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Interpretation of Constellations in the *'Ilmi* Interpretation of the Ministry of Religion and Its Implications for the Development of Astronomy and Astrology

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Abstract

The Qur'ân's concern for the natural order is evident through its verses. By studying verses about nature, humans can increase knowledge and include science in analyzing the content of the Qur'ân, as the 'Ilmi interpretation issued by the Ministry of Religion interprets the kauniyah verses in the Qur'ân using scientific findings. This article aims to discuss the Qur'ân's insight into constellations, especially the function of constellations based on the interpretation of 'Ilmi which was launched by the Ministry of Religion and implied by the development of astronomy and astrology. This research is included in the category of literature research with the Ministry of Religion's 'Ilmi interpretation as the primary source and uses the maudhu'i method with the type of 'Ilmi interpretation. There are three verses out of the 13 verses that have been analyzed based on the term an-Najm. Concluding using inductive methods. The results of this study show that there are 3 constellation functions based on the interpretation of the Ministry of Religion's 'Ilmi interpretation, namely functioning as a directional direction, determining seasons, and determining time. The three functions are related to the development of astronomy and astrology. Astronomy can produce new findings through the three constellation functions, namely sextants and astrolabes. Meanwhile, astrology only utilizes the function of constellations as a determinant of seasons by using Javanese astrology, which is known as prey institutions

Kata Kunci

Rasi bintang, Tafsir 'Ilmi, Astronomi, Astrologi

Abstrak

Kepedulian al-Qur'ân terhadap tatanan alam terlihat jelas melalui ayat-ayatnya. Dengan mempelajari ayat-ayat tentang alam, manusia dapat meningkatkan pengetahuan dan menyertakan ilmu sains dalam menganalisis kandungan al-Qur'ân, sebagaimana tafsir 'Ilmi yang dikeluarkan oleh Kemenag menafsirkan ayat-ayat kauniyah dalam al-Qur'ân dengan menggunakan temuan 'Ilmiah. Artikel ini bertujuan untuk membahas wawasan al-Qur'ân tentang rasi bintang, terkhusus fungsi rasi bintang berdasarkan tafsir 'Ilmi yang dikelauarkan oleh Kemenag dan diimplikasikan dengan perkembngan astronomi dan astrologi. Penelitian ini termasuk dalam kategorii penelitian kepustakaan dengan tafsir 'Ilmi Kemenag sebagai sumber primer dan menggunakan metode maudhu'i dengan jenis tafsir 'Ilmi. Terdapaat tiga ayat dari 13 ayat yang telah dianalisis berdasarkan term an-Najm. Penarikan kesimpulan menggunakan metode induktif. Hasil penelitian ini memperlihatkan ada 3 fungsi rasi bintang berdasarkan interpretasi atas tafsir 'Ilmi Kemenag, yaitu berfungsi sebagai petunjuk arah, penentu musim dan penetap waktu. Ketiga fungsi tersebut berkaitan dengan perkemabangan ilmu astronomi dan ilmu astrologi. Adapun ilmu astronomi dapat menghasilkan temuan baru melalui ketiga fungsi rasi bintang yaitu sextant dan astrolabe. Sementara itu, dalam ilmu astrologi hanya memanfaatkan fungsi rasi bintang sebagai penentu musim dengan menggunakan astrologi Jawa yang dikenal dengan pranata mangsa.

Introduction

The star is often depicted as a twinkling expression due to refraction by various layers of the Earth's space. The symbol in the form of a star is popular among humans as a star of merit, divinity, and the like. the true figure of the star is not pentagonal or faceted; It resembles a ball more. Stars are not small either. The impression that the star is small in size is due to its location very far from the earth. Stars are very large, and many of them are much larger in size than the earth.[1] Even our Sun is a star that is medium in size and located about 150 million kilometers from the earth.[2] Some scientists at that time considered that in addition to the earth the force of gravity also applies in the universe, namely close to each other and rotates on its orbital lines. In addition, an observation made by scientists stated that the universe that surrounds us is a realm that is constantly floating and expanding.[3]

So a long debate arose during the first half of the 20th century until scientists agreed that the universe was constantly floating, the galaxies moving away from each other,

[1]Lajnah Pentashihan al-Qur'an Kemenag RI dan Lembaga Ilmu Pengetahuan Indonesia (LIPI), *Manfaat Benda-benda Langit dalam Perspektif al-Qur'an dan Sains*, ed. by Lajnah Pentashihan Mushaf al-Quran, 1 ed. (Jakarta: Lajnah Pentashihan Mushaf al-Qur'an, 2012), 146.

[2]Achmad Baiquni, *Al-Qur'an dan Ilmu Pengetahuan Kealaman*, ed. by Drs. Sonhadji, Ir. Abdul Jabar, and Dra. Tri Saputrasari, 1st ed. (Yogyakarta: PT. Dana Bhakti Prima Yasa, 1996), 91.

[3] Nadiah Thayyarah, *Buku Pintar Sains dalam Al-Qur'an*, ed. by Chairul Ahmad, 2nd ed. (Jakarta: Zaman, 2013), 332–33.

at speeds close to the speed of light (300 thousand kilometers per second). However, ancient astrologers considered that the stars clung to this giant celestial sphere that surrounded them.[4] Therefore, at the beginning of the century scientists believed in the concept[5] of a universe contrary to the teachings[6] Previous. In the Qur'ân, Allah gives the fact that the universe is indeed very vast, *"And, our heavens wake up with power (We) and We expand it"* (adz-Dzariyat: 47). No human being can calculate exactly how many objects there are in the sky and their benefits. This is well realized by humans, but some of them remain negligent and deny it.

The discussion about stars is already very abundant, including those discussing constellations. When viewed from the type of research, there are several studies on constellations based on library research and field research. The library research-based research consists of research conducted by Sadri Saputra and Muammar Bakri and research conducted by Nurhafizya and Alimuddin.[7] The research on constellations based on field research is found in the research of Aditya Putra Ferza, and the research conducted by Muhammad Firli Yanto.[8] From some of these studies, each study discusses the function of constellations in aspects of civilization and culture sporadically. Meanwhile, in this study, the discussion of the function of constellations in scientific aspects, namely astrology and astronomy is complex with library research-based research.

In addition to research on constellations, several previous studies have been conducted by researchers who use the *Tafsir 'Ilmi* of the Ministry of Religion as the object of research on *kauniyah* verses. Among them are Hidayatul Mardiah's research, and the research conducted by Fitri Purwanti.[9] From some of these studies, there has been no research on the *'Ilmi* interpretation of the Ministry of Religion that examines constellations. The study of stars is usually done by referencing contemporary interpretive books such as the work of Maisy Rezkiani Lubis, and the research of Elin Srimulyani.[10] This proves that research on the *'Ilmi Tafsir* of the Ministry of Religion is still in the general study of *kauniyah* verses, while research on stars is still fixated on interpretations that use the *tahlili* method. Thus, this author's research will provide a new face in examining the *'Ilmi* interpretation of the Ministry of Religion by examining specifically constellations, as well as implying it with scientific developments through scientific approaches and *maudhu'i* methods typical

[4]Achmad Baiquni, *Al-Qur'an dan Ilmu Pengetahuan Kealaman*, 79.

