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IN SEARCH OF THE MOON:
The *Hisab, Ru'yah,* and *Kashf*

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Abstract

This article deals with varieties of epistemological methods in calculating days of lunar calendar (hijri), mainly on the beginning date of months. Examining different methods in Indonesian Islamic-scape, it argues that there have been three epistemological models which are rooted at Islamic classical epistemologies; the ahl al-hadith (textualist), the ahl al-ray (contextualist), and the intuitive sufi (kashf). The ahl al-hadith emphasizes on the empirical rukyatul-hilal (witnessing the moon), whereas the ahl al-ra'y strongly concerns on the mathematical and rational method. The sufi, not so popular in Indonesia but influential in some sufi circles, deploys the kashf (uncovering) method. In some cases, these three are however intertwined and in contradiction one to another. The article futher argues that different method-in-use is strongly influenced the local spesificties of diverse Indonesian Muslim's backgrounds and groupings.

[Artikel ini mengkaji tentang berbagai metode epistemologis dalam menghitung hari dalam kalender Hijriah, terutama pada penentuan tanggal awal bulan. Dengan menelaah berbagai metode dalam kancah keislaman Indonesia, artikel ini berpendapat bahwa ada tiga model metode yang berakar pada tiga epistemologi klasik Islam: ahl al-hadits, ahl al-ray, dan sufisme intuitif. Ahl al-hadits menekankan pada pendekatan empiris rukyatul-hilal (mengamati

bulan), sedangkan ahl al-ra'y sangat menekankan pada metode rasional matematis. Lebih dari itu, dari kalangan sufisme—meskipun tidak begitu populer di Indonesia, tapi berpengaruh di lingkaran mereka—menggunakan metode kashf intuitif. Dalam beberapa kasus, ketiga metode atau pendekatan itu saling terkait, dan bertentangan satu sama lainnya. Artikel ini lebih lanjut berpendapat bahwa penggunaan berbagai metode epistemologis yang berbeda tersebut dipengaruhi oleh latar belakang, dan kelompok Muslim di Indonesia.]

Keywords: *Hisab, Rukyah, Hijri, Islamic epistemological methods, Indonesia*

Introduction

The Qur'an and the prophet tradition (*sunnah*) are two important sources to which *fuqahā*' (Islamic jurists) establish Islamic law (*fiqh*). In so doing, the *fuqahā*' employ a set of methodological thoughts which is commonly divided into the textualist (*ahl al-hadith*) and the contextualist (*ahl al-ra'y*). The textualist on the one hand tends to literally comprehend the Qur'an and *sunnah* while neglecting historical context (*asbab al-nuzul/wurud*). The contextualist on the other hand seems to undertand the Qur'an and *sunnah* as historical legal texts despite the fact that it in some cases sacrifices the textual dimension (*zahir*) at the expense of the objectives of *shariah* (*maqasid al-shariah*).[1] In addition to these two approaches however, the *kashaf* (intuition) approach is also well-developed among the sufi groups who claim to—though extensive spiritual exercises (*riyadah*)—experience a mystical communication with God in order to comprehend the meaning of Qur'an and *sunnah*.[2]

The three approaches are living traditions in Indonesia and have been institutionalized through Indonesian Muslim organisations and

[1] Hamidan ibn Abdullah ibn Muhammad al-Hamidan, "al-Madaris al-Fiqhiyyah fi Asr al-Tabi'in Ahl al-Hadith wa aAhl al-Ra'y," *Majallah Al-Ulum al-Tarbawiyyah wa al-Dirasah al-Islamiyyah*, Jami'ah al-Malik Saud, Vol. I, 1992, pp. 72-73.

[2] Ibrahim ibn Musa al-Shatibi, *Al-I'tisam*, Vol. I (Dar ibn Affan, 1992), p. 271.

groups. On the issue of determing the first day of each month of the of lunar calendar (*hijri*), the biggest Muslim organization Nahdlatul Ulama (NU) is particularly classified as the *ahl al-hadith* because the organization's policy relies on the literally meaning of *sunnah* to determine the day. Nevertheless, it is also true that some important scholars of NU also follow the possibility of witnessing (*imkan al-rukyah*) method. The second largest Muslim organization in Indonesia, Muhammadiyah, is closely indentified as the *ahl al-ra'y* for determining the first day through calculation method (*al-hisab*) of the position moon (*al-hilal*). The sufi *al-kashf* mainly establishes the day through mystical communication between the master of sufi group (*mursyid*), and God.

This article tries to offer a dyacronic analysis of methods and epistemic fields of determining the earliest day of each *hijri* month. The discussion addresses of how three epistemic fields: the textualist (*ahl al-hadith*), the contextualist (*ahl al-ra'y*), the intuititon *kashaf,* develop in Indonesian Islamic landscape and argues that local spesificties of diverse Indonesian Muslim's backgrounds, groupings and belongings do play important roles in determining the earliest day despite the state's effort of unification through the establishment commission (*sidang isbat*) regularly performed to official announce and determine the first day of Ramadhan and the day for two *Ieds* (*Ied al-fitri and Ied al-qurban*).

Rukyatul-Hilal in Early Period of Islam

During the early period of Islam, Muslims used to employ an Arabic calendar that originated from pre-Islamic times. Pre-Islamic Arabs used a lunisolar calendar system, a calendar system that combines both the lunar and solar systems. The lunar system bases on the complete cycles of the moon's phases while the solar system bases on the cycles of the sun. The combination of both systems was achieved through the use of the moon to define a month then intercalation or the addition of the thirteenth month (*al-nasi'*) was applied to bring the lunar months into

agreement with the solar system. This adjustment was implemented so that the calendar corresponds to the change of seasons that was crucial in determining the *Hajj* session along with the openings of the markets to trade some agricultural commodities and some goods from outside the Arabian Peninsula. After the advent of Islam, this lunisolar system with the intercalation of the thirteenth month was then revised to be a purely lunar-based calendar.[3]

