

History of the Javanese Calendar in the Era of Aji Saka and Sultan Agung

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Abstract

A calendar is a system that provides daily, monthly, and yearly time by following natural phenomena, namely the apparent movement of the sun from east to west. Calendars did not simply appear; they were influenced by social culture and history. The Javanese calendar system was created by Aji Saka and later modified by Sultan Agung. An interesting aspect of both systems is that they follow Java's cultural traditions. The system used at the beginning of the Javanese calendar was the solar calendar system. However, with the introduction of new cultures and religions to Java, namely Islam and its influence, the calendar changed but continued to follow Aji Saka's annual numbers. The only changes in Sultan Agung's calendar system were the names of the months and the shift from a solar to a lunar calendar. This change followed the Islamic calendar, which had already been influenced by the arrival of Islam from India and Arabia. The number of days in a year also changed from 365 to 355 days. This research method uses qualitative literature that focuses on the historical origins, compares the two systems, and then examines their advantages and disadvantages.

Article Info

Received:

13 April 2026

Revised:

21 May 2026

Accepted:

30 June 2026

Published:

30 June 2026

Keywords: *Aji Saka, Sultan Agung, Java*

A. Introduction

The Javanese calendar system, initially established by Aji Saka and later reformed by Sultan Agung, reflects Java's agricultural cycles, particularly the harvest and planting seasons. The original Javanese calendar employed a solar system. With the introduction of Islam and its cultural influences, the calendar system transitioned to a lunar model, while retaining the annual numbering established by Aji Saka. Sultan Agung's reforms primarily involved changing the names of the months and shifting from a solar to a lunar calendar, aligning with the Islamic months influenced by Indian and Arabian traditions. The number of days in a year was reduced from 365 to 355. This adaptation demonstrates the integration of astronomical knowledge from the Hijri calendar with local Javanese culture, marking a significant transition from Hindu-Buddhist to Islamic cultural frameworks [1][2]

Aji Saka is traditionally identified as the king of the Surati kingdom in the Hindustan region, the son of Bathara Ramayaddhi and Dewi Sakha from the Najran kingdom (soleh, 2022). The Saka calendar begins when the sun enters the constellation Pisces (Minasamkranti), marking the onset of spring. According to the Candrasengkala text and the Serat Pustaka Purwa, the Javanese calendar originated in 78 AD. With the spread of Islam in Java, the calendar system was modified to align with the Hijri calendar, while maintaining the original year count. Some sources, such as the Ronggowasito version, attribute the foundation of the Islamic Javanese calendar to Sunan Giri[4]. The Javanese calendar system represents a synthesis of Javanese, Arab (Islamic), and Indian (Buddhist) cultural elements, each influencing the system without dominating, symbolizing the unity of Javanese society during that period[5].

B. Method

This study employed library research methods, drawing on a range of primary and secondary sources, including books, journals, articles, and expert interviews. Descriptive analysis was applied to interpret the collected data and draw conclusions relevant to the research theme.

C. Result and Discussions

The Arrival of Aji Saka

Aji Saka was a powerful young man who came from the land of Majeti, or, in other sources, from Jambudwipa. He made a spiritual journey to Java, accompanied by two servants. On his arrival on the island of Java, Aji Saka stopped at the Medang Kamulan in the house of an old widow. During his stay at the house, Aji Saka heard that a king who ate humans lived there. The king was named Prabu Dewata Cengkar, which made the people at that time afraid. Because of the frightening situation, Aji Saka dared to meet the king. At that time, Aji Saka offered himself to be eaten by the king in exchange for a plot of land as wide as the cloth Aji Saka brought [6]. The cloth was then stretched until it reached the southern mainland. So the king was angry and intended to eat Aji Saka. But Aji Saka used his supernatural powers to wrap the king's body until it reached the tip of the southern mainland, where it fell into the sea. From this incident, the people were immediately happy and celebrated the death of the cruel king. Then Aji Saka was appointed by the people of Medang Kamulan as a wise king[7]

Aji Saka's arrival in Java was not without reason. His arrival was due to his wanderings in various places in his homeland, where he gained a wealth of wisdom and supernatural powers

from Batara Wisnu. Then, Batara Wisnu ordered Aji Saka to Java, which was said to be still ruled by a cruel king and spirits. After mastering these powers, Aji Saka was able to defeat King Dewata Cengkar. Aji Saka then began a period of asceticism. During his asceticism, Aji Saka created a five-day market system that he later taught to humans and spirits. To prevent further damage to life in Java by spirits, he scattered five sacrifices in the five corners of Java to prevent human life from being disturbed[8]