[5]Earlier scientists believed that nature is infinite in the dimension of space and infinite in the dimension of time (eternal). In fact, the fixed stars are scattered in the universe and not gathered in the middle of it making that belief grow strong. Someone who can Achmad Baiquni, 92–93.

[6]The universe is impermanent and created by God Almighty at any given moment. Someone who can Achmad Baiquni, 93.

[7]Sadri Saputra dan Muammar Bakri, "Implementasi Rasi Bintang Navigasi Bugis Perspektif Ilmu Falak," *Hisabuna: Ilmu Falak* 1, no. 1 (2020): 118–28; Nurfahizya and Alimuddin, "Metode Perbandingan Pengukuran Arah Kiblat Menggunakan Rasi Bintang dengan Azimuth Matahari," *Hisabuna: Ilmu Falak* 2, no. 3 (2021): 148–62.

[8]Muhammad Firli Yanto, *"Studi Analisis Penentuan Waktu Rasdu Al-Qiblah Harian Bintang Menggunakan Astrolabe RHI,"* Skripsi (Semarang: UIN Walisongo, 2019); Aditya Putra Ferza, *"Simulasi Pengamatan dan Pengenalan Rasi Bintang dan Karakteristiknya Dengan Menggunakan Teknologi Google Cardboard,"* Thesis (Surabaya: Institut Teknologi Sepuluh Nopember, 2016).

[9]Fitri Purwanti, "Penafsiran Ayat-ayat Astronomi Agama (Studi Metode Tafsir 'Ilmi Kementerian Agama)," *Al-Fath* 12, no. 01 (2018); Hidayatul Mardiah, *"Ayat-ayat Alam Semesta dalam al-Qur'an (Penafsiran Tentang Langit dan Bumi) Perspektif Tafsir 'Ilmi Kemenag-LIPI,"* Skripsi (Lampung: UIN Raden Intan, 2018); Fadhilah, *"Tafsir 'Ilmi tentang Bintang dalam al-Qur'an: Studi Komparatif Tafsir al-Jawahir karya Thanthawi Jauhari dan Tafsir 'Ilmi karya Tim Lajnah Pentashihan Mushaf al-Qur'an."*

[10]Maisy Rezkiani Lubis*, "Makna al-Burûj dalam al-Qur'an Menurut Thanthawi Jawhari dalam Tafsir al-Jawahir";* Elin Srimulyani, *"Fenomena Bintang al-Syi'ra dalam Ilmu Astronomi (Implementasi Muatan Tafsir bil Ma'tsur dalam Tafsir Jami' al-Bayan Fi Takwil al-Qur'an Karya Imam ath-Thabari),"* Skripsi (Pekanbaru: UIN Sultan Syarif Kasim Riau, 2020).

of the *'Ilmi* interpretation of the Ministry of Religion.

The interpretation of the star verses has been done by many contemporary mufasir. In practice, the study of constellations conducted by *mufasir* and academics is still minimal and limited to the term star. Whereas constellations are derived from the element of the star itself and have a variety of functions for the benefit of man, although the Qur'ân does not mention them textually. Thus, to study the constellations, the author uses the *Tafsir 'Ilmi* (published by the Ministry of Religion) which is one of the icons of Indonesian interpretation. In addition, this research will focus on the study of constellations with the help of the Qur'ân and implicateurize it for the development of astronomy and astrology without excluding existing scientific data.

Departing from the above presentation, this study aims to identify verses of the Qur'ân about the function of constellations. In addition, it reveals the benefits of constellations in the continuity of human life by referring to the interpretation of *'Ilmi* published by the Ministry of Religion. Thus, this study will be able to show the existence of implications or links between constellations and the development of Astronomy and Astrology.

The Qur'ânic View of the Constellations

In the al-Qur'ân, the universe is referred to as *as-Sama'* or *Samâwat* even though it means the sky.[11] However, given its essence and existence, the vast sky can reflect the universe which is also infinite. The words *as-Sama'* and *as-Samâwat* are mentioned in the al-Qur'ân 308 times.[12] About the sky or the vast expanse of the universe, stars are celestial bodies of which there are very many, having light scattered on the celestial dome in an unchanging pattern, at a fixed distance (angle) from one another.

Stars are celestial bodies composed of burning dust and gas, such as the sun, nebulae, or clouds.[13] According to astronomy, a star is a celestial body that emits light, because of the hydrogen nuclear reactions that take place in its entire body.[14] In the al-Qur'ân there are different terms for stars, namely *Najm* (Star), *Kawakib* (Star or Planet), and *Buruj* (Cluster of Stars). Among these three terms, scholars interpret the word star as *Najm* or the plural *Nujum*. Meanwhile, the word *Kawakib* or *Kaukab* has the meaning of a star but also contains the meaning of a planet in it. Meanwhile, the word *Buruj* means a cluster or cluster of stars.[15]

In some interpretations, the word *al-Buruj* is often associated with the 12 zodiacs or 12 constellations.[16] However, most commentators interpret *al-Buruj* as a cluster of stars.[17] According to Salman's interpretation, a star

[11]Ibid., 164.

[12]Ibid., 163; Meanwhile, in the Mu'jam book the word *as-Sama'* is mentioned 120 times and the word *as-Samâwat* is mentioned 190 times, Someone who can: Muhammad Fu'ad Abd al-Baqi, *Al-Mu'jam al-Mufahras Li Alfazh al-Qur'an al-Karim*, 1st ed. (Kairo: Dâr al-Kutub al-Mishriyah, n.d.), 362–366.

[13]Muhammad Izal M., "Bintang Syi'ra dalam Perspektif Mufassir dan Sains" (Semarang: UIN Walisongo, 2019), 41. A nebula is a glowing fog or cloud of dust and gas in a large mass. Nebula is widely believed by astronomers as a forerunner to the formation of a star system. Someone who can Hartono, *Geografi: Jelajah Bumi dan Alam Semesta*, ed. by Toni Kurniawan, 1st ed. (Bandung: Citra Praya, 2007), 30.

[14]Fatimah, "Ayat-ayat Sains dalam al-Qur'an (Tela'ah Balaghoh)," *Al-Hikmah* 5, no. 2 (2017), 3.

[15]Wahid Nur Afif, "Bintang dalam Perspektif al-Qur'an (Studi Tafsir Tematik)" (Ponorogo: IAIN Ponorogo, 2019), 19–25.

[16]Tim Tafsir Ilmiah Salman ITB, *Tafsir Salman: Tafsir 'Ilmiah Juz 'Amma*, ed. by Ahmad Baiquni, 1st ed. (Bandung: Mizan Pustaka, 2014), 222; Some scholars understand the word *al-Buruj* in the sense of a cluster of stars, that is, the location of stars that appear in the sky in various forms and divided into twelve kinds, each of which is called a constellation. See, M. Quraish Shihab, *Tafsir al-Mishbah (Pesan, Kesan dan Keserasian al-Qur'an),* Vol. 15 (Jakarta: Lentera Hati, 2005), 154.

