

New Insights into the Archaeological Record at Jabal Ikmah in AlUla Oasis

Dr. Munirah Almushawh, Mr. Saeed AlAhmari, Mr. Srour
Alshammery and Mr. Abdulmajeed Alremaily

Royal Commission for AlUla/ m.almushawah@rcu.gov.sa

(Received: 2/4/ 1444 H; Accepted for publication: 15/ 9/1444 H)

Abstract: Jabal Ikmah is a major archaeological site in AlUla, which offers incredible insights into the archaeology of Dadan and the region. It is already well known for featuring hundreds of valuable ancient inscriptions. It was listed on UNESCO's Memory of the World Register in 2023 as a testimony of its outstanding universal value. This corpus represents the largest concentration of well-preserved Dadanitic inscriptions in north western arabia, reflecting a variety of subjects such as prayer, religion, agriculture, seasons and memorials. The site flourished during the first millennium BCE especially during the Lihyanite Kingdom. In spite of its remarkable importance, relatively few archaeological investigations have been made in the site, the majority of which were from an epigraphic perspective. The purpose of this study was twofold: 1) to validate the location of the inscriptions in Jabal Ikmah, which previous scholars have published; and 2) to conduct a field survey to record other archaeological features in the site. This pedestrian survey was not limited to the gorge; it covered the entire area currently fenced. This was achieved by direct visual observation in a survey of highland and lowland aspects as well as multi-source data analysis. This paper presents the initial archaeological survey results, which yielded key discoveries. Among them is the absence of Albert Jamme's collection of inscriptions linked to the site of Ikmah in his 1974 publication. This highlights the importance of assessing historical publications that were published in a time when accessibility to maps and accurate geographical locations was limited. The survey furthermore resulted in key findings that changed the chronology of the site, such as identifying prehistoric rock art panels and lithic scatters, which illuminate human activity in Ikmah in prehistory.

Keywords: AlUla, Ikmah, Dadan, Lihyan, North Arabian inscriptions, Lihyanite Kingdom.

الملخص

إضاءات جديدة على السجل الأثري لموقع جبل عكمه في واحة العلا

د. منيرة المشوح، أ. سعيد الأحري، أ. سرور الشمري، أ. عبد المجيد الرمالي

m.almushawah@rcu.gov.sa

يُعتبر جبل عكمه أحد أهم المواقع الأثرية في واحة العلا، لاحتوائه على مئات من النقوش القمّية، التي تستعرض جوانب عديدة لحضارة دادان خاصة والمنطقة بوجه عام. صمدت تلك النقوش بشكل استثنائي أمام عوامل التعرية لموقعها المميز داخل مضيق جبلي، مما جعلها أكبر مكتبة للنقوش الدادانية المحفوظة على مستوى المنطقة. وقد أدرجت منظمة اليونسكو جبل عكمه رسميًا في سجل «ذاكرة العالم» في ٢٠٢٣ تأكيدًا على أهمية الموقع على المستوى العالمي. ازدهر الموقع خلال الألفية الأولى قبل الميلاد وخاصة خلال فترة المملكة اللحيانية. وقد عكست لنا النقوش موضوعات الحياة الجوهريّة مثل: الصلاة، والدين، والزراعة، والمواسم، والسجلات التذكارية. وعلى الرغم من أهمية الموقع الاستثنائية، إلا أنه تم إجراء عدد قليل نسبيًا من التحقيقات الأثرية في الموقع، معظمها تقتصر على دراسة النقوش.

سعت هذه الدراسة لتحقيق هدفين: (١) التحقق من مواقع النقوش التي نشرها علماء سابقون وربطها مكانيًا بجبل عكمه. (٢) إجراء مسح ميداني لتسجيل المعالم الأثرية الأخرى في الموقع. لم يقتصر المسح الأثري على منطقة المضيق الجبلي؛ بل شمل المسح كامل المنطقة "ضمن ما يعرف حاليًا بالمنطقة المسيجة". تضمنت المنهجية تسجيل اللقى والبقايا السطحية في الموقع، وتحليل البيانات، إضافة إلى مسح الواجهات التي لم تُمسح سابقًا.

تُقدم هذه الورقة النتائج الأولية لهذا المسح، والتي أسفرت عن اكتشافات رئيسية من بينها إعادة النظر في مجموعة النقوش التي نشرها ألبرت جام في عام ١٩٧٤ وربطها بموقع عكمه، والتي أثبت المسح الأثري إنها غير موجودة في المضيق الجبلي، ولا ضمن الموقع المسيج، ولا حتى ضمن منطقة المسح التي امتدت لستة كيلو مترات حول الموقع. مما يؤكد أهمية إعادة تقييم دقة الأبحاث التي تم نشرها في وقت كان الوصول إلى الخرائط والمواقع الجغرافية الدقيقة محدودًا. علاوة على ذلك، أسفر الاستطلاع عن نتائج رئيسية من شأنها تغيير التسلسل الزمني للموقع، مثل لوحات الفن الصخري التي تعود لعصور ما قبل التاريخ والأدوات الحجرية، التي بدورها أزاحت الستار عن النشاط الاستيطاني داخل عكمه في عصور ما قبل التاريخ.

الكلمات المفتاحية: العلا، جبل عكمه، دادان، لحيان، النقوش العربية الشمالية، المملكة اللحيانية، الفنون الصخرية في العلا.

Introduction

For millennia, AIUla Valley has served as a natural crossroads for human activity. Positioned on the ancient incense route from southern Arabia into Egypt and beyond, it became a hub of commercial and cultural exchange. This oasis was a key stop for merchants of myrrh, frankincense, and other precious merchandise. Because of this privileged position in the Arabian Peninsula, AIUla is home to a series of ancient settlements, including Dadan (Biblical Dedan, located near the modern city of AIUla), one of the most developed 1st millennium BCE cities of the Arabian Peninsula. Dadan was also the apparent capital of the successive kingdoms of Dadan (Arabic: دادان, Dādān) and Lihyan (Arabic: ليحيان, Liḥyān; Greek: Lechienoi).

Communication allows cultural exchange, trade, and development. Dadan flourished enormously and developed its own alphabet form of the South Semitic writing system, the Dadanitic language. This practice of communication in the form of written language spread throughout the Dadanite and Lihyanite civilizations allowing not only development, but also enabling the societies to record their own life and everyday events.

Jabal Ikmaḥ, also known as al-ʿUdhayb, contains the largest concentration of well-preserved Late Dadanitic inscriptions carved on rock faces in the world. Hundreds of inscriptions have survived intact due to numerous variables, one of which is their location, inside a natural gorge, which overlooks the oasis and palm groves just 3.5 km northwest of Dadan.

This ancient archive of documentary heritage most likely dates back to the second half of the first millennium BCE, during the Kingdom of Lihyan, since five dated inscriptions in the site refer to kings of Lihyan. The

inscriptions reflect a variety of subjects such as prayer, religion, rituals, agriculture, and memorials. The general theme of the formal inscriptions records a performance of a religious ceremony for Dgybt [Dhu Ghaybah], Dadan's principal deity.

Numerous inscriptions feature elements related to the agricultural life within this ancient oasis, where prayers for seasonal rain for the sake of the palm trees and other crops dominate the inscriptions of men and women whom both owned agricultural land in their own right. Each inscription is a window to the past, viewing a vibrant picture of their way of life, beliefs, and social structures.