Aji Saka, a man of great supernatural powers and wisdom, was the son of Prabu Isaka, the king of the Surati kingdom in the Hindustan region, by his mother, Dewi Sakha, who came from the Najran kingdom in Turkey. When he came to Java, Aji Saka was accompanied by two loyal servants, one of whom was entrusted with guarding Aji Saka's keris, which was not to be given to anyone except Aji Saka himself. However, the other servant did not know the message. Long story short, when he succeeded in conquering Java, Aji Saka remembered his keris and sent a servant who had been with him during his time in control of Java to retrieve it[7]. Suddenly, the servant who had previously been entrusted with the keris refused to hand it over to anyone but his master. So a fierce battle ensued between the two, and they were both killed. News of the two servants' deaths made Aji Saka realize how loyal they were[9].

In that incident, Aji Saka suddenly said "Ha, na, ca, ra, ka, da, ta, sa, wa, la, pa, dha, ja, ya, nya, ma, ga, ba, tha, nga," which means "*there are servants who are involved in a fight, and who have met their deaths, because they are equally strong.*" These words became the forerunner of the Javanese script known today. These words were uttered to praise the loyalty of his two servants, Dora and Sembada, for carrying out the mission until the end of their lives. The Javanese script is a derivative of the Pallava script, originating in South Asia, and was studied by Aji Saka. It was widely adopted by Javanese society at the time and given the name Javanese script[7].

Javanese Calendar System of the Aji Saka Era

Ancient Javanese societies were characterized by robust agricultural practices, social structures, and established customs. Aji Saka's legacy profoundly influenced these communities, not only by liberating them from King Dewata Cengkar's tyranny but also by introducing the Javanese script, which enhanced communication in line with local traditions[10][11]. This section examines another significant contribution: the establishment of the Saka Jawa calendar, focusing on its historical development, system, and defining characteristics.

a. History of the Saka Calendar

The Saka calendar is historically derived from the calendar system used in ancient India during the Vedic period, which itself incorporated Greek and Persian calendrical concepts and adopted a solar calendar system [12]. Ancient Javanese societies exhibited advanced agricultural and social structures, and Aji Saka's contributions had a lasting impact, including the creation of the Javanese script and the Saka Jawa calendar. This section addresses the history, system, and characteristics of the Saka Jawa calendar [8][13].

The legacy brought by Aji Saka to Java is known to have arrived on Saturday Legi, March 14, 78 AD. Aji Saka created this calendar based on the advice of the Indian astronomer King Salivahana [12]. The calendar system is one of the oldest calendar systems still in use today. The beginning of the year in the Saka calendar falls when the sun is in the constellation Pisces (Minasamkranti), marking the beginning of spring. Before Aji Saka, people knew the calendar cycle, one of which was Pawukon, but this system had a gap between the beginning and end of the month, resulting in only 210 days . After the introduction of the Saka calendar, Pawukon was no longer used; however,

b. Calendar System

The annual cycle, adapted from the Saka calendar, is lunisolar, observing the sun's movement throughout the year and the moon as a marker for the beginning of each month. There are 12 months. In the daily system, there is a 1-week cycle of 7 days, commonly called Saptawara, and a 5-day cycle, usually called Pancawara. So, in one day, two names must be used. Pancawara and Saptawara, according to some experts, were used by the Austronesian race since the Mesolithic era, who had already inhabited the island of Java before the arrival of the Saka people, estimated to have occurred between 8000 and 3000 BC [14]. The following are the names of the months in one year, days, and Pancawara[1] [15][8]

Table 1. Name of month in the Saka calendar

Month Names	Month in Gregorian	
Srawanamasa	July	August
Bhadrawadamasa	August	September
Asujimasa	September	October
Kartikamasa	October	November
Margasiramasa	November	December
Posyamasa	December	January
Maghamasa	January	February

Phalgunamasa	February	March
Cetramasa	March	April
Wesakhmasa	April	May
Jyesthamasa	May	June
Asadhamasa	June	July

Table 2. Name of the Pasaran

Pasaran Order	Pasaran
1	Kliwon
2	Legi
3	Pahing
4	Pon
5	Wage

Table 3. Name of the days

Urutan hari	Days in Saka	Day in the Gregorian Calendar
1	Radite / Ravivara	Sunday
2	Soma / Somvara	Monday
3	Mangalavara / Anggara	Tuesday
4	Budha / Budhavara	Wednesday
5	Respati / Brahaspativara	Thursday
6	Sukra / Sukravara	Friday
7	Sanicara	saturday

c. Characteristics of the Saka calendar

Understanding the Saka calendar involves studying its structure and characteristics. First, the creation of the Saka calendar is a cultural acculturation studied by Aji Saka and Javanese culture. Buddhism, which came with mystical beliefs, can unite elements into the Saka calendar system. Second, the lunisolar calendar system aligns with the daily movements of the sun and moon to initiate its cycle. Third, there is a two-day cycle used to determine good and bad days in community activities, namely the pancawara and saptawara. Generally, the pancawara are used to observe the inner nature of humans, while the saptawara are used to observe the behavior of other living creatures[16] [15]. Fourth, after the formation of the Saka calendar system, historical records and sacred ceremonies could be easily known.