[17]Tim Tafsir Ilmiah Salman ITB, 221; However, in *Tafsir Al-Jawahir*, The word *al-Buruj* or *Burja* is interpreted with القصور او الحصون المرتفعة which means a high palace or fortress.Lihat, Tantawi Jawhari, *Al-Jawahir fi Tafsir al-Qur'an al-Karim,* Vol. 3 (Mesir: Musthafa al-Baby al-Halaby, n.d.), 63.

cluster is a collection of stars that form a cluster because they are formed close together.[18] Meanwhile, star clusters are often referred to as star clusters, which are a group of stars that are gravitationally linked and divided into globular clusters and open clusters. Meanwhile, a constellation is a group of stars that are interconnected to form a special configuration. Thus, constellations and star clusters have different meanings even though both are formed from a collection of stars.

Implicitly, the constellations are not mentioned at all in the Qur'ân, both from the lexical and grammatical structure of the verses. To understand the meaning of the constellations in the Qur'ân, it is necessary to know the constituent elements, namely the stars or *an-Najm*. The term *Najm* in the Qur'ân, both in the form of *mufrad* and in its plural, is mentioned 13 times. In the *mufrad* form, the word *an-Najm* is mentioned 4 times, and the remaining 9 times in its plural form, namely *Nujum*.[19] These verses talk about various issues related to stars, namely the nature of the creation of stars, the functions of stars, and the symbolic meaning of stars.

The word *Najm* or *Nujum* which talks about the essence of the creation of stars can be seen in the editorial of surah al-A'raf (7): 54, an-Nahl (16): 12, al-Hajj (22): 18 and ar-Rahman (55): 6.

إِنَّ رَبَّكُمُ ٱللَّهُ ٱلَّذِى خَلَقَ ٱلسَّمَـٰوَٰتِ وَٱلْأَرْضَ فِى سِتَّةِ أَيَّامٍ ثُمَّ ٱسْتَوَىٰ عَلَى ٱلْعَرْشِ يُغْشِى ٱلَّيْلَ ٱلنَّهَارَ يَطْلُبُهُۥ حَثِيثًا وَٱلشَّمْسَ وَٱلْقَمَرَ وَٱلنُّجُومَ مُسَخَّرَٰتٍۭ بِأَمْرِهِۦٓ ۗ أَلَا لَهُ ٱلْخَلْقُ وَٱلْأَمْرُ ۗ تَبَارَكَ ٱللَّهُ رَبُّ ٱلْعَـٰلَمِينَ ﴿٥٤﴾

Meaning: *"Surely your Lord is Allah who created the heavens and the earth in six days, then He resided on the 'Throne. He closes the night to the day that follows quickly, and (He also created) the sun, moon, and stars (respectively) submit to His command. Remember, creating and a ruling is only the right of Allah. Glory be to Allah, Lord of the Worlds"* (Q.S. al-A'raf [7]: 54).

وَسَخَّرَ لَكُمُ ٱلَّيْلَ وَٱلنَّهَارَ وَٱلشَّمْسَ وَٱلْقَمَرَ ۖ وَٱلنُّجُومُ مُسَخَّرَٰتٌۢ بِأَمْرِهِۦٓ ۗ إِنَّ فِى ذَٰلِكَ لَـَٔايَـٰتٍ لِّقَوْمٍ يَعْقِلُونَ ﴿١٢﴾

Meaning: *"And He has subjected the night and the day, the sun and the moon to you. And the stars were subdued (for you) by His command. Verily, in that there are indeed signs (of Allah's power) for people who understand (it)"* (Q.S. an-Nahl [16]: 12).

أَلَمْ تَرَ أَنَّ ٱللَّهَ يَسْجُدُ لَهُۥ مَن فِى ٱلسَّمَـٰوَٰتِ وَمَن فِى ٱلْأَرْضِ وَٱلشَّمْسُ وَٱلْقَمَرُ وَٱلنُّجُومُ وَٱلْجِبَالُ وَٱلشَّجَرُ وَٱلدَّوَآبُّ وَكَثِيرٌ مِّنَ ٱلنَّاسِ ۖ وَكَثِيرٌ حَقَّ عَلَيْهِ ٱلْعَذَابُ ۗ وَمَن يُهِنِ ٱللَّهُ فَمَا لَهُۥ مِن مُّكْرِمٍ ۚ إِنَّ ٱللَّهَ يَفْعَلُ مَا يَشَآءُ ﴿١٨﴾

Meaning: *"Do you not know that to Allah prostrate what is in the heavens, on the earth, the sun, the moon, the stars, the mountains, the trees, the animals that creep and most of the people? And many people have been punished for it. And whoever Allah humiliates, no one glorifies him. Surely Allah does what He wills"* (Q.S. al-Hajj [22]: 18).

وَٱلنَّجْمُ وَٱلشَّجَرُ يَسْجُدَانِ ﴿٦﴾

Meaning: *"And the plants (stars) and trees both submit to Him"* (Q.S. ar-Rahman [55]: 6).

These four verses show the nature of the creation of stars, namely submission to Allah

[18]Tim Tafsir Ilmiah Salman ITB, 225.

[19]Al-Baqi, *Al-Mu'jam al-Mufahras Li Alfazh al-Qur'an al-Karim*, 688–89.

and prostrating to Him as a sign of Allah's power over whatever He wills. So that humans can take compassion and return to the right path.

The al-Qur'ân through its verses reveals that the star can function as a means of the oath, as seen in the editorial of Surah an-Najm (53): 1 and al-Waqiah (56): 75.

وَٱلنَّجۡمِ إِذَا هَوَىٰ ۝١

Meaning: *"By the stars when they go down"* (Q.S. an-Najm [53]: 1).

۞ فَلَآ أُقۡسِمُ بِمَوَٰقِعِ ٱلنُّجُومِ ۝٧٥

Meaning: *"So I swear by the time when parts of the Qur'ân were revealed"* (Q.S. al-Wâqiah [56]: 75).

On the other hand, the stars also function as a decoration for the sky and a guide for humans. As contained in the Surah at-Tariq (86): 3, al-An'am (6): 97, an-Nahl (16): 16, at-Tur (52): 49.

ٱلنَّجۡمُ ٱلثَّاقِبُ ۝٣

Meaning: *"(namely) a star whose light penetrates"* (Q.S. at-Tariq [86]: 3)

وَهُوَ ٱلَّذِي جَعَلَ لَكُمُ ٱلنُّجُومَ لِتَهۡتَدُواْ بِهَا فِي ظُلُمَٰتِ ٱلۡبَرِّ وَٱلۡبَحۡرِۗ قَدۡ فَصَّلۡنَا ٱلۡأٓيَٰتِ لِقَوۡمٖ يَعۡلَمُونَ ۝٩٧

Meaning: *"And it is He who made the stars for you, so that you may make them guides in darkness on land and in the sea. Verily, We have explained (Our) signs to those who know"* (Q.S. al-An'am [6]: 97).

