



A Review of Psychology in the Astronomical Thought of Shaykh Abdullah Fahim

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ARTICLE INFO	ABSTRACT
<p>Keywords: astronomy, psychology, Shaykh Abdullah Fahim, motivation</p> <p>DOI: http://dx.doi.org/10.22437/jssh.v7i2.14106</p> <p>Received: July 18, 2021</p> <p>Reviewed: December 2, 2023</p> <p>Accepted: December 3, 2023</p>	<p>Astronomy is a very important field because its use covers the entire daily activities of human beings. With the knowledge of astronomy, humans can plan activities well. This study seeks to examine the philosophy of astronomy in the thought of Shaykh Abdullah Fahim (1869 - 1961 AD), a prominent scholar of Penang and its impact on life. Shaykh Abdullah Fahim received his education in astronomy and other religious sciences in Makkah and Madinah. He also took the Naqsyabandiyah tariqat from his teacher Sayyid Muhammad Amin bin Ahmad Al-Madani. In terms of his educational background, it is almost the same as the Indonesian Minangkabau scholar, Shaykh Muhammad Jamil Jambek bin Saleh Datuak Maleka (1862 - 1947) who has skills in astronomy, and a practitioner of the Naqsyabandiyah tariqah. On the other hand, this study seeks to look at the significance of this field of astronomy to human psychology according to his point of view. This qualitative -based study uses a fully library approach to gather as much information about Shaykh Abdullah Fahim especially in the field of astronomy. Cross reference is made to the figures of the contemporary Malay scholars to obtain further information about the figures involved in teaching astronomy. In the context of psychology, the field of astronomy is not only able to trigger a high level of thinking but at the same time able to provide motivation and inspiration to humans to start an activity in daily life.</p>

1. Introduction

Astronomy is a very important field in human life. The use of astronomy is not only to determine the date of the beginning of fasting or celebrating Eid, but it covers all daily human activities, including the field of health and economy. From a health point of view, astronomical counts are very important to know a woman's menstrual cycle. This is because from the count, one will be able to know the period of fertility and the emotional changes that take place. With such knowledge then the family will be prosperous and effective because daily activities can be planned and controlled well (Hasim, Kashim, Othaman, Yahaya, Khalid, & Samsuddin, 2016: 1882-1883).

Similarly, the practice of cupping (berbekam) is said to be very effective in smoothing blood circulation. In order for the implementation to reach the optimum level, knowledge of the appropriate days to implement it, is very necessary and of course it is related to astronomy. As in the hadith narrated in Jami 'Al-Tirmidhi and Sunan Abi Dawud, the good days for cupping are on the 17th, 19th and 21st according to the month in the Hijri calendar. From a scientific point of view, the blood flow on those days was very active, similar to the tidal conditions in

the sea the effect of the gravitational force of the moon on the earth which was very strong during that period. When cupping is done on those days then the blood released is not active blood that is in the arteries but blood that contains oxidants and free radicals that are not needed by the body (Susiyanto, 2013: 34).

Astronomical studies are also needed to see the effects of eclipses on living things. This is because there are animals that experience emotional disturbances during an eclipse (Hartstone-Rose, et al., 2020: 1). The study of animals during this eclipse is not new because it has been done for hundreds of years. For example, in 1544 a study was conducted on birds that stopped singing during an eclipse. Similarly, birds that fell to the ground in 1560 are said to have been associated with eclipses (Wheeler, MacCoy, Griscom, Allen, & Jr., 1935: 33). Thus, with the knowledge of astronomy in the animal industry, especially those involving large-scale farming, the occurrence of eclipses can be predicted and preventive measures such as providing suitable accommodation can be done and losses can be avoided or minimized.

In economy activity among the Malays, for example, astronomy is applied in agriculture and fisheries. In the north of the Peninsula, the Piama calendar or Piama month is widely used to plan agricultural and fisheries activities in accordance with the factors of soil fertility, weather and breeding of poultry and aquatic life. The use of the calendar helps farmers and fishermen to reap more, reduce the effects of environmental pollution while conserving bird species and aquatic life. The Piama calendar based on the date the sun enters a zodiac/constellation in fact refers to a very systematic ecological and environmental cycle where it not only helps humans generate timely results but at the same time gives nature time and space to reproduce results, without compromising the balance of nature (Khalil, 2015: 15).