The Prophet Muhammad established *rukyatul-hilal* (witnessing the moon) as a new method to determine the first day of the month. The aim of *rukyatul-hilal*, as said by the Prophet himself, rested on the fact that Muslims were illiterate (*ummi*) community. They were having no scripture and did not write. The *rukyatul-hilal* method is based on an empirical approach. In the process of witnessing the moon, even that the crescent moon is concealed, there are two statements of the Prophet on this issue matter. Not only did the prophet instruct to complete the month to 30 days, but also command Muslims to "estimate" the first dan of the month. This statement further culminates debates among the Muslim jurists (*fuqahā'*). An-Nawawi narrates the discrepancy in the understanding of the *hadith*: "*Don't fast until you see it, and don't breakfast until you see it, and if you could not see it, estimate it*!" For understanding this *hadith*, *fuqahā'* are divided into three groups. *First*, the term "estimation" according to Ahmad ibn Hanbali, is by narrowing the calculation and estimating that the moon is already there, but concealed by the clouds. *Second*, according to Ibn Surayj, Mutarrif Ibn Abdullah, and Ibn Qutayba, the meant of "estimation" is an approximation using *manazil* calculations. *Third*, Imam Malik, Imam al-Shafi'i, Imam Abu Hanifah, and the majority of *fuqahā'* interpreted "estimation" is completing the month to 30 days.[4] Here, the rational epistemology began to emerge in determining the first day of the *hijri* month.

[3] Zakariyya ibn Yahya al-Nawawi, *Al-Minhaj Sharh Sahih Muslim ibn Hajjaj,* Vol. VII (Egypt: Al Matba'ah al-Misriyyah, al-Azhar, 1929), p. 188.

[4] *Ibid*., p. 189.

Nevertheless, at the time of the Prophet Muhammad, Muslims faced no difficulties to determine the earliest day of each *hijri* month. Problems emerged when Muslims started to have differing opinions as to how to address sighting of the crescent moon during the day. During the reign of the first-four chaliph (*khulafa' al-rasyidin*), problems occurred where the position of the moon was seen during the daytime, this led to some Muslims celebrating *Ied al-fitri* on the same day to which the Caliph Umar forbade a such practice and issued a decision that only the position of the moon visible at night is valid.[5]

The use of calculate method (*al-hisab*) to determining the earliest day of each *hijri* month started in *tābi'ūn* (the second Muslim generation after *ṣaḥābah*) period. Muhammad ibn Sirin (one of *tābi'ūn*), stated that in a *yawm al-shakk* (a doubtful day) Anas bin Malik, Musim bin Yasar, and some of his companions did not fast. However, there was one follower who was fasting because he adopted the al-hisab method.[6] It is possible that the person referred to by Muhammad ibn Sirin was Mutarrif ibn Abdullah because according to an-Nawawi, Mutarrif was from the *tābi'ūn* circle that allowed the use of the *manazil* calculate method (calculate the position of the moon) to determining the earliest day of each *hijri* month.[7] This *manazil* method had been known since before the period of Islam. By the end of daylight, the moon is in position where it is facing away from the sunlight that reaches it. During this transition, the moon seems to be changing in its form and it moon passes a segment called *manazil* (moon mansions). This mansion refers to daily astronomical resting-place of the moon consisting of 28 *manazil*. Then, the moon enters a disappearing, and darkened phase which is what astronomers

[5] Abu Bakr Ahmad ibn al-Husayn ibn 'Ali, *Sunan al-Kubra al-Bayhaqi,* Vol. IV (Beirut: Dar al-Kutub al-Ilmiyyah), p. 358.

[6] Abu Bakr Abd al-Razzaq ibn Hammam al-San'ani, *al-Musannaf,* Vol. 4 (Johannesberg: Majlis al-'Ilmi, 1972), p. 159.

[7] Zakariyya ibn Yahya al-Nawawi, *al-Minhaj Sharh…,* p. 189.

call the birth of the moon (new moon).[8]

In later periods, during the Abbasid period, Muslims were very enthusiastic about translating astronomy books. They began to take interest in astronomy though it was mixed with astrology and did researchs on the issues as instruments for observing celestial bodies they witnessed. The most influential translation work during this time was Almagest of Ptolemy.[9] This was what led Islamic jurists to call for the use of calculations as a means to determining the earliest day of each *hijri* month. Classical astronomers argued that determining the earliest day of each *hijri* month started with the occurrence of *ijtima'* or a conjunction of the earth and moon. Ibn Daqiq al-'Id—an Islamic jurists —argues that we should not fast according to the calculations to observe conjunction between the sun, and moon (*iqtiran*). This calculation was made false because start earlier than what was established with witnessing. Since the astronomers do not see the moon empirically, their claim is rejected. Ibn Daqiq al-'Id not only disapproved of *ijtima'* as a standard, but also rejected calculations as a method to determine the first day of the *hijri* because it was not verified by a bare-eye witness. He defined the conjunction of the sun and moon as a phase where only the dark side of the moon is visible to observers on earth.[10] In this context, we can infer that rational epistemology is starting to be rejected by the adherents of empirical epistemology.

In the early days of the Fatimid Caliphate in Egypt, General Jawhar al-Siqilli—the Fatimid ruler in Egypt—established calculate as a method to determine the first day of *hijri*. Nevertheless, an Egyptian Qadi, Abu Tahir kept using *rukyatul-hilal* in determining the earliest day of each *hijri*,

[8] Imad al-Din al-Khayti, Haqa'iq 'an Qamar wa al-Shahr al-Qamari", *http://blog.icoproject.org/?p=226,* accessed February 4, 2021.

[9] Ihsan Hafez, "Abd al-Rahman al-Sufi and His Book the Fixed Stars: a Journey of re-Discovery", *Ph.D Thesis*, James Cook Unversity, Australia, 2010, p. 13-14.

