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The Sungai Batu Conundrum: A Review of the 788 B.C.E Claim by Muhammad Bin Abd Razak in His Book "Kedah Tua Tamadun Terawal Asia Tenggara (Ancient Kedah the Earliest Civilisation in Southeast Asia)"

Abdul Rahmat Omar

School of Distance Education, Universiti Sains Malaysia, Pulau Pinang, Malaysia
Corresponding author: abdulrahmatomar@gmail.com

Abstract
This paper aims to review the writings of author Muhammad bin Abd Razak (henceforth to be referred to as '*the writer*') in his 2021 book "KEDAH TUA Tamadun Terawal Asia Tenggara (ANCIENT KEDAH the Earliest Civilisation in Southeast Asia)," specifically on the date used to claim that the Sungai Batu Archaeological Complex (SBAC) had been dated to 788 B.C.E based on a charcoal sample from Spit 7 of Site SB2H dated using the Accelerator Mass Spectometry (AMS) method and, the attempt to link between the use of Camphor in the embalming of the Pharaohs of Ancient Egypt to justify the existence of an 8th Century B.C.E civilisation at SBAC. The purpose of this paper is to study the veracity of the claims made by the writer. This paper will discuss extracts from recent papers that were published that are related to the SBAC as well as the embalming process of mummies of Ancient Egypt's pharaohs, with the intention to prove that the SBAC was established at the turn of the Common Era rather than 800 years prior. Therefore, the scope of this paper will be limited to explaining what was Ancient Kedah, what religion(s) did the people of Ancient Kedah practice, how accurate or true is the 788 B.C.E claim, as well as the attempt to link the use of Camphor in the embalming process of the Pharaohs of Ancient Egypt with the SBAC. The findings will show that the SBAC is not as old as claimed, and that there is no connection between Ancient Kedah and Ancient Egypt.

Keywords: Sungai Batu Archaeological Complex, Bujang Valley, Ancient Kedah, Iron Industry

Introduction

Ancient Kedah is an interesting subject for many in this region, especially for Malaysians. The discovery of iron furnaces in Sungai Batu is proof that the community that was there had a sound understanding of the science and technology behind not only the building of furnaces from clay, but as well as the smelting and forging of iron. Iron tools had been found since 1908 in Sengat (Kampung Kepayang), Tanjong Rambutan and Batang Padang in Perak; Ladang Sungai Belata (Lembah Beringin), Klang and Kampung Sungai Lang (Banting) in Selangor; Bukit Chuping in Perlis; Lembah Tembeling, Raub and Kuantan in Pahang; Kampung Seberang Limbongan and Kampung Gaong in Besut, Terengganu; and Kampung Penchu near

Lenga, Johor.

A similar proto-historical site is in Santubong, Sarawak. Based on relative dating the site had existed between the 7th and 14th century C.E and several brick structures believed to be religious sites were also discovered. Archaeological research finds that Santubong had had the same function as Sungai Batu, as an entrepot with a community that practiced Buddhism (Perret and Mohd. Sherman Bin Sauffi, 2019).

Recent archaeological findings in Bukit Choras have fuelled not only interests, but speculations that are unfortunately based on racial and religious supremacy. Claims and counterclaims have cluttered the Internet with misinformation while dividing the Netizens.

The Sungai Batu Archaeological Complex was excavated by the Centre for Global Archaeological Research (CGAR), Universiti Sains Malaysia in 2009 and had unearthed the remains of iron smelting sites, brick structures such as wharves and a religious structure, believed to be a Buddhist structure based on the discovery of artefacts that included a Sagaramati-pariprccha inscription written in the Pallava script, dating back to the 2nd to 3rd century C.E. Furnaces, tuyeres, iron slag discovered underscored the importance of Sungai Batu as a primary iron production centre employing the bloomery method.

Trade with traders from the Indian subcontinent traders prospered and later gave rise to other Ancient Kedah entrepots such as Kampung Sungai Mas and Pengkalan Bujang after the 5th century C.E. The discovery was an important one as it discovered a civilisation that was much older than the ones at Borobudur, Indonesia (9th century C.E) and Angkor Wat, Cambodia (12th century C.E).

The find proved that the Colonisation Theory put forth by Quaritch-Wales where the Bujang Valley was established by colonists from the Indian subcontinent was not airtight. Although the theory was first disproved by Alastair Lamb two decades later during his research at the Candi Bukit Batu Pahat (Murphy, 2017), there was never an in-situ discovery to demonstrate the cultural evolution of the local community from a prehistorical era to a proto-historical era. However, I am inclined to believe that the neolithic community at Guar Kepah, Pulau Pinang, may have evolved into a trading community along the Muda River. A 2005 compilation of 81 sea-level index points from the Malay-Thai peninsula indicated that relative sea levels (RSL) increased from -22.15 m ± 0.55 m between 9700 and 9250 calibrated years BP to a peak of 4.87 m ± 0.57 m around 4850 to 4450 calibrated years BP. Following this high point, sea levels have gradually declined at an average rate of approximately -1.1 mm per year (Foo, 2015, 114-128). Based on this data, sea levels would have receded by 3.19 meters by the time Kampung Sungai Mas became an entrepot.

The discovery at Sungai Batu exposed us to two layers of culture that existed there. The first cultural layer is a proto-history layer proven by the discovery of a stupa and an inscription containing a Buddhist credo. Employing the relative dating technique, this era had begun in the 6th or 7th century C.E based on the Pallava script used in the inscription. The second cultural layer is a pre-Buddhism layer that had existed by the 2nd century C.E based on chronometric dating. Several artefacts and features were found to demonstrate an intelligent local community, such as stone tools and furnaces used in iron smelting.

A controversy arises when in May 2016 local newspapers quoted the Director of CGAR Prof Dato Dr Mokhtar Saidin as saying that the Sungai Batu ritual site may have been animist, and not Hindu or Buddha (The Star, 2016). That started the accusation by Malaysia's Hindus and Buddhists of an alleged cover-up of Malaysia's pre-Islamic past. None of Dr Mokhtar's works have suggested that the Sungai Batu civilisation was animist. However, his continued association after retirement from the CGAR with a professor from another local university specialising in Arabic Grammar who has a penchant to speak about Ancient Kedah while quoting unverified sources, continues to fuel the controversy, claims and counterclaims.

It is believed that the current contention of racial and religious supremacy has also been

encouraged by the myopic view of the term Ancient Kedah itself. While historians and archaeologists refer to it as a general term for a region, opposing groups see Ancient Kedah as an ancient version of modern-day Kedah within its current political boundaries. This gave rise to the issue of who was first in Kedah versus who were the real immigrants, and as a result have given birth to extreme right and extreme left factions based on race and religion.

For this review, four questions need to be answered, and they are as follows:

1. **Where was Ancient Kedah?**
2. **What was the religion of the people of Ancient Kedah?**
3. **How accurate is the 788 B.C.E claim?**
4. **Did the Egyptians use Camphor in the process of embalming the Pharaohs?**

Methodology

This paper seeks to critically examine and refute the assertions made by Muhammad bin Abdul Razak, particularly his connection between Ancient Kedah/Sungai Batu and Ancient Egypt through the trade of camphor. Additionally, it will challenge the validity of the 788 B.C.E. date by presenting relevant studies that address these claims.

About the Author and the Book

Not much information is available about the author Muhammad bin Abdul Razak. He appears to lack a social media presence, and the book under review is his sole publication. Released by Dar Al Wahi Publication in Kuala Lumpur, Malaysia, in 2021, the book outlines his writing methodology, which involves sharing content from the Facebook page "*Sungai Batu 788 B.C: The Great Kingdom of Kedah Tua.*" In addition to this, he draws on a variety of sources, including journals, research papers, forums, conferences, YouTube videos, blogs, and reputable history websites. The book consists of nine chapters organized by topic. This paper will specifically focus on two sub-topics: "*788 B.C!*" and "*Tracking Camphor 9 (Ancient Kedah – Egypt – Guangzhou).*"

Where was Ancient Kedah?