وَعَلَٰمَٰتٖۚ وَبِٱلنَّجۡمِ هُمۡ يَهۡتَدُونَ ۝١٦

Meaning: *"And (He created) signs (guides). And it is by the stars that they are guided"* (Q.S. an-Nahl [16]: 16).

وَمِنَ ٱلَّيۡلِ فَسَبِّحۡهُ وَإِدۡبَٰرَ ٱلنُّجُومِ ۝٤٩

Meaning: *"And glorify Him at certain times of the night and at the setting of the stars (at dawn)"* (Q.S. at-Tur [52]: 49).

Editorially, the four verses above show the meaning of starlight that can penetrate the darkness of the night and can decorate the sky. Then, these stars can function as a guide in the dark, a guide, and a dawn marker if the star has set. This proves that stars can be used by humans as a guide.

In another context, the Qur'ân emphasizes that humans should explore and take advantage of what God has created, especially in the use of celestial bodies such as stars. As stated in Surah ar-Rahman (55): 33.

يَٰمَعۡشَرَ ٱلۡجِنِّ وَٱلۡإِنسِ إِنِ ٱسۡتَطَعۡتُمۡ أَن تَنفُذُواْ مِنۡ أَقۡطَارِ ٱلسَّمَٰوَٰتِ وَٱلۡأَرۡضِ فَٱنفُذُواْۚ لَا تَنفُذُونَ إِلَّا بِسُلۡطَٰنٖ ۝٣٣

Meaning: *"O congregation of jinn and humans, if you can penetrate (cross) the corners of the heavens and the earth, then cross it, you cannot penetrate it except by force"* (Q.S. ar-Rahman [55]: 33).

Editorially, the verse above does not mention the word *Najm* or *Nujum*, but rather an order to explore the heavens and the earth. To be able to explore the sky, humans must master vehicle technology and knowledge of natural phenomena. Thus, to go to the sky humans use spacecraft such as Discovery, as well as to determine the direction of the astronauts can use fixed constellations.

Behind the verses about the stars, there is a symbolic meaning contained in the word *Nujum*, which is contained in the Surah as-Saffat (37): 88.

فَنَظَرَ نَظۡرَةٗ فِي ٱلنُّجُومِ ٨٨

Meaning: *"Then he glanced at the stars"* (Q.S. as-Saffat [37]: 88).

The implied meaning contained in the verse above is in following the explanation in the interpretation of *Hidâyatul Insan bi Tafsîril Qur'ân*, namely that the people of the Prophet Ibrahim were people who used to study astrology, so one day they came out to the place where they were celebrating the feast and left their food near the statues while colliding (taking blessings) from the statues, where if they come back, they will eat the food. When they were about to leave, they met Prophet Ibrahim and said to him, "Come out with us." Then the Prophet Ibrahim glanced at the stars and said, "Indeed I am sick," with the intention that he remained there to carry out his plan to destroy their idols. In an authentic hadith it is stated, that Prophet Ibrahim 'alaihis salam did not lie except in three circumstances; two of which were done because of Allah 'Azza wa Jalla, namely his words, "Indeed I am sick," his words, "Even this big statue did it (which destroyed it)," and his words about his wife, "Indeed she is my sister".[20]

Besides that, the symbolic meaning contained in the star verses is also found in Surah al-Mursalat (77): 8 and at-Takwir (81): 2.

فَإِذَا ٱلنُّجُومُ طُمِسَتۡ ٨

Meaning: *"Then when the stars have been abolished"* (Q.S. al-Mursalat [77]: 8).

وَإِذَا ٱلنُّجُومُ ٱنكَدَرَتۡ ٢

Meaning: *"And when the stars fall"* (Q.S. at-Takwir [81]: 2).

The two verses above use the word *Nujum* to describe the condition of the stars in the sky when their light has been extinguished and they fall on each other. So, if the star has fallen and its light has disappeared, it is a sign of the coming of the Last Days. So, the meaning contained in it is a description of the last day.

Thus, the Qur'ân explicitly uses the term star (*Najm* or *Nujum*) to introduce humans to take advantage of what Allah has created and not ignore it. Even in several other verses, the Qur'ân implicitly proves that humans should be able to explore their abilities to penetrate the heavens and the earth. From the identification of the verses above, not all verses with the editorial najm or astrologers contain the functions of the constellations. Thus, the verse about the constellations in the Qur'ân consists of three verses, namely in surah an-Nahl (16): 16, al-An'am (6): 97, and ar-Rahman (55): 33.

[20]Abu Yahya Marwab bin Musa, *Hidayatul Insan bi Tafsir Al-Qur'an Al-Karim*, vol. 3, 2010, 418, www.tafsir.web.id.

Table 1. Grouping identification verse constellations

No.	Identify the verses about the constellations	
	Distribution of verses of the Qur'ân	Functions of the Constellations
1.	Q. S. an-Nahl (16): 16 ...وَبِٱلنَّجْمِ هُمْ يَهْتَدُونَ	The constellations serve as clues. As the Crux constellation is used by humans as a navigational tool in determining the south direction.
2.	Q. S. al-An'am (6): 97 ...ٱلنُّجُومَ لِتَهْتَدُوا۟ بِهَا فِى ظُلُمَٰتِ ٱلْبَرِّ وَٱلْبَحْرِ...	The constellations serve as clues in the dark. As the constellation Orion (Waluku) is used as a sign of the time to plant rice for Indonesian farming communities.
3.	3Q. S. ar-Rahman (55): 33 ...وَٱلْإِنسِ إِنِ ٱسْتَطَعْتُمْ أَن تَنفُذُوا۟ مِنْ أَقْطَارِ ٱلسَّمَٰوَٰتِ وَٱلْأَرْضِ فَٱنفُذُوا۟...	The constellations serve as directions for astronauts. Just as astronauts use a fixed constellation pattern to navigate their way to other planets.

The three verses above form the basis of this research in interpreting the constellations. The rest, through the Ministry of Religion's scientific interpretation of the three verses, will be comprehensively analyzed about their meaning from various aspects.

Interpretation of the Constellation According to the Ministry of Religion's Scientific Interpretation

The Ministry of Religion's Scientific Interpretation entitled "The Benefits of Heavenly Bodies" is the result of a combination of modern science and verses from the al-Qur'ân about astronomy, then explains the various benefits of celestial bodies and contains interpretations of verses from the al-Qur'ân from the scholars' and scientists with a systematic design.[21] This is shown by the explanation that star clusters have various uses, such as constellations as a determinant of direction, time, and seasons and star clusters as an indicator of the extent of the sky. The thematic interpretation method is used to analyze al-Qur'ân verses related to the topic of discussion of science in the Scientific Interpretation of the Ministry of Religion. In this interpretation, the discussion focuses on scientific findings (science) on the al-Qur'ân.[22] However, it should be emphasized that not all of the *Kauniyah* verses in the Qur'ân can be explained through scientific findings.[23]

In the scientific interpretation of the Ministry of Religion, the constellations are used to identify the pattern of the position of the stars in knowing the direction of the sky.[24] In the 1950s, the constellation area was regulated and it was agreed that 88 constellations had been agreed upon through the International Astronomical Union (IAU), consisting of 29 constellations in the southern sky and 47 constellations in the northern sky with names

[21]Purwanti, *"Penafsiran Ayat-ayat Astronomi Agama (Studi Metode Tafsir 'Ilmi Kementerian Agama),"* 19.