One of the books of astronomy related to economic activities that until now are still used as a reference by the community, especially in the state of Kedah and Perlis is *Al-Risalah Al-Musimiah Al-Ahmadiyah Li Ahl Al-Zira'ah Al-Wataniah Khususon Ahl Al-Barlis Wa Al-Qadah*. This book was written by Tuan Guru Haji Ahmad bin Othman (1910-1987) or better known as Tuan Guru Haji Ahmad Keplu (Hashim, 2015: 51). On the importance of astronomy to the economy, he stated,

"Ladies and gentlemen, I would like to serve you to know the season when you want to use fishing gear, the season for planting, the season for clearing the forest, hopefully you will be released from work not in the season".

In fact, the people of Kedah were exposed to the connection between astronomy, and its branches such as astrology and economics much earlier when the 3rd Shaykh Wan Sulaiman Wan Siddiq (1289 H/1872 A.D.-1354 H/1935 A.D.) issued a calendar for make it easier for them to carry out daily activities such as farming and trading. For example, by referring to the movements of stars and constellations, he was able to predict a good day and time for the work of planting rice. Based on the calculations he made, Friday, September 30, 1932 was considered good for farming. The date 23 May to 22 June in the constellation Gemini is considered a good period for sowing rice, and can even be done twice a year (Salleh, 1986: 95-96).

The field of astronomy and astrology continues to gain a place and attention both among scholars and government leaders. The highlight was the selection of a date for the country's Independence Day. In 1956, Tunku Abdul Rahman, who was the Chief Minister of Malaya had asked Shaykh Abdullah Fahim as the most influential scholars in the North Region of Malaya to make recommendations appropriate date. At that time, he was the Penang Mufti (the first having been appointed in 1951) (Noor, 2010: 29).

Further, this study seeks to examine the philosophy of astronomy in the thought of Shaykh Abdullah Fahim and its impact on life. On the other hand, this study seeks to look at the significance of this field of astronomy to human psychology according to the view of Shaykh Abdullah Fahim. Thus, some of the goals to be achieved in this study are;

1. Early influence on Shaykh Abdullah Fahim in the field of astronomy
2. Philosophy of astronomy Shaykh Abdullah Fahim
3. Significance of astronomy to the development of psychology

This qualitative-based study uses a fully literature approach to gather as much information as possible about Shaykh Abdullah Fahim especially in the field of astronomy. Cross reference is made to the figures of the contemporary Malay scholars to obtain further information about the development of astronomy at that time especially the teachers involved in the teaching of astronomy.

2. Findings and Discussion

2.1 The Early Influence of Astronomy Education

So far it is not clear who the real teacher of Shaykh Abdullah Fahim in the field of astronomy. Although Shaykh Abdullah Fahim mentioned the name of Shaykh Muhammad Mukhtar Al-Jawi as one of his teachers, he did not state the field learned from the teacher (Fahim, 1956). However, the name of Shaykh Muhammad Mukhtar is well known in the field of astronomy. He is narrated to have written a book of astronomy entitled *Taqrib Al-Maksud Fi Al-'Amali Bi Al-Rubu 'Al-Mujayyab*. The MSS 4081 manuscript kept in the National Library of Malaysia is also attributed to him. The 14-page manuscript contains a date table with prayer times complete with notes of the arrangement of the Twelve stars (in example Hamal, Thaur, Jauza, Sartan, 'Asad, Sunbullah, Mizan, 'Aqrab, Qaus, Jaddy, Dalwu, Hut) and the Seven stars (in example Moon, Mercury, Venus, Sun, Mars, Jupiter and Saturn). Also included is a date table based on the Qibtiyah calendar. This calendar is built based on the period of the Sun's movement (Syamsiyyah) associated with the forecast and 'when'. It uses the average period of movement. The Earth revolves around the Sun equal to 365 or 366 days. A year in the Qibtiyyah calendar contains 13 months with 12 months containing 30 days (12 months x 30 days = 360 days) and the 13th month as a short month containing 5 (for the basitah year) or 6 days (kabisah year) The names of the months in the Qibtiyyah calendar are Tuth, Babah, Hatur, Kahik, Tubah, Amsyir, Burmahat, Burmadah, Basnas, Buknah, Abib, Misri and 'Ayam Nasa'. This calendar is similar to taqwim constellation, but it is not used widely as a very popular taqwim constellation used in the Malay (Zainal, 2017: 15).