As mentioned in the above paragraph, the term Ancient Kedah refers to a geographical region rather than a state or a kingdom with defined political boundaries. However, trading ports for Ancient Kedah have existed beginning with Sungai Batu between the 1st century C.E and 3rd century C.E when sea levels were higher, and was taken over by Kampung Sungai Mas and Pengkalan Bujang from the 4th century C.E through the 13th century C.E after the sea levels dropped due to sedimentation of rocks and soil from the upper area (Gunung Jerai) to the lower area, as well as the deposition of hydrogenous sediments from the Straits of Malacca (Nasha et.all, 2019; Zakaria et.all, 2016).

Where Ancient Kedah began and ended in terms of size is just a conjecture, not a fact. Alastair Lamb suggested during a visit to Ko Kho Island in 1961 that the Takua Pa district island in Thailand was a pre-Malaccan entrepot due to the similarity in assemblage of wares with the ones in Pengkalan Bujang (Nik Hassan Shuhaimi and Abd Rahman). This conjecture corresponds similarly with Tome Pires's 1512 note in *Suma Oriental* that the northern border of Kedah was in Trang, Thailand, while its southern border was in Bruas, Perak (Tome Pires, 2005: 106-107).

Based on both observations, Ancient Kedah was in all probability a series of maritime polities that had existed, as a confederation of entrepots, along the west coast of the Thai-Malay

peninsula from Takua Pa to Bruas. There is no evidence that Ancient Kedah was ruled by a single ruler as in the Malacca Malay Kingdom in the 13th century C.E.

What was the religion of the people of Ancient Kedah?

Scholars have both diverged as well as agree on what religion was practised according to various periods of Ancient Kedah. The divergence in the periodisation of Ancient Kedah was also evident in the way the scholars proposed:

Table 1: Summary of the Periodisation of Ancient Kedah

Scholar	Periodisation	
	Timeline	**Characteristic**
Wales	1st to 3rd century C.E	Politics – No tangible government structure Economy – Merchants stopover centre Social – Possible political culture
	4th to 6th century C.E	Politics – Ancient Kedah was conquered by Langkasuka Economy – Trade centre Social – Practicing Indian culture and Mahayana Buddhism
	6th to 8th century C.E	Politics – There exists a government structure from the Pallava kingdom Economy – Trade centre Social – Practicing Indian culture and Hinduism
	8th to 10th century C.E	Politics – Ancient Kedah was conquered by the Srivijaya kingdom from Southern Thailand Economy – Trade centre Social – Pala kingdom influence and Mahayana Buddhism
	9th to 12th century C.E	Politics – Ancient Kedah was conquered by Sailendra Economy – Trade centre Social - Buddhism
Lamb	4th to 7th century C.E	Politics – Small coastal settlements Economy – Merchants stopover centre Social – Mahayana Buddhism
	7th to 9th century C.E	Politics – Ancient Kedah was conquered by Srivijaya Economy – Trade centre Social – Mahayana Buddhism, as well as Siva and Tantric Hinduism
	10th to 13th century C.E	Politics – Not stated Economy – Trade centre Social – Not stated
	14th century C.E	Politics – A political organisation existed Economy – Trade and small-scale agriculture Social – Islamisation process begun
	5th to 10th century C.E	Politics – There was a political organisation that used the Indian system of government

Nik Hassan Shuhaimi		Economy – Trade centre Social – Practicing Indian culture and Mahayana Buddhism
	9th to 11th century C.E	Politics – There was a local community political organisation and temporary settlement of foreign traders Economy – Trade centres in Sungai Mas and Pengkalan Bujang Social – Mahayana Buddhism
	12th to 13th century C.E	Politics – There was a local community political organisation and temporary settlement of foreign traders Economy – Trade centres in Sungai Mas and Pengkalan Bujang Social – Hinduism and Islam
	14th century C.E	Politics – There was a local community political organisation and temporary settlement of foreign traders Economy – Trade centres in Simpor Tambang, Kampung Sireh, Sungai Mas and Pengkalan Bujang Social – Hinduism, Buddhism, and Islam

Source: Extracted from Nasha Rodziadi Khaw, Nazarudin Zainun, and Mokhtar Saidin. 2015. *Pensejarahan Kedah Tua : Satu Kritikan Sumber Dan Tafsiran, pp.62-63*

As evident, although Quaritch-Wales, Alastair Lamb, and Nik Hassan Shuhaimi have minor difference on the political timeline, all agree that in Ancient Kedah, the Indian culture was practised, and Buddhism was the first religion embraced. Hinduism came about between the 6th to the 9th century C.E according to Wales and Lamb, while according to Nik Hassan Shuhaimi's timeline, it was practised in Ancient Kedah between the 12th to the 14th century C.E. This would coincide with the Chola invasion of *Kadaram* (Kedah) in 1068 C.E, and the existence of Hindu temples such as Site 8 (12th to 13th century C.E), Site 16 (11th century C.E), Site 50 (12th to 13th century C.E), and Site 19 (11th to 13th century C.E) (Azman Adam, 2021)

Nonetheless, it would be premature to suggest that all Ancient Kedah practised Buddhism or Hinduism. The map of the Bujang Valley in Figure 1 below shows that all the archaeological sites are located along an ancient coastline and upstream of the Muda River. These were all trade centres before the sea levels receded to the current shoreline.