[10] Kamal Abdali, "On the Crescent's Visibility", *Al-Ittihad*, Vol. 16, No. 1-2, 1979, pp. 3.

and give rise to conflict between them.[11] A Similar also happened in Barqa, Ibn Kafi, was in dispute with a Qadi in Barqa, Muhammad al-Habli, who insisted on using *rukyatul-hilal* to determine *Ied al-fitri* in 341 H (953 AD).[12] This conflict emerged because the Fatimid Caliphate used the arithmetic method. The calculation method established the number of days and months with leap year system in years 2, 5, 7, 10, 13, 16, 18, 21, 24, 26, and 29 in a 30-year cycle without taking into account the positions of the moon based on astronomical calculations or witnessing the moon.[13]

During the reign of al-Hakim, an astronomer, Ibn Yunus, devised an astronomical table called *Zij al-Hakim*. In the determined of the earliest day, the Ibn Yunus method seemed like *rukyatul-hilal* since he formulated a calculation of the degree of crescent visibility. According to Ibn Yunus, a crescent would be visible when the moon reached the height of 12 degrees.[14] The 12 degree standard was a rough calculation by dividing the age of the moon by two (duration of *ijtima'* until Maghrib), and the result was what considered as the height of the position of the moon in degrees. Thus, every hour was equal to half a degree. Similarly, to calculate the duration of the positions of the moon above the horizon (*mukth al-hilal*), each degree of the moon's height was counted as four minutes and every minute of the moon's height became four seconds.[15]

Furthermore, during the Fatimid dynasty in Egypt, a prominent noble, Badr al-Jamali, built a mosque at the hillside Mokattam, and the

[11] Taqiy al-Din Ahmad ibn 'Ali al-Maqrizi, *Ittiaz al-Hunafa bi Akhbar al-A'immah al-Fatimiyyin al-Khulafa'* (Da al-Nasr, 1996), p. 116.

[12] Heinz Halm, *The Empire of The Mahdi: The Rise of The Fatimid* (Leiden-New York-Koln: EJ. Brill, 1996), p. 373.

[13] Robert Harry van Gent, "The Arithmetical or Tabular Islamic Calendar", *https://webspace.science.uu.nl/~gent0113/islam/islam_tabcal_variants.htm*, accessed February 22, 2021.

[14] Baharrudin Zainal," A Selective Literature Review of Young Moon Crescent Visibility Studies", *https://dosya.diyanet.gov.tr/EAPDosya/EAPYayinDosya/M37.pdf*, accessed February 22, 2021.

[15] Fikrizuhara Muzakkin, "Menghitung Waktu Ijtimak", *http://repo.mercubuana-yogya.ac.id/repo-unnes/dokumen/astrodb/pdf/muzakkin_cara_menghitung_waktu_ijtimak.pdf,* accessed February 22, 2021.

tower was functioned as an observatory to observe a crescent. This shows that in the subsequent periods the Fatimid rulers employed the *rukyatul-hilal* method in determining the early of the Islamic months.[16] It was a paradigm shift from rational to empirical epistemologies.

Epistemological Varieties: *the Hisab, Ru'yah, and Kashf Methods*

In Nusantara—the Malay Indonesia world—there has been a constant contestation among proponents of different epistemologies in determining the earliest day of the *hijri*. H.J. de Graaf pointed out that during the Demak Sultanate, Sunan Kudus, and Sunan Kalijaga were at odds when it comes to the determination of fasting. This thing led Sunan Kudus to leave Demak, and founded Kudus in 1549. It was not clear what methods were used by them.[17] However, the author presumed that Sunan Kudus was more puritan than Sunan Kalijaga. Sunan Kudus is more tend to empirical *rukyatul-hilal,* whereas Sunan Kalijaga prefers to rational paradigm.

In 1633 AD (1043 H), the Sultan of Mataram, Sultan Agung Hanyokrokusumo, established a Javanese Islamic calendar as the official calendar. The determination of the beginning of the month of this calendar employed *hisab urfi* (arithmetic methods).[18] In *Serat Widya Pradana* by Ronggo Warsito it was mentioned that Sunan Giri II had drawn up an Islamic calendar based on arithmetic (rather than astronomy) during the Demak Sultanate.[19] Sultan Agung's Javanese Islamic calendar based on *hisab urfi* remained in use until the time of Sultan of Yogyakarta Hamengku

[16] "Amal Ibrahim", "Ramadan begins: history of moon sighting in Egypt", *https://dailynewsegypt.com/2019/05/06/ramadan-begins-history-of-moon-sighting-in-egypt/,* accessed October 6, 2020.

[17] H.J. de Graaf, *Kerajaan-Kerajaan Islam di Jawa* (Grafiti & KITLV, 2001), p. 106.

[18] Directorate General of Islamic Community Guidance, Ministry of Religion of Indonesia, *Almanak Hisab Rukyat* (Jakarta: Directorate General of Islamic Community Guidance, Ministry of Religion of Indonesia, 2010), p. 111.

[19] Ahmad Musonnif, "Geneologi Kalender Islam Jawa Menurut Ronggo Warsito: Sebuah Komentar atas Sejarah Kalender dalam Serat Widya Pradhana," *Kontemplasi: Jurnal Ilmu-Ilmu Ushuluddin*, Vol. 05, No. 02, 2017, pp. 331.

Buwono VIII. Its use to determine *Ied al-fitri,* and the celebration of *Grebeg Syawal*. However, following Ahmad Dahlan's recommendation, which was a *Khatib Amin* at the time, the Sultan Hamengku Buwono VIII established *Ied al-fitri* based on *hisab hakiki* (astronomical calculations methods) while the *Grebeg* celebration continued to heed the Javanese Islamic calendar of Sultan Agung.[20]

Outside Java, the Deli Sultanate determined *Ied al-fitri* by *rukyatul-hilal*. Even though at times, this method causes some problems. For example, when a disciple of Sheikh Mahmoud Chayath witnessed the moon in Belawan, and reported to a Qadi of the Deli Sultanate, the Qadi found arguments to reject the witness. The Qadi said the reason was that he did not want *Ied al-fitri* to fall on the same day that Muhammadiyah.[21]

