solar eclipse Muslims have to perform a special prayer.[94]

All in all, in an endeavor to sum up the whole subject of the Qur'ān and cosmology in one sentence let me quote and rephrase Pope John Paul II in this regard. Like the Bible, the Qur'ān itself "speaks to us of the origin of the universe and its make-up, not in order to provide us with a scientific treatise but in order to state the correct relationships of man with God and with the universe".[95]

Conclusion

This paper has endeavored to outline certain cosmological concepts prevalent in the pre-Islamic era and the role Islam played in 'Islamizing' these concepts to make them fit into the broader religious context of Divine Omnipotence.

---

[92] The Qurʾān, Maryam (Mary), 16, 19, 88-95.
[93] Al-Ḥāfiẓ abū Naʿīm Ahmad ibn Isḥāq al-Aṣbahānī, *Al-Musnad al-Mustakhraj ʿalā Ṣaḥīḥ al-Imām Muslim*, ed. by Muhammad ash-Shāfiʿī, (Beirut: Dār al-Kutb al-ʿIlmiyya, 4 vols, 1960), vol. 2, pp. 491-96.
[94] Ibid., pp. 486-96.
[95] Address of Pope John Paul II to the Pontifical Academy of Science in October of 1981, cited in 'Pope John Paul II on Creationism', The National Centre for Science Education (NCSE): http://ncse.com/cej/3/1/pope-john-paul-ii-creationism, accessed 20 September 2013.

Viewed from a pagan perspective, the *jāhilī* people believed strongly in the coherence and oneness of the universe and claimed that the upper realm had a strong influence on earthly affairs.

The systematic appearance of certain astral clusters played a crucial role in predicting natural events, and the organization of the stars at night formed patterns that guided them at sea or across the desert. As viewed by the ancient Arabs, celestial phenomena demonstrated in this way that the lower realm was dependent on the upper, and this gave them the sense that heavenly bodies enjoyed superiority over those things which were subject to their influence.

It was not only the metrological and navigational impact of the heavens that was acknowledged by the *Jāhilī* people. We have seen how the *Jāhilī* Arabs' view of the heavens influenced their practice of *kihāna*; their astrology, which was mainly concerned with the omens associated with the lunar mansions, comets and shooting stars, played a prominent role in giving legitimacy to that art.

With the advent of Islam, certain notions regarding the upper world were accepted and affirmed by the new religion. Islam acknowledged the functions of the lunar mansions and constellations as guides for navigations and journeys, as well as their aesthetic role, but strongly opposed and vehemently condemned any view that assigned a divine character or role to the celestial bodies. Islam insisted that those bodies are *not* deities, or mediators that bring mankind closer to God, and have no ability whatsoever to inform mankind of their Divinely determined fate.

Bibliography

Ali, Jawād, *Al-Mufaṣṣal fī Tārikh al-ʿArab qabl al-Islām* (Beirut: Dār al-ʿIlm li ʾl-Malāyīn and Baghdad: Maktabat al-Nahḍa, 10 vols, 1970).

Alūsī (al-), as-Sayyid Mahmūd Shukrī al-Baghdādī, *Bulūgh al-Arab fī Maʿrifat Aḥwāl al-ʿArab*, ed. Muhammad Bahjat al-Athīrī (Cairo: Maṭābiʿ Dār al-Kitāb al-ʿArabī, 3 vols, 1964).

Andalusī (al-), ʿAli ibn Ḥazm, *Al-Fiṣāl fī al-Milal wa ʾl-Ahwāʿ wa ʾl-Niḥal*, ed. Ahmad Shams ad-Dīn (Beirut: Dār al-Kutub al-ʿIlmiyya, 3 vols, 1996).

ʿAqqād (al-), ʿAbbās Maḥmūd, *Ibn ar-Rūmī: Ḥayātuh min Shiʿrih* (Cairo: al-Maktaba at-Tijāriyya al-Kubrā, 1973).

Aṣbahānī (al-), Al-Ḥāfiẓ abū Naʿīm Ahmad ibn Isḥāq, *Al-Musnad al-Mustakhraj ʿalā Ṣaḥīḥ al-Imām Muslim*, ed. by Muhammad ash-Shāfiʿī, (Beirut: Dār al-Kutb al-ʿIlmiyya, 4 vols, 1960).

Bīrūnī (al-), Abū ar-Rayḥān Muhammad ibn Ahmad, *Al-Āthār al-Bāqiya ʿan al-Qurūn al-Khāliya*, ed. C. Eduard Sachau, (Leipzig: Otto Harrassowitz, 1923).