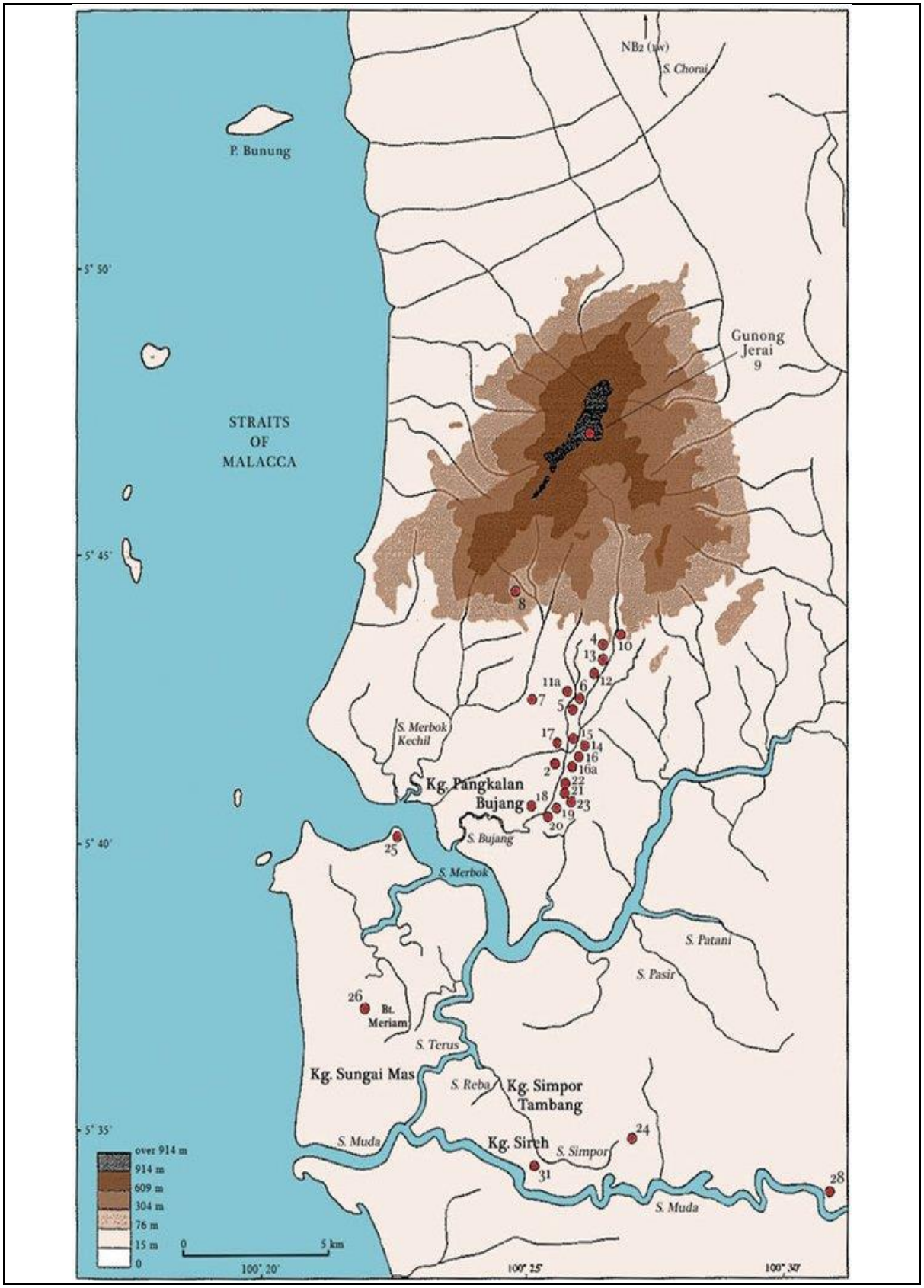
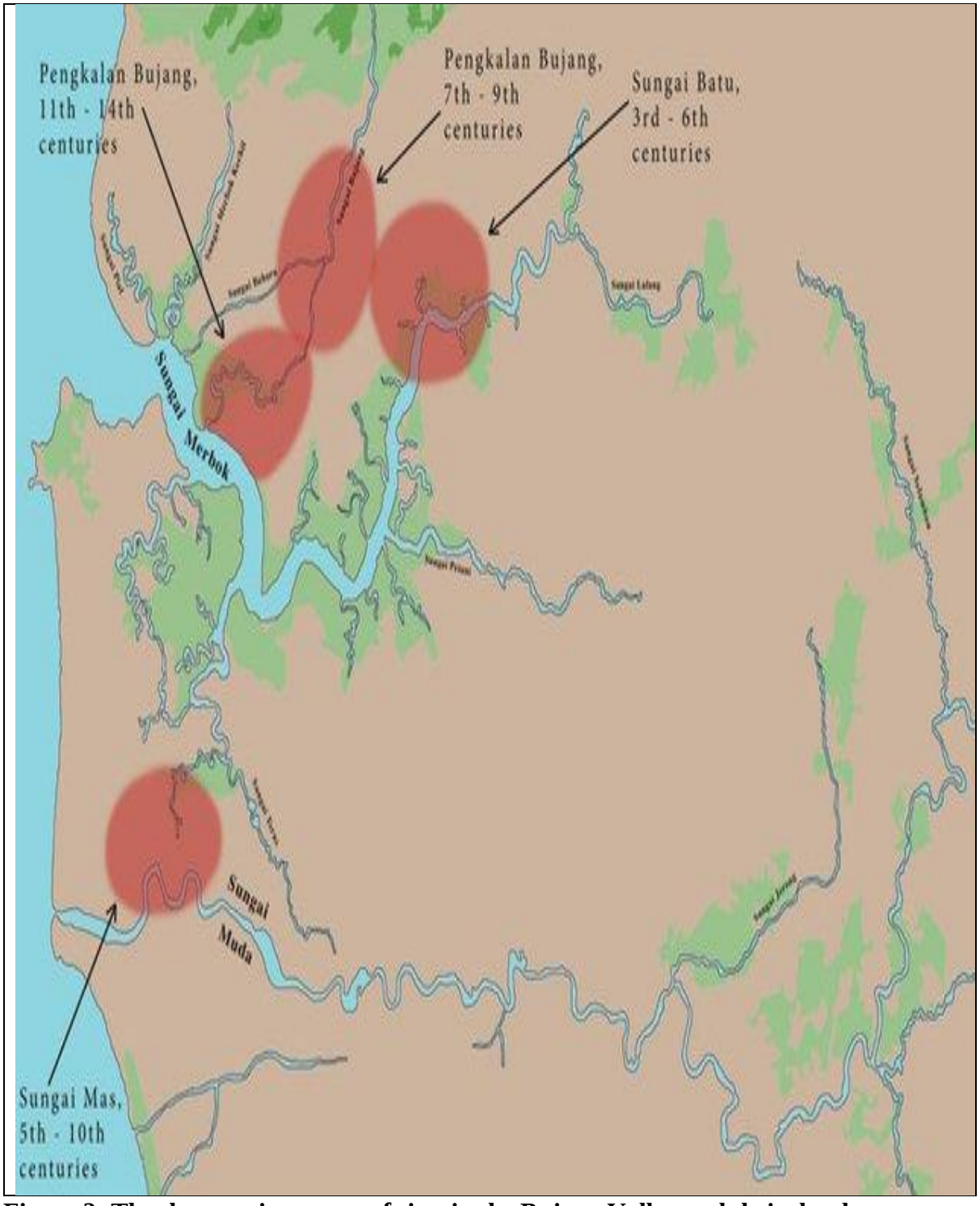


Figure 1: The Bujang Valley and Its Main Sites

Source: MURPHY, STEPHEN A. 2017. "Revisiting the Bujang Valley: A Southeast Asian Entrepôt Complex on the Maritime Trade Route." *Journal of the Royal Asiatic Society* 28 (2): 355–89. https://doi.org/10.1017/s1356186317000505.

Figure 2 shows the three main groups of sites in the Bujang Valley and their development over time.



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Source: MURPHY, STEPHEN A. 2017. "Revisiting the Bujang Valley: A Southeast Asian Entrepôt Complex on the Maritime Trade Route." *Journal of the Royal Asiatic Society* 28 (2): 355–89. https://doi.org/10.1017/s1356186317000505.

Figure 3 below shows the reconstruction of the palaeoenvironment of the Bujang Valley. The changes in the sea levels are clearly shown in the diagrams.

