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Cover Photo: Acheulean and Middle Paleolithic Stone Tools at Faid, Saudi Arabia.

A Semi - Annual Archaeological Refereed Journal on the Arab World

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CONTENTS

EDITORIAL

The Kingdom of Saudi Arabia has taken care of the archaeological and cultural sites located in various regions of the Kingdom, and spared no effort locating, excavating, and preserving them. Moreover, the Kingdom established an official body annexed to the Ministry of Education concerned with locating, excavating, and preserving antiquities and cultural sites named as the Department of Antiquities and Museums. Furthermore, the government has done every effort to organize and develop them, provide requirements for maintaining antiquities, and carry out field exploration work under the supervision of qualified scientific expeditions. The government has also been keen to enhance its role in the renovation of archaeological sites, with restoration, protection, and overcoming any obstacles that might stand in the way of archaeological development work in the Kingdom.

In addition, the government has always considered archaeological and cultural sites a fundamental part of the Saudi national history, and a major tributary of the national economy. This consideration for antiquities and cultural sites goes in line with the status of the Kingdom and its values, care given to preservation of antiquities, and invigorating their contribution to cultural heritage and economic development. The Kingdom has also been keen to establish museums, provide qualified cadres to supervise and develop them, and enhance archaeological work in the Kingdom; the cradle of Arab and Islamic civilization.

Consideration to antiquities, discovering archaeological sites belonging to different prehistoric, pre-Islamic Arab kingdoms, and kingdoms of the Islamic era would contribute to the sustainable and successful development of the national tourism industry. As a first step in preserving the cultural heritage of the Kingdom, the antiquities and museums sector has strengthened its ability to survey, excavate, protect, register and study antiquities, in addition to developing museums and architectural heritage, increasing knowledge about the elements of the Kingdom's cultural heritage, and more effectively managing antiquities and museums.

The Department of Antiquities was established in 1386 AH / 1966 AD, and then transformed into an auxiliary agency for antiquities and museums in the Ministry of Knowledge in 1396 AH / 1976 AD, and to the General Authority for Tourism and National Heritage in 1421 AH / 2000 AD. Since the establishment of the Antiquities and Museums Sector until its annexation to the Ministry of Culture in this year 1441

AH / 2020 AD, many valuable achievements have been made in developing the antiquities, museums and national heritage sector, establishing an integrated system that tourism development depends on, and the consequent demand and treatment with credibility from all segments of the Saudi society.

Relying on the established types of archaeological surveys used at that time, the comprehensive archaeological search project for Saudi Arabia started. More recently, surveys have been developed using geographical information and other modern archaeological survey systems.

Archaeological surveys and excavations have confirmed that human settlement in the Kingdom of Saudi Arabia stability dates back to about a million years, the period of the ancient Stone Age where there are antiquities that date back to the Stone Age in Ash Shuwayhitiyah, Al-Jouf region, and Shoaib Dahdah in Najran region.

Archaeological surveys that began in the Kingdom in 1396 AH / 1976 AD and continued until 1400 AH / 1980 AD provided information that reflect the wide and intertwined network of civilizational relations that the Arabian Peninsula has witnessed since the prehistoric times and the dawn of history, and the Arab kingdoms of the pre-Islamic and the Islamic era.

Work in Archaeological surveys started in February and April 1976 AD in the Eastern and Northern regions and then extended to all parts of the Kingdom of Saudi Arabia. Work at that time, was planned and supervised by the Department of Antiquities and Museums. Each field team was formed and managed in cooperation with Saudi and foreign specialists.

The comprehensive archaeological survey was followed by excavations, and the beginning was in Tayma in 1399 AH / 1979 AD. It was discovered that this site dates back to the beginning of the 8th millennium BC.

This was followed by exploration of the sites of trade and pilgrim roads, particularly their paths and stations. The first registration of rock drawings was made, and then the first archaeological survey of rock drawings and ancient Islamic writings was in 1404 AH / 1984 AD.

Surveys and excavations progressed with Saudi archaeologists. Recently, joint expeditions began with archaeologists from Europe, America, China and Japan in various archaeological sites. Publications on the surveys and excavations were

published in The Saudi Arabian Archaeology annual journal titled Atlal, with its first issue in 1397 AH / 1977 AD.

The Departments of Antiquities and Museums at King Saud, Hail, and Jazan universities also contributed to the surveys and excavations of archeological sites. Numerous archaeological teams have also been organized, and conducted many archaeological excavations in several sites in the Kingdom. The findings of these surveys were published in peer-reviewed journals, whether issued by those universities or other scientific journals, including ADUMATU. This endeavor contributes to enriching information on archaeological sites in the Kingdom, as well as to the historical documentation of the human civilization history and the ancient kingdoms that prevailed during previous historical periods.

By annexing the responsibility for cultural and archaeological sites, heritage and museums to the Ministry of Culture, the government in the Kingdom of Saudi Arabia hopes to advance with more institutional work and give surveys and excavations in the archaeological sites abundant, the attention worthy of our country with its civilization and history through the ages.

Editor -in-Chief

Linguistic and Cultural Connotations of an inscription from the Mining Mission in Wadi Al-Maghara, Sinai, from the Reign of King "Pipi II"

Emad Ahmed Ibrahim Al-Sayyad

***Abstract**: The inscription of King Pepi II of the 6th Dynasty is one of the important inscriptions in Wadi al-Maghara area in Sinai. This inscription is a testament to the last presence of Egyptian activity during the era of the Old Kingdom in this region. No inscriptions appeared from this king's successors, indicating the continuation of economic activity there. In addition to its objective temporal significance, associated with the dispatch of a mining mission, linguistic notes bearing civilizational connotations of great importance appeared in the inscription. The first linguistic note was related to unusually writing the name of Lower Egypt before that of Upper Egypt. The second note, however, relates to the style of writing the royal mother's title, where the mother's title comes between the two elements of the crown title of the king. The research attempts to find cultural justifications that prove that these notes are not merely the writer's linguistic errors.*

***Key words**: King Pepi II, al-Maghara, quarry, expedition, counting, livestock, coronation title, ancient state, Sinai.*

Introduction:

Mining missions scattered in Wadi Al-Maghara area Sinai, Egypt, found numerous inscriptions. However, one of the most important of them was found by the British Museum expedition bearing the name and titles of King "Pepi II" from the 6th Dynasty. The expedition copied and transferred that inscription, but most of its original parts have been vandalized. Since the end of the 19th Century, researchers have conducted numerous descriptive studies with attempts to translate its contents and they managed to translate most of the inscription, with the exception of a small picture of a woman whose name and accompanying titles indicate that she was Queen "Meresankh II". The inscription notably carries two distinctive observations on the writing style of some phrases. These observations presumably have cultural connotations that should not be ignored. However, none of the researchers who studied and analyzed this inscription referred to these two observations; they only translated the inscription. Even in the only case with reference to these two observations, no explanation or analysis was provided. Rather the researcher in that case simply added a question mark indicating the need for further study and analysis. In this paper, the researcher will shed light on these observations in an attempt to analyze and explain their connotations.