As Snouck Hurgronje observed that in the time of Aceh Sultanate, the beginning of the *hijri* months was determined using rukyatul-hilal, and should not be determined by calculation method (*al-hisab*). However, it was not agreed by some groups remained faithful to al-hisab. This method involved a table containing a calendar with an eight-year cycle. The intent behind this method was the sultan wanted the declaration of the beginning of the month to be made on the last Friday in the previous month.[22] A Teuku[23] in Bitai—presumably came to Aceh in the 16th century—had a debate with the sultan about the beginning of the Ramadhan fasting practiced because he promoted the *rukyatul-hilal* method. He finally, was able to demonstrate its methods and make the sultan's surprise.[24] When Habib Abdurrahman, an eastern jurist came to

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[20] Sugeng Purwanto, Hisab Kiai Dahlan Beda dengan Keraton, *https://pwmu.co/148196/05/16/hisab-kiai-dahlan-beda-dengan-kraton/*, accessed October 13, 2020.

[21] Susiknan Azhar, "Karakteristik Hubungan Muhammadiyah dan NU dalam Menggunakan Hisab dan Rukyat," *Al-Jami'ah: Journal of Islamic Studies*, Vol. 44, No. 2, 2006, pp. 463.

[22] Snouck Hurgronje, *Aceh di Mata Kolonialis I* (Jakarta: Yayasan Soko Guru, 1985), p. 223-225.

[23] *Teuku* is a nobility title for men from the Acehnese ethnic.

[24] Snouck Hurgronje, *Aceh di Mata Kolonialis…,* p. 332.

Aceh, asserted that *rukyatul-hilal* was the one valid method to determine the beginning of the Islamic months, a non-adaptive attitude appears. It was due to the prevalent custom of Aceh at the time to prepare food ingredients a few days before Ramadan.[25]

The *Hisab*

The *Hisab* institutions in Indonesia is often associated with Muhammadiyah. It used to be an alternative method besides *rukyatul-hilal* which was assumed not relevant in contemporary communities.[26] The *hisab* was propagated by Ahmad Dahlan to response to the Javanese calendar calculation method that was prevalent at the time among the Yogyakarta Sultanate.

However, in the Majelis Tarjih Verdicts in Medan 1939, Muhammadiyah not only used the hisab method, but also *rukyatul-hilal, isti'mal (*completing the to thirty days), and witnessing to determine the early of Ramadhan, Syawal, and Dzulhijah. The Muhammadiyah's *hisab* method was more dynamic. In period, Muhammadiyah was used *hisab hakiki* (astronomical calculations) with *imkan al-ru'yah* criteria. Then, it evolved to hisab *hakiki* with *ijtima' qabla al-ghurub* (conjunction before sunset). It means that if a conjunction was observed before sunset, then that night and the next day was the 1st day of the new *hijri* month. In other words, the concept of *ijtima's qabla al-ghurub* did not take into account the positions of the Moon above the horizon at sunset. This method was used until 1937AD/1356 H. in 1938 AD/1357 H Muhammadiyah began to adopt *wujud al-hilal* theory. This represented an effort to have a synthesis of the i*jtima' qabla al-ghurub* model (conjunction before sunset) and *imkan al-ru'yah* (visibility of crescent). Therefore, the paradigm built based on the *wujud al-hilal* calculation method to determine the 1st day

[25] *Ibid.,* p. 254.

[26] Majelis Tarjih dan Tajdid PP Muhammadiyah, *Pedoman Hisab Muhammadiyah Majelis Tarjih dan Tajdid Pimpinan Pusat Muhammadiyah* (Majelis Tarjih & Tajdid PP Muhammadiyah, Yogyakarta, 2009), p. 5-6.

of the month in the *hijri* calendar did not rely solely on the process of *ijtima*', but also taking into account the position of the crescent at sunset. To this day Muhammadiyah still employs this theory.[27] The prominent figure of *wujud al-hilal* theory was Muhammad Wardan Diponingrat who served as the chairman of the Central Executive of Majelis Tarjih of Muhammadiyah.[28] These criteria received criticism from the chairman of National Institute of Aeronautics and Space, Thomas Jamaluddin. He argued that Muhammadiyah should use the *imkan al-ru'yah* criteria instead because they could confirm *ru'yah* results.[29]

One of the figures who advocated calculations as the basis for determining the beginning of the *hijri* months was a scholar from Batavia named *Guru* Mansur. According to him, if a conjunction occurred before sunset, then the next day marked the beginning of a new month. Conversely, if a conjunction occured after sunset, then the next day did not mark the beginning of a month. His statement showed that the system to determine beginning of the *hijri* months as written in his book, *Sullam al-Nayyirain,* relied on a conjunction rather than a certain height of the position of the moon. Notwithstanding, he revealed that Arabs and *fiqh* determined the beginning of *qamariyah* months by the way of *ru'yah* rather than *hisab*. Essentially *ru'yah* is a transparent method and can be understood both by experts and lay people. It is different from witnessing that might be a foreign concept to some peoples.[30]

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[27] Susiknan Azhari, "Sejarah dan Dinamika Pemikiran Hisab Muhammadiyah" *http://museumastronomi.com/sejarah-dan-dinamika-pemikiran-hisab-muhammadiyah/*, accessed January 21, 2021.

[28] Susiknan Azhari, "Hisab Hakiki Model Muhammad Wardan: Sebuah Penelusuran Awal", *Al-Jami'ah: Journal of Islamic Studies*, Vol. 42, No.1, 2004, pp. 162.

[29] Thomas jamaluddin, "Wujudul Hilal yang Usang dan Jadi Pemecah Belah Umat Harus Diperbarui." *https://tdjamaluddin.wordpress.com/2011/09/05/wujudul-hilal-yang-usang-dan-jadi-pemecah-belah-ummat-harus-diperbarui/*, accessed July 1, 2021.

[30] Shofiyulloh, "Analisis Pemikiran Muhammad Mansur dalam Hisab Awal Bulan Kamariah", *Al-Wijdán: Journal of Islamic Education Studies,* Vol. 3, No 2, 2018, pp. 234-235.