Shakyh Wan Sulaiman bin Wan Siddiq who was a good friend of Shaykh Abdullah Fahim is narrated to have acquired astronomy from Shaykh Muhammad Yusuf Al-Khayyat while in Makkah. Another scholar, Shaykh Muhammad Tahir Jalaluddin, is also said to have studied astronomy with Shaykh Muhammad Yusuf before he went to Egypt to study the field (Mahyuddin, Stapa, & Badruddin, 2010: 5).

Shaykh Muhammad Tahir's work in the field of astronomy entitled *Jadawil Pati Kiraan Pada Determining the Five Times and the Qiblat Direction with Logarithms* mentions the name of Shaykh Muhammad Yusuf Al-Khayyat as one of his teachers when he was in the Masjid Al-Haram. Shaykh Muhammad Yusuf is said to be not only skilled in astronomy, but also in mathematics. In addition, it teaches various other religious sciences (Jalaluddin, 1938: 13). Although there are not many records of Shaykh Muhammad Yusuf Al-Khayyat in the field of astronomy, he was once appointed the first Islamic Shaykhul in the state of Kedah. His appointment may have something to do with the influence of Shaykh Wan Sulaiman who had good relations with the Kedah royal family. It is not impossible that Shaykh Wan Sulaiman, who has been called back by Sultan Abdul Hamid to assist the Kedah state administration, has proposed the name of his teacher to hold the highest position in the field of religion in the state. Shaykh Wan Sulaiman returned to Kedah from Makkah in 1906 and was appointed kadi of Kota Setar and teacher of the Kedah Palace. His teacher is believed to have held the position of

Shaykhul Islam from 1909 to 1915. This is because there is a record stating that he died in Batu Uban, Penang on 17 Rajab 1333 H equivalent to 2 June 1915. (Butar-Butar, Jadawil Pati Kiraan Karya Syekh Thahir Jalaluddin (W 1376/1956), 2020)

Subsequently, the post was held by Shaykh Abdullah Dahlan who was also a Makkah graduate and an Arab (Mahyuddin, Stapa, & Badruddin, 2010: 7-8). In the record of the list of teachers of Shaykh Abdullah Fahim, the name of Shaykh Abdullah Dahlan does not exist but the one closest to the name is Shaykh Abdul Rahman Al-Dahhan (Fahim, 1956).

Most likely the same figure has held the post of Shaykhul Islam second for the state of Kedah. The figure held the post for only two years. After that, the position of Shaykhul Islam was taken over by Shaykh Wan Sulaiman while waiting for a suitable replacement. Due to the absence of Arab-born candidates with credible approval, the Kedah State Government finally appointed Shaykh Wan Sulaiman as the official Shaykhul of Islam in 1920 (Mahyuddin, Stapa, & Badruddin, 2010:8).

Shaykh Abdullah Fahim at that time was the principal at Madrasah Al-Hamidiyyah, Limbong Kapal which was founded by Shaykh Wan Sulaiman in 1916. Shaykh Abdullah Fahim was offered the position by his good friend upon his return from Makkah. At the same time, he was also a member of the Kedah State Ulama Majma 'which was established by Sultan Abdul Hamid in 1904. The Majma's role was to help the Sultan solve problems related to Islamic religious affairs. The ceremony will be held at the Zahir Mosque every Friday night after Maghrib prayers. Majma 'is composed of 12 Kedah scholars. Its chairman was Shaykh Wan Sulaiman while Shaykh Abdullah Fahim was the Secretary. Shaykh Muhammad Yusuf is narrated to have been in the ceremony during his life (Mahyuddin, Stapa, & Badruddin, 2010: 7-9).

Most likely, Shaykh Muhammad Yusuf was also an astronomy teacher to Shaykh Abdullah Fahim given the close relationship between the figure and his good friend, Shaykh Wan Sulaiman. Perhaps the main factor he served in the state of Kedah was because he respected the services of his teachers who had served in the state.

Meanwhile, in the degree record of Shaykh Uthman bin Abdul Wahhab Al-Sarawaki (1281 H/1863 A.D.-1339 H/1921 A.D.), who was also a friend of Shaykh Abdullah Fahim, the name of his teacher Shaykh Muhammad Hussayn Al-Khayyat was recorded. It is not impossible that both names of the figures; Shaykh Muhammad Yusuf Al-Khayyat or Shaykh Muhammad Hussayn Al-Khayyat is referring to the same person (Al-Sarawaqi, 2018: 50).