The area of Wadi Al-Maghara, southwest of Sinai, Egypt, has always been one of the areas of Ancient Egypt kings, whose presence in the area combined peaceful and military aspects. Kings of the 1st and the 2nd Dynasties have been found inscribed on rock in Wadi Al-Maghara, portraying them defeating their Asian opponents in that era. Inscriptions also captured King Djoser and his successors until the 6th Dynasty, portraying them paying special attention to the mining missions there (Eichler 1993: 128). They often sent missions mining for raw minerals such as, turquoise and copper that were abundant in Wadi Al-Maghara area, as shown in a group of rock inscriptions around the mining areas (Shalaby 2015:167). The efforts of Ancient Egypt kings to secure their northeastern borders, as well as the uninterrupted economic exploitation of mines and quarries in Sinai, can be chronologically traced as shown on the rock inscriptions bearing the names of kings, starting from the 1st Dynasty to the 19th Dynasty (1952: 9 Gardiner & Peet). The oldest of these is represented in a group of inscriptions bearing the serekh (a royal crest) of both King "Djer" and King "Dun" (Bestock, 2017:177).

Among these inscriptions, next to the inscription of King "Pepi I" but smaller in size, is another inscription of his son and second successor to the throne, King "Pepi II", with the dimensions of (67cm / 72cm) under the number: Sinai Inscription 17 (Gardiner & Peet 1955: 64). This inscription is significant because it is a testament to the last existence of the ancient Egyptian monarchy in Wadi Al-Maghara area (Saad El-Din, 1998: 76).

The inscription in general consists of two sections (Figure 1). The upper section consists of four vertical rows. The first row includes the inscription date referring to the second year of the King's reign. The second and third rows, however, bear the names and titles of the king, and the fourth and last row contains four lines inscribed horizontally, bearing the titles and the name of Queen "Mara S Ankh II", the Queen Mother. Finally, the lower part of the inscription consists of two sections, the right of which bears the royal assignment title "**wpw.t-nsw"**, and the left section bears the royal mission text in a group of lines starting with two horizontal lines, followed by thirteen vertical lines, (Weil, 128-1904:125).

Some researchers have studied this inscription and attempted to translate it, and the meaning and content presented by them all came almost similar (PM, VII:342; Eichler, 1993:120, 17.nr). Unlike other researchers, this researcher was attracted to two linguistic observations, captured in the upper part of the inscription, and carried significant cultural connotations. The two observations are addressed below:

The First Observation:

The first vertical row of the upper part of the inscription carries the date for the royal mission sent by King "Pepi II" to the turquoise mines in Wadi-Al-Maghara, as follows:

(Gardiner & Peet, 1952:Pl.9)

ḥ3t-sp 2 ṯnwt i̯ḫ(w) ꜥw(w)t nb(wt) Mḥw Šmꜥw

(The second counting year of all livestock in the Kingdoms of Lower and Upper Egypt)

This line shows the common date format used in the era of the Old Kingdoms, particularly the era of the 4th Dynasty to the 6th Dynasty. The word "  **tnwt"** was used to refer to the number of times of livestock population counts during the king's reign. Based on the information provided in the line above, the livestock population count was done consistently and regularly every two years (Warden, 2013:236; Bard, 2005:876).

This format was found consistent with the formats used in the King "Pepi II" era in terms of orthography rules and forms; however, an unusual aspect appeared at the end; orthography of Lower Egypt MHw  before  !Šmaw, orthography of Upper Egypt. This issue attracted Breasted, who pointed to it in the margin, without adding any further explanation or analysis (Breasted 1906: 156. n: a).

It has been customary for ancient Egyptians to present the emblems, symbols and gods of South Egypt before their counterparts of North Egypt. This is undoubtedly related to their geographical convictions that the beginning of Egypt was from the south, where the Nile begins. This, in turn, was reflected in the administrative division of the regions being arranged from the South to the North. Furthermore, the royal titles of Upper Egypt were written as before the royal titles of Lower Egypt. Therefore, when referring to the two ancient monarchies of Egypt, it is not surprising to find the originator of the inscription beginning with Upper Egypt followed by Lower Egypt, which has been the common trend; see the example below:

T3-šmꜥw T3-mḥw 

(Herb & Ph. Derchain, 2009: 206).

The Berlin Dictionary confirmed this fact in its description of both phrases, indicating that the word

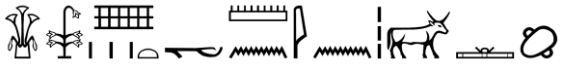
Tȝ-mḥw means Lower Egypt and is often preceded by the word, Tȝ-šmʿw , Upper Egypt, which comes first (Wb, V, 224.12; 227.14).

In addition, the inscriptions included numerous job titles that are characterized by a degree officiality and held by people who specialized in livestock population count throughout historical eras in Ancient Egypt. From these titles, consistency to the precedence of Upper Egypt over Lower Egypt, becomes apparent, including:

(Ward 1982:11.nr.35)

imy-r iHw Šmaw MHw

The supervisor of all livestock population counts



(Al-Ayedi 2006:434.nr.1486)

Hsb iHw n Imn xt spAwt Šmaw MHw

The person in charge of Amun's livestock population count in all Upper and Lower Egypt regions

(Taylor 2001:14.nr.126; Urk, IV.1395.18)

imy-r iHw Šmaw MHw

Supervisor of Livestock population count in Upper and Lower Egypt

In addition to the administrative titles, numerus samples of texts trace era from the 1st Dynasty until the end of the 6th Dynasty. These sample texts state explicitly that the word Upper Egypt "Šmaw" always came before "MHw" (Spalinger 1994:290; Urk, I.118.7).