The *Ru'yah*

One of the proponents of the *Ru'yah* method in Indonesia is Nahdlatul Ulama (NU). Historically, the *Lajnah Falakiyah* of NU was meeting in Pelabuhan Ratu in 1992 to deals about *rukyatul-hilal* method. It was expounded that the beginning of Ramadhan, *Ied al-fitri* and *Ied al-qurban* should be determined using the *rukyatul-hilal* method or *istikmal* (completing the *hijri* month to thirty days). This method was used by the Prophet Muhammad, Rashidun Caliphs and embraced by *mazahib al-arba'ah* (four mainstream credo of Islamic law).

Furthermore, the validity of the calculations results is a subject of controversy among some *ulamas*. Stated in the Decree of PBNU No. 311/A.II.03/I/1994, technically, NU used the calculation method (*hisab*) to support the witnessing method. They used the *hisab* method with *imkan ar-rukyat* criteria namely a minimum of two degrees of crescent height, 8 hours of moon age, and a 3-degree distance between the sun and moon. These criteria themselves were not intended to replace *ru'yat* as they were only used to reject the results reported by the *ru'yat* method, if the calculation of crescent moon was still below the horizon. NU used a *hisab* method formulated their own Islamic astronomers whether based on classical astronomical literature or contemporary *hisab hakiki* methods.[31]

NU used the *rukyatul-hilal* method assisted by the *hisab* method with the *imkan ar-rukyat* criteria. *Rukyatul-hilal* method has been known since the time of the prophet. The *hisab* method however began to be utilized to determine the beginning of the *hijri* months during the time of the *tabi'un*. The use of the *imkan ar-rukyat* criteria in the present has gone through a long process of history. Based on the history of *hisab* and *ru'yah*, the topic has become a discourse among fiqh experts such as al-Qolyubi, Ibn Qasim

[31] Hudan Dardiri, "Studi Konsep Almanak NU dan Prospeknya Menuju Penyatuan Kalender Hijriah Nasional," *Undergraduate-Thesis*, IAIN Walisongo Semarang, 2014, p. 71-72.

al-Ubbadi,[32] al-Sharwani[33] and al-Subki, stating that *ru'yah* testimony may be rejected if it's not possible for the moon to be seen according to *hisab*.[34]

The *imkan ar-rukyat* criteria owed their inclusion in *fiqh* discourses to astronomers that liberally discussed on the matter whether in pre-Islamic and during Islamic times. The Babylonian period, astronomers established a criterion of *imkan ar-rukyat* of 12 degrees followed by Indian classical astronomers.[35] During the Islamic times, some Muslims astronomers used and attempted to correct these criteria. Al-Khawarizimi used the 12-degree criterion, Habash al-Hasib settled on 10 degrees, al-Battani used 11 degrees 46 minutes to 12 degrees, Al-Majriti used 12 degrees, al-Tabari used 10 degrees, Abu Ja'far Khazin used 9 degrees 30 minutes, al-Biruni used 12 degrees, al-Khazini used 10 degrees to 12 degrees, al-Urdi used 7 degrees, al Marrakushi used 6.5 degrees to 7 degrees 45 minutes, Ibn Shatir used 12 degrees, al-Rishi used 12 degrees, whereas Ibn Majdi has varied criteria, namely 6 degrees to 6.5 degrees, 6 degrees and 10 degrees.[36] Jurists in Nusantara also had their own assessment on the *imkan ar-rukyat* criteria. Muhammad Mansur al-Batawi cited several variants of jurist's opinion stating that *imkan ar-rukyat* was when the new moon was at 8 degrees 40 minutes, 7 degrees, and others also said 6 degrees.[37] Abdul Jalil bin Abdul Hamid cited jurist's judgement that a crescent was visible when positioned at 3 degrees, 6 degress and 11 degrees.[38] There are many other jurists or ulamas who addressed this

[32] Shihab al-Din Ahmad ibn Ahmad al-Qalyubi, *Hashiyah Sharh Jalal al-Din al-Mahalli*, Vol. 2 (Mesir: Maktabah Mustafa al-Babi, 1956), p. 49.

[33] Abd al-Hamid al-Sharwani & Ahmad ibn Qasim al-Ubbadi, *Hawashi Tuhfah am-Muhtaj bi Sharh al-Minhaj*, Vol 3 (Matbaah Mustafa Muhammad), p. 273.

[34] Abu al-Hasan Taqiy al-Din Ali ibn Abd al-Kafi al-Subki, *Fatawa al-Subki*, Vol. 1 (Dar al-Ma'rifah), p. 208-209.

[35] Arwin Juli Rakhmadi Butar-Butar, *Visibilitas Hilal menurut Astronom Muslim Abad 9-15 M* (Yogyakarta: Bildung, 2020), p. 8-13.

[36] *Ibid,* p. 68-70.

[37] Muhammad Mansur ibn Abd al-hamid al-Batawi, *Sullam al-Nayyirayn* (t.k.: t.p., 1925), p. 12.

[38] Abd al-Jalil ibn Abd al-Hamid, *Fath al-Ra'uf al-Mannan* (Kudus: Menara Kudus), p. 15.

particular topic. The *ru'yah* method combined with the *imkan ar-rukyat* also regularly used by the Ministry of Religious Affairs. It is the reason why the result of the *Isbat* more often than not corresponded to what NU decided. When a report of the sighting of a crescent is received when the position of a crescent itself is impossible to see based on reckoning, then the witness is rejected.[39]

The *Kashf*

Kashf is a method based on intuitive epistemology. It is not the empirical or rational methods but obtained from the uncovering the knowledge through Sufi intuition. Regarding the determination of the beginning of the *hijri* months, some people from Sufi orders in Indonesia embraced this method. Yasin Yusuf—a sufi master (*mursyid*) the *Tarekat* Akmaliyah in Tulungagung, East Java—relies on *ilham* (secret message) to determine the early of the Ramadhan and *Ied al-fitri*. Similarly, Abdul Jalil Mustaqim, a sufi master of the *Tarekat* Syadziliyah in Tulungagung, determines *Ied al-fitri* after listening to plants and animals reciting *takbir*.[40]

Relying on intuitions is not an entirely strange or new concept among Muslims. It was narrated that Syaikh Ibrahim bin Abdul Aziz Al-Dasuqi was born when the *ulamas* of Egypt was in doubt regarding the determination of the beginning Ramadan of 653 H. Syaikh Muhammad ibn Harun al-Sufi, a *kashf ulama* at the time proposed to have a look at the baby, Ibrahim al-Dasuqi (the founder of the *Tarekat* Dasuqiyyah), because his mother said that she had stopped feeding since the *azan* of *fajr*. Then, Syaikh Ibn Harun announced that day is the first day of Ramadhan.[41] Similar stories also happened in the mother of Syaikh Abdul Qadir Jailani.