2.2 Philosophy of Astronomy (Falak) Shaykh Abdullah Fahim

The extraordinary and miraculous stories told about Shaykh Abdullah Fahim, who is also famous for his piousness and piety, may have been one of the factors in Tunku Abdul Rahman seeking advice from the figure on a suitable date for Malaysia's Independence Day. Determining the date related to astronomy is in fact the expertise of Shaykh Abdullah Fahim. When Imkan Al-Ru'yah criteria yet to be practiced, Shaykh Abdullah Fahim has issued Taqwim of Timetables Prayer adopted by Muslims in Malaya since 1934. By the way, Criteria of Imkan Al-Ru'yah just introduced to the public after approval by the Council of Malay Kings in 1984. The taqwim is clearly demonstrated Shaykh Abdullah Fahim's expertise in astronomy when he used Basitah and Kabisah to make the day count. To get the Qibla direction and prayer time, he uses a zawal clock which consists of a pocket compass and a sundial box (Noor, 2010: 9 - 23).

Returning to the determination of the date of independence, Shaykh Abdullah Fahim took into account two things, namely counting the number of days and looking at the phases of the moon, and determining the constellations. In counting the number of days as well as looking at the phases of the moon, it is narrated that Shaykh Abdullah Fahim used the date of the fall of Melaka to the Portuguese as the basis for determining the count. The date is August 24, 1511

according to the Julian calendar. However, he took the date 22 August 1511 because the moon in the Islamic date at that time which was 27 Jamadil Akhir 917 H, was in an old phase. If linked to the situation of Melaka at that time, it can be likened to the beginning phase of the fall of Melaka. By setting August 31, 1957 as the proposed date for independence, then the total perfect year is 446 years. If the number of years is divided by 2 then the number of years is 223 years. The date falls on 22 August 1734 Julian. The period of 22 August 1511 to 22 August 1734 is considered as the period of the fall of Melaka while the subsequent period until 31 August 1957 is considered as the resurrection of Melaka. Incidentally the moon on the date of August 31, 1957 really was in a young crescent, which is in accordance with the symbol of Malay Islamic empire. The Islamic date at the time was 6 Safat 1377 (Noor, 2010: 25-28).



Figure 1: Utusan Zaman newspaper clipping on the Proclamation of Independence

In addition to counting the number of days, the date is also matched with a constellation. In determining the position of a constellation, a tool called rubu 'mujayyab is used. On 30 August 1957 after maghrib time equivalent to 6 Safar 1377, there are four constellations that appear, namely the constellation Scorpio (scorpion), the constellation Libra (scale), the constellation Virgo (Virgin) and the constellation Ship (The Sail). The brightest planets at that time were Jupiter and Venus which were close to the constellation Yacht. The moon is exactly in the constellation Libra. Shaykh Abdullah Fahim had instructed Tunku Abdul Rahman, if the date of 31 August 1957 was not accepted by the British then he asked Tunku to wait another five years that is on 31 August 1962. The secret of the date was chosen because the constellations, planets and stars were in the same position. It is as the same as the date of 31 August 1957. Shaykh Abdullah Fahim probably had planned to set the constellation Libra and Yacht as the foremost indicators in determining the date as both were references to the emblems of the ruling party. In addition, the constellation Libra in the shape of a scale corresponds to the balance of the year from the phase of the fall of Melaka to the phase of the rise of Melaka. On the other hand, scale also means justice while the moon residing in the constellation Libra is the symbol that is ideal to be associated with the administration of the Malays who are Muslims (Noor, 2010: 29-32).

2.3 Significance of Astronomy to the Development of Psychology

The field of astronomy from the point of view of psychology plays a role in developing one's potential in terms of thinking power and sharpening the power of the mind. Astronomical activities that involve contemplation of events in the sky build an intimate relationship between man as a servant and God as creator out of gratitude for God's gift that has revealed many

secrets and wonders in the sky, and its relationship to life on earth. Nature in the sky is like a guide to life on earth. This fact is in line with the 16th verse of Surah Al-Nahl as contained in the Qur'an with the meaning,

And (He created) signs. And with those stars they get a clue (Kadri, 2015: 185).