Furthermore, Sethe traced the cases of inscribing this format from the era of the Ancient Kingdom. He refers to the land of Egypt as two kingdoms, and discovered that during the era of the 1st, 2nd and 3rd Dynasties, as well as the first half of the 6th dynasty, the two kingdoms were cited in the usual order by writing Upper Egypt followed by Lower Egypt. However, during the 4th and 5th Dynasties, as well as part of the 6th Dynasty, Lower Egypt was first written followed by Upper Egypt. Sethe mentioned this chronological division with details of some change models in writing the two ancient kingdoms of Egypt without any further explanation (Sethe, 1907:15).

Here, one must wonder about the reason for this change in the order of writing these signs; has it been related to political, religious, or linguistic aspects?

The researcher believes that the matter here is nothing more than a linguistic change that occurred in the writing style. This does not, however, negate the possibility of some political motives of a religious nature. The political and religious events in the middle era of the Old Kingdom undoubtedly witnessed some turmoil, evidenced by the variation in the priesthood status and its members, as well as the extent this was reflected on architecture and art. The economic aspects represented in livestock population count and tax collection remained fairly regular (Muhs, 2016:29), therefore, all these aspects together need to be considered.

To linguistically explain this change, we need to trace the stages of change in the order of these signs and how they are formulated. They were found on a rock inscription in the Dakhla Oasis (Bergmann & Kuhlmann 127-2001:120), dating back to the expedition of Commander "Pepi" from the reign of King "Khufu" of the 4th Dynasty:

(Kuhlmann, 2005:249)

rnpt m-ḫt 13 ṯnwt iḫw ʿwt nb(t) Tȝ-šmʿw Mḥw

The year following the thirteenth cattle and sheep population count in Upper and Lower Egypt

In this text, that symbol dates back to the era of the 4th Dynasty; the beginning of the change in the name writing style. It is obvious that the writer began with the word "tɜ", preferring to place the "mH" sign somewhere other than its original place, for word order purposes. Since this word is one of the signs with a horizontal syllable, the writer could use the space under the sign "tɜ". This could also affirm the writer's unwillingness here to mention the north before the south, as the following signs appeared in their regular order. If the writer had meant to refer to the change, it would have been more appropriate to attach the sign "" to its phonetic complement .

This change in word order was acceptable in the orthography rules of the ancient Egyptian language, allowing the transfer and movement of some signs if they affect the structure and coordination of the form of words. This procedure is conventionally known as Graphic Transposition. For example, we often see writers using the space under the bird's chest in a symbol to place any of the small signs, regardless of the correct arrangement, such as the sign "". The original form that this sign was pronounced as "tɜ"; however, it may appear in another place and must be pronounced as "ɜt". The same is also true for the title "hry-Hb" "", where the writer may re-arrange the signs, to appear in a better format as follows "" (Gardiner 1953:51). In other cases, the writer would resort to delete some signs, as in the words "rmṯ" and "Hnqt", where the letter "**m"** was deleted from the first and the letter "**n** from" the second for inscription purposes related to writing the best format of the word (Allen, 2014:23).

By applying these orthography properties, we can say that the sign "mH" was used first to fill the space below the sign "tɜ".

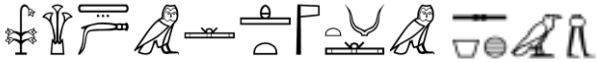
As time passed and in the era of the 5th Dynasty, another change occurred in writing this expression, and the sign "**Mhw"** directly followed its phonetic complement, "**mh"**; thus, completely preceding the sign "**Šmaw"** of Upper Egypt, as it appears in the following example from the tomb of "Ka M nefert" in Saqqara area of the 5th Dynasty:

(Mariette, 1889:245)

mɜɜ.....ỉnnt m nỉwwt nt pr-ḏt m Tɜ-mḥw Šmᶜw

An inscription ... Brought from the cities of Eternity of Lower and Upper Egypt

The same thing is seen on the tomb of "Sengem Ip" from the reign of King "Djedkare Isesi" of the 5th Dynasty:



(Urk, I. 64.8)

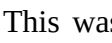
ỉn ɜsḫ m wpt ḫtpt nṯry m Tɜ-mḥw Šmᶜw

Grains from the divine offerings (rations) brought from Lower and Upper Egypt

In addition, there are numerous similar examples in writing style from the 5th Dynasty as well as the beginning of the 6th Dynasty (Sethe, 1907:15).

It seems that this linguistic modification in the arrangement of signs has been accepted and approved by priests of the "god Ra", especially since they had the power over the city of "On" (Heliopolis), the center to worship of god Ra and the capital of the thirteenth region of Lower Egypt. Worshiping the Sun was the official creed in the country at that time; therefore, the temples and priests of the God were of high status. Their wealth often matched the wealth of the capital itself, and both the rulers and the subjects had great respect for their priests (Al-Saadi, 1991, 75). This was clearly evident in the era of the 5th Dynasty, after the attempts to confine the influence of the priests of "God Ra" at the end of the 4th Dynasty. This led the Kings of the 5th Dynasty to establish what was known as the sun temples and

obelisks, as well as, enforce the return of the pyramid shape in designing tombs (David, 2014:207).

Perhaps these attempts to appease the priests have had their repercussions on the writing format of Upper and Lower Egypt discussed in this paper. Some explicit examples of their desire to write Lower Egypt before Upper Egypt appeared in the texts of the pyramids, written and drafted by priests of Ra. This was evident in the following: "  MHw Hna Šmaw" (Pyr. 202. c). This format was mentioned in the texts of the pyramids related to King "Wanis", the last King of the 5th Dynasty. Their intent to write Lower Egypt before Upper Egypt was evident in these examples. This excludes the hypothesis of linguistic error, especially since it was intended to add the preposition "Hna" between them to be pronounced (Lower Egypt with Upper Egypt).