[22]Lajnah Pentashihan al-Qur'an Kemenag RI dan Lembaga Ilmu Pengetahuan Indonesia (LIPI), *Manfaat Benda-Benda Langit dalam Perspektif al-Qur'an dan Sains*, xiii.

[23]Faizin, "Integrasi Agama dan Sains dalam Tafsir 'Ilmi Kementerian Agama RI," *Jurnal Ushuluddin* 25, no. 1 (2017): 27, https://doi.org/10.24014/jush.v25i1.2560. This is due to the factual nature of the verses of the Qur'an that cannot be explained empirically through science.

[24]Lajnah Pentashihan al-Qur'an Kemenag RI dan Lembaga Ilmu Pengetahuan Indonesia (LIPI), 146.

and boundaries (predefined limits).[25] Thus, it is not surprising that the constellations have various uses, such as navigation, to determine the season before farming, and as a calendar.[26]

In the scientific interpretation of the Ministry of Religion, the constellation contains several benefits for human survival. Of course, this is still guided by the verses of the Qur'ân which contain instructions for researching and exploring outer space, especially in utilizing the constellations. So that there are three verses of the Qur'ân that are explained by the Ministry of Religion's scientific interpretation in exploring the use of constellations contextually, as follows:

Constellations as Signposts

One of the functions of the constellations is to serve as a guide for human survival, such as the Crux constellation, which is usually used to mark the south, while the north is marked by the constellations Ursa Major and Ursa Minor.[27] The unchanged position of the stars can be used to determine the direction and determine time. Thus, the Ministry of Religion's scientific interpretation finds a hint of this in the word of Allah in the letter an-Nahl (16): 16, as follows:

وَعَلَٰمَٰتٍۚ وَبِٱلنَّجۡمِ هُمۡ يَهۡتَدُونَ ١٦

The Ministry of Religion's scientific interpretation shows the *munasabah* of this verse, namely in the previous verse Allah explained the creation of mountains as a kind of peg that keeps the earth from shaking and rivers and roads as a guide. Then in this verse, Allah explains that the creation of the stars in the sky can be used to determine direction and time.[28]

Directions and time indications for the functioning of the stars can be read through the patterns of the positions of the stars or constellations. Fishermen, travelers, or people whose professions require directions for sailing or traveling from one place to another, especially at night, so they can continue their journey and arrive at the desired place. To guide them in determining directions during night travel on land and at sea they use fixed stars.

In the past, there were navigational tools in the form of a compass, GPS, and maps. Humans use the stars in the sky to determine direction.[29] In addition, in the past, there was very little light, so the use of the constellations in determining direction was very efficient. However, a group of stars that can be used to determine direction is a group of stars that are always in a certain position and don't change.

The constellations Crux and Ursa Major which are used for directions can be measured as follows: the southern cross constellation or the constellation Crux or the Southern Cross or as-Salib al-Janubiy. How to determine the south direction with the help of the Crux star, that is, starting from Gamma Cruxis, a straight line is drawn towards Alpha Cruxis and then cuts the horizon, so that the point of intersection is south. Meanwhile, the constellation Big Dipper or Big Bear or Ursa Major or ad-Dubb al-Akbar can be used to determine the north point by drawing a straight line from beta ursa majorise to alpha ursa majorise, then the point of intersection of the horizon on that line indicates north.[30]

That is proof of the majesty of Allah who can arrange and control objects in space in such a way that humans can use them to determine

[25]Lina Cahyowati dan Estiarto Wahyu Sumirat, "Aplikasi Ramalan Bintang Berbasis Multimedia," *Journal Speed-Sentral Penelitian Engineering dan Edukasi* 2, no. 1 (2010): 38.

[26]Ferza, *"Simulasi Pengamatan Dan Pengenalan Rasi Bintang Dan Karakteristiknya Dengan Menggunakan Teknologi Google Cardboard,"* viii.

[27]Lajnah Pentashihan al-Qur'an Kemenag RI dan Lembaga Ilmu Pengetahuan Indonesia (LIPI), 146.

[28]Ibid., 146.

[29]Ibid., 147.

[30]Ibid., 148.

direction. With His power, He created all that exists with the benefit of each. He controls the positions of the stars in such a way; some move in certain directions and some always remain in their particular positions.[31] Thus, surah an-Nahl (16): 16 contains the function of the constellations, namely, as navigation or directions.

Constellations as Determinants of Time and Seasons

The function of the constellations is not only as a guide, but also can be used as a determinant of time. In astrology, the positions of the stars determine the current times. This has been hinted at by Allah in His word Surah al-An'am (6): 97, namely:

وَهُوَ ٱلَّذِى جَعَلَ لَكُمُ ٱلنُّجُومَ لِتَهْتَدُوا۟ بِهَا فِى ظُلُمَٰتِ ٱلْبَرِّ وَٱلْبَحْرِ ۗ قَدْ فَصَّلْنَا ٱلْءَايَٰتِ لِقَوْمٍ يَعْلَمُونَ ﴿٩٧﴾

This verse explains that the creation of the stars has a purpose, namely so that humans can make them determine their direction at night. This is evidenced by the existence of Stellar Navigation, which is commonly used to identify the positions of the constellations as directions to distant places. As was done by sailors from the Vikings, Romans, Greeks, Arabs, Spanish, Portuguese, and others in making voyages to distant places they used the constellations as a navigational tool.[32]

In the Scientific Interpretation of the Ministry of Religion, this verse describes the benefits of the stars, especially the constellations. By their position in the wide sky, humans can use them to determine the direction and determine time. The stars that can be used for this are those with a fixed position (fixed stars), that is, the stars have a fixed constellation. Meanwhile, the stars that move (as-sayyārāt) and move from one constellation to another cannot be used as a determinant of time.[33]

Apart from that, constellations can also be used to determine a season. One way to find out the arrival of a season is by observing the stars between the rising and setting of the sun (manzilah). The beginning of spring, which is March 21, is marked by the emergence of the constellation *Haml* (Aries) together with the setting of the sun. Meanwhile, at the beginning of summer, which is June 21, when the constellation *Saratan* (Cancer) appears at the same time as the sun sets. However, if the constellation *Mizan* (Libra) is seen accompanying the setting sun, then that means the beginning of autumn, which is September 23. Meanwhile, to find out the arrival of winter, namely December 22, it is marked by the sun that sets together with the constellation *Jady* (Capricornus).[34] The seasons apply to areas located north of the Equator, and the opposite applies to areas south of the Equator.[35] By paying attention to the movement of celestial bodies such as stars that form constellations, people who have expertise or knowledge about astronomy or astrology will be able to predict when it is winter and when it is springtime.