For that reason, Shaykh Abdullah Fahim strongly encouraged his students to study the field of astronomy because the knowledge is very beneficial to the Muslim community. Wherever he teaches, for example, either at Madrasah Da'irat Al-Maarif Al-Wataniyyah or at Madrasah Idrisiah, he will give astronomy exposure to students in the area. He is said to have special equipment for observing the sky. Among the equipment he has is an astrolabe which is used to calculate the movement of the celestial bodies, especially the constellations (Noor, *Astronomical Events: Moments of Malaysian Independence*, 2004: 6). Tools such as *rubu' mujayyab* were introduced to students to make it easier for them to calculate, estimate and so on. At Madrasah Idrisiah, for example, he and his students built a special well to observe stars. Its function is also probably similar to the Ulugh Beg observatory, Samarkand which is very famous in Islamic history, which is also underground. The purpose of building an underground observatory is to focus the path of solar radiation, so that the angle of travel of the sun can be measured throughout the year (Noor, 2010: 23-24).



Figure 2: Shaykh Abdullah Fahim pictured on the side of the globe. Shaykh Abdullah Fahim was on the left of the globe.

Still in the context of psychology, astronomy also plays a role in providing motivation and inspiration. In determining the date of the country's independence, Shaykh Abdullah Fahim applied his knowledge in the field of astronomy to get a good date in accordance with the conditions and atmosphere of society at that time. Apart from that, a good date is also often associated with blessings, sustenance, mates, running an economy and fulfilling needs (Alkaff, 1993: 165-167).

A scholar in the Malay-17th century AD, Shaykh Abdul Rauf Al-Sinkili (1024 H / 1615 AD - 1105 H / 1693 AD) also includes application names of days and months in daily life as in his treatise entitled *Risalah fi Al-Taqwim*. He wrote,

(This is to state that the day of the month in the first year of the month of Muharram and if Sunday is the day of the month of Muharram the rain is also very fruitful to the benefit and if Ithnin (Monday) the day of the month of Muharram is hungry, and all the people are much weaker because of the benefits and if Tuesday is the day of the month of Muharram lightning and thunder make people very sick, and if Wednesday is a day in the month of Muharram with

cheap paddy rice, people also get sick and die, there are many benefits...) (Butar-Butar, 2020: 32).

The use of astronomy in life as highlighted by Shaykh Abdul Rauf shows that astronomy was not only provide guidance, but also provide motivation to live life. On the other hand, Shaykh Abdul Rauf seems to want to signal that astronomy is not a field that predicts fate but it is a field of logic that makes calculations by taking into account the cycles of nature including weather factors and soil fertility. On the other hand, the field of astronomy gives peace and gratitude to its witnesses, for being able to see the greatness and majesty of God who arranges the events of nature.

The field of astronomy also makes a very large contribution to the process of determining *haul*, which refers to a period of time of a year; for the purpose of the issuance of *zakat* (annual alms) (Nordin & Ibrahim, 2016: 32). From a psychological point of view, the proper production of *zakat* not only gives peace of mind to the payer, but also adds blessings to his sustenance. His wealth will increase many times over. In terms of motivation, the production of *zakat* gives an incentive to *zakat* payers to strive for more sustenance in order to be able to issue more *zakat* in subsequent years.

Table 1. The importance and benefits of the field of astronomy to human psychology

Psychological dimension	Impact on life
Intelligence Quotient	The power of thinking
	Sharpness of mind to calculate, predict and plan
Emotional Quotient	Brings a sense of serenity to be able to see the greatness of God about the arrangement of nature
	Increase motivation to earn a living

3. Conclusion

Astronomy on the side of Shaykh Abdullah Fahim has opened a new page from the point of view of science where the field is not just revolved around the schedule of prayer times or the determination of fasting or Eid celebrations alone, instead its use is expanded in a larger context. The use of astronomy to set the date of independence is a proposition that astronomy is not a field based on premonition or fate but it is a logic that takes into account natural factors and the impact of science on life. Thus, life activities will be more effective and more economical as well as at the same time strengthen community ties.

In the context of psychology, the field of astronomy not only triggers a high level of thinking but at the same time is able to provide motivation and inspiration to human beings to start a life or journey. This is because each activity can be predicted in advance and this simplifies the planning or control to schedule each activity to be performed. The impact of astronomy on psychology should be an area of study that deserves attention and expansion in the future. This is because it has great prospects to the development of positive psychology.

References

- Alkaff, I. (1993). *Ilmu Hikmah Nabawi Pusaka Para Nabi dan Wali*. Solo : Penerbit Aneka.
 Al-Sarawaqi, M. Z.-D. (2018). *Nafahat Al-Ridwan Riwayat Hidup Shaykh Uthman Sarawak*. (F. Saleh, Ed.) Kuala Lumpur: Angkatan Belia Islam Malaysia.