In addition to recognizing the five (pancawara), seven (saptawara), and the names of the months, the Saka calendar also recognizes the Pawukon, which is generally used to understand each individual's character or to initiate activities, both for traditional ceremonies

and business. To determine the pawukon, or wuku, by looking at the day and pasaran [17]. By reading these two, you can determine the wuku for that day. There are 30 wuku in a cycle, starting from wuku sinta and ending with wuku watugunung. Here are the wuku in order:

Table 4. Pawukon/Wuku

No	Wuku Name	No	Wuku Name	No	Wuku Name
1	Sinta	11	Kurantil	21	Wuye
2	Landep	12	Tolu	22	Manahil
3	Wukir	13	Gumbreg	23	Prangbakat
4	Kurantil	14	Warigalit	24	Bala
5	Tolu	15	Warigagung	25	Wugu
6	Gumbreg	16	Julungwangi	26	Wayang
7	Warigalit	17	Sungsang	27	Kulawu
8	Warigagung	18	Galungan	28	Dukut
9	Julungwangi	19	Kuningan	29	Watugunung
10	Sungsang	20	Langkir	30	Tambir

Javanese Calendar during the reign of Sultan Agung

Sultan Agung was the third sultan of the Mataram kingdom, succeeding his father, Sultan Sutawijaya, who was titled Senopati [18]. The background of the Mataram Kingdom was the merger of the Mataram duchy, previously known as Alas Mentaok, which was in the ruins of the Medang Kamulan kingdom, and the Pajang Kingdom, which was defeated by Sultan Sutawijaya, who at that time was led by Sultan Hadiwijaya. The struggle was driven by political influence to control the entire Pajang region and its surroundings, uniting them under the Mataram kingdom[19]. The reign of Sultan Sutawijaya lasted 14 years, followed by his son, Raden Mas Jolang, for 12 years. During Mas Jolang's leadership, social and political conditions were stable, and the calendar system still followed the Saka calendar, which was in use at the time. After Sultan Raden Mas Jolang, the kingdom's inheritance was given to Raden Mas Jatmika. When he was appointed, he was given the title Sultan Agung Hanyakrakusuma [10].

The Sultan's reign began in 1613 and lasted until 1645 AD. During this period, the Islamic Mataram Kingdom experienced prosperity across the political, military, economic, cultural, and social spheres. Among other things, during his territorial expansion, Sultan Agung ordered Tumenggung Suratani to control Malang and its surroundings and Tumenggung Martalaya to control Wirasaba (Banyumas). He expanded not only to these two regions but also to Surabaya, Lasem, Pasuruan, and Tuban. In addition to his brilliance in spreading power and political and economic stability, Sultan Agung also formulated and revised the Saka calendar system. The aim was to align Islamic holidays and traditional ceremonies in the Mataram Kingdom, where the majority of the population was Muslim at the time. However, this change did not alter the year order, as it still followed the Saka calendar's annual numbers, and the month names were changed to reflect the Javanese language of the time [20][21].

a. History of the Formulation of the Javanese Islamic Calendar.

Historically, there are two sources that represent the initial concept of the Islamic Javanese calendar. The earliest source is from Serat Widya Pradhana. It explains that the concept was born from the thoughts of Sunan Giri II during the Demak Kingdom in 1524 AD or 931 Hijriah. Sunan Giri II was the leader of Giri Kedhaton during the reign of Sultan Trenggana, the king of Demak. However, during the reign of Sultan Agung of Mataram, the Giri Kedhaton region submitted to the Mataram Kingdom. The author of Serat Widya Pradhana, Ranggarwarsito, called Sunan Giri the originator of the idea for the Islamic Javanese calendar system because, at that time, the VOC sent spies into the Javanese region, which disturbed their stability. Sultan Agung opposed the VOC to dispel the suspicion that had arisen [22] [5].