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[39] Makruf Amin: Kesaksian Melihat Hilal ketika Tidak Imkan, Tidak Bisa Diterima, *https://www2.kemenag.go.id/berita/150376/makruf-amin-kesaksian-melihat-hilal-ketika-tidak-imkan-tidak-bisa-diterima?lang=id*, accessed January 07, 2021.

[40] Ahmad Musonnif, Tipologi Epistemologi Hukum Islam: Analisis Metode Penetapan Awal Bulan Hijriyah Tokoh-tokoh Agama Tulungagung", *Ahkam: Jurnal Hukum Islam*, Vol. 7, No. 1, 2019, pp. 16-17.

[41] Amir al-Najjar, *Al-turuq al-Sufiyyah fi Misr* (Cairo: Dar Al-Ma'arif, t.t.), p. 155.

She was once asked about the beginning of Ramadhan. She said that her son (Syaikh Abdul Qadir Jailani) refused to feed on her breast milk the day. Thus, people concluded it had the early of Ramadhan.[42]

Among the non-mainstream methods to determining the beginning of the *hijri* months is the one used by Annazir Congregation in Gowa, South Sulawesi. They observed end-of-the-month on the 26th or 27th day of a lunar month using a piece of black cloth and marked out the number of lines seen on the moon through the semi-transparent cloth. Furthermore, they also observed tides to predict the beginning of a lunar month.[43] If traced, this method has its origin from the period of the Bone sultanate in Sulawesi. There was a mention of the method in the journal of the Bone sultan.[44]

Among the non-mainstream methods of determining the beginning of the *hijri* month in Indonesia, there is the '*urfi* reckoning method (arithmetic calculations). There are several models of '*urfi* reckoning in calculating the Islamic calendar. Some use the 30-year cycle model as used by Arab astronomers and some use the 8-year cycle. Examples of calendar calculations with '*urfi* reckoning include the Sultan Agung calendar which is now popular with the Aboge calendar by some Javanese Muslims, the Pananrang calendar used by some Bugis Muslims,[45] the Munjid reckoning calendar used by followers of the *Tarekat* Naqshbandiyyah in Padang, West Sumatera,[46] the Hisab Calendar from the *Mizan al-Qarb* used by the Shattariyah community in Peuleukung Village, East Seunagan District,

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[42] Muhammad ibn Yahya al-Tdhifi al-Halbi, *Qala'id al-Jawahir fi Manaqib Abd al-Qadir* (Mesir: Maktabah Mustafa al-Babi al-Halbi, 1956), p. 3.

[43] Hesti Yozevta Ardi, "Metode Penentuan Awal Bulan Kamariyah Menurut Jama'ah Annazir", *Undergraduate-Thesis*, IAIN Walisongo Semrang 2012, p. 83-84.

[44] Syarifuddin Yusmar, "Penanggalan Bugis-Makassar dalam Penentuan Awal Bulan Kamariah Menurut Syari'ah dan Sains," *Jurnal Hunafa*, Vol. 5, No.3, 2008, pp. 267.

[45] *Ibid*., p. 274.

[46] Rudi Kurniawan, "Studi Analisis Penentuan Awal Bulan Kamariah dalam Perspektif Tarekat Naqsabandiyah di Kota Padang," *Undergraduate-Thesis*, IAIN Walisongo Semarang, 2013, p. 68.

Nagan Raya Aceh Regency.[47]

At one time, an Islamic calendar with an eight-year cycle was formulated before Muhammad al-Darandawi (Turkish: Mehmet Darendeli) who was thought to have designed Ruzname during the reign of Sultan Ahmed III around the 1700s. Sunan Giri II also developed an Islamic calendar with an eight-year cycle. If traced, this eight-year cycle system refers to Cleostratus of Tenodos, ancient Greece/present-day Turkey. In 520 BC he proposed a Greek lunar calendar consisting of 354 days, comprising 12 months with each month ran for 29-30 days. Furthermore, the last month of the 3rd, 5th, and 8th years consisted of 30 days so that the years were 355 days. This 8-year cycle was called Octaeteris.[48]

In addition to the 8-year cycle, there is also the count of five (*khomasi*) method of reckoning as done by Hamid Al Muhdor,[49] the leader of al-Muhdor Congregation in Tulungagung, East Java. This determination was achieved by setting the beginning of Ramadhan on the fifth day from the first day of last year's Ramadhan. For example, if the beginning of last year's Ramadhan fell on a Tuesday, then this year the beginning of Ramadhan would fall on a Friday. If traced back, it can be seen that the method of determining the beginning of the *hijri* month used by Habib Ahmad al-Muhdor was very similar to that used by the *Tarekat* Naqshbandiyyah in the city of Padang, West Sumatera, which used a count of five and always fulfilled the month of Ramadhan to thirty days.[50] Similar tradition was also discovered in *Pesantren* Mahfilud

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[47] Asih Pertiwi, "Metode Penentuan Awal Akhir Ramadan menurut Tarekat Syattariyah di Desa Peuleukung Kecamatan Seunagan Timur Kabupaten Nagan Raya Aceh", Undergraduate-Thesis, UIN Walisongo Semarang, 2017, p. 58.