- Butar-Butar, A. J. (2020). *Ilmu Falak dalam Syaikh Abdur Rauf Singkil (Kajian Atas Naskah Risālah fī at-Taqwīm)*. Yogyakarta: CV. Bildung Nusantara.
- Butar-Butar, A. J. (2020, July 20). Jadawil Pati Kiraan Karya Syekh Thahir Jalaluddin (W 1376/1956). *Tarbiyah Islamiyah Ranah Pertalian Adat dan Syarak* .
- Fahim, A. (1956). *Al-Thabat Wa Al-Sanad Wa Al-Ijazah*. Penang: Persama Press.
- Hartstone-Rose, A., Dickinson, E., Paciulli, L. M., Deutsch, A. R., Tran, L., Jones, G., et al. (2020). Total Eclipse of the Zoo: Animal Behavior during a Total Solar Eclipse. *Animals* , 10 (587), 1-15.
- Hashim, K. A. (2015). Tuan Guru Haji Ahmad Othman Madrasah An-Nahdhoh Al-Wathoniah. In M. K. Saidon (Ed.), *Biografi Ulama Kedah Darul Aman II* (pp. 50-64). Alor Setar: Lembaga Muzium Negeri Kedah Darul Aman.
- Hasim, N. A., Kashim, M. I., Othaman, R., Yahaya, M. Z., Khalid, R., & Samsuddin, M. A. (2016). Haid daripada Perspektif Sains dan Maqasid Syariah. *Sains Malaysiana* , 45 (12), 1879-1885.
- Jalaluddin, M. T. (1938). *Jadawil Pati Kiraan Pada Menentukan Waktu Yang Lima dan Hala Qiblat*. Singapore: Al-Ahmadiyah Press.
- Kadri, Z. (2015). *Elemen Pemikiran Kritis Menurut Al-Quran: Kajian Surah Al-Rum*. Kuala Lumpur: Jabatan Akidah dan Pemikiran Islam Akademi Pengajian Islam Universiti Malaya.
- Khalil, M. F. (Ed.). (2015). Sinopsis Kitab Turath Falak Al-Risalah Al-Musimiah Al-Ahmadiyah Li Ahli Al-Zira'ah Al-Wataniah Khususon Ahli Al-Barlis Wa Al-Qadah. *Buletin Al-Falak* .
- Mahyuddin, M. K., Stapa, Z., & Badruddin, F. (2010). Wan Sulaiman b Wan Siddik dan Sumbangannya dalam Perkembangan Dakwah Islamiah di Negeri Kedah. *Kolokium Siswazah Pengajian Islam UKM Peringkat Kebangsaan* , 26, 1-19.
- Noor, N. A. (2004, August 31). Peristiwa falak: Detik Kemerdekaan Malaysia. *Utusan Malaysia* , p. Ruangan Agama.
- Noor, N. A. (2010). *Warisan Falak Syekh Abdullah Fahim*. Georgetown: Jabatan Mufti Negeri Pulau Pinang.
- Nordin, R., & Ibrahim, A. R. (2016). Kepentingan Takwim Hijri dalam Permasalahan Fiqh di Malaysia: Kajian Terhadap Pengamalan Pengiraan Tempoh Hawl dalam Pengurusan Zakat di Malaysia. *Jurnal Ilmi* , 6, 29-42.
- Salleh, I. (1986). Bulan Piama. In *Intisari Kebudayaan Melayu Kedah*. Alor Setar: Majlis Kebudayaan Negeri Kedah.
- Susiyanto, A. (2013). *Hijama or Oxidant Drainage Therapy*. Jakarta: Gema Insani Press.
- Wheeler, W. M., MacCoy, C. V., Griscom, L., Allen, G. M., & Jr, H. J. (1935). Observations on the Behavior of Animals during the Total Solar Eclipse of August 31, 1932. *Proceedings of the American Academy of Arts and Sciences* , 70 (2), 33-70.
- Zainal, B. (2017). Penyembulan anasir sains dalam manuskrip falak pungutan perpustakaan negara Malaysia. *Persidangan Antarabangsa Manuskrip Melayu 2017* (pp. 1-21). Kuala Lumpur: Perpustakaan Negara Malaysia.