As for the texts of the pyramids related to "*King Meri-in-Ra*", the Third King of the 6th Dynasty, and after the situation seemed to have settled in accepting this matter, it was more briefly written as shown below:

Mḥw Šmʿw  (Pyr. 854. E)

From the example above and in comparison, with what was mentioned in the inscription of King "Pepi II" in Wadi Al-Maghara. It can be inferred that this change in name writing format, which applies to all of Egypt, was driven by the use of ancient Egyptian language rules and relied on their flexibility. Priests of Ra soon took advantage of this change with their influence in Lower Egypt. The change in writing format became inevitable, especially in the religious texts they wrote. The kings allowed the priests to do so, taking into consideration the multiple conflicts that erupted between them before with dire repercussion. On the other hand, the kings realized the prominent role and influence of the priests, enabling them to supervise all royal tombs and temples. Therefore, the kings had to be very careful with the priests and avoid clashing with them. What proves that idea is that as soon as the era of Old Kingdom ended, and the influence of priests weakened, the writing format returned to its original format, and the name of Egypt was written in its traditional format, where Upper Egypt precedes Lower Egypt in each of the texts; Urk, IV: 82.14: 251.16; 972.16; 1828.19; KRI, III: 343.11) as well as job titles. (Helck, 2001:16; Taylor, 1958:502;).

The Second Observation

In the fourth vertical row of the upper part of the inscription, in the first horizontal line appears a title for the queen "*Meresankh*", the mother Queen of king "*Pepi II*", as follows: "  " (Gardiner & Peet 1952: Pl.). Notably in that inscription, the title was mentioned in a format different from the one used in the era of Old Kingdom in particular. The inscription subject of the study dates back to this era and the subsequent eras, as it was written in the following usual way: "  mwt-nsw" meaning "The Queen Mother." This format appeared with the beginning of the dynasties, as it appeared for the first time in a seal from Abydos of Queen "Merneith" the mother of King "Den" of the 1st Dynasty in the previously mentioned format (Dreyer, 1987:37).

To explain why this different writing format of this title appeared in the inscription of King "Pepi II" in Wadi Al-Maghara, it is necessary first to look closely at the nature of the coronation title and its cultural significance.

The royal title "**nsw-bity"** has been metaphorically translated as "King of Upper and Lower Egypt", but its literal meaning is "belonging to the reed (plant) and the bee;" the two symbols for the kingdoms of the South and the North, respectively. However, recently it became better to translate this title to mean "Dual King." It should be noted here that the character of being dual is not related to the north and the south of Ancient Egypt. Rather, the word "***nsw"*** has become an expression of the eternal monarchy institution, proven by the countless com-

pound expressions that referred to monarchy without the use of "***bity"*** syllable. Example includes "***wD-nsw",*** meaning "the royal order" (or decree), "***pr-nsw"*** referring to "the royal palace", and "***sꜣ-nsw"*** "the prince or the king's son". However, the word "***bity"*** refers to the person of the king the person who sits on the throne temporarily. Thus, this title "***nsw-bity"*** combines the divine (eternal) and human (temporary) qualities (Leprohon, 2013:17).

Quirke stressed this argument by stating that the title "htmty-bity" should not be translated as "Bearer of the Seal of the King of Lower Egypt", especially since there is no equivalent symbol in Upper Egypt in the same sense of "htmty-nsw". Here, the most plausible translation becomes "Bearer of the Seal of the incumbent king" (Quirke, 1986:123). This is consistent with the King's character and his temporary reign, especially when the seal and its bearer change with each new king, without any reference to the lands of Upper and Lower Egypt.

Based in the above argument, we note that the title "the Queen Mother" was written in two formats; either as customary written, and this format appears in the vast majority of inscriptions on antiquities " **mwt-nsw"** to mean "the Queen Mother", or written in the format as it appeared on the inscription of king "Pepi II", which is " **mwt-nsw-bity",** meaning "Mother of the Dual King." The question that begs itself now is: What is the significance of the difference between the two formats of writing this title?

Based on the foregoing argument, it can be said that the title "**mwt-nsw"** should be translated in the sense of "Queen Mother" with royal origins and divine blood running in her veins. This means that her parents need be of pure royal origins with her being the main wife of the King, carrying the title of "The Great Royal Wife (Graves-Brown, 2010: 130). This applies to Queen "Merneith of the 1st Dynasty, as well as other queens who bore this title with this familiar format of writing. (Cooney, 2018: 30).

However, the title "**mwt-nsw-bity"** refers to "Mother of the Dual King", meaning that she is the mother of the incumbent King, currently assuming the throne. She might not be of royal origins, and perhaps was one of the secondary king's wives who were either the daughters of a foreign king or the daughters of a noble and it happened that her son assumed the throne. This last format applies literally to the mother of King "Pepi II" called "Meresankh II". King "Pepi I" married the two daughters of the ruler of Abydos, called "Jajo", and they both bore the name "Meresankh". The first was the mother of the King "Merenre Nemtyemsaf II", while the second was the mother of King "Pepi II". Both queens were of non-royal origins (Goedicke, 1955: 180-183).

It is worth noting that insertion of the mother's name in the middle of the royal title, "**nsw-bity"**, in an unusual way in writing, was never intended to mean that this mother interferes with royal affairs as the guardian of the young king. One of most known examples is Queen " Merneith ", who was the guardian to her son's throne and yet bore the title of the royal mother in its regular form (Dreyer, 1987:37).

However, this can be explained as stated in the inscription of "Pepi II" based on the translation of the title "**nsw-bity"** as the "Dual King", which combines divine and human attributes (Quirke, 1986: 123). The word "**mwt"** appears between the words "**nsw"** and "**bity"**, where the use of "**nsw"** before the word "**mwt"**, came as usual to represent divine attribute. The word "**bity",** however**,** remained in its regular place after the word mother, to express the human attribute of the ruling King. The word "**bity"** did not precede the word "**mwt",** based on the position of a mother to a son, following the rules of veneration in writing (Gardiner, 1953:51).