This particularly fine and exemplary epigraphic collection consists of inscriptions incised or carved in relief on the rocks and cliff faces of the Jabal Ikma gorge. The majority is in the form of elaborate script and well-defined letters. The mountain landscape served as a canvas to document the legacies of this long-vanished civilization.

The outstanding qualities of beauty and craftsmanship in the inscriptions carved in relief imply that they were the work of skilled masons demonstrating high levels of artistry. The sandstone was carved in order for the letters to stand proud from the rock surface (Fig. 1). This technique requires a great precision and a high level of expertise. The majority of the inscriptions in relief were precisely made, with no margin of error. The incised inscriptions could have been engraved by their authors, indicating that the knowledge of writing was widespread within the Lihyanite kingdom, fulfilling the human desire to remember and be remembered.



Figure 1. Image of inscriptions carved in relief in the gorge of Jabal Ikmal

Maria Hidalgo-Chacón Díez argues that some of the authors of these inscriptions came from outside AlUla, from different places such as Bdr, BN^ʿL, TR, D^ʿDN , D^ʿMN, DT^ʿL, Khl, Blḥ and Tqmm. She presumes caravans and traders stopped to rest or exchange goods at Ikmal, and gave *zakāt* (alms) to the deity Ḍġbt as they crossed the area. She states, “The etymology of these place names reveals that in most cases, they are related to either agricultural or the geographical context.” She also notes that the authors of the inscriptions “owned possessions which are connected with agricultural products, land and property. These Inscriptions record the performance of a particular ceremony called *ḏll*. The formula used is: '*ḏll h-ḏll - Ḍġbt*. The place where this performance was made is Khl in the great majority of the Inscriptions; the other places being the sites where the Inscriptions' authors have their possessions” (Hidalgo-Chacón Díez, 2014, pp.25).

Name, Location and Current Limits

The earliest mention of the geographical name was in Charles Doughty's 1891 map (Fig. 2). It is one of the oldest maps of the area, and on it the 'el-Akhma' mountain extends from 'Wadi Shellal' (وادي شلال) in the north to el-'Moatidal' (المعتدل) Wadi AlMu'tadil in the south. This is much larger than the limits of the currently fenced area, which encloses an area larger than the gorge where the inscriptions are concentrated. Doughty neither marked the gorge nor mentioned the inscriptions so seems not to have known about the site.

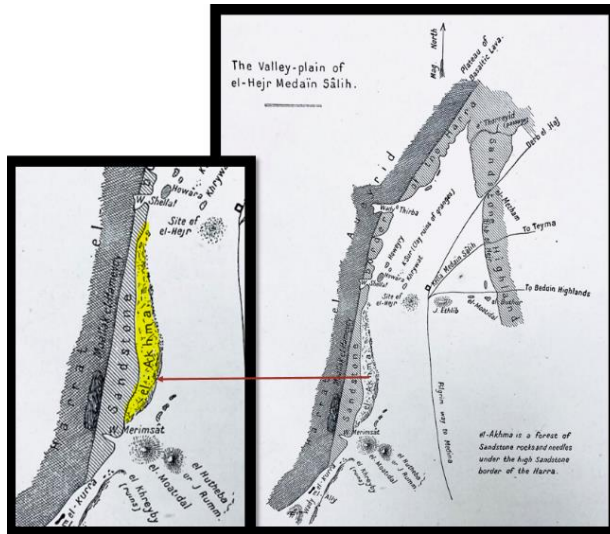


Figure 2. Map of Ikmah by Charles Doughty (1891, p. 30).

The site is referred to in literature as:

عكمة - العكمة

Ikmah

al-Akmah

Al--' Udhayb (Ġabal' Ikmah)

el-Akhma

The Saudi Commission for Tourism and National Heritage, (SCTH) now known as Heritage Commission, fenced the site two decades ago to protect the inscriptions inside the gorge and its surroundings. Since then the term Ikmaḥ has been used to refer to the current limits of the fenced area, which covers ~40 Hectares (Fig. 3). The fence extends for 0.46km along the north, ~3km along the east, 0.14km along the south and the west is bounded by the natural contour of the mountain of Ikmaḥ

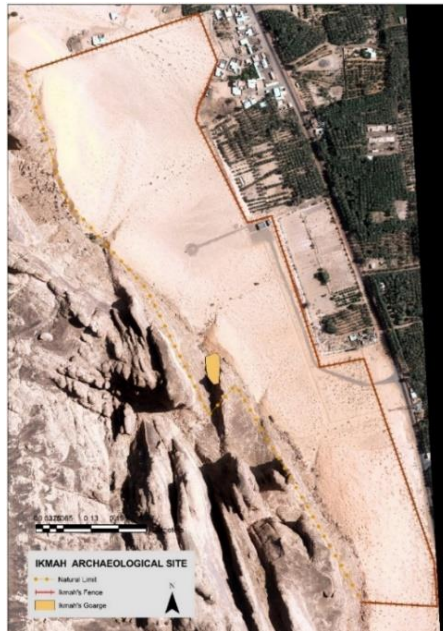


Figure 3. Current limits of the Jabal Ikmaḥ heritage site

Ikmaḥ's location offered several advantages:

- 1- Important location within the Dadanite and Lihyanite kingdoms. Close to Dadan (Al-Khuraybah), to the southeast, and Umm Daraj, due south, two major Dadanite and Lihyanite sites (Fig. 4).
- 2- Overlooking the AlUla valley, today where there are palm groves (today).

3- Significant natural landscape where waterfalls cascade after rain and near wadi streams.

4- Natural protection offered by the hills and mountains, which possibly made it the northern limit of the city of Dadan, if we take into consideration the remains of the ancient massive wall north the site.

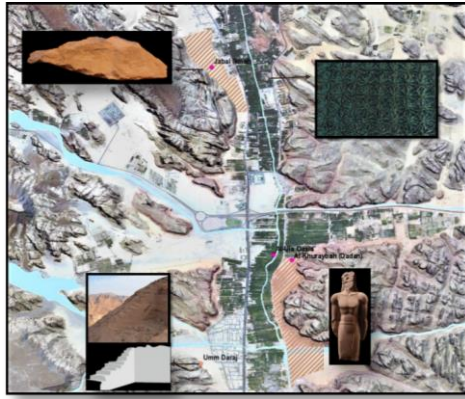


Figure 4. The location of Ikmah within the Dadanite and Lihyanite kingdoms

Early Studies

1-Ruth Stiehl 1968:

This was the earliest archaeological visit to the site. It took place during the summer of 1968, when Ruth Stiehl, an epigrapher and the first foreign woman to go on an archaeological mission to Arabia, roamed AlUla, tasked to find a gorge reported to have hundreds of inscriptions. She was directed by the Department of Antiquities in the Ministry of Education in Saudi Arabia to do so.

The location of the site was not precisely recorded yet. Therefore, she searched for it for days, until she met a young eight-year-old boy called Reja

Alabdullah wandering around his family's farm near Jabal Ikmaḥ. She asked if he had seen this site and his answer was yes. Reja held Ruth's hand and they walked until they reached the opening of the gorge with hundreds of inscriptions on both sides, engraved and carved. Stiehl was overjoyed to find this exceptional site. She celebrated her joy with a big hug that Reja still remembers. She continued to send him letters by mail from Germany to AIUla for years after, and his photo as a child was presented in her scientific conferences for years after. Stiehl was the first scholar to publish about Ikmaḥ, and Reja was the torch that illuminated the way.