[48] Ahmad Musonnif, "Relasi Intelektual, Jawa Islam, Bugis Islam, dan Turki Utsmani: Tinjauan atas Sistem Kalender dalam Serat Widya Pradana, Lontara Pananrang dan Ruzname Darendeli", Kontemplasi: Jurnal Ilmu-Ilmu Ushuluddin, Vol. 06, No. 01, 2018, pp. 74-75.

[49] Ahmad Musonnif, "Tipologi Epistemologi Hukum…," pp. 20.

[50] Rudi Kurniawan, "Studi Analisis Penentuan …," p. 2003.

Duror, in Jember Regency, East Java.[51] If we traced the history further back, the tradition of Imam Ja'far al-Sadiq is also known as the count of five method.[52]

Conclusion

The history records that the diversity of Islamic epistemologies to understand religious teachings is growing. This leads to the emergence of mainstream and non-mainstream epistemology models. More importantly, this is inevitable because Islam has become a religion embraced by people that always seek for the truth of their environments. In principle, mainstream epistemology models in determining the beginning of the *hijri* month consist of the *rukyatul-hilal* method which is empirical in nature and the *hisab* method which is rational in nature. While some of the non-mainstream epistemologies found are intuitive in nature utilizing the 'sixth sense' and traditional epistemologies are passed down from generation to generation with results that have not been proven empirically and rationally.

[51] Afif Chasbi Fikri, "Aplikasi Metode Hisab 'Urfi Khomasi di Pesantren Mahfilud Duror Desa Suger Kidul Kecamatan Jelbuk Kabupaten Jember dalam Menentukan Awal dan Akhir Ramadhan", *Undergraduate-Thesis*, UIN Maulana Malik Ibrahim, Malang, 2010.

[52] Muhammad bin al-Hasan al-Harr al-'Amili *Tafsil wasa'il al-Shi'ah ila Tahsil Masa'il al-Shari'ah,* Juz. 10 (Mu'assasah Ali Bayt 'alihim al-Salam li Ihya' al-Turats), p. 307.

Bibliography

Abdali, Kamal, "On the Crescent's Visibility", *Al-Ittihad*, Vol. 16, No. 1-2, 1979.

al-Hamidan, Hamidan ibn Abdullah ibn Muhammad, "al-Madaris al-Fiqhiyyah fi Asr al-Tabi'in Ahl al-Hadith wa aAhl al-Ra'y," *Majallah Al-Ulum al-Tarbawiyyah wa al-Dirasah al-Islamiyyah*, Jami'ah al-Malik Saud, Vol. I, 1992.

al-Shatibi, Ibrahim ibn Musa, *Al-I'tisam*, Vol. I, Dar ibn Affan, 1992.

al-Nawawi, Zakariyya ibn Yahya, *Al-Minhaj Sharh Sahih Muslim ibn Hajjaj,* Vol. VII, Egypt: Al Matba'ah al-Misriyyah, al-Azhar, 1929.

'Ali, Abu Bakr Ahmad ibn al-Husayn ibn, *Sunan al-Kubra al-Bayhaqi*, Vol. IV, Beirut: Dar al-Kutub al-Ilmiyyah.

al-San'ani, Abu Bakr Abd al-Razzaq ibn Hammam, *al-Musannaf*, Vol. 4, Johannesberg: Majlis al-'Ilmi, 1972.

al-Khayti, Imad al-Din, Haqa'iq 'an Qamar wa al-Shahr al-Qamari", *http://blog.icoproject.org/?p=226*, accessed February 4, 2021.

al-Qalyubi, Shihab al-Din Ahmad ibn Ahmad, *Hashiyah Sharh Jalal al-Din al-Mahalli*, Vol. 2, Mesir: Maktabah Mustafa al-Babi, 1956.

al-Sharwani, Abd al-Hamid & Ahmad ibn Qasim al-Ubbadi, *Hawashi Tuhfah am-Muhtaj bi Sharh al-Minhaj*, Vol. 3, Matbaah Mustafa Muhammad.

al-Subki, Abu al-Hasan Taqiy al-Din Ali ibn Abd al-Kafi, *Fatawa al-Subki*, Vol. 1, Dar al-Ma'rifah.

al-Batawi, Muhammad Mansur ibn Abd al-Hamid, *Sullam al-Nayyirayn*, t.k.: t.p., 1925.

al-Hamid, Abd al-Jalil ibn Abd, *Fath al-Ra'uf al-Mannan*, Kudus: Menara Kudus.

al-Najjar, Amir, *Al-turuq al-Sufiyyah fi Misr*, Cairo: Dar Al-Ma'arif, t.t.

al-Halbi, Muhammad ibn Yahya al-Tdhifi, *Qala'id al-Jawahir fi Manaqib Abd al-Qadir*, Mesir: Maktabah Mustafa al-Babi al-Halbi, 1956.

al-'Amili, Muhammad bin al-Hasan al-Harr, *Tafsil wasa'il al-Shi'ah ila Tahsil Masa'il al-Shari'ah,* Juz. 10, Mu'assasah Ali Bayt 'alihim al-Salam li Ihya' al-Turats.

Ardi, Hesti Yozevta, "Metode Penentuan Awal Bulan Kamariyah Menurut Jama'ah Annazir", *Undergraduate-Thesis*, IAIN Walisongo Semrang 2012.

'Ali al-Maqrizi, Taqiy al-Din Ahmad ibn, *Ittiaz al-Hunafa bi Akhbar al-A'immah al-Fatimiyyin al-Khulafa',* Da al-Nasr, 1996.

Azhar, Susiknan, "Karakteristik Hubungan Muhammadiyah dan NU dalam Menggunakan Hisab dan Rukyat," *Al-Jami'ah: Journal of Islamic Studies*, Vol. 44, No. 2, 2006.

_____, "Hisab Hakiki Model Muhammad Wardan: Sebuah Penelusuran Awal", *Al-Jami'ah: Journal of Islamic Studies*, Vol. 42, No.1, 2004.