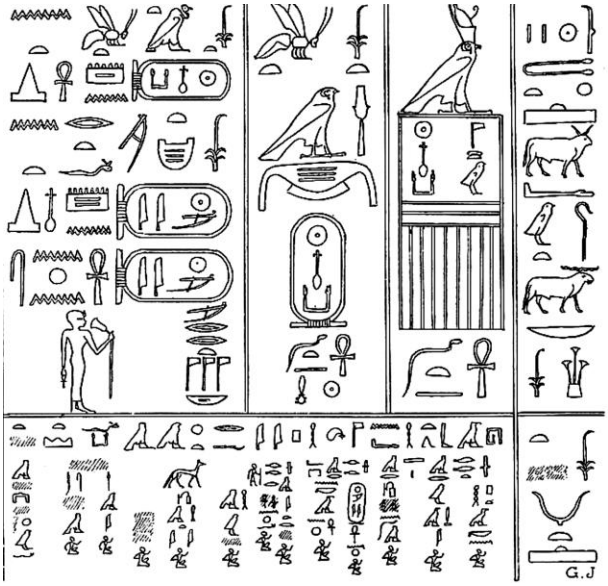


Figure (1) Inscription of a mining expedition in Wadi Al-Maghara from King Pepi II Reign (de Morgan, 1896: 236; LD, II, PL.116 a; Gardiner & Peet 1952:Pl.9)

There remains another matter that may in turn be another explanation for writing the title of the queen mother in this way. We have previously mentioned that the title of "**nsw-bity"** has hereafter and worldly connotations, while the word "**nsw"** alone has a purely religious sense. Accordingly, the format of writing the title of the "Queen Mother" was determined according to the nature of its effect. If the title was related to religious or funeral matters, it would appear as "**mwt-nsw"**. However, if the matter was of a worldly purpose, it was mentioned as "**mwt-nsw-bity"** as it appeared on the inscription of King "Pepi II". This format appeared narrating the events of a royal mining expedition for turquoise in Sinai, Egypt; a purely worldly affair that necessitated the writing of the queen mother title in this format.

This explanation is clearly evident in the era of the Middle Kingdom, where the Queen "Tam" the queen mother of the King "Sankhkare Mentuhotep" of the 11th Dynasty, in her incomplete coffin inscriptions, carried both formats of writing the title (Ward, 1986:107). It seems that she wanted to express her being the queen mother of the King in his divine image at times, and the queen mother of the king in his mortal human format at others (Maspero, 883:77).

Conclusion

It is evident from this research that in addition to the paramount significance of the inscription of King "Pepi II" in Wadi Al-Maghara, in capturing aspects of economic activity, especially in the field of mining at the end of the Old Kingdom era, it also carries linguistic observations of a great importance; not only from a linguistic point of view, but also from the cultural aspects that led to these observations.

- It has become accepted that writing "**mHw" before "Smaw"** in this inscription was not merely a coincidence or mistake by the writer. Instead, it was a product of a gradual change that began with the era of the 4th Dynasty, and was governed at the beginning by linguistic rules. However, this was influenced by religious motives, driven by the priests of the god Ra, who played a prominent role in writing the texts of the pyramids. The switching of signs came as deliberate action to imply sanctity of the place where people worship the god Ra in the Northern parts of "On".
- As for the title of the queen mother and its format in inscription, it can be summarized in acknowledging two formats, expressing the character of the king himself, either in his sacred religious image as "**nsw"**, representing the royal institution without any personification, or in his temporary worldly status. If the queen mother was of royal origins and had royal parents, she would hold the title "**mwt-nsw"**. However, if she was one of the secondary wives of the king, she would not be entitled to belong to the royal institution, and she would be named after the ruling king himself as "**mwt-nsw-bity"**.

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Ancient Northern Arabic "Safaitic" Inscriptions from Merab Hamdah in Northern Jordan Badia

Abdulaziz Mahmoud Howaidi, Alyan Abdulfattah Aljaludi, and Ziad Abdullah Talafha

Abstract: *This research provides a linguistic analytical study for fifteen ancient Northern Arabic inscriptions, known as Safaitic inscriptions. They were found in Merab Hamdah, located approximately about ten kilometers to the east of Beqaiyeh Tree. The significance of these inscriptions comes from the fact that they provide information about the use of some religious appeal and prayer formulas for a number of deities. These appeals and prayer formulas were used to ask idol "Radhi" for life, and idol "Lat" for peace, and recording events that occurred in the past such as: the arrival of Dahir from Horin, the event of plentiful rain, and "finding pastures". This research also examines new verbs appearing for the first time in Safaitic inscriptions, such as: "tbs", and new names and attributes such as: "Murta" and "Hivt".*

Keywords: *inscriptions, Safaitic, Merab Hamdah, Jordanian Badia, historical anthropology.*

Location's Geography: Merab Hamdah is located in the Jordanian Badia to the northeast of Ghadir al Mallah, about eleven kilometers to the east of Beqaiyeh Tree, within the following coordinates: 32°06913″ E0 37°26953 N. It is 632m above sea level. (Picture 1: A, B).

Merab is part of the basaltic plateau, known as Harrat, and Merab Hamdah is a flat, plain area with a sandy soil devoid of stones. It is surrounded by some basaltic hills and is usually filled with water in the winter. The Badia extends around this site, and is covered with basalt stones in the east. It is also characterized by a varied vegetation cover, with average precipitation below 200mm, making it a suitable place for grazing. The availability of water in Merab has attracted settlements through different ages, and civilizations extended from the Stone, Bronze, Iron, Classical, Thamudic, Safaitic and Nabataean ages, (Alrosan, 2005: 34).

Merab: is a land with an abundance of water and plants (Modern Arabic Lexicon: Ra Ba Ba: abundant water). An inscription was found nearby a gravestone at the edge of the Merab, and it included the name Hamdah (text: May Hamdah and Masaada rest in peace). By comparing the letters shape in the inscription to the ones recorded at Talat Alfahdawi mosque in the Jordanian Badia, researchers estimate that this inscription dates back to the Mamluk period (Talafha, 2015: 56). It is highly likely that this area was named after "Hamdah"; hence the name Merab Hamdah.

Inscriptions in the area are classified according to their content into the following categories:

First: Ownership Inscriptions:

1- An inscription as a deed of ownership of those inscriptions, inscribed on rock, such as, "this inscription is by x son of y".

2- An inscription as a deed of ownership of a horse, such as, "For Ozr" by stating "for Ozr son of Sum", "mare". (See inscription 10)

Picture 1 A: Merab Hamdah

Second: Informative Inscriptions: Such inscriptions include a number of events and pieces of news that occurred in the past, such as:

1- An inscription stating that "Wajd El", the writer of inscription 1, that the image inscribed on the rock is his. It depicts an ostrich a group of people chased by a Cheetah.