Of the several constellations that have been described, 12 constellations are popular of all of them, namely the Constellations *Ĥaml* (Aries), *Šaur* (Taurus), *Jauzā'* (Gemini), *Saraṭān* (Cancer), *Asad* (Leo), *Sunbulah* (Virgo), *Mīzān* (Libra), *'Aqrab* (Scorpio), *Qaus* (Sagitarius), *Jady* (Capricornus), *Dalw* (Aquarius), dan *Ĥūt* (Pisces).[36] In fact, in astrology the 12 constellations are groups (clusters) of stars whose structure is the same as the shape of a

[31]Ibid., 148.
[32]Ibid., 148.
[33]Ibid., 150.
[34]Lajnah Pentashihan al-Qur'an Kemenag RI dan Lembaga Ilmu Pengetahuan Indonesia (LIPI), 150–51.
[35]Afif, "Bintang Dalam Perspektif al-Qur'an (Studi Tafsir Tematik)," 47.
[36]Lajnah Pentashihan al-Qur'an Kemenag RI dan Lembaga Ilmu Pengetahuan Indonesia (LIPI), 148.

certain object or animal. Therefore, its naming corresponds to its form in Latin.

Based on the description above, the content contained in Surah al-An'am (6): 97 is not only focused on the use of constellations as a determinant of direction in the dark. The signs of God's greatness can be seen in the use of constellations as the determinants of the seasons. Thus, the content of meaning in surah al-An'am (6): 97 according to the *'Ilmi* interpretation of the Ministry of Religion is that constellations can be used as clues in determining certain seasons and used as a determinant of time in the dark.

Constellations as Determinants of Direction in Space

The Qur'ân in some of its verses encourages humans to master the subject of space. As suggested this can be found in the previous section. The stars can also be used to determine the direction of the journey to space. Given the advancement of technology, Stellar Navigation is also used as a direction determinant on the way to space. Its use is certainly not just used because it requires special abilities and expertise to operate it on a trip to space. The motivation to explore space comes in the word of Allah surah ar-Rahman (55): 33, as follows:

يَـٰمَعۡشَرَ ٱلۡجِنِّ وَٱلۡإِنسِ إِنِ ٱسۡتَطَعۡتُمۡ أَن تَنفُذُواْ مِنۡ أَقۡطَارِ ٱلسَّمَـٰوَٰتِ وَٱلۡأَرۡضِ فَٱنفُذُواْۚ لَا تَنفُذُونَ إِلَّا بِسُلۡطَـٰنٍ ﴿٣٣﴾

Tafsir 'Ilmi (published by the Ministry of Religion) interprets this verse as a motivation for humans to research and pay attention to the universe. With this research, humans are expected to be able to know the nature of the universe and use it for their welfare. To achieve that goal, humans must meet one condition, namely the ability in the form of science and technology.

As is known, fixed constellations can be used to set directions. This is also true in space travel i.e., when heading for Jupiter, the moon, or other planets. The astronauts used fixed constellations as directions, though they stayed with the aids known, fixed constellations can be used to set directions. This is also true in space travel i.e., when heading for Jupiter, the moon, or other planets. The astronauts used fixed constellations as directions, though they kept the help of Stellar Navigation.[37] Space vehicles can head towards the earth with the help of clues from those stars.[38] Such is the evidence of God's power shown through the creation of celestial bodies including stars. By using reason to analyze and think about His creation, man has consciously believed all the phenomena that God has shown to conclude that the existence of these is evidence of God's dominion. Thus, surah ar-Rahman verse 33 signals that constellations can be used as directions for astronauts traveling in space.

Based on the analysis of the three verses above, it can be concluded that constellations have three functions, among them, functioning as directional indicators both on earth and in the sky, as well as serving to determine certain seasons and times. Some of these functions are the basis for implying the results of the interpretation of constellations to scientific development. Of course, the interpretation of the *'Ilmi* of the Ministry of Religion can provide an overview of the development of science following the three functions of constellations.

Implications of Constellation Interpretation in the Ministry of Religion's *'Ilmi* Interpretation of Scientific Development

Based on the study of the *'Ilmi* interpretation of the Ministry of Religion, constellations

[37]Purwanti, "Penafsiran Ayat-ayat Astronomi Agama (Studi Metode Tafsir 'Ilmi Kementerian Agama)," 28.

[38]Lajnah Pentashihan al-Qur'an Kemenag RI dan Lembaga Ilmu Pengetahuan Indonesia (LIPI), 150.

have three functions, namely directional indicators, time determinants, and seasonal determinants. This can affect the development of science, especially the sciences that study celestial bodies including stars, namely astronomy and astrology. As explained in the *'Ilmi* interpretation of the Ministry of Religion, the three functions of constellations, namely directional indicators, time-setters, and seasonal determinants, are related to astronomy, especially in the development of produced technologies such as Sextant, Stellarium, and Astrolabe. Meanwhile, the field of astrology has implications only on the function of constellations as a determinant of seasons, namely the emergence of constellations used by Javanese astrology as a calendar to determine certain seasons.

First, these two sciences, known as astrology in 4500 BC are thought to have appeared in the Sumerian civilization and became the pioneers for the civilization that followed, namely the civilization of the Babylonian nation.[39] According to the findings of experts, the language used to name the stars comes from the Sumerian language, even the names, and images of constellation patterns are found on seals, vases and game boards that are allegedly of Sumerian origin. So from some of these discoveries, it is known that the Sumerians have understood the image of the constellation (constellation) of stars since the 3500th century BC.[40]

In the 17th century, the science of astrology began to be separated from astronomy. This is because the two have different methods of studying the universe, especially celestial bodies. Astrological science in studying the universe, especially stars, is synonymous with things that are clerical or do not follow scientific rules, while astronomy in studying the universe uses scientific methods and calculations.[41] So, astrology and astronomy is a study of different sciences, but it has the same object of study, which is to study celestial bodies, especially stars. Star studies conducted by astronomy are based on scientific observations and calculations. Meanwhile, stellar studies conducted by astrology are based on the position of stars that form patterns resembling animals or objects and are connected to events on earth. So in its development, these two sciences have different developments, especially in terms of the utilization of constellation functions.

Implications for the Development of Astronomy

Astronomy is a science that uses the scientific method in studying celestial bodies, especially stars. Even in the history of science, astronomy is positioned as the oldest science in the world, so it is often dubbed the "queen of science" even though it was always juxtaposed with astrology.[42] Astronomy is one of the sciences that has a special position in Islam and is respected by religious experts for its role in observing celestial bodies that are useful as part of muslim worship. Therefore, many Muslim scientists study and observe the motion of celestial bodies through astronomy, so they can use them to determine the direction of *qibla*, establish the arrival of prayer times, and the means to create calendars or almanacs.