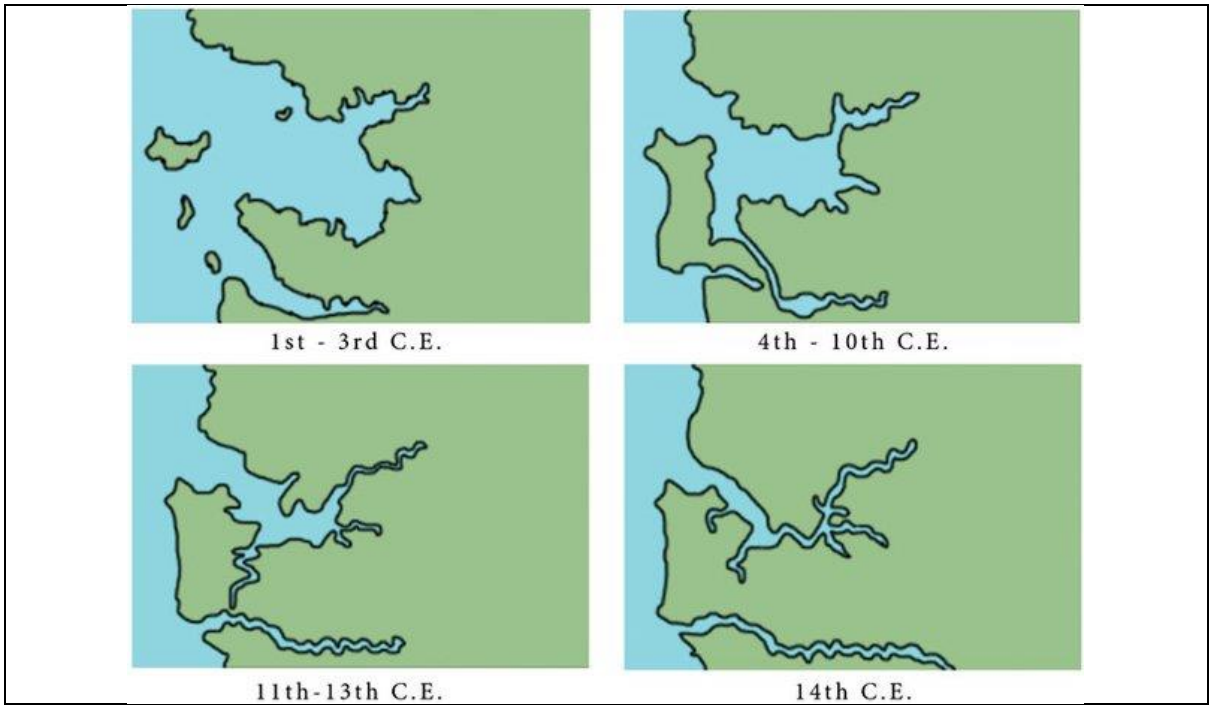

Figure 3: A reconstruction of the palaeoenvironment of the Bujang Valley
Source: MURPHY, STEPHEN A. 2017. "Revisiting the Bujang Valley: A Southeast Asian Entrepôt Complex on the Maritime Trade Route." *Journal of the Royal Asiatic Society* 28 (2): 355–89. https://doi.org/10.1017/s1356186317000505.

The maps in the figures above point to the fact that no evidence has been found of Hindu-Buddha temples built inland away from the trade sites. The other fact that can be established is that no Hindu-Buddha temple built after the 14th century C.E has ever been found in the Bujang Valley.

The deduction that can be made from the above facts proves that while there could have been locals who practised Hinduism or Buddhism then, they must have been limited to those who have had contacts or interactions with traders from southern India on a regular basis. It would be erroneous to assume that every person in Ancient Kedah, especially in the Bujang Valley were either a Buddhist or a Hindu because if that were the case, the construction of temples would have continued after the 14th century C.E. What religion that was practised by the majority then before the arrival of Islam is still open to debates and interpretations (Harian Metro, 2017).

How accurate is the 788 B.C.E claim?

The writer of the book being referenced mentioned that the proof that iron-smelting activities had begun in Sungai Batu in the 8th century B.C.E based on a charcoal sample found in the remnants of a furnace. The date obtained by a PhD student conducting the research was 788 B.C.E. This, according to the writer, is a solid proof that iron-smelting activities at the SBAC had begun much earlier than originally thought, which was circa the 1st century C.E (Muhammad Bin Abdul Razak, 2021: 119-120).

However, this charcoal sample was obtained from Spit 7 of Site SB2H at the SBAC

and was the only sample that produced the said date. To be more accurate, the sample's Accelerator Mass Spectometry (AMS) date range was between 788 B.C.E and 537 B.C.E. Therefore, the 8th century B.C.E claim is not accurate. For Site SB2H, 17 AMS dates of charcoal sample were taken from five spits and analysed. According to *Rodziadi Khaw et al. 2021*, the initial model had a poor overall agreement between the AMS dates and the archaeological sequence. Four dates of poor individual agreement in the model were excluded from the analysis and the model was re-run. The AMS date 516413 of 788 to 537 B.C.E (see Figure 4) was an outlier since there were no reported samples dated from the 6th century B.C.E to the 2nd century C.E (Nasha et.all, 2021).

The notable gap prompted questions about the early start of the site's activities. The low precision of the model's results was attributed to the limited number of dating results included in the analysis. According to various plots, the site SB2H could be dated to between the 2nd and 8th centuries C.E. To determine the earliest occupation date for site SB2H, additional Carbon-14 samples, particularly from the older stratigraphic layers, need to be analysed (Nasha et.all, 2021).

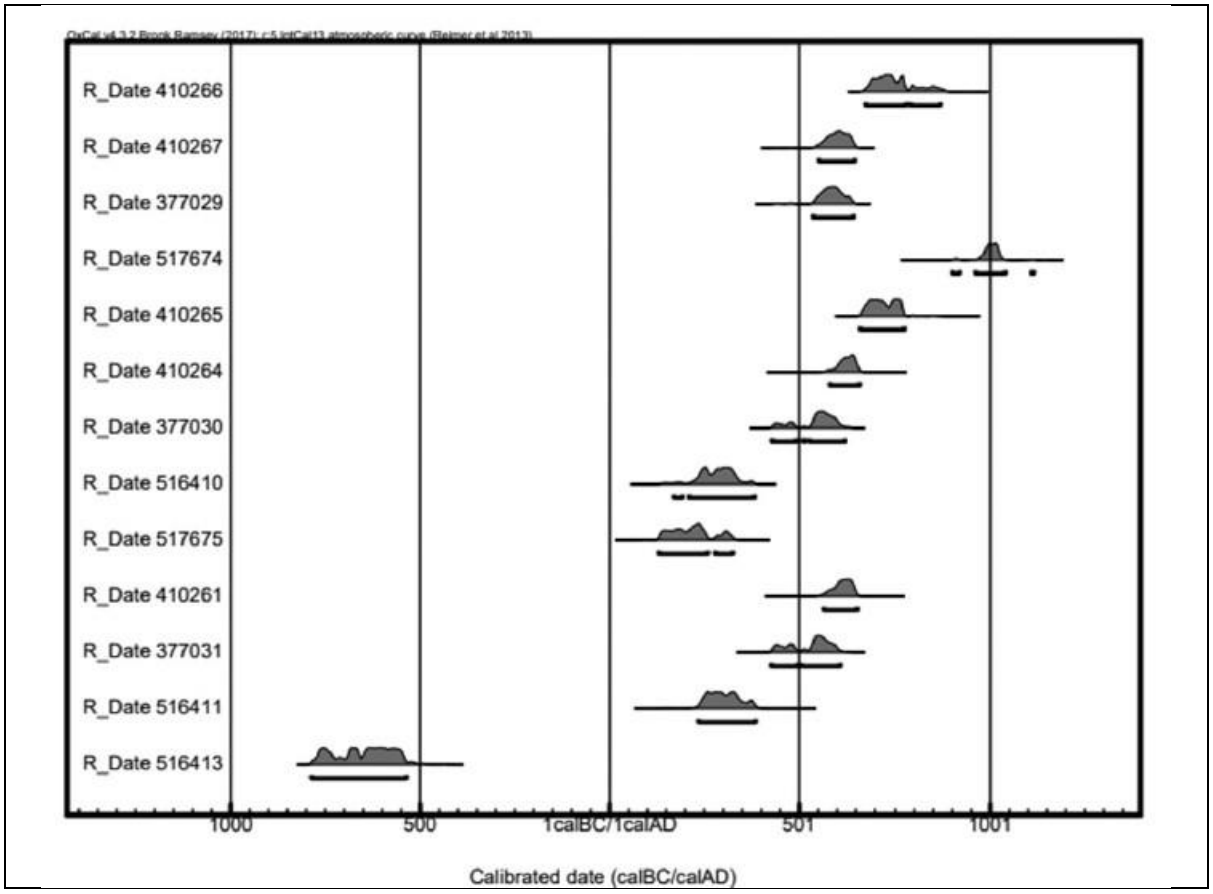

Figure 4: Chronological Model of Site SB2H

Source: Rodziadi Khaw, Nasha, Liang Jun Gooi, Mohd Mokhtar Saidin, Naizatul Akma Mohd Mokhtar, and Mohd Hasfarisham Abd Halim. 2021. "The Sungai Batu Archaeological Complex: Re-Assessing the Emergence of Ancient Kedah." *Kajian Malaysia* 39 (2): 117–52. https://doi.org/10.21315/km2021.39.2.6.