2- An inscription stating that "Daher son of Mazen", inscription 2, herded "تبس": tabasa" his camels from Houran area.

3- An inscription stating that "Qeimat son of Ahrab", in inscription 8, was sad and speechless for the lack of rain.

4- An inscription stating that "Ali son of Saad Dhal Bouh", inscription 9, sought water and found it. All of these inscriptions tell the news of every day events.

Third: Appealing Inscriptions:

The writers of the inscriptions appealed for their pagan idols with supplications, as follows:

1- An inscription stating that the writer of inscription 8, Qiamat bin Ahrab, was appealing to his idol, "Radhi", for life.

2- An inscription stating that the writer of inscription 12 "Sewar son of Thalm", was appealing to idol "Radhi" to grant him camels.

Inscription 1 (Picture 1, Figure 1):

ل وج د ا ل ب ن ا ر ا ه د م ت

This inscription is by "Wajd El son of Ara"

The letter (ل) shows possession, and most Safaitic inscriptions start with this letter. It is usually interpreted as (by), which means that the inscription was written **by** so and so, or as (**for**) or (**to**). (Littmann, 1943: 8).

Wajd El

وج د ا ل

"Wajd El"

This is of two names; one is an adjective, an attribute, of the idol "Wajd", meaning plentiful, (Lissan Al-Arab Dictionary, entry: وجد), and the second is a Semitic name of the god "El". This name has been frequently found in this form in ancient Arabic inscriptions. The name (Wajd El) was also mentioned in other Safaitic inscriptions. See (635 HIN).

Ara

ا ر ا

It is a simple singular proper noun that rhymes with (فَعَلَ) (fa'ala). The words (الإِرَارُ: aleraru) and (الأَرُّ: alaarru) mean droving and expelling. The word (الأَرُّ: alaarru) also means a hard twig of thorns and people usually beat it to soften its edges. (AlFairouze Abadi, 2005, entry: أرر).

The name "ا ر ا: Ara" was also mentioned in other Safaitic inscriptions with the meaning of "went away" or "ran away", See (35HIN).

Hadmat

ه د م ت

It is a proper feminine noun, meaning a drawing or picture. The derived verb is (دمي: dami) meaning to draw (Harahsha, 2010, Inscription 124: 70). The word (الدُّمْيَةُ: Domya) in Arabic means an engraved picture.

Picture 1 B: an inscription with the name Hamdah

Picture 2: inscription (1)

Figure 1: Picture (2) transcript

The plural of (الدُّمْيَةُ: Domya) is (دُمىً: Doma), which means illustrations. (Lesan Arabic dictionary, entry: دمي).

This name has also been mentioned in other Safaitic inscriptions with the meaning of drawing (ISB168: Harahsha, 2010, Inscription 124: 70).

Commentary on Inscription 1:

The writer of the "Wajd El" inscription says that this drawing is his, and he expressed that with the word (دُمْيَةُ: Domya). Such a context is well-known in ancient Arabic (Safaitic) inscriptions, and the word (دُمْيَةُ: Domya) means an engraved picture.

Scene Description:

The perceived drawing is closer to a tiger than a lion, however, the repeated drawing in the northern Arab inscriptions is for lions, and the name “lion” is often mentioned. In the inscription, the cheetah is chasing its prey; an ostrich, and three men appeared in the drawing next to the ostrich, another person behind the cheetah. For us, the drawing is ambiguous. How to understand the drawing of men standing next to the ostrich? These men might have been prey as well. Besides, the person who engraved this drawing on the rock might have been expressing a scene that he witnessed.

Inscription 2 (Picture 2, Figure 2)

ل د ه ر ب ن م ز ن وت ب س م ن ح ر ن

By Dahara son of Mazen and (“tabasa”: droving his camels) from Houran area.

Dahara

د ه ر

“**Dahara”** is a simple masculine proper noun that rhymes with (فَعَلَ) (fa’ala), with the possible meaning of “a supplication for him with long life”, since the word (دهر: dahr) means a long-lasting life. The word also means dominance and defeat (AlJawhari, 1987, entry: دهر).

This name has also been mentioned in Safaitic inscriptions, (see Ababneh, 244HIN, 452, CSNS: 98: In39, 2005). It has also been mentioned in Thamudic in the same form (Al-Theeb, 1999, Inscription 141: 139).

Picture3: Inscription (2)

Figure 2: Picture (3) transcript

Mazana

م ز ن

“**Mazana”** is a simple masculine proper noun that rhymes with (فَعَلَ) (fa’ala), and (المُزْنُ: almuzn) meaning clouds; singular: (مُزْنَةٌ: muzna) (a cloud). The word (مُزْنُ: Muzn) is a feminine name, but (مازِن: Mazen) is the father of one of Tamim's tribes, and his full name is Mazen bin Malik bin Amr bin Tamim. (Ibn Manzur, 1955, entry: مزن)

Wa Tabasa

و ت ب س

The letter (و: pronounced as “wa”) is a conjunction, and the word (ت ب س: tabasa) is a past of the verb; it rhymes with (تفعل) (tafa’alu), and it comes from the root verb (ب س س). The phrase (أَبْسَسْتُ الإبل: absastu elebl) means “I shooed the camels to walk faster” (Lissan Arabic dictionary, entry: بسس). Dictionaries have only provided this meaning, so the writer of the inscription and shooed drove his camels from Houran area. The verb expresses the state and conveys the meaning. We believe that this verb was used for the first time in Safaitic inscriptions.

Min

م ن

“**Min”** is a preposition used in unassimilated full form.

Harana

ح ر ن

“**Harana”** is a name of a place that comes from the word (ح ر ن) (harana), and was mentioned in many Arabic "Safaitic" inscriptions, such as the inscription "و ط ر د م ن ح ر ن" (WH161). As for the word "ح ر و ن", it was mentioned in the inscription (و ط ر د م ح ور ن خ ل) in the inscription (WH3049). We believe that both forms in the two inscriptions provide a clear indication that "ح ر ن" (harana) is actually "ح و ر ن". " حورن (Hourn): “Hourn" is a vast area given to the area extending from Alarab Mountain to Ajloun mountains in Jordan. This area used to be known as Southern Syria. The Arameans, Nabataeans, and the northern Arab Thamudic and Safavids settled in this area. During the Romans times, the main base of Houran was Busra (WH161). A number of Safaitic inscriptions were found to include the word "ح ر ن", including "ر د خ ل م ن ح ر ن " (Alkhresha, 2002, Inscription 403: 94); "و ض ب ا م ح ر ن " (Alrosan, 2006, Inscription 323: 241); "ن و ص ي ر م ن ح ر" (Talafha, 2017, Inscription 68: 78), which is a name of a place mentioned in many Safaitic inscriptions (Alrosan, 2006, Inscription 323: 241; Talafha, 2017, Inscription 68: 78).