Historically, the Mesopotamians began to introduce astronomy to nations in Sumer, Babylonia, Egypt, Persia, Mayans, Indians, and Chinese i.e. around 3000-2000 BC. Later, astronomy turned *qibla* to the Arabs, precisely in the middle ages after the collapse of the Greek and Roman times. The development

[39]Riza Afrian Mustaqim, *Ilmu Falak*, ed. by Dedi Fazriansyah Putra, 1st ed. (Aceh: Syiah Kuala University Press, 2021), 9.
[40]Abdul Syukur al-Azizi, *Untold Islamic History*, ed. by Yanuar Arifin, 1 ed. (Yogyakarta: Laksana, 2018), 35.
[41]Cahyowati dan Sumirat, "Aplikasi Ramalan Bintang Berbasis Multimedia," 38.
[42]Abdul Syukur al-Azizi, 32.

of astronomy experienced rapid progress in the heyday of Islam, namely around the 8th-15th centuries AD. This is evidenced by the translation of several star names into Arabic such as the stars *Aldebaran* and *Altair*, *Alnitak*, *Alnilam*, *Mintaka* (which are included in the three bright stars in the constellation Orion).[43] So that Muslim astronomers were born who were very concerned about the development of knowledge, especially in the field of astronomy. This was supported by the government institutions of that century, namely by transferring the language in the books to Arabic.

The science of astronomy that has previously undergone development, by Islamic scholars, carried out a process of renewal, namely, revised and included various crucial additions, especially converting astronomical theories that were originally clerical in nature and then expanded data using the analysis of scientific observations, mathematics, and engineering.[44] So astronomical telescopes were created, namely giant telescopes with a lens diameter of up to 300 meters. The telescope is capable of observing a circle of light 16 millimeters in diameter of light-years. One million light-years alone are equivalent to 9.5 trillion kilometers.[45] The telescopes rely on the cruising of invisible waves that are associated with radio waves. With this wave, giant telescopes have succeeded in estimating the number of stars in the Milky Way galaxy, which is about 30 billion stars. There is a star in the constellation Scorpio whose area is sufficient to accommodate the earth and sun along with space as wide as the distance between them.[46]

Early spring, March 21, is marked by the appearance of the constellation *haml* (Aries) along with the setting of the sun. As for the beginning of summer, which is June 21, when the constellation *Saratan* (Cancer) appears at the same time as the sun sets. However, if the constellation *Mizan* (Libra) is seen with the setting of the sun, then it means the beginning of autumn, which is September 23. Meanwhile, to find out the arrival of winter, which is December 22, is marked by the setting sun along with the constellation *Jady* (Capricornus).[47] Due to the evolution of the earth around the sun which took a year of the sun (365 days), the position of the sun at sunrise and sunset becomes changes every month. Therefore, one solar year is divided into twelve constellations and twelve months.

In the above, it is enough to prove that constellations serve as determinants of the seasons. The table applies the opposite to areas south of the equator. The determination of the seasons through constellations would not have been possible in the absence of scientific observations and calculations by astronomers. Man since ancient times has sought to recognize the stars and draw maps of the sky to determine the position of the stars and use them as clues at night.

Astronomers make use of constellations to determine direction and time. For example, the constellation *Waluku* is a planting period for farmers. The constellation Cross (kite) is used to determine the direction of the south, and the constellation of the great bear (big dipper) is used as a north directional.[48] To determine the position of their ships and guide the direction, sailors use a device called a sextant, which is

[43]Ibid., 107.

[44]Muhammad Hatta Al-Fattah, *40 Sumpah Terdahsyat dalam al-Qur'an: Mengungkap Rahasia Ayat-ayat Sumpah Terdahsyat dalam al-Qur'an*, ed. by Jasam Nasrullah, 1st ed. (Jakarta: Mirqat, 2012), 38.

[45]Thayyarah, *Buku Pintar Sains dalam al-Qur'an*, 326.

[46]The star is called the star Antares. See Ibid., 326.

[47]Lajnah Pentashihan al-Qur'an Kemenag RI dan Lembaga Ilmu Pengetahuan Indonesia (LIPI), 150–51.

[48]Tethy Ezokanzo and Wahyu Annisha, *Fenomena Alam Unik*, ed. by Dewi Hannie, 1st ed. (Jakarta: Bhuana Ilmu Populer, 2019), 66.

a device for observing constellations when at sea at night as a directional guide.

The contribution of research that astronomers have made to constellations is enormous, especially on the neglected function of constellations. In addition to serving as a determinant of the seasons, constellations also serve as pointers of direction and time. Long before the existence of a compass, astronomers had created a tool that could analyze and find out the position of objects, especially stars, carefully and more easily used, namely the Astrolabe. Using this tool can find out the cardinal direction of a star-like celestial body since the angle of azimuth can change throughout the day. In addition, to find out the local time, the observer simply gives additional time in Astrolabe by using time correction and reducing the time by using the equation of time.[49] Thus, this Astrolabe can provide convenience in determining the direction and time, when the constellation is blocked by clouds at night.

Implications for the Development of Astrology

Astrology is an astrology that uses the structure of constellations as its object and is correlated with events on earth so this science is commonly called shamanic or clerical science.[50] At present, astrology consists of three kinds including *First*, Chinese or Chinese Astrology which is the oldest astrology, although they use animals as a symbol and are used to mark every year in the almanac china, it still has something to do with astrology. *Secondly*, Indian Astrology (jyotisha) is an astrology that developed in India and became part of Wedangga, and is known as one of the ancient astrology that used 12 constellations as its emblem even though the names of the constellations are derived from Sanskrit.

Third, western Astrology is known for its 12 constellations commonly referred to as the zodiac. The twelve constellations are a collection of stars whose structure is the same as a certain object or animal, so the naming of these two constellations is taken from Latin according to their shape. Those constellations are Capricornus, Aquarius, Pisces, Aries, Taurus, Gemini, Cancer, Leo, Virgo, Libra, Scorpio, and Sagitarius.[51] These constellations in western astrology are believed to be a stopping place for gods that can affect the disposition, personality, and fate of a person born in a certain time cycle.