During our recent study, the research team had the opportunity to record the details of this historical visit, from Reja at Ikmaḥ, 53 years after he met Stiehl and guided her there (Fig.5). This story is one of many that reflects the crucial role of local communities in the evolution and development of archaeological scientific research.



Figure 5. Reja Alabdullah (second from the left) with the research team during our survey in Ikmaḥ

After this successful mission Stiehl published nine of the Late Dadanic inscriptions in “Neue lihynische Inschriften”, in F. Altheim and R. Stiehl, *Die Araber in der Alten Welt*, (Altheim & Stiehl, 1968). Then in 1971 she published 40 inscriptions in “Neue lihynische Inschriften aus al-‘Udayb. Mit einem Nachtrag by M. Höfner”, in F. Altheim and R. Stiehl,

Christentum am Roten Meer, (Stiehl & Altheim 1971) two of which demonstrate a new interpretation of the previous publication. She mainly focused on the inscriptions inside the gorge, which she named Bi'r Udhayb.

2-Albert Jamme 1968.

Albert Jamme joined Stiehl in AIUla between August 21 and September 10, 1968. His survey was less systematic. He stated that his research was hindered by several factors, some of which are 1- Being unaware of the names of many mountains and hills in the area 2- Difficulty of conducting such study with the absence of a large detailed map. 3- Great shortage of camera films. "As a consequence, it was not possible for the expedition to hold to any well-prepared research plan" (Jamme, 1974: 2-3). Jamme divided his collection into eight groups from different locations in AIUla, and gave a copy of the inscriptions only, without any photographs (Fares, 2005: 42). One of the eight was reported to be in 'Al-'Akma' (Jabal Ikma), and another in 'Bir al-'Udayb'. In 2021, our team visited the site to validate the data and were unable to find his published inscriptions that were listed under the provenance "Al-' Uḏ ayb (Ġabal ' Ikma)" in the OCIANA 2017 edition, leading to the assumption that the location of his inscriptions are not precisely defined, and are not in the current limits of Ikma. Therefore, we recommend the need to revise his original collection published in 1974 under the title *Miscellanées d'ancien arabe II*. As well as updating the OCIANA database and its upcoming editions with the accurate information.

3- Hussain Abu- Al-Hassan 1997:

In the early 1990s a Saudi Arabian scholar Hussain Abu- Al-Hassan conducted a study on the inscriptions of Jabal Ikmah. He studied 196 inscriptions: 156 new inscriptions and 40 from the Ruth Stiehl 1971 collection, to suggest a “rereading” of the text. His work was published in 1997.

4- Alexander Sima 1999:

The Alexander Sima volume is based on 250 photos of 128 inscriptions from Ruth Stiehl’s expedition to ‘Al-Udayb’ (Jabal Ikmah) in Saudi Arabia (1968). There are 96 long inscriptions and 32 graffiti, to which 63 of 128 have been previously published. All of them are from the gorge, some inscriptions from the isolated boulders at the entrance and the others are from the two faces of the mountain inside the gorge of what he calls Al-Udayb. Only two are on steles of unknown origin. His interpretation of the inscriptions differs from Abu-Al-Hassan’s.

Methodology of this study

In 2020, a research study was conducted by one member of the authors of this article, Munirah Almushawah, to identify the inscriptions of Jabal Ikmah, which previous scholars had published. The “Online Corpus of the Inscriptions from Ancient North Arabia (OCIANA)” was the starting point of this journey, as it represents the most comprehensive Dadanitic inscriptions reference with 858 pages, covering data published in different books and private collections.

The data collection criteria was based on extracting the inscriptions listed under “Ġabal ‘ Ikmaḥ” in the provenance section of each inscription. It yielded 541 in-situ Dadanitic inscriptions (Fig. 6). This number does not reflect the actual number of inscriptions in the site, but rather the number of inscriptions that have been published and linked to it.

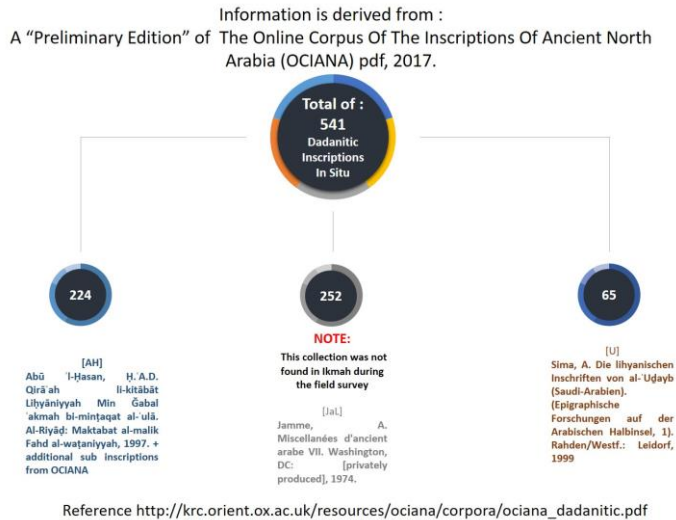


Figure 6. Compiled data statistics on inscriptions attributed to Ikmaḥ during the first phase of our study.

In Abū Ṭ-Ḥasan’s original book, there are only 196 inscriptions. The 28 additional inscriptions which summed up to 224 in Figure 6 are subdivisions added by OCIANA to cover additional inscriptions “near the original ones” that were not documented before, e.g. AH 001.1.

While conducting the research an identification card was created for each inscription (541 cards in total), to enhance the process of retrieving the information and analysing the inscriptions as required during the study. Each card includes the Siglum, subject of inscription, translation, figures and URL for OCIANA database (Fig.7).


Signum:	AH 001; Sima 1999: 35–36; D 134	
Subjects	Genealogy Lineage Religion Deity Prayer Topographic features	
Translation	1: [Bnwd] and Wbb'm and '- 2: wd and Lb'n sons of 3: S'd'l of the lineage of Yfn per- 4: formed the zll-ceremony of the top of the mountain for 5: Dabt and so favour them	
Commentary	<small>The inscribed [d] in the first personal name is based on the restoration of the personal name Bnwd in the inscription AH 001. A report has not been found in Semitic (Doherty et al. 2016: 71). The inscription of the second personal name is based on the inscription from the site of Ikmah, which is either as a place name or as a common noun from the Arabic word 'iqm' (mountain ridge). Since the inscription mentioning the name is based on the name of Dabt, it is likely that the inscription is related to the name of Dabt. I am not certain that they would be recording the sacrifice of female camels (Bibb) of 1000, as suggested by the inscription AH 001 (Doherty).</small>	
	[AH] Abu 'l-Hasan, H.'AD. <i>Qura'ah li-kirātib l-lyūnūyāh min jibal 'ikmah bi-mintaqat al-'uld. Al-Riyād: Maktabat al-malik fahd al-watāniyyah, 1997. Pages: 53-61 Plates: 1</i> P.18 Ocina- http://krc.orient.ox.ac.uk/ociana/corpus/pages/OCIANA_0033109.html	

Figure 7. Example of an identification card created for the inscriptions attributed to Ikmah.

In 2021, Almushawah, Saeed Alahmari and Soror Alshameri started the second phase of this research project by conducting an initial archaeological survey of the site. The aim was to:

- 1- Locate the groups of inscriptions within the site and validate the information compiled in the first phase of this research.
- 2- Conduct an archaeological field survey to record other archaeological features in the site. This survey was not limited to the gorge; it covered the entire fenced area of the heritage site.