Inscription 3 (Picture 4, Figure 3)

ل س ل م ب ن ع ل ي

By Salem son of Ali

Salem

س ل م

"**Salem"** is a simple masculine proper noun that rhymes with (فاعل) (fa'el), and it means: safe and unharmed. The word (السالم: pronounced as "As-salem") means the one free of diseases and flaws (AlJawhari, 1987, entry: سلم (salima").

This proper noun was also mentioned in other Safaitic inscriptions (Al-Theeb, 2003, Inscription 65: 137; Harahsha, 2010, Inscription 73: 51). It was also mentioned in Thamudic culture as "س ل م" (salima) (Al-Theeb, 1999, Inscription 114: 123).

It was also mentioned in the Qatabanian language in the same form as "س ل م" (salima) (Hayajneh, 1998: 2, 89)

Ali

ع ل ي

"**Ali"** is a simple masculine proper noun that rhymes with (فَعَلَ) (fa'ala), and it refers to highness and superiority.

It was mentioned in this form in Safaitic inscriptions (see ISB, 152) and also in Thamudic as "ع ل ي " "Ali" meaning: The one who is very tough, strong and prestigious) (Al-Theeb, 1999, Inscription 44: 25).

Picture 4: inscription (3)

Figure 3: Picture 4 transcript

Inscription 4 (Picture 5, Figure 4)

ل أ د ع ج ت ب ن ق س ي ب ن ه ي ف ت

By Adaajt son of Qussi son of Haifat

Adaajt

أ د ع ج ت

"Adaajt" is a simple masculine proper noun that rhymes with (أفعلت) (af'alat), and it refers to the black color. Another derivation from this word is (الأدعج: (pronounced as "Al-Ada'adge" meaning dark-eyed), and if it used to describe eyes, it would mean that extremely dark in extremely white (Ibn Faris, 1972, entry: دعج **(da'aja))**. The names (دعيج: Doaij) and (دعيجة: Doaija) are common among people in the Jordanian Badia (Alshuraa, 1996, page 53).

It was also mentioned in the same form in Safaitic inscriptions; see (35WH ,1115; HIN).

Qussi

ق س ي

"**Qussi"** is a simple masculine proper noun from the root (قسا: Qassa). It might be pronounced "Qasi", to mean very tough, strongly solid (Ibn Manzur, 1955, entry: قسا **(qqassa))**.

It was mentioned in the same form in Safaitic inscriptions; see (482WH 2242; HIN,).

Haifat

ه ي ف ت

"**Haifat"** is a simple masculine proper noun that rhymes with (فعلت **(fa'alat)**). The word (الهيف: Al-Haif) means thin (AlJawhari, 1987, entry: هيف **(haif)**).

It was also mentioned in the in Safaitic inscriptions as "هيف" (haif) (619; HIN, Ababneh, 2005, In341: 202).

Inscription 5 (Picture 6, Figure 5)

ل ي ث ع ب ن ح ج ج

By Yatha son of Hajaj

Yathaa

ي ث ع

"Yathaa" is a simple masculine proper noun that rhymes with the present tense verb (يفعل) (yaf'alu), which means: to save, help or rescue (Harahsha, 2010, Inscription 60: 47). It is a name of an idol used as a proper noun among the idols known for Safaitic, Thamudic, Lihyanic people. It was also used as a

compound noun in a number of inscriptions: "يثع كرب: Yathaa Karab", "يثعت: Yathat" (Alrosan, 2006: 159).

Picture 5: Inscription (4)

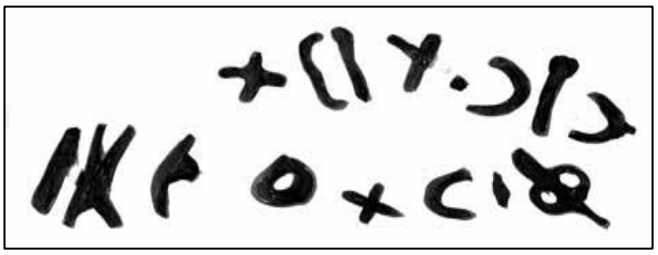


Figure 4: Picture 5 transcript

This name was mentioned in Safaitic inscriptions (Ababneh, 2005, In203: 158). It was used in Nabataean in the form of "ي ث ع و" (Cantineau, 11,1978, 97). In Minaean, it was used as "ي ث ع" (Al-Said, 1995: 223) and it was mentioned in Lihyanic in the same form (658HIN,). It was also mentioned in Qatabanian in two forms; "ي ث ع ت" (yath'at), and "ي ث ع ك" (yath'ak) (Hayajneh, 1998: 270). In Sabaean, "ي ث ع" (yathaa) is a surname (Bafakih, et al, 1986: 458), but in Greek, it was used as (θάηϛI') (WSM,58). In Hebrew, (יָשַׁע: yušāc) means to rescue or save (Cantineau, 1978: 447), and in Syriac, (ܝܫܥ: yašoc) also means savior, rescuer (Hubaiqa, 1963: 490).

Hajaj

ح ج ج

"**Hajaj"** is a simple masculine proper noun that rhymes with (فَعَلَ) (fa'ala), and the word (الحَجَّةُ: pronounced as "Al-hajjatu") means a year. If a person is described as (مَحْجوجٌ: mahjooj), it would mean he is the person to go to. However, the word (الحُجَّةُ: alhujja) means evidence; so one might say: (حاجَّهُ فحجَّه: haajjahu fa hajjahu): i.e. to silence someone with evidence (AlJawhari, 1987, entry: حجج (hajaja)).

It was also used in this form in Safaitic inscriptions, see (Ababneh, 2005 In154: 142177WH288; HIN), and, it was mentioned in Thamudic as "ح ج" (hajja) (King, 1990: 490). It was used in Nabataean as "ح ج و" (Hajju) (Negev, 1990: 27), and in Palmyra, it was used as "ح ج" (hajja) (Stark,1971: 87).