Examining the other sites at the SBAC can give an accurate picture of the timeline of the existence of Sungai Batu as an industrial area as well as an entrepot. While Site SB2H could be dated to the 2nd and 8th century C.E, Site SB2A could be dated to the 3rd and 7th century C.E (Figure 5); Site SB2F could be dated to the 5th to the 12th century C.E (Figure 6A and 6B); Site SB1ZY could be dated to the 3rd to the 10th century C.E; and Site SB1G could be dated to the 4th century to the 12th century C.E (Figure 7). Thus, the existence of sites at the SBAC could be dated to the 2nd century to the 12th century C.E.

Table 2: AMS and radiocarbon dates of site SB2A

Beta	Trench	Method/ sample	Conventional date	Calibrated date	Artifact association
			SPIT 17		
268002	M7	AMS/charcoal	1570±40 BP	AD 402–572	Clay and charcoal
			SPIT 16		
268001	M7	AMS/organic material	860±40 BP	AD 1045–1260	Clay and charcoal
293558	M7	AMS/charcoal	1510±30 BP	AD 430–622	Clay and charcoal
			SPIT 15		
276049	P15	AMS/charcoal	1680±40 BP	AD 245–506	Tuyere
			SPIT 13		
276048	P15	AMS/charcoal	1490±40 BP	AD 430–648	Tuyere
			SPIT 12		
268003	Q7	AMS/charcoal	1670±40 BP	AD 252–530	Tuyere and iron slag
			SPIT 11		
268009	S11	AMS/charcoal	1640±40 BP	AD 266–538	Tuyere and iron slag
268000	O10	AMS/charcoal	1630±40 BP	AD 338–539	Tuyere and iron slag
			SPIT 10		
258295	Q7	AMS/charcoal	1550±40 BP	AD 418–594	Tuyere and iron slag
276047	P15	AMS/charcoal	1500±40 BP	AD 429–643	Tuyere and iron slag
			SPIT 9		
258294	Q7	AMS/charcoal	1550±40 BP	AD 418–594	Tuyere and iron slag
267999	O10	AMS/charcoal	1490±40 BP	AD 430–648	Tuyere and iron slag
			SPIT 8		
268007	L4	AMS/charcoal	1570±40 BP	AD 402–572	Tuyere and iron slag
267998	O10	AMS/charcoal	1570±40 BP	AD 402–572	Tuyere and iron slag
256964	O8	AMS/charcoal	1460±40 BP	AD 478–659	Tuyere and iron slag
			SPIT 7		
276046	P15	Radiocarbon/charcoal	1690±40 BP	AD 250–422	Tuyere and iron slag
268005	M11	AMS/charcoal	1660±40 BP	AD 256–534	Tuyere and iron slag
268004	J6	AMS/charcoal	1570± 40 BP	AD 402–572	Tuyere and iron slag
			SPIT 6		
255955	D6	AMS/charcoal	1700±40 BP	AD 246–416	Tuyere, potsherds and iron slag

Source: Naizatul Akma (2012); OxCal 4.3.

Figure 5: Chronological Model of Site SB2A

Source: Nasha Rodziadi Khaw, Liang Jun Gooi, Mohd Mokhtar Saidin, Naizatul Akma Mohd Mokhtar, and Mohd Hasfarisham Abd Halim. 2021. "The Sungai Batu Archaeological Complex: Re-Assessing the Emergence of Ancient Kedah." *Kajian Malaysia* 39 (2): 117–52. https://doi.org/10.21315/km2021.39.2.6.

Table 3: AMS and radiocarbon dates of site SB2F

Beta	Trench/ spit	Method/sample	Conventional date	Calibrated date	Associated artefacts
			SPIT 9		
298598	G6/9	AMS/charcoal	1470±30 BP	AD 545–645	Laterites
			SPIT 7		
292870	J7/7	AMS/charcoal	1510±30 BP	AD 430–622	Bricks, tuyere fragments and iron slag
292867	H8/7	AMS/charcoal	1430±30 BP	AD 575–657	Bricks, tuyere fragments and iron slag
			SPIT 6		
298591	M19/6	AMS/charcoal	1990±30 BP	49 BC–AD 72	Iron slag, stonetools and bricks
292868	H12/6	AMS/charcoal	1520±30 BP	AD 428–609	Laterite, tuyere fragments and iron slag
298590	G7/6	AMS/charcoal	1580±30 BP	AD 410–546	Tuyere fragments and iron slag
292871	G11/6	AMS/organic material	1540±30 BP	AD 426–588	Laterite, tuyere fragments, iron slag and iron ores
298596	H12/6	AMS/charcoal	1500±30 BP	AD 432–639	Bricks, tuyere fragments, iron ores and iron slag
290613	H8/6	AMS/charcoal	1500±30 BP	AD 432–639	Bricks, tuyere fragments, potsherds and iron slag
290614	H12/6	AMS/charcoal	1480±30 BP	AD 538–645	Bricks, tuyere fragments, iron ores and iron slag
298579	K7/6	AMS/charcoal	1480±30 BP	AD 538–645	Tuyere fragments and iron slag
292869	G7/6	AMS/charcoal	1470±30 BP	AD 545–645	Tuyere fragments and iron slag
292872	H6/6	AMS/charcoal	1470±30 BP	AD 545–645	Tuyere fragments and iron slag
298595	S14/6	Radiocarbon/ charcoal	1120±40 BP	AD 777–1013	Tuyere fragments and iron slag
			SPIT 5		
298580	K6/5	Radiocarbon/ charcoal	1630±50 BP	AD 260–550	Bricks, tuyere fragments and iron slag
298584	G12/5	Radiocarbon/ charcoal	1600±40 BP	AD 383–557	Tuyere fragments and iron ores
298588	N9/5	AMS/charcoal	1570±30 BP	AD 416–557	Bricks, tuyere fragments, potsherds and iron slag

(*continued on next page*)

Figure 6A: Chronological Model of Site SB2F

Source: Nasha Rodziadi Khaw, Liang Jun Gooi, Mohd Mokhtar Saidin, Naizatul Akma Mohd Mokhtar, and Mohd Hasfarisham Abd Halim. 2021. "The Sungai Batu Archaeological Complex: Re-Assessing the Emergence of Ancient Kedah." *Kajian Malaysia* 39 (2): 117–52. https://doi.org/10.21315/km2021.39.2.6.

Table 3: (*continued*)

Beta	Trench/ spit	Method/sample	Conventional date	Calibrated date	Associated artefacts
290612	G9/5	AMS/charcoal	1510±30 BP	AD 430–622	Tuyere fragments and iron slag
298594	K13/5	AMS/charcoal	1510±30 BP	AD 430–622	Laterite and tuyere fragments
292866	G9/5	AMS/charcoal	1490±30 BP	AD 436–644	Tuyere fragments and iron slag
298587	H7/5	AMS/charcoal	1480±30 BP	AD 538–645	Bricks, tuyere fragments and iron slag
			SPIT 4		
298597	K18/4	AMS/charcoal	1490±30 BP	AD 436–644	Laterite, tuyere fragments, iron ores and iron slag
298589	V10/4	Radiocarbon/ charcoal	1330±40 BP	AD 643–770	Bricks and tuyere fragments
298586	W10/4	Radiocarbon/ charcoal	1140±40 BP	AD 775–985	Bricks, tuyere fragments and iron slag
290615	T12/4	AMS/charcoal	970±30 BP	AD 1016–1155	pebbles, tuyere fragments, iron slag and iron ores
			SPIT 3		
298592	K10/3	AMS/charcoal	1720±30 BP	AD 248–391	Tuyere fragments, pebbles iron slag and furnace remains
298585	M16/3	AMS/charcoal	1510±30 BP	AD 430–622	Pebbles, tuyere fragments, iron slag and iron ores
298593	W11/3	Radiocarbon/ charcoal	1210±40 BP	AD 687–940	Bricks, tuyere fragments and iron slag
298583	M4/3	AMS/charcoal	460±30 BP	AD 1412–1468	Laterite, tuyere fragments, ceramics, bricks and iron slag

Source: Naizatul Akma (2019); OxCal 4.3

Figure 6B: Continuation of the Chronological Model of Site SB2F

Source: Nasha Rodziadi Khaw, Liang Jun Gooi, Mohd Mokhtar Saidin, Naizatul Akma Mohd Mokhtar, and Mohd Hasfarisham Abd Halim. 2021. "The Sungai Batu Archaeological Complex: Re-Assessing the Emergence of Ancient Kedah." *Kajian Malaysia* 39 (2): 117–52. https://doi.org/10.21315/km2021.39.2.6.