The group of inscriptions published in Stiehl's collection, Abu- Al-Hassan's collection and Sima's collection were successfully located in the gorge of Ikmah (Fig. 8).



Figure 8. Distribution of previously published inscriptions confirmed in the Ikmah gorge.

However, Jamme's collection published in 1974 was not found inside the gorge, or in the fenced limits or even in the wider covered area of the general survey, which extended for 6km, from Wadi al-Mutadil in the south to north of the Ikmah gorge, on the west side of the AIUla valley, as indicated (Fig. 9).

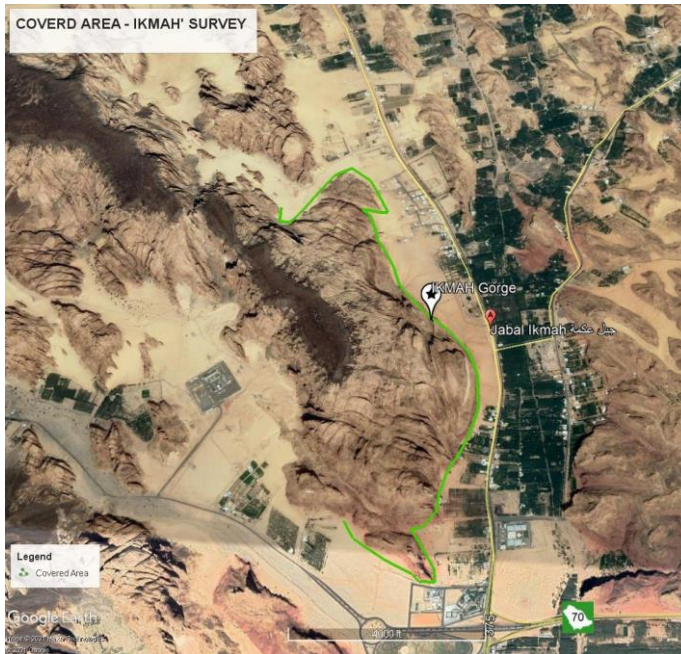


Figure 9. Survey area covered during the search for Albert Jamme's collection of inscriptions.

Analysis of the Inscriptions

After the exclusion of Jamme's collection (252 graffiti inscriptions), we analysed the validated inscriptions (~280) in an attempt to further understanding the Lihyanite kingdom. Within the inscriptions of Ikmah published in Abu- Al-Hassan's collection, there are five dated inscriptions, which mention specific kings of Lihyan (Table 1), reflecting the early origins of monarchic system in ancient Arabia. Two are sons (of Hn's), possibly brothers.

Location of the inscriptions	Eastern side of the mountain (AH1-AH20)	The rock between the two sides of the gorge (AH21-AH57)	Western side of the mountain (AH58-AH196)
Number of Inscriptions	1	1	3
Siglum	(AH 13)	(AH 56)	(AH 63) (AH 64) (AH 81)
Date	Year 5 Era of king (S ² hr) {son of} Hn ² s	Year 17 Era of king Salhan	(AH 63) Year 20 Era of king Tlmy (AH 64) Year 20 Era of king Tlmy (AH 81) Year 16 Era of king Tlmy Bin Hn ² s

Table 1. Kings mentioned in the inscriptions of Ikmah

Additionally, there are inscriptions referring to women owning properties and performing ceremonies, reflecting their wealth and prosperity, and highlighting the changing patterns of social transformation and women empowerment in ancient cultures of Arabia. Moreover, inscriptions mentioning kings, slaves, priests, and priestesses indicate that distinct social and economic classes were in existence in this part of the world in the 1st millennium BCE.

The active role of women as priestesses is clear: the analysis of the inscriptions shows that of 28 referring to this religious role 71% are for priests and 29% are for priestesses (Fig. 10).

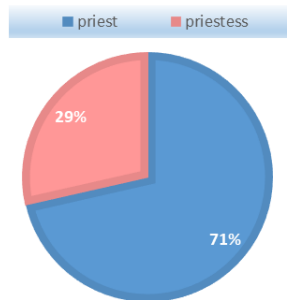


Figure 10. Priests and priestesses in Ikmah inscriptions

The priests:

1. AH 003 (Sima1999:36;D136)
2. AH 010(Sima1999:37;Ryckmans3.33;D143)
3. U 059; Stiehl D 01; Al-Qudrah 1993: 24, no. 34;
AH 018; D 125
4. AH 022 (U042(lines1–2);D150)
5. U 012; Stiehl A 30; Al-Qudrah 1993: 23, no. 30; AH 028; D 123
6. U 035; Stiehl A 26; Al-Qudrah 1993: 22, no. 26; AH 034; D 119
7. U 004; Altheim & Stiehl 1968: 30, C; van den Branden 1969: 76–77,
no. 37; Stiehl A 16; Al-Qudrah 1993: 19, no. 16; AH 053; D 109
8. AH 063(Sima1999:38;TMLTno.3)
9. AH 065.1
10. AH 084; (Sima 1999: 42)
11. AH 091; Sima 1999: 42
12. AH 097; Sima 1999: 43
13. AH 108; Sima 1999: 44
14. AH 120; Sima 1999: 45
15. U 063; AH 129; Hidalgo-Chacón Díez 2016a: 76–77
16. AH 138; Sima 1999: 45–46
17. AH 147.1
18. U 016
19. U 044
20. U 100

The priestesses:

1. AH 006 (Sima1999:36;D139)
2. AH 012 (Sima1999:37;D145)

3. AH013(Ryckmans3.28;Scagliarini1996:93–97;Scagliarini-U001;D146;Farès2009:183,no.1)
4. AH 015(Sima1999:37;D147)
5. U 038; AH 029; D 152
6. U 022; Altheim & Stiehl 1968: 31–32, P/6-7; van den Branden 1969: 77–78, no. 39/6–7; Stiehl A 06; Al-Qudrah 1993: 16–17, no. 6; AH 043; D 099
7. U 019; Altheim & Stiehl 1968: 26–27, M/7–13; van den Branden 1969: 70–73, no. 32/7–13; Stiehl A 08; Drewes 1983: 428, no. 15; Al-Qudrah 1993: 17, no. 8; AH 046; D 101; Farès 2009: 184, no. 3
8. AH 090; Sima 1999: 42

Another important element emphasised in the inscriptions is rain, both ‘early’ and ‘late’ rain seasons. Analysis of inscriptions published in the OCIANA collection concluded that there are eight inscriptions referring to rain/agriculture in an unspecified region, in addition to 24 inscriptions of rain/agriculture specifying different specific places, e.g. $\text{D}^{\prime} \text{mn}$, $\text{Bn}^{\prime} \text{l}$, $\text{D}\text{t}^{\prime} \text{ }^{\prime} \text{l}$, Bdr , $\text{h-M-d}^{\prime} \text{hb}$, Tqmm and Tr . Moreover, this type is also evident in other sites with Dadanitic inscriptions. For example inscription JSLih 077 (Eut 838; Doughty 1884, pl. XV, f. 28; Halévy 1884: 19, no. 6; Müller, D.H. 1889: 76–77, no. 27; Grimme 1937: 315–316; CLL 082; Jamme 1971: 37–38; JaL 102i; Drewes 1983: 428–429, no. 19; Déroche 1987: 134–136; Al-Qudrah 1993: 37–38, no. 94; D 058) is located on a large vertical cliff face, several hundred metres east of the ruins of the ancient city of Dadan (Al-Khuraybah).