The Javanese Islamic calendar system was implemented on 1 Sura in the year Alip 1555 Saka, which coincided with 1 Muharram 1043 H or July 8, 1633 AD. The goal of continuing the annual number was to harmonize the community that still held Hindu-Buddhist beliefs with the Islamic community to avoid conflict. Therefore, Sultan Agung continued what Sunan Giri had formulated, establishing it as a standard calendar system for his territory. The Javanese Islamic calendar system also changed from Luni-Solar to the Lunar Calendar. There are 12 months, and each month has 29 or 30 days [23]

b. Javanese Islamic Calendar System

The year numbers follow the Saka calendar sequence, starting in 1555. This demonstrates that culture and religion can intertwine without disrupting the previous system[24]. The names of the 12 months are as follows:

Table 5. the name moon of javanese islamic calendar

No	Month Names	1, 3, 6, 7 (Basithah)	2, 4, 8 (Leap)	5 (Year Dal)
1	Sura	30 days	30 days	30 days
2	Sapar	29 days	29 days	30 days
3	Mulud	30 days	30 days	30 days
4	Bakda Mulud / Syawal Mulud	29 days	29 days	29 days
5	Friday Prayer	30 days	30 days	30 days
6	Jumadilakir	29 days	29 days	29 days
7	Rejeb	30 days	30 days	30 days
8	Ruwah	29 days	29 days	29 days
9	Pasa (Ramadan)	30 days	30 days	30 days
10	Shawwal	29 days	29 days	29 days
11	Dzulkaidah / Kapit	30 days	30 days	30 days
12	Great (Dzulhijjah)	29 days	30 days	30 days

In the Javanese calendar, there are 29 or 30 days in a month. It has an 8-year cycle consisting of 3 leap years (2, 4, and 8), each with 355 days. And five basithah years, each with 354 days. The sequence of these 8 years begins with the years *Alip*, *Ehe*, *Jimawal*, *Je*, *Dal*, *Be*, *Wawu*, and *Jimakhir*. This differs from the Islamic calendar, which has a 30-year cycle consisting of 11 leap years and 19 basithah years[25][26]

c. Characteristics of the Javanese Islamic Calendar

With the arrival of Islam and the majority of the population at that time being Muslim yet still adhering to Javanese culture and activities, the Sultan took the initiative to establish the Javanese-Islamic calendar to facilitate traditional celebrations and ceremonies without conflict. Continuing the annual calendar ensured continuity between past and future administrations and prevented the Hindu-Buddhist majority from feeling marginalized. The beginning of the Hijri and Javanese-Islamic years coincided, so that celebrations could be celebrated together [27].

D. Conclusion

The Javanese calendar system is a synthesis of cosmological and cultural knowledge that developed from the Aji Saka era to the reign of Sultan Agung. During the Aji Saka era, the calendar was based on the Indian Saka system, which emphasized solar calculations, with the year beginning when the sun entered the constellation Pisces (Minasamkranti), marking the start of spring. In this system, time is calculated using the concepts of windu (an eight-year cycle) and wuku (a 30-week cycle), both of which play crucial roles in determining auspicious days, traditional ceremonies, and agricultural activities. The wuku concept, consisting of 30 weekly cycles, demonstrates the depth of the Javanese people's understanding of the order of time and the harmony of the universe.

Entering the era of Sultan Agung Hanyokrokusumo (17th century), a major reform in the calendar system occurred. Sultan Agung combined elements of the Saka (solar) and Hijri (lunar) calendars into a new system that was more closely aligned with the religious life of the Javanese Muslim community. This calendar is known as the Javanese-Islamic Calendar, where the Saka year 1555 coincides with the Hijri year 1043 (1633 AD). This system maintains the division of months from Sura to Besar (Dzulhijjah) as in the Hijri calendar, but also preserves the windu and wuku structure of ancient Javanese tradition. Through this innovation, Sultan Agung sought to maintain cultural continuity while strengthening the Islamic identity of the Javanese people.

In the process of forming this system, the ideas and intellectual contributions of Sunan Giri II played a major role. As a spiritual figure and Islamic scholar in Java, Sunan Giri II provided the conceptual basis for the syncretization of the Saka and Hijri calendars. Overall, the Javanese calendar system, the work of Aji Saka and Sultan Agung, is a unique and complex intellectual legacy. It reflects a blend of traditional astronomy, spiritual values, and the philosophy of natural harmony. With the existence of wuku, windu, and the lunar-solar system, the Javanese calendar is not just a tool for measuring time but also a means of maintaining

social and spiritual order. The thoughts of Sunan Giri II are proof that Sultan Agung's reforms were not merely administrative but also theological and philosophical—an effort to unite *heaven and earth*, science and spirituality—in a time system unique to the archipelago.

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