Bosworth, C. E. "ʿARAB i. Arabs and Iran in the pre-Islamic period", in Encyclopæda Iranica, online version: http://www.iranicaonline.org/articles/arab-i [accessed November 25th, 2013].

Burnett, Charles, 'Weather Forecasting in the Arabic World, in *The Formation of the Classical Islamic World: Magic and Divination in Early Islam* (Aldershot: Ashgate Variorum, 2004).

Edson, E. & Savage-Smith, E., *Medieval Views of the Cosmos* (Oxford: The Bodleian Library, 2004).

Emilie Savage-Smith and Yossef Rapport (eds.), *The Book of Curiosities: A critical edition*, World-Wide-Web publication. www.bodley.ox.ac.uk/bookofcuriosities (March 2007),[accessed 11 November 2007].

Gibb, H. A. R. *et. al*. (eds.), *The Encyclopaedia of Islam* (New Edition) (Leiden: E. J. Brill and London: LUZAC & Co., 12 vols, 1960- 2004)

von Grunebaum, Gustave E., 'The Response to Nature in Arabic Poetry', in *Journal of Near Eastern Studies*, iv, 3 (July 1945): pp. 137- 51.

Haider, S. Gulzar, 'Islam, cosmology and architecture', in Margaret Bentley Sevcenko (ed.), *Theories and Principles of the Design in the architecture of Islamic Societies* (Cambridge and Massachusetts: Aga Khan Program for Islamic Architecture, 1988).

Haq, S. Nomanul, 'Astronomy', *The Oxford Encyclopedia of the Modern Islamic World*, ed. by Esposito, John *et. al.*, (New York and Oxford: Oxford university Press, 4 vols, 1995).

ibn ʿArabī, Muḥyī ad-Dīn, *Al-Futūḥāt al-Makkiyya*, ed. by ʿUthmān Yaḥyā and Ibrāhīm Madkūr, (Cairo: al-Hayʾa al-Mīṣriyya li ʾl-Kitāb, 14 vols, 1985).

ibn Ḥijr, Shihāb ad-Dīn al-ʿAsqalānī, *Fatḥ al-Bārī bī Sharḥ al-Bukhārī* (Cairo: Maktabat al-Bābī al-Ḥalabī, 17 vols, 1959).

ibn Kathīr, Abū al-Fidāʾ al-Ḥāfiẓ ad-Dimashqī, *Al-Bidāya wa ʾl-Nihāya* (Beirut: Dār al-Kutub al-ʿĪlmiyya, 15 vols, 1997).

ibn Khaldūn, ʿAbd ar-Raḥmān, *The Muqaddimah: An Introduction to History,* Franz Rosenthal (trans.), (Princeton & Oxford: Bollingen Series, Princeton University Press, 2005).

ibn Manẓūr, Abū al-Faḍl Jamāl ad-Dīn, *Lisān al-ʿArab* (Beirut: Dār Ṣādir wa Dār Beirut, 15 vols, 1956).

ibn Rushd, Abū al-Walīd al-Qurṭubī, A*l-Bayān wa ʾt-Taḥṣīl wa ʾsh-Sharḥ wa ʾt-Tawjīh wa ʾt-Taʿlīl fī Masāil al-Mustakhraja*, ed. Muhammad Ḥajjī, (Beirut: Dār al-Gharb al-Islāmī, 20 vols, 1988).

ibn Ṭāwūs, Abū al-Qāsim ʿAli ibn Mūsā, *Faraj al-Mahmūm fī Taʿrīkh ʿUlamāʿ an-Nujūm* (Qumm: Manshūrārt ar-Riḍā, 1363 H.).

ibn Thābit, Ḥassān, *Diwān Ḥassān ibn Thābit al-Anṣārī* (Beirut: Dār Ṣādir and Dār Beirut, 1961).

Ibshīhī (al-), Shihāb ad-Dīn Muhammad, *Al-Mustaṭraf fī kulli Fannin Mustaẓraf* (Beirut: Muʾassassat Dār an-Nadwa, 2 vols, n.d.).

Jāḥiẓ (al-), ʿAmr ibn Baḥr, *Al-Ḥayawān*, ed. by Muhammad ʿUyūn as-Sūd, (Beirut: Dār al-Kutub al-ʿIlmiyya, 4 vol, 1998).

Jawziyya (al-), Ibn Qayyim, *Medicine of the Prophet*, trans. by Penelope Johnstone, (Cambridge: The Islamic Texts Society, 2004).

Kamāl ad-Dīn Muhammad ibn Mūsā ad-Dumayrī, *Ḥayāt al-Ḥayawān al-Kubrā* (Beirut: Dār wa Maktabat al-Hilāl, 4 vols, 2007).