Despite the fact of having multiple readings for the same inscription by different epigraphers, these inscriptions are of high value. For example, they represent some of the earliest evidence for agriculture in the AIUla

oasis, in the first millenium BCE, specifically in the inscriptions which include details on the cultivated plants, such as date palms and other ‘crops’, e.g. inscription (U 023; Drewes 1983: 428, no. 18; AH 041) with the reading provided by (Hidalgo-Chacón Díez, and Macdonald, 2017 :747) (Fig. 11):

- 1: ‘bd---nt son of ’ft pr–
- 2: iest of Dġbt and his son Yhn–
- 3: ’ and his wife ’mtb’s¹m–
- 4: n {planted} in Bdr and in Bn¹l one
- 5: hundred and forty-five palm trees {and}
- 6: {performed} the zll-ceremony for {Dġbt} ---- {their} palm trees
- 7: and their {crops of the season of the later rains} and so favour them
and {their} posterity

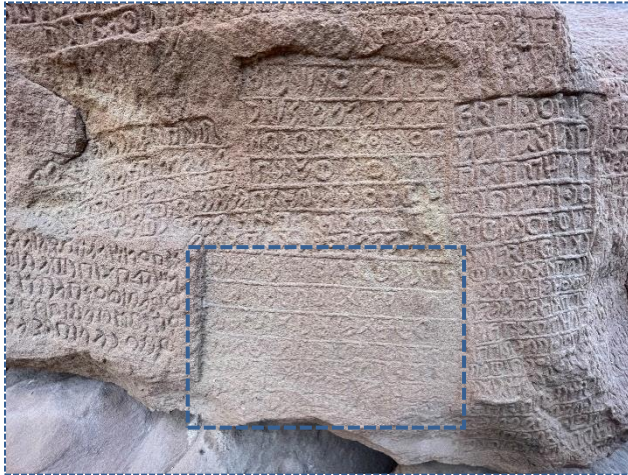


Figure 11. Inscription U 023 at Ikma, which is carved in relief.

For a desert oasis, rain is vital for life and prosperity, especially for cultivating palm trees, which consume a lot of water. One individual could possess as many as one hundred and forty-five (145) palm trees as stated in the above reading of inscription U 023.

A panoramic view of numerous palm tree gardens can be observed today from both the summit of the mountain east of the gorge and the high sand dunes nearby Ikmah, suggesting that there could have been palm groves in the surroundings also in the 1st millennium BCE. This could be additional significance for choosing this specific location within the AlUla valley.

During the survey we also observed that the geological formation of Ikmah offers a significant display of water when it rains heavily: it is a natural location for cascading waterfalls after heavy rain. This spectacular scene still displays when it rains heavily in Ikmah (Fig. 12), and as a result vegetation is greater in the site due to the rich surface run-off water resources. The specific geology of the site could therefore also have contributed to choosing the Ikmah gorge for the concentration of inscriptions.



Figure 12. Ikmah after rain, note the cascade of waterfalls. Photo ©Rakan AlAnizi

Archaeological remains in the site:

The second aim of this study was to conduct an initial archaeological field survey to record other archaeological features in the site. This phase resulted in key discoveries that changed our understanding of the chronology and richness of the site.

Ancient wall

Other than the inscriptions, previous scholars did not record any archaeological remains in Ikamah, except for the remnants of an ancient wall 300 meters north of the gorge, near the modern fence. This wall extends from the mountain to the east. It was first mentioned by Abdullah Nassif (1988:106), then by Ali AlMughanam et al. (1999: 56).

During the survey, the team measured this very important architectural element. It extends for 450 meters, and then a neighbouring farm fence cuts it. Given its dimensions and location, and utilizing the 5 cm orthophoto provided by the Royal Commission for AlUla, we propose that its original length was 660 meters, and that it extended to the edge of the mountain opposite, to the east (Fig. 13). Nothing conveys power, resistance, and ownership like a wall and for the Lihyanites all these characteristics were important. Additionally, this wall could have provided security; such walls are evident within the boundaries of this ancient kingdom e.g. the wall across Wadi AlMu'tadil.



Figure 13.a. Image of the ancient wall.

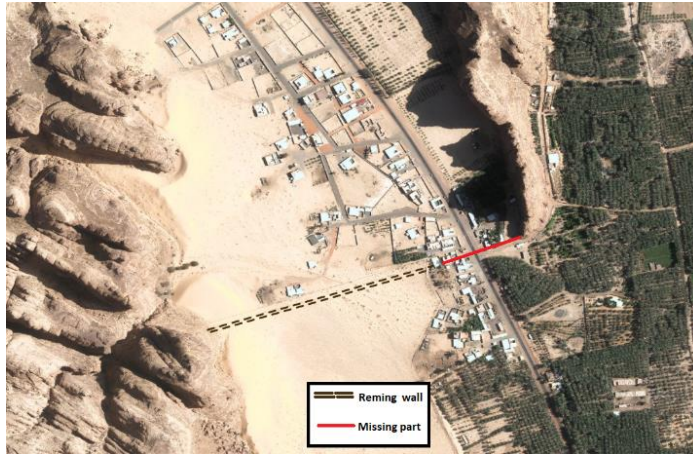


Figure 13.b. Remains of the ancient wall outside and to the north of the Ikmah gorge, near the modern northern fence line (Orthophoto, Geotech Overseas © RCU).

Since ancient times, people have built walls to contain, defend and/or protect their land from others, and a massive wall such as this one would not have served its purpose without this missing part. Unfortunately, the missing c. 200 meters of this wall were demolished by the new infrastructure of paved roads and nearby farmlands several decades ago.

Pottery

Scatters of pottery sherds were found during the field survey in the wider area of the site. However, the densest scatter is interestingly on the surface of the ancient collapsed wall (Fig. 14). The sherds are similar to “Khuraybah Pottery” or “Al-Ula style pottery” and the Red Burnished Ware (Hausleiter et al, 2021, Tebes 2015), which is also found in the site of Dadan, indicating that this wall apparently belongs to the Dadanite and/or Lihyanite civilizations.

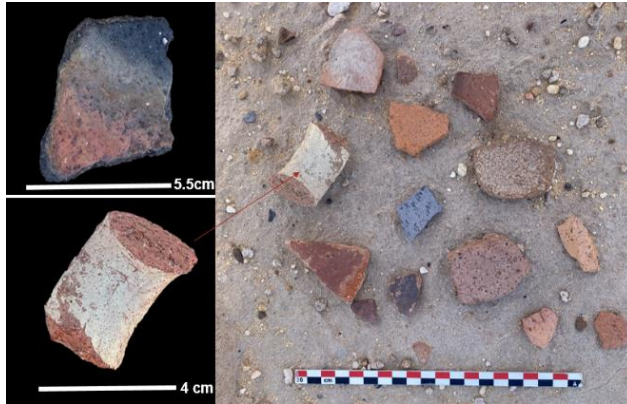


Figure 14. Variety of pottery sherds found on the surface of the wall located north of the Ikmah gorge.