Table 4: AMS and radiocarbon dates of site SB1ZY and SB1G

Beta	Trench/ spit	Method/sample	Conventional date	Calibrated date	Associated artefacts
			SB1ZY		
344762	E6/4	AMS/charcoal	1180 ± 30 BP	AD 700–900	Tuyere fragments, bricks and iron slag
344763	G6/5	Radiocarbon/ charcoal	2210 ± 30 BP	BC 380–200	Laterite and bricks
344765	F7/8	AMS/charcoal	1700 ± 30 BP	AD 250–410	Laterite, bricks and tuyere fragments
344764	J12/7	AMS/charcoal	1610 ±30 BP	AD 390–540	Tuyere fragments and bricks
			SB1G		
516415	G14/8	AMS/charcoal	1150 ± 30 BP	AD 776–971	Tuyere Fragments, iron ores, laterite, bricks and iron slags
516416	E9/8	AMS/charcoal	1620 ± 30 BP	AD 382–538	Tuyere Fragments, iron ores, bricks and iron slag
282384	K11/9	AMS/charcoal	930 ± 40 BP	AD 1020–1210	Laterite, iron slag
516414	G15/10	AMS/charcoal	1280 ± 30 BP	AD 662–774	Tuyere Fragments, iron ores, laterite, bricks and iron slag

Source: Naizatul Akma (2019).

Figure 7: Chronological Model of Sites SB1ZY and SB1G
Source: Nasha Rodziadi Khaw, Liang Jun Gooi, Mohd Mokhtar Saidin, Naizatul Akma Mohd Mokhtar, and Mohd Hasfarisham Abd Halim. 2021. "The Sungai Batu Archaeological Complex: Re-Assessing the Emergence of Ancient Kedah." *Kajian Malaysia* 39 (2): 117–52. https://doi.org/10.21315/km2021.39.2.6.

Did the Egyptians use Camphor in the process of embalming the Pharaohs?

Among the suggestions put forth by the writer of the book being referenced is the trade of Camphor from Southeast Asia, specifically from Sumatera, the Malay Peninsula and Borneo. The writer wrote at length on this subject, added elements of romanticism, and tried to link it to the embalming process of Egyptian Pharaohs to justify the establishment of Sungai Batu in the 8th century B.C.E. (Muhammad Bin Abdul Razak, 2021: 131-170). Two species of plants were repeatedly mentioned in this subject – the Malay camphor (*Dryobalanops aromatica*) and the Camphor Tree (*Cinnamomum camphora*). However, the writer made no attempt to present scientific evidence to prove the use of both species in the embalming process, other than making available a table on peak identification for chromatograms that was taken from a 2017 article in the Journal of Archaeological Science (Luceiko et.all, 2017: 1-12), and another table giving information on the analysed samples (Luceiko et.all, 2017: 1-12).

Both tables were used as ornaments by the writer to give a sense of awe to his untrained and uninformed readers. Regardless of how they were presented, there was an absence of any form of offer to link or explain the tables to his readers other than the highlighting of the words "*Camphor*" and "*Borneol*." While Camphor can be found in the Malay Camphor and the Camphor trees, Camphor also exists in trees in the *laurel* family, notably the East African Camphorwood (*Ocotea usambarensis*) which can be found in abundance in eastern Africa (Zuccarini, 2010), while Borneol can also be extracted from Thyme (native to North Africa) (Hammoudi, Kyayem, Khaled and Yiunes, 2022) and Rosemary (native to the Mediterranean region) (Datiles and Acevedo-Rodriguez, 2022). Granting all this, the writer did not offer tangible proof that the essential oils were extracted from the Malay Camphor and Camphor trees endemic to the Southeast Asian region.

In the journal of Mediterranean Archaeology and Archaeometry (Abdel-Maksoud and Elamin, 2011), materials used in the embalming and mummification of ancient Egyptian Pharaohs are as follows:

1. **Natron Salt** – a white crystalline, hygroscopic, and natural material mined at Wadi Natrun in the Nile Delta.
2. **Coniferous Resin** – oils extracted from plants such as the Pine tree (Pine Oil), Lebanese Cedar (Cedar Wood Oil), Juniper Cones (embalming substance), from Greece.
3. **Mastic** – Mastic Oil and Resin were used in Egyptian embalming process and were extracted from Mastic trees found on the island of Chios, a Greek island in the Aegean Sea.
4. **Myrrh** – Myrrh was imported from the Punt Land (Somalia) and southern Arabia for its oleo-gum resin.
5. **Beeswax** – obtained from the honeycomb of honeybees.
6. **Bitumen** – this mixture of hydrocarbon was obtained from Gebel Zeit on the southwestern shore of Egypt's Gulf of Suez, and from the Dead Sea area in Palestine.
7. **Cinnamon and Cassia** – obtained from China through the land Spice Route and found in the Chinese Cinnamon tree (*Cinnamomum cassia*).
8. **Onions –** Onions were used during the mummification process and placed in the eye sockets to simulate the eyes.
9. **Lichen –** this was used as a filler for body cavities, and are found in harsh environments such as deserts, tundra, and mountains.
10. **Henna –** Henna is a fragrant shrub native to Asia and northern Africa.
11. **Gum Arabic –** Gum Arabic is collected from *Acacia senegal* trees and is produced in the Sudan region.

Figures 5 and 6 exhibit the source of *Borneol* and *Camphor* in the analyses of materials:

No.	Scientific name	Common Name	Major constituents	Essential oil	Effectiveness compound on mummy's body	Effectiveness against biological activity
1A	Pinus sp.	Pine	Monoterpenes (α-pinene, camphene, β-pinene, sabinene, myrcene, D-3-carene, limonene, p-cymene, 1,8-cineole, tricyclene and b-phellandrene) (Räisänen et al., 2009), Δ8 isopimaric acid, abietic acid, and dehydroabietic acid (Keulen, 2009).	B-thujene, α- pinene, β-pinene, bornyl acetate, myrcene, limonene, camphene, tricyclene, α- terpinolene, thymol methyl ether, α-terpineol and phellandrene.	B-thujene, α-pinene, β-pinene, bornyl acetate	Essential oil from pinus sp. has antibacterial effects against gram-positive and gram-negative bacteria in addition to antifungal effects against fungi (Hong et al., 2004).
1B.	Cedrus libani A. Rich subsp. atlantica	Cedar	Essential oil, monoterpenes, sesquiterpenes, atlantol (Li, 2000)	Δ3-carene, limonene, myrcene, α-pinene, β-pinene, α-pinene, camphene, β-phellandrene, a-thujene, terpinolene, α-terpinene, γ-terpinene, p-cymene, and ocimene (Geron et al., 2000)	α-pinene, β myrcene, limonene, terpinolene, α-terpinene, γ-terpinene	Cedar oil is used in pet care products to repel fleas and ticks [Craiga et al., 2004].
1C.	Juniperus communis L.	Juniper (Fig. 2)	Resin, pinene, borneol, inositol, juniperin, limo-nene, cymene, terpinene (Fady et al., 2008).	sabinene, α-pinene, β-pinene, myrcene, cineole, γ-terpinene, borneol, β phellan-drene, γ-terpineol and limonene (Ochocka et al., 1997; Milojevi, 2008)	sabinene, α-pinene, β-myrcene, cineole, γ-terpinene, borneol, β-phellan-drene, γ-terpineol and limonene (Adams, 1998)	Essential oils have been reported to possess strong antimicrobial properties and antimicrobial activity against both gram-negative and gram-positive bacteria (Chaves et al., 2008). Essential oils that come from juniper leaf can be used as pesticides (George et al., 2008).
1D.	Pistacia lentiscus var. chia	Mastic gum	triterpenes of the oleanane, euphane and lupine type, alpha tocopherol and polyphenols (Triantafyllou et al., 2007), monoterpenes (α-pinene and β-myrcene).	α -pinene, β-pinene, R-(+)-limonene, β-myrcene, camphene (Fig. 3A) (Mills & White, 1989), verbenone, α-terpineol, linalool and caryophyllene (Daferera et al., 2002).	verbenone, α-terpineol, and linalool (Stern et al., 2003), pentacyclic triterpenes (Fig. 3B) (Assimopoulou et al., 2005).	It is used as an antiseptic (Connan et al., 1999), infection and antimicrobial material (Doi et al., 2009).
1E.	Commip-hora spp.	Myrrh	Gum, acidic polysaccharids, resin (isolinalyl acetate, 3-epi-lupenyl acetate, lupeone, 3-epi-α-amirin, α-amirone, acetyl β-eudesmol and a sesquiterpenod lactone)	heerabolene, eugenol and furanosesquiterpenes (David & Archbold, 2000), α-pinene, dipentene, limonene, cuminaldehyde, cinnamic aldehyde, eugenol, m-cresol, heerabolene (probably tricyclic sesquiterpene), cadinene (?), a sesquiterpene (?), a bicyclic sesquiterpene ($C_{15}H_{24}$), a tricyclic sesquiterpene ($C_{15}H_{24}$), formic acid, acetic	α-pinene, -sesquiterpene hydrocarbons (δ-elemene and β-bourbonene), furanosesquiterpenes, and germacrene-type compounds (predominantly (+) - germacrene-D)(Dekebo et	C. myrrha is used to kill and repel tick pests, and it is effective as an arthropod repellent, e.g., germacrene-D has been shown to be an effective aphid repellent. C. myrrha has been used for its antiseptic properties (Tipton, 2006).

Figure 5: Scientific Data of Mummification Materials showing the source of *Borneol*
Source: Abdel-Maksoud, Gomaa & Elamin, Abdelrahman. (2011). A Review On The Materials Used During Mummification Processes In Ancient Egypt. Mediterranean Archaeology and Archaeometry.

				acid, myrrholic acid ($C_6H_2O_3$.COOH) and palmitic acid.	al., 2002; Birkett et al., 2008).	
1F.	Cinnamomum cassia)	Cassia	Camphor, camphene, dipentene, limonene, phyllandrene, pinene, monoterpenoids, sesquiterpenoids, diterpenoids, sterols, cinnamaldehyde (Liao et al., 2009)	A-pinene, camphene, β-myrcene, camphor, α-terpineol, linalool, (+)-limonene, linalool (Cheng et al., 2009), cinnamaldehyde, linalool, eugenol and 1,8 cineol.	Cinnamalde-hyde, linalool, eugenol and 1,8 cineol (Tzortzakis, 2009)	Antimicrobial (Cheng et al., 2009), antiseptic and fungicide. Pharmacological investigations showed that the crude extract or compounds isolated from this species possesses a wide variety of uses, including insecticidal (Duke et al., 2002).
1G.	Allium cepa L.	Onion (Figs 4 and 5 A, B)	Thiamin, riboflavin, beta-carotene, ascorbic acid, sterols, alliin, allicin, quercetin (the most abundant flavonols), caffeic acid, linoleic acid (Caridi et al., 2007).	dipropyl disulphide, methylaliin, cycloalliin, dihydroalliin, dipropyl trisulphide.	alliin, γ glutamylcysteins (ACSOs), certain steroid saponins and sapogenins, such as β-chlorogenin	Possesses many biological activities, including antimicrobial and antioxidant (Corzo-Martinez et al., 2007), against UV light and pathogens (David & Archbold, 2000). An Egyptian medical papyrus reports several therapeutic formulas based on onions as a useful remedy against worms (Lanzotti, 2006).
1H.	Peltigera canina L.	Lichen (Fig. 6A)	Usnic acid, thamnolic, nostolide I and II		Usnic acid (Fig. 6B) -sphaerophorin (depside) and pannarin (depsidone) (Fig. 7A) - paraconic acids (Fig. 7B) (Horhant et al., 2007). - Xanthones (Peres et al., 2000).	It is used against infections, and it is used as antibacterial and antifungal (Russo et al., 2008), in addition to antigrowth agents. Usnic acid enantiomers caused significant antifeedant activity and toxicity towards larvae of the herbivorous insect (Ingólfsdóttir, 2002), its antiproliferative action was shown in a variety of biological systems (Campanella et al., 2002). Xanthones possess antifungal and antibacterial activity (Cordeiro et al., 2008).
1I.	Lawsonia inermis L.	Henna	mannite, tannic acid, mucilage gallic acid, and 2-hydroxynapthoquinone (lawsone).		lawsone, 2-hydroxy-1,4-naphthaquinone (Ali et al., 2009; Jallad & Espada-Jallad, 2008)	It is used as an antibacterial material [Brier, 1994; Kazandjieva et al., 2007).

Figure 6: Scientific Data of Mummification Materials showing the source of *Camphor*
Source: Abdel-Maksoud, Gomaa & Elamin, Abdelrahman. (2011). A Review On The Materials Used During Mummification Processes In Ancient Egypt. Mediterranean Archaeology and Archaeometry.

The most important aspect of mummification is to prevent bacterial and fungi contamination leading to the rapid decomposition of the body. Sophisticated methods of mummification evolved from the proto-dynastic era through the various eras of Ancient Egypt. These processes were inspired by the belief that the body could be preserved to retain its human likeness, initially by drying and dehydration of the body (desiccation) to prevent putrefaction. There three methods of mummification techniques. The first, most complex and most expensive method was reserved for the Pharaohs and nobilities. This process includes the evisceration of the internal organs except for the heart, as the heart was believed to be weighed by the Egyptian gods for the goodness of the deceased in the afterlife. Other internal organs were washed with palm wine and spices, and then dried, wrapped in linen and placed in canopic jars. Complete dehydration of the body was achieved by covering it with natron salt for forty to seventy days. The body was then filled with stuffings such as crushed myrrh, cinnamon, frankincense, sawdust packets mixed with cassia, coniferous resin and onions. The cranial cavity was filled with coniferous resin, which is the source of camphor as evident in Figure 6 above (Abdel-Maksoud and Elamin, 2011).

The second method was less expensive and less complex as it did not involve complete evisceration. Oil of cedar was injected into the anus which was plugged to prevent the escape of the liquid. The body was then treated with natron. When this was complete, the oil was drained off together with the intestines and stomach. As the flesh had also been desiccated, only the skin and bones remained (Abdel-Maksoud and Elamin, 2011).

The third method was the cheapest and simplest among the three. The internal organs including the stomach were removed through an abdominal incision made on the left side of the body. Ethyl alcohol was used to sterilise the body cavities. Once completed, the body was

then buried in natron salt (Abdel-Maksoud and Elamin, 2011).