King, David, 'Origin of the Astrolabe according to the Medieval Islamic Sources', *Journal for the History of Arabic Sciences* 5 (1981): pp. 48-83.

Kunitzsch, Paul, 'Al-Manāzil', in *Encyclopaedia of Islam (new edition)*, vol. vi (1991): pp. 374-76.

-----, 'Al-Nudgūm - II. The Planets', in *E. I.*, vol. viii (1995): pp. 97-105.

-----, *Stars and Numbers: Astronomy and Mathematics in the Mediaeval Arab and Western World* (Burlington and Vermont: Ashgate Variorum Publishing Limited, 2004).

Lane, Edward William (ed.), *An Arabic-English Lexicon* (London & Edinburgh: Williams and Norgate, 4 vols, 1863).

Marzūqī (al-), Abū ʿAli Ahmad ibn Muhammad, *Al-Azmina wa ʾl- Amkina*, ed. Muhammad ad-Dulaymī (Beirut: ʿĀlam al-Kutub, 2 vols, 2002).

Masʿūdī (al-), Abū al-Ḥasan ʿAli, *Murūj adh-Dhahab wa Maʿādin al-Jawhar* (Beirut: al-Maktaba al-ʿAṣriyya, 4 vols, 2005).

Michot, Yahya J., 'Ibn Taymiyya on Astrology: Annotated Translation of Three Fatwas', in Savage-Smith (ed.), *Magic and Divination in Early Islam*, pp. 292- 94.

Mubarakpuri (al-), Shaykh Safiur-Rahman (supervisor), *Al-Miṣbāḥ al-Munīr fī Tahdhīb Ibn Kathīr*, (abridged version), (Riyadh, Houston, New York, Lahore: Darussalam, 10 vols, 2000).

Nallino, C. A., 'Astronomy', in *First Encyclopediea of Islam* (henceforth *First E. I.*), ed by M. Th. Houtsma *et al*., (Leiden & New York: E. J. Brill, 9 vols, 1987), vol. 1, pp. 497-501.

Nasr, Seyyed Hossein, *An Introduction to Islamic Cosmological Doctrines: Conceptions of Nature and Methods Used for its Study by the Ikhwān al-Ṣafāʾ, Al-Bīrūnī, and Ibn Sīnā* (Albany: State University of New York Press, 1993).

Nuwayrī (an-), Shihāb ad-Dīn Ahmad, *Nihāyat al-Arab fī Funūn al-al-Adab* (Cairo: Maṭābiʿ Kustāmus, 18 vols, 1965).

Pellat, Charles, 'anwāʾ', in *E. I.*, vol. i (1960): pp. 523-24.

Qazuīnī (al-), Zakariyyā ibn Muhammad, *ʿAjāʿib al-Makhlūqāt wa Gharāʿib al-Mawjūdāt* (Beirut: Dār ash-Sharq al-ʿArabī, 2006).

Robson, Vivian, *The Fixed Stars & Constellations in Astrology* (Abingdon: Astrology Classics, 2005).

Ṣūfī (aṣ-), ʿAbd ar-Raḥmān ar-Rāzī, *Ṣuwar al-Kawākib ath-Thamāniyya wa al-Arbaʾīn* (Beirut: Dār al-Āfāq al-Jadīda, 1981).

Tawḥīdī (at-), Abū Ḥayyān ʿAli ibn Muhammad, *Al-Baṣāʾr wa ʾdh-Dhakhāʾr*, ed. Widād al-Qāḍī (Beirut: Dār Ṣādir li ʾṭ-Ṭibāʿa wa ʾn-Nashr, 4 vols, 1988).

Varisco, Daniel, 'Stars and texts in Arabia', *Essays from Archaeoastronomy & Ethnostronomy News, The Quarterly Bulletin of the Center for Archaeoastronomy*, in (Number 16, June Solstice 1995) http://www.wam.umd.edu/~tlaloc/archastro/index.html [accessed 17/ 03/2008].

Ziriklī (az-), Khayr ad-Dīn, *Al-Aʿlām: Qāmūs Tarājim li Ashhar ar-Rijāl wa ʾn-Nisāʾ min al-ʿArab wa ʾl-Mustaʾribīn wa ʾl-Mustashriqīn* (Beirut: n.p., 12 Vols., 1969).

Translations of the Qurʾān

The Glorious Qurʾān: English translation of the meanings and commentary, Abdullah Yusuf Ali (trans. and commentator), (Canada: The Muslim Students' Association, 1975).

The Koran, trans, N. J. Dawod, (Middlesex: Penguin Books, 1964).

Anonymous writings

Kitāb ʿAntara ibn Shaddād, (Beirut: al-Maṭbaʿa al-Adabīyah, 5 vols, 1883).