Altar

Another important element found during the survey of the site is this ancient altar (Fig. 15), located inside the gorge near the inscriptions. It is carved from a horizontal rock formation, similar to a platform, on the eastern hillside of the gorge. It was possibly used for the presentation of religious offerings, sacrifices, or for other ritualistic purposes. Such altars have been recorded in several other sites in AlUla, such as Wadi Abu Ud (Wādī ābū ʿūd), an archaeological site with many Dadanitic inscriptions, just south of the Ikmah gorge.



Figure 15. Ancient altar in the Ikmah gorge

Isolated rock boulders with Dadanitic inscriptions

During the survey of the mountain summits surrounding the gorge, the team recorded a number of isolated rock boulders with rock art and Dadanitic inscriptions. These boulders have not been previously identified and are well preserved due to their remote location (Fig. 16). These unpublished inscriptions require an epigraphic study to decipher their indications and highlight any significance.



Figure 16. Isolated boulders with Dadanitic inscriptions on the summits surrounding the Ikmah gorge

Ikmah in Prehistory

Unexpectedly, the survey team discovered a variety of prehistoric lithics in Ikmah; this discovery is regarded as one of the key findings of the study because it provides an entirely new window on an unknown period of human presence within the fenced heritage site. The lithics consist of a possible Levallois core from the Middle Paleolithic (Fig. 17 A), in addition

to a possible Neolithic flake core made of quartz pebble, with fine knapping (Fig. 17 B).

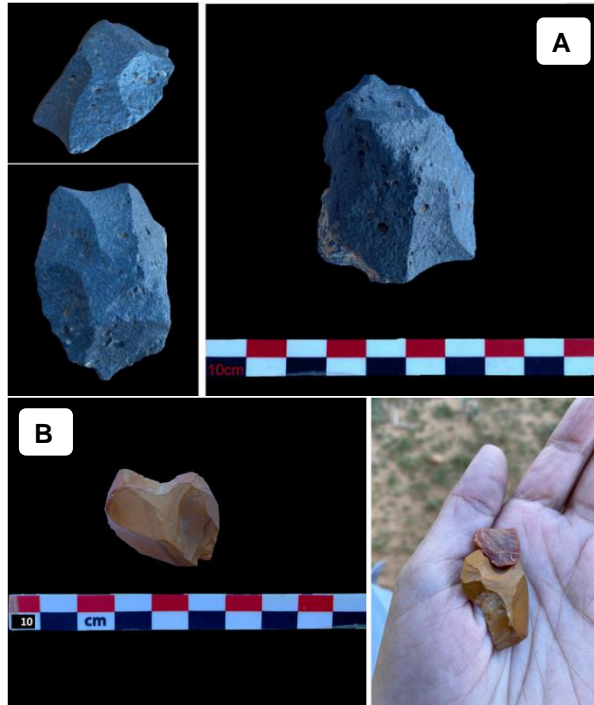


Figure 17. Prehistoric lithics discovered in Ikmah, A. Possible Levallois core. B. Neolithic flakes

Rock art panels

The team recorded massive rock art panels on the cliff faces near the southern limit of the modern fence enclosing the site as illustrated in the map (Fig. 20). These modified rock surfaces are spectacular and of high cultural value due to their excellent artistic style, large size, density and content. They reflect different elements of AlUla's past – including indications for different environmental conditions and diverse wildlife. Whoever depicted these figures was certainly living in a different climate, perhaps in a savanna-like environment, before the desertification of the area.

The rock art includes different types of animals – cattle, ibex, lions, ostriches, camels, horses and human figures. The inclusion of lions and cattle, which require more water to drink than desert fauna, points to a wetter environment when they were engraved. The panels were recorded with a Differential Global Positioning Systems (DGPS) for accurate recording of coordinates



Figure 18. Distribution of rock art panels outside the Ikmah gorge, concentrated in the southern part of the fenced area of the heritage site,

One of the most impressive panels is approximately 17m in length and 7m in width. It represents different species of animals presented in a mix of other artistic elements. The panel is dominated by cattle depicted in different styles, some, for example, with complex geometric patterns (Fig. 19). Cattle are depicted elsewhere in the AIUla region; however, the panels at Ikmah are exceptional



Figure 19. Example of cattle depicted in a rock art panel within the fenced area of the Ikmah heritage site.

They are distinguished by their large size, precision of drawing, and most importantly because they illustrate the steps of executing the artwork. The authors see that this panel demonstrates the stages the artist carried out: **First** defining the external contours of the cattle by incising/engraving and drawing lines cut into the rock with a sharp tool. Then, dividing the figure with a straight line in the middle in order to balance the distribution of elements within the drawing frame. **Second**, the artist divides the figure into several vertical and horizontal lines all over the cow's body, and then uses the pecking technique, an indirect carving method, to highlight the details of the face and chip the rock surface of the horns. **Third**, the artist reduces the edges of the squares by carefully engraving rounded contours. **Fourth**, the final step of the work is completed with making more precise geometric patterns (Fig. 20).

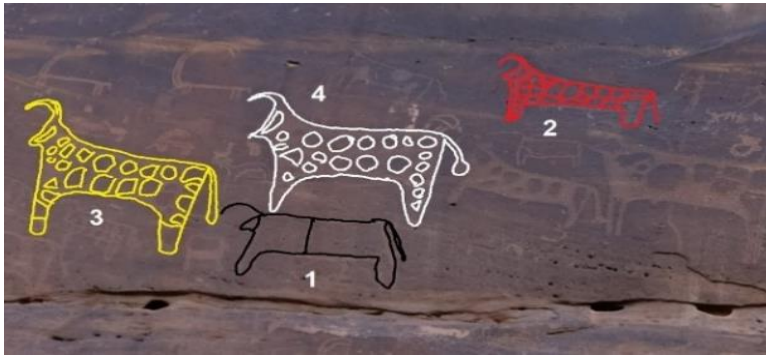


Figure 20. Hypothesis of the stages of execution in drawing the cattle.

Rock art expert Majeed Khan classifies a similar type of cattle as “cattle with forward curved horns” and dates it to the period from 3500 BCE to 3000 BCE (Khān 1993:131).

Another interesting rock art scene represents a group of humans, two males in the upper part of the drawing, and two females in the lower part. This was obvious from the body representations of the figures. They are attacking a lion to defend their cattle (Fig. 21). This scene offers cultural indications such as the domestication of cattle and the apparent social equality between men and women in hunting activities in that era. In addition, it suggests that the environment in AlUla -when this was engraved- was green savanna land and humid conditions, which are the habitat for lions to thrive.



Figure 21. Lion hunting scene depicted in a rock art panel within the fenced area of the Ikma heritage site.

As for the hunting weapons, Naif AlQanoor (2007:51) states that the bow and arrow were used in Arabia during the Neolithic period. Furthermore, Khan (2007:114) mentions that cattle and lions started to be associated together in a rock art in the Neolithic period from 7000 BCE-6000 BCE.

Chariot with wheels

Located ~500m outside and south of the gorge, and in a very high place (elevation ~ 2920ft), approximately 120m from ground level, a chariot

was engraved, pulled by two horses and with its pair of wheels lying flat (Fig. 22). This depiction resembles actual chariots, an innovation that spread in AlUla in Antiquity. Although chariots are considered very rare in north Arabian rock art, AlUla is home to several examples, such as the chariot in Wadi Abu Ud (Wādī ābū ʿūd) (as mentioned above, a wadi just south of the Ikmah gorge) and the chariot of Al Sinya (north of modern AlUla) (Khan 2017). Several other chariots depicted in a rock art have been discovered in different regions such as in Tabuk (Nayeem 2000), Jubba (Nayeem 2000) and Al Musharafa in Hail, which dates back to the Bronze Age-early Iron Age (Macdonald 2009).