_____, "Sejarah dan Dinamika Pemikiran Hisab Muhammadiyah" *http://museumastronomi.com/sejarah-dan-dinamika-pemikiran-hisab-muhammadiyah/*, accessed January 21, 2021.

Butar-Butar, Arwin Juli Rakhmadi, *Visibilitas Hilal menurut Astronom Muslim Abad 9-15 M,* Yogyakarta: Bildung, 2020.

de Graaf, H.J., *Kerajaan-Kerajaan Islam di Jawa*, Grafiti & KITLV, 2001.

Directorate General of Islamic Community Guidance, Ministry of Religion of Indonesia, Almanak Hisab Rukyat, Jakarta: Directorate General of Islamic Community Guidance, Ministry of Religion of Indonesia, 2010.

Dardiri, Hudan, "Studi Konsep Almanak NU dan Prospeknya Menuju Penyatuan Kalender Hijriah Nasional," *Undergraduate-Thesis*, IAIN Walisongo Semarang, 2014.

Fikri, Afif Chasbi, "Aplikasi Metode Hisab 'Urfi Khomasi di Pesantren Mahfilud Duror Desa Suger Kidul Kecamatan Jelbuk Kabupaten Jember dalam Menentukan Awal dan Akhir Ramadhan", *Undergraduate-Thesis*, UIN Maulana Malik Ibrahim, Malang, 2010.

Hafez, Ihsan, "Abd al-Rahman al-Sufi and His Book the Fixed Stars: a Journey of re-Discovery", *Ph.D-Thesis*, James Cook Unversity, Australia, 2010.

Halm, Heinz, *The Empire of The Mahdi: The Rise of The Fatimid*, Leiden-New York-Koln: EJ. Brill, 1996.

Hurgronje, Snouck, *Aceh di Mata Kolonialis I*, Jakarta: Yayasan Soko Guru, 1985.

Ibrahim, Amal, "Ramadan begins: history of moon sighting in Egypt", *https://dailynewsegypt.com/2019/05/06/ramadan-begins-history-of-moon-sighting-in-egypt/*, accessed October 6, 2020.

Jamaluddin, Thomas, "Wujudul Hilal yang Usang dan Jadi Pemecah Belah Umat Harus Diperbarui." *https://tdjamaluddin.wordpress.com/2011/09/05/wujudul-hilal-yang-usang-dan-jadi-pemecah-belah-ummat-harus-diperbarui/*, accessed July 1, 2021.

Kurniawan, Rudi, "Studi Analisis Penentuan Awal Bulan Kamariah dalam Perspektif Tarekat Naqsabandiyah di Kota Padang," *Undergraduate-Thesis*, IAIN Walisongo Semarang, 2013.

Musonnif, Ahmad, Tipologi Epistemologi Hukum Islam: Analisis Metode Penetapan Awal Bulan Hijriyah Tokoh-tokoh Agama Tulungagung", *Ahkam: Jurnal Hukum Islam*, Vol. 7, No. 1, 2019.

_____, "Relasi Intelektual, Jawa Islam, Bugis Islam, dan Turki Utsmani: Tinjauan atas Sistem Kalender dalam Serat Widya Pradana, Lontara Pananrang dan Ruzname Darendeli", *Kontemplasi: Jurnal Ilmu-Ilmu Ushuluddin*, Vol. 06, No. 01, 2018.

_____, "Geneologi Kalender Islam Jawa Menurut Ronggo Warsito: Sebuah Komentar atas Sejarah Kalender dalam Serat Widya Pradhana", *Kontemplasi: Jurnal Ilmu-Ilmu Ushuluddin*, Vol. 05, No. 02, 2017.

Muzakkin, Fikrizuhara, "Menghitung Waktu Ijtimak", *http://repo.mercubuana-yogya.ac.id/repo-unnes/dokumen/astrodb/pdf/muzakkin_cara_menghitung_waktu_ijtimak.pdf*, accessed February 22, 2021.

Majelis Tarjih dan Tajdid PP Muhammadiyah, Pedoman Hisab Muhammadiyah Majelis Tarjih dan Tajdid Pimpinan Pusat Muhammadiyah, Majelis Tarjih & Tajdid PP Muhammadiyah, Yogyakarta, 2009.

Makruf Amin: Kesaksian Melihat Hilal ketika Tidak Imkan, Tidak Bisa Diterima, *https://www2.kemenag.go.id/berita/150376/makruf-amin-kesaksian-melihat-hilal-ketika-tidak-imkan-tidak-bisa-diterima?lang=id,* accessed January 07, 2021.

Purwanto, Sugeng, Hisab Kiai Dahlan Beda dengan Keraton, *https://pwmu.co/148196/05/16/hisab-kiai-dahlan-beda-dengan-kraton/,* accessed October 13, 2020.

Pertiwi, Asih, "Metode Penentuan Awal Akhir Ramadan menurut Tarekat Syattariyah di Desa Peuleukung Kecamatan Seunagan Timur Kabupaten Nagan Raya Aceh", *Undergraduate-Thesis*, UIN Walisongo Semarang, 2017.

Shofiyulloh, "Analisis Pemikiran Muhammad Mansur dalam Hisab Awal Bulan Kamariah", *Al-Wijdán: Journal of Islamic Education Studies*, Vol. 3, No 2, 2018.

van Gent, Robert Harry, "The Arithmetical or Tabular Islamic Calendar", *https://webspace.science.uu.nl/~gent0113/islam/islam_tabcal_variants.htm*, accessed February 22, 2021.

Yusmar, Syarifuddin, "Penanggalan Bugis-Makassar dalam Penentuan Awal Bulan Kamariah Menurut Syari'ah dan Sains," *Jurnal Hunafa*, Vol. 5, No.3, 2008.

Zainal, Baharrudin," A Selective Literature Review of Young Moon Crescent Visibility Studies", *https://dosya.diyanet.gov.tr/EAPDosya/EAPYayinDosya/M37.pdf*, accessed February 22, 2021.