Hence, it is more logical that the ancient Egyptians had obtained the above-mentioned materials used in the embalming and mummification processes of Pharaohs from sources much closer to Ancient Egypt rather than from far-flung areas namely Sungai Batu or Ancient Kedah as the chances of obtaining these materials and bringing them back are better if they from sources that are closer. In the discussion below, explanation will be given on why the writer's point on the existence of ancient maritime trade between Ancient Kedah and Ancient Egypt does not hold water.

Discussions

One of the most important aspects of history is to maintain objectivity where history must be written according to what is real and true. It must be free of personal bias and sentimental approach. Since it represents reality, it will remain consistent regardless of who writes it.

What is missing from the writer's book is the sincere wish to see the "bigger picture" – comparing surrounding sites to see if an event fits into the regional timeline, and the unwillingness to detach his writings from becoming motive-oriented. While it enhances the pride of a certain race to be associated with technologically great ancestors, it is pride that is based extraordinarily little on truth and the real.

Misinformation and unfounded claims have exacerbated tensions in the ongoing struggle for racial and religious supremacy concerning Ancient Kedah. Controversies surrounding chronology, particularly the assertion of a date like 788 B.C.E., alongside historical debates about the region's Hindu-Buddhist heritage versus Malay pre-Islamic dominance, fuel this conflict. Additionally, the reliance on social media as a source of validation and the use of less rigorous academic standards by those outside historical disciplines contribute to the issue's volatility. Compounding this situation, a statue of Rajendra Chola was erected in Sungai Petani in March 2024, further intensifying the discourse. Muhammad bin Abdul Razak's widely circulated book certainly adds to this turmoil.

Based on the archaeological researches of Wales, Lamb and Nik Hassan Shuhaimi, the settlements of Ancient Kedah had an occupation sequence of 1,300 years (circa 1st century C.E till 14th century C.E) (Murphy, 2017), with its settlements functioning on the onset as trading posts, evolving later into the most extensive industrial, trade and entrepot complex on the west coast of the Thai-Malay peninsula with diverse economies. These settlements centred along the Sungai Batu, Sungai Bujang and Sungai Muda, each playing both similar and different roles based on products that are peculiar to their respective localities. Sungai Batu functioned as a centre for iron smelting industry; Sungai Bujang functioned as an international trading hub; Sungai Muda functioned as a bead-making industrial area, a collection centre for rainforest produces, as well as an international trading hub.

In comparison, goods from India to Babylon travelled overland in the 7th century B.C.E. It was only in the 4th century B.C.E that Aramaic inscriptions began to record an active coastal maritime trade carrying goods from India's northwestern coast to Saleucia in Mesopotamia via the Persian Gulf and the Tigris River. This was the same coastal route that took Alexander the Great's troops from India to Mesopotamia in 321 B.C.E. Hence, early maritime contact between the Middle Eastern and Asian ports were made by small-oared galleys hugging the coastlines, staying within sight of land until the 1st century C.E when use of seasonal monsoon winds was better understood. Literary sources on this matter are ample, especially of the Roman sources such as the *Geography of Strabo* (63 B.C.E to 21 C.E), *Periplus of the Erythraean Sea* (40 C.E to 75 C.E), and *Natural History* by Pliny the Elder (23 C.E to 79 C.E) (Mukherjee, 2024).

On that account, it is highly unreasonable for the Sungai Batu iron-smelting industry to

have existed in the 8th century B.C.E., 700 years before the Maritime Silk Road was established between the Middle East and India. Radiocarbon dates from Sungai Batu span a wide range of dates, only one of which apparently originates from the 8th century B.C.E (Figures 4 to 7). This could be an erroneous result due to random variation in dosage of radiation from the soil, the presence of old wood in a younger soil stratum, or just possibly the remains of very early metal working or other human activity. It does not however date any trading activity. The oldest pottery in Sungai Batu is over 1,000 years later.

Outliers frequently occur in archaeology and can result from various factors, including contamination from older samples, natural differences between carbon sources, variations in Carbon-14 absorption by plants, and other influences. Consequently, archaeologists generally avoid drawing conclusions from a single date. Instead, they use mathematical formulas to calculate a range of possible dates based on multiple samples, rather than relying on a single date, which is the reason 788 B.C.E cannot be taken as a date cast in stone when referring to the establishment of an iron-smelting industry in Sungai Batu.

A case in point was the claim of Gunung Padang in Indonesia as being a pyramid that was made 25,000 years ago (Natawidjaja et.al, 2023). The problem with this claim was that the author did not offer any evidence of sculpting or tool marks; nor did they find any archaeological tools during the excavation. The next problem with the claim was that the features of Gunung Padang point towards they being andesite outcrops as it is surrounded by similar features being andesite outcrops which are peculiar to volcanic hillsites. The third claim of Gunung Padang being 24,000 years old was made based on radiocarbon dates of organic fill material obtained from the lower layers through coring. In spite of that, no evidence to link the soil sample was there as a result of human activity was ever made. The paper has since been retracted by the author.

As evident above in the literatures on the Maritime Silk Road, the idea that maritime trade had existed between Ancient Kedah and Ancient Egypt also cannot be viewed seriously. Although spices such as *cinnamon* and *cassia* from Sri Lanka and China respectively were exported to as far west as the Arabian peninsula and the Iranian plateau from as early as 2000 B.C.E, trade passed mainly through the (land) Silk Road. The Maritime Silk Road was established around the early 1st century CE, following a significant surge in international trade driven by the demand for luxury items from both Ancient Rome and China (https://en.unesco.org/silkroad/).

While land routes across the Silk Roads between the Indian Subcontinent and China were slower due to caravan travel, ships could more quickly transport a variety of goods, including spices, aromatic woods, resins, and precious stones, from ports in the Indian Subcontinent to Southeast Asia and beyond. In addition to trade, artists and artisans traveled extensively, bringing valuable art and religious artifacts that facilitated the spread of artistic traditions and established cultural and religious connections between regions (UNESCO, 2023).

Nevertheless, archaeological evidence suggests that many coastal communities in Southeast Asia were already engaged in similar, though smaller-scale, commercial activities as early as the 4th century B.C.E at Khao Sam Kaeo in southern Thailand, prior to the expansion of the Maritime Silk Road in the 1st century C.E. The earliest records of ports in Ancient Kedah date back to the 5th century C.E, with inscriptions marking their presence. One such port was established in Cherok Tok Kun, near what is now Bukit Mertajam, by a sea captain from a place referred to as "Red Earth Land" (Raktamrttika). This name was used for several locations in northern Malaya, southern Thailand, and other regions. The captain was likely praying for a safe journey, presumably to India. By the 7th to 10th centuries C.E, the region south of the Merbok estuary had become quite advanced in maritime trade and religious architecture.

Conclusion

Trade centers in Ancient Kedah began to emerge as early as the 4th century B.C.E and continued to evolve until the 14th century C.E. The region was heavily influenced by Indian cultural practices and embraced Indian religions such as Buddhism and Hinduism well before the arrival of Islam, which marked the end of its era as a prominent maritime power. Given that there is no documented evidence of international maritime trade in the area before the 4th century B.C.E, it is improbable that a technologically advanced community existed 400 years earlier. Similarly, embalming materials used for mummifying Pharaohs were found much closer to Ancient Egypt, suggesting that international maritime trade with Ancient Kedah was unlikely to have been feasible as early as 3000 B.C.E. The iron-smelting industry at Sungai Batu, which dates back to around the 2nd century C.E, challenges the claim that the site was active as far back as the 8th century B.C.E, especially since the samples used have not been definitively linked to human activity.

While the author's passion for history is admirable, a more thorough understanding of historiography and historical methodology would enhance their work. Regrettably, the book's content seems to prioritize advancing a particular agenda over providing an objective and accurate historical account.

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