Figure 22. Chariot depicted at Ikmah outside the gorge.

Islamic and modern remains

1-Early Arabic inscriptions

Several Arabic inscriptions of the early Islamic period were recorded during the survey inside the fenced area, some of which are dated, e.g. the inscription in (Fig. 23), that dates to 223 AH (a year in the Hijri calendar, which corresponds to the Gregorian calendar between the years 837 and 838 CE). The inscription reads as following:

الله ثقة احمد بن محمد بن خلف وكتبه سنه ثلاث وعشرين ومئتين

Translation: Ahmad b. Muhammad b. Khalaf trusts in God, written in the year two hundred twenty three.



Figure 23. Dated early Islamic inscription at Ikma, south of the gorge.

2-Early coinage of the Saudi State-dated to the era of the unification of Najd and Hijaz in 1343AH (1925CE)

The coin was discovered south of the gorge. It is stamped for The Kingdom of Hejaz and Nejd (Arabic: مملكة الحجاز ونجد, Mamlakat al-Hijāz

wa-Najd), a dual monarchy ruled by King Abdulaziz following the victory of the Saudi Sultanate of Nejd over the Hashemite Kingdom of the Hejaz in 1925. It was the fourth iteration of the Saudi State (Fig. 24). The coin is dated to 1348 AH and reads as following:

1- Obverse

"Abdulaziz al Saud, King of Hejaz and Nejd and Dependencies"

(عبد العزيز آل سعود ملك الحجاز ونجد وملحقاتها)

2-Reverse

"One Qirsh 1348"



Figure 24. Coin found in Ikmah, south of the gorge

Results and Discussion

The ancient archive engraved and carved on the cliff faces and boulders in the gorge of Jabal Ikma is a reliable resource to glimpse ancient life in an early civilization of the Middle East in northwest Saudi Arabia. The Late Dadanitic inscriptions reveal aspects of the lives of the inhabitants in the 1st millennium BCE, during the Lihyanite kingdom. They describe an extensive number of associated elements, such as the socio-political system, economic basis, rituals, and more. Most refer to rituals or religious ceremonies.

The practice of describing religious ceremonies and other important events by epigraphic means existed in many parts of the world. Nevertheless, Jabal Ikma is a paradigmatic example in the Arab region, as its collection fills the Iron Age era gap within the Arabian Peninsula, expanding our global understanding of these important legacies of human culture.

The formal inscriptions, epigraphs composed of up to nine lines in some cases, reflect the political and socio-economic conditions of the early Arab communities here. In relation to economy and society, this collection of inscriptions represents the earliest documentary heritage about ancient agricultural production, as well as about land and property in the Arabian Peninsula.

Most of the inscriptions mention a specific place of significance called *khl*, which refers to the place in which the main ritual or religious ceremony took place. This place has not yet been located, however the epigraphic records are solid evidence of its existence and deciphering more of these inscriptions will possibly lead to finding it.

Otherwise, numerous references to places with significant historic names have been identified in these Dadanitic inscriptions, forming a mind map that reflects a network of connections with other communities in antiquity.

Additionally, several inscriptions refer to women (i.e., inscriptions AH-012, or also U-013, in Macdonald et al. 2017), owning properties and performing ceremonies, reflecting their wealth and prosperity, and highlighting the social differences and women empowerment in ancient cultures of Arabia. Moreover, inscriptions containing kings, slaves, musicians, priests, and priestesses indicate that distinct social and economic classes were in existence in this part of the world as early as the 1st millennium BCE.

Ikmaḥ's inscriptions are an exemplar in artistic ability, with twenty-four inscriptions carved in relief; the letters stand proud from the rock surface demonstrating an advanced artistic approach of highly skilled professional masons (i.e., inscriptions U011 to U019 and U021 to U026, Macdonald et al. 2017). The Dadanites and Lihyanites are well-known for their excellence in carving stone, sculptures more than two meters in height have been unearthed from ancient Dadan, 3.5km southeast of Jabal Ikmaḥ. This documentary heritage offers incredible insights to complement the archaeology of Dadan and the region, enhancing understanding of the development of ancient communities in this part of Asia.

The absence of Albert Jamme's collection of inscriptions linked to the site of Ikmaḥ published in 1974 highlights the importance of assessing historical publications that were published in a time when accessibility to maps and accurate geographical locations was limited.

Furthermore, the unexpected prehistoric findings just outside the gorge signal the need for additional studies to understand more about Ikma. A new systematic in-depth approach is needed for survey and analysis of the lithics to determine the range of time in which the site and its environs were actively inhabited in the prehistoric era.

The discovery of the prehistoric rock art panels of Ikma is highly important on several levels, for example providing the opportunity to observe the methodologies and stages by which an image is created and to recognize the significance the site appears to have held during the Neolithic period. Nevertheless, a future detailed study of the rock art is essential to be able to position the site within the corpus of other rock art sites in the Arabian Peninsula and to extract further cultural implications.

This study expands our understanding of the long human presence in Ikma. The majority of scholars have been documenting and studying the distinguished inscriptions of the site, not noticing the small details in the presence of such an enormous epigraphic compendium. Now that archaeological studies are targeting hidden details from a multidisciplinary perspective, it became more evident that Ikma has much more to offer.

The new chronological timeline of Ikma from prehistory to modern times is indeed an unpredictable result that encourages archaeologists to keep unfolding the mysteries of this land, and always report new findings that cast significant new light on AlUla's past legacies.

Acknowledgements

I would like to express my deepest appreciation to the ‘Royal Commission for AIUla (RCU)’ for the support and assistance. I also would like to express my appreciation to His Highness Prince Bader b. Farhan Al Saud, the Governor of the Royal Commission for AIUla, and to Amr Al-Madani the CEO for their leadership and vision. Furthermore, I thank Dr. Ali Al-Mushawh, Norah Al-Swilem, Dr Alaa Al-shareeda, José Ignacio Gallego Revilla and Dr Rebecca Foote, for their support. Finally, I am grateful for the insightful comments offered by the peer reviewers. The generosity and expertise of one and all have improved this manuscript in innumerable ways.

Bibliography

- Abū ʿl-Ḥasan, Ḥ.ʿA.D. (1997). *Qirāʿah li-kitābāt liḥyāniyyah min ḡabal ʿakmah bi-minṭaqat al-ʿulā*. Al-Riyāḍ: Maktabat al-malik fahd al-waṭaniyyah.
- Al-Dīyīb [Al-Theeb], S.A. (2013). *Al-ḥuraybah (dadān) ʿāṣimat mamlakatay dadān wa-liḥyān*. Al-taqṭīr al-ūlā li-l-mawsim al-ṭāmin 2011m. (Silsilat al-dirāsāt al-aṭariyyah al-maydāniyyah). Al-Riyāḍ: Iṣḍārāt al-ḡamīʿah al-suʿūdiyyah l-l-dirāsāt al-aṭariyyah.
- AlMughannam, A., AlHelwah, S., Mursi, J. (1999). “Catalogue of the stations on the Egyptian and Syrian pilgrimage road” *Atlal* 7: 42–59.
- Al-Saʿīd, S.F. Nuqūṣ dādān: dalālah wa-ʿl-maḍmūn. Pages 281-302 in Al-Saʿīd, S.F. & Al-Ghazī, ʿA. (eds.) (1434–1435 / 2013–2014). *Kunūz aṭariyyah min dādān*. *Natāʿiḡ tanqībāt al-mawāsīm al-sabaʿah al-ūlā*. Volume 2. (Dirāsāt āṭariyyah miydāniyyah, 1). Riyadh: Al-ḡamīyah al-saʿūdiyyah li-l-dirāsāt al-aṭariyyah.