Of the three kinds of astrology, two civilizations highlight elements of constellations such as in Indian and Western astrology. This was followed by Arab civilizations including the Constellations *Ĥaml* (Aries), *Šaur* (Taurus), *Jauzā'* (Gemini), *Saraṭān* (Cancer), *Asad* (Leo), *Sunbulah* (Virgo), *Mīzān* (Libra), '*Aqrab* (Scorpio), *Qaus* (Sagittarius), *Jady* (Capricornus), *Dalw* (Aquarius), and *Ĥūt* (Pisces).[52]

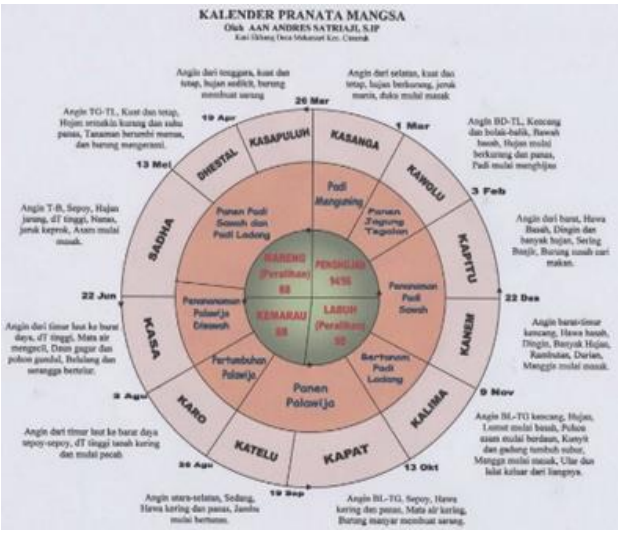
People's beliefs about the science of astrology, especially the zodiac, are still targeted for fortune-telling, although not a few people consider the zodiac to be limited to games. Although this science was met with resistance from scientists and was contrary to religion, it continued to undergo rapid development. This is evidenced by the existence of Javanese astrology or Javanese horoscopes which are part of the Javanese dating system.

During its use, the Javanese calendar gained influence from Hinduism and Islam. As the Javanese calendar recognizes 12 months, *Windu* 8 years, 30 *Wuku*, and 5 Market Days. Javanese Astrology recognizes 12 Prey or Prey

[49]Yanto, "Studi Analisis Penentuan Waktu Rasdu al-Qiblah Harian Bintang Menggunakan Astrolabe RHI," 105.
[50]Cahyowati dan Sumirat, "Aplikasi Ramalan Bintang Berbasis Multimedia," 40.
[51]Lajnah Pentashihan al-Qur'an Kemenag RI dan Lembaga Ilmu Pengetahuan Indonesia (LIPI), 165.
[52] Ibid., 148.

Institutions that are rotated in validity by order and followed back from the beginning if it is one sequence or the cycle ends.[53] This is what makes Javanese astrology similar to other astrology commonly called zodiac or animal shio.

Ficture 1. Prey Institution Calendar by Aan Andres Satriaji, S.IP



The picture above, explains that Javanese astrology, namely Pranata Prey, uses constellations to find out the seasons or climate in an area. This proves that astrology not only divides the constellations into 12 constellations as a mythical prophecy, but the Javanese people use it as a benchmark to know certain seasons. Thus, through Javanese astrology, the function of constellations as a determinant of seasons can be realized properly, although other astrology such as Chinese astrology (shio), Indian astrology, and western astrology (zodiac) still prioritize the aspect of divination of fates.

The prey institution divides a year into 12 prey, namely *kasa*, *karo*, *katelu*, *kapat*, *kalima*, *kanem*, *kapitu*, *kawolu*, *kasanga*, *kasapuluh*, *dhesta*, and *saddha*. Each prey has a star which is a guideline for the beginning and end of a prey. The farmers, therefore, proved the repetition of the seasons by observing the constellations that appear periodically.[54] Prey of *Sapigumarah* starry *gauze*; prey of starred *karo*; prey to *lumbang*-starred *katelu*; prey of *jarandawuk* starry *kapat*; prey of *gotongmayit*-starred *kalima*; the prey of the *Bimasekti* starry *kapitu*; prey of *wulanjarangirim* starred *kawolu*; prey of *Waluku*-starred *kasawa*. Only the last two preys, *dhesta* and *saddha* have the same stars as *katelu* and *karo* prey, namely the *barn* and *Tagih* stars.[55] The ins and outs of this prey institution are no less complicated than the ancient Egyptian, Chinese, Mayan, and Burmese calendars and within them, there is an amazing connection between the cosmography and bioclimatological aspects that underlie the lives of the peasant people.[56]

Conclusion

Stars are celestial bodies that have their light. In the Qur'ân, the star is mentioned 13 times in different verses through the term an-Najm. Starting from this term, the verse that implies that the star can be used as a guide for the way and time is found only in sura al-An'am (6): 97 and surah an-Nahl (16): 16. On the other hand, the letter ar-Rahman (55): 33 comes with a cue for humans to research and utilize knowledge to penetrate the sky. Based on the identification in these verses, the use of stars that form a certain configuration or called constellations can be used as a tool to determine direction and time, both in the sky and on earth.

[53]Suroso Aji Pamungkas, *Horoskop Jawa*, ed. by Tim Narasi, 1st ed. (Yogyakarta: Narasi, 2009), 74.

[54]Bentara Budaya, *Seri Lawasan: Pranata Manggsa* (Jakarta: Kepustakaan Populer Gramedia, 2011), 3.

[55]Ibid., 3.

[56]N. Daldjoeni, *Penanggalan Pertanian Jawa Pranatamangsa: Peranan Bioklimatologis dan Fungsi Sosiokulturalnya*, ed. by Badan Penelitian dan Pengembangan Pendidikan dan Kebudayaan Indonesia, 1st ed. (Yogyakarta: Proyek Javanologi, 1983), 5–6.

The existence of the *'Ilmi* book of interpretation issued by the Ministry of Religion is very relevant for interpreting Q.S. 6: 97, Q.S. 16: 16, and Q.S. 55: 33. In his interpretation of these three verses foster new knowledge including; *First*, Q.S. 16: 16 explains that constellations can be used as signposts on land and at seas, such as the constellation Crux pointing south and the constellation Ursa Major pointing north. *Secondly*, in Q.S. 6: 97 it is asserted that constellations can be used as determinants of time and season, such as the constellations Libra or *Mizan* meaning early autumn. *Third,* Q.S. 55: 33 motivates humans to penetrate the sky and use constellations to determine the direction towards space, such as the use of fixed constellations to determine the direction towards the planets Mars, Jupiter, etc. *Kauniyah* verses are interpreted according to the accompanying scientific aspects, one of which is that these verses about constellations are interpreted based on astronomy and astrology.

In the development of astronomy and astrology, the use of constellations as objects of research has already undergone rapid development. Even these two sciences can discover new findings through the observation of constellations. Scientists in the field of astronomy have created various tools to make it easier for humans to observe the movements of constellations, Sextants, and Astrolabes. Both can be used to determine direction, time, and season through the movement of constellations. Astrologers use constellations as predictions and can assist farmers in managing agricultural land by utilizing memories of the past that then record them so that a calendar or almanac or prey institution (a special calendar for farmers in Java) was created. This prey institution is used to determine the 12 seasons arranged based on the movement of constellations.

This research has only looked at the interpretation of constellations based on the *'Ilmi* interpretation issued by the Ministry of Religion and implied by scientific developments. There are still many interpretations of *'Ilmi* that have not been touched, especially if it is implied by the digital age. Subsequent studies could specifically examine constellations using other primary sources. There are various kinds of *'Ilmi* interpretations such as Tafsir Salman, Tafsir al-Kabir, Tafsir Jawahir, and so on. One of them can be used as a primary reference in research and use relevant approaches.

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