- Al-Turkī, H.M. (1434 / 2013). Al-malik al-liḥyānī (tlmy bn hn'ws) ru'yah min ḥalāl al-nuqūš. Mağallat ġāmi'at al-malik sa'ūd 25: al-siyāḥah wa-'l-āṭār 1: 73-83.
- Altheim, F., & Stiehl, R. (1968). *Die Araber in der alten Welt: Weitere neufunde-NordAfrika bis zur Einwanderung der Wandalen-Du Nuw62a7s. Funfter Band. Erster Teil.* de Gruyter. pp. 24-33, 447-453.
- Doughty, C. M. (1891). Documents épigraphiques recueillis dans le nord de l'Arabie. Paris: Imprimerie Nationale.
- Farès, S. (2005). Dédan et Liḥyān. Histoire des Arabes aux confins des pouvoirs perse et hellénistique (IVe-IIe s. avant l'ère chrétienne) (Vol. 42, No. 1). Persée-Portail des revues scientifiques en SHS.
- Hausleiter, A., Dinies, M., Bouchaud, C., Intilia, A., Schimmel, L., & Zur, A. (2021). Al-Ula, Saudi Arabia. Archaeology and Environment from the Early Bronze Age (3rd mill. BCE) onwards. Season 2019. *E-Forschungsberichte*, § 1–. <https://doi.org/10.34780/b5t2-t686>.
- Hidalgo-Chacón Díez, M. d. C and Macdonald, M. (eds.), (2017). The OCIANA Corpus of Dadanitic Inscriptions (Preliminary Edition), with the assistance of Ali al-Manaser, Daniel Burt, Geraldine King, Laïla Nehmé, Jeremy Johns and Jennifer Brooke Lockie, University of Oxford. Online in:
https://www.academia.edu/31944333/Mar%C3%ADa_del_Carmen_Hidalgo_Chac%C3%B3n_Diez_and_Michael_C_A_Macdonald_eds_The_OCIANA_Corpus_of_Dadanitic_Inscriptions_Preliminary_Edition_with_the_assistance_of_Ali_al_Manaser_Daniel_Burt_Geraldine_King_La%C3%AFla_Nehm%C3%A9_Jeremy_Johns_and_Jennifer_Brooke_Lockie_University_of_Oxford_2017?swp=rr-rw-wc-37076976-AH041
http://krc.orient.ox.ac.uk/ociana/corpus/pages/OCIANA_0037681.html

- Hidalgo-Chacón Díez, M. d. C. (2016). The divine names at Dadan: a philological approach. *Proceedings of the Seminar for Arabian Studies*, 46, 125–135. <http://www.jstor.org/stable/45163422>.
- Hidalgo-Chacón Díez, M. d. C. (2015). The distribution of the Dadanitic inscriptions according to their content and palaeographical features. *Proceedings of the Seminar for Arabian Studies*, 45, 139–148. <http://www.jstor.org/stable/43783628>. Online in: https://www.academia.edu/13507635/The_distribution_of_the_Dadanitic_inscriptions_according_to_their_content_and_palaeographical_features
- Hidalgo-Chacón Díez, M. d. C (2016). Three Dadanitic inscriptions from al-‘Uḏayb (oasis of al-‘Ulā) and the occurrence of the word sʿt. *Arabian Archaeology and Epigraphy*. 27. 72-78. 10.1111/aae.12066. Online in: https://www.researchgate.net/publication/301599507_Three_Dadanitic_inscriptions_from_al-Udayb_oasis_of_al-Ula_and_the_occurrence_of_the_word_st
- Hidalgo-Chacón Díez, M. d. C (2014). Place names in the Dadanitic inscriptions of al-‘Uḏayb. *Adumatu: A Semi-Annual Archaeological Refereed Journal on the Arab World*, 30, 15–30.
- Hidalgo-Chacón Díez, M. d. C., & Weninger, S. (2010). Die theophoren Personennamen in den dadanischen Inschriften. *Philipps-Universität Marburg*. <https://doi.org/https://doi.org/10.17192/z2010.0493>
- Jamme, A. (1974). *Miscellanées d'ancien arabe*. Washington, D.C
- Macdonald M. C. A. (2009). Wheels in a land of camels: another look at the chariot in arabia. *Arabian Archaeology and Epigraphy* 156–184. <https://doi.org/10.1111/j.1600-0471.2009.00312.x>

- Khān Majīd. (1993). Prehistoric rock art of northern Saudi Arabia. Ministry of Education Department of Antiquities and Museums Kingdom of Saudi Arabia.
- Khān Majīd. (٢٠٠٧). Study of Rock art [دراسة علم الرسوم الصخرية]. Ministry of Education Department of Antiquities and Museums Kingdom of Saudi Arabia. (Arabic)
- AlQanoor Naif. (2017). Hunting in Rock art: Northwestern Arabia [الصيد في الفن الصخري: شمال غربي الجزيرة العربية انموذجاً]. *Adumatu*. (35) 37-55 (Arabic)
- Khān Majīd. (2017). An Introduction to the Rock Art of Saudi Arabia. Saudi Commission for Tourism and National Heritage.
- Nayeem, M.A. (2000). The Rock Art of Arabia. Saudi Arabia, Oman, Qatar, the Emirates & Yemen. Hyderabad: Hyderabad
- Nassif, A. A. (1988). Al-Ula: A Historical and Archaeological Survey with Special Reference to Its Irrigation System. A historical and archaeological study. *Riyadh: King Saud University, 1408 H (1988)*.
- Scagliarini, F. (1999). "The Dedanitic Inscriptions from Ġabal 'Ikma in North-Western Hejaz." *Proceedings of the Seminar for Arabian Studies* 46: 125–36
- Sima, A. L. (1999). Die lihyanischen Inschriften von al-‘Uḏayb (Saudi-Arabien). *Epigraphische Forschungen auf der Arabischen Halbinsel*.
- Stiehl, R. Altheim, F. (1971). *Christentum am Roten Meer*. I, II. Berlin: Walter de Gruyter. pp. 3-40, 565-566, 569-594
- Tebes, J. M. (2015). Investigating the Painted Pottery Traditions of the First Millennium BC Northwestern Arabia and Southern Levant: Contexts of Discovery and Painted Decorative Motives.

أبو الحسن، حسين. قراءة لكتابات لحيانية من جبل عكمة بمنطقة العلا. الرياض: مكتبة الملك فهد الوطنية (١٩٩٧).

خان، مجيد. دراسة علم الرسوم الصخرية. الرياض: وزارة التربية والتعليم، (٢٠٠٧).
نايف القنور، "الصيد في الفن الصخري: شمال غربي الجزيرة العربية أنموذجا، مجلة أدوماتو (٢٠١٧)، العدد ٣٥، ص ٣٩-٥٦.