Picture 6: Inscription (5)

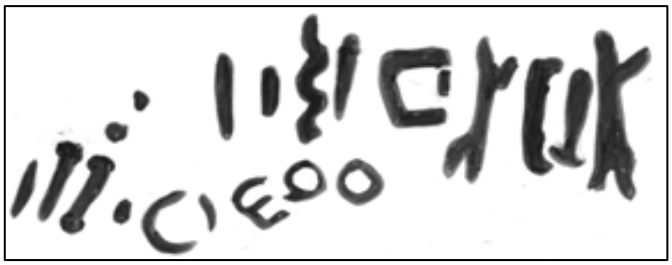


Figure 5: Picture 6 transcript

Inscription 5A (Picture Figure 5A)

ل ن ش ل بن ا ر ز ا

By Nashl son of Arza

Nashl

ن ش ل

"**Nashl"** is a simple masculine proper noun, and if one (نَشَلَ) (nashala) something, it would mean that he/she removed or pulled it quickly (Ibn Manzur, 1955, entry: نشل) (nashala).

This proper noun was mentioned in other Safaitic inscriptions (Ababneh, 2005, In672: 110; 589WH12; HIN), and in Thamudic, it was used as "ن ش ل" (nashala) also (King, 1990: 554).

Arza

ا ر ز ا

"**Arza"** is a simple masculine proper noun that rhymes with (أفعل) (af'ala), and the word "رُزْءٌ: (pronounced as "ruzu" means a disaster. If one (رَزَأَ: razaa) someone, he/she got something good from him/her. Also, if something (ارتزأ: ertazaa), it means that it diminished or got less. If a person is described as (مُرَزَّأٌ: morazzaa), this means he/she was generous (AlJawhari, 1987, entry: ارزا).

These forms of the word were used in Safaitic inscriptions, see (Ababneh, 2005, In 6449: 234؛WH, 676 ؛36 HIN). In Thamudic, it was used as "أرز" (araza) (VdB,281).

Inscription 6 (Picture 7, Figure 6):

ل ي ا س

By Yaas

ي ا س

"**Yaas"** is a simple masculine proper noun that rhymes with (فعل) (fa'ala), and (اليأس: alya'as) means desperation or losing hope (Ibn Manzur, 1955, entry: يأس).

This name has been used in this form in Safaitic inscriptions, see (655SIJ406; HIN).

Picture 7: Inscription (6)

Inscription 7 (Picture 8, Figure 7):

ل د ع ج ت ب ن ا م ز ع

By Adaajt son of Amzaa

Adaajt

ا د ع ج ت

See inscription 4

Amzaa

ا م ز ع

"**Amzaa"** is a simple masculine proper noun that rhymes with (أفعل) (Afa'ala), and is derived from the stem verb "م ز ع" **(maza'a). T**he word "المزع: almazaa" means walking quickly; for example, the antelope went by "يمزع: yamzaa", which means quickly".

The noun "م ز ع م: maza'am" has been mentioned in Safaitic inscriptions, as sometimes the letter "م: meem" is added at the end of some words in old Arabic inscriptions, which is called (التمييم: meemization) in Arabic, see (543HIN).

Inscription 8 (Picture 9, Figure 8)

ش ت وت ه س ن ل ق ي م ت ب ن ا ح ر ب وو ج م ه ش ت ي ف ول ي ت ه ر ض ي ح ي ت

Picture 8: Inscription (7)

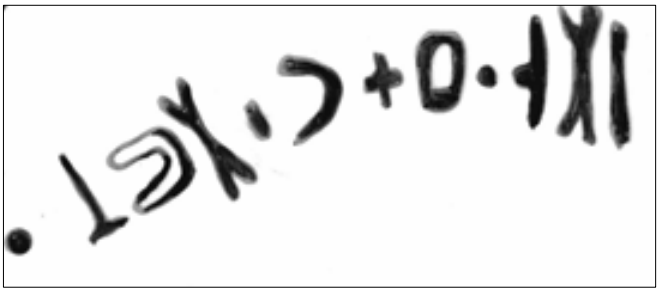


Figure (7): Picture 8 transcript

By Qaymat son of Ahrab (who) was sad during this winter for lack and shortage of rain this year, O Radhi! Give us life.

Qayamat

ق ي م ت

"**Qayamat"** is a masculine proper noun that rhymes with (فعلت) (fa'alat), and it is derived from the stem "ق ي م: (qayama), and the word "الْقَيِّمُ: qayyem" means the master or the person in charge. The person who is in charge of things or others, called in Arabic (قَيِّمُ: qayyemu) is the one in charge and responsible for them (Alwaseet Arabic Dictionary, entry: قيّم).

It has been mentioned in the same form in Safaitic inscriptions, see (Ababneh, 2005 In229: 166; 492CSNS410; HIN). It has also been used in Thamudic as "ق ي م ت" (Qayyamat) (King, 1990: 539).

Ahrab

أ ح ر ب

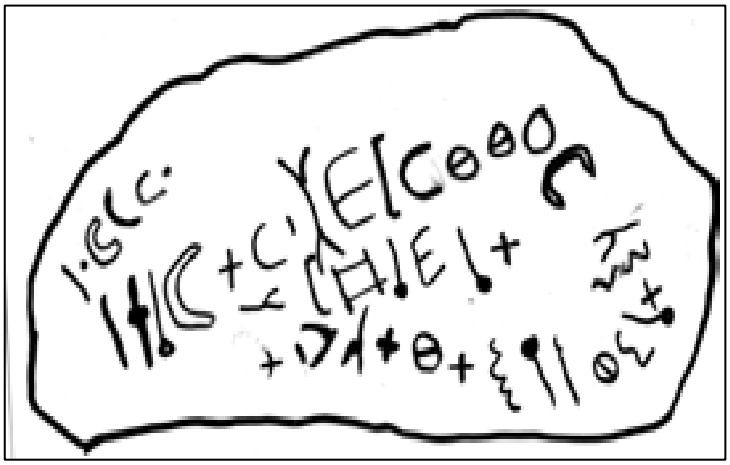
“**Ahrab”** is a simple masculine proper noun that rhymes with (أفعل) (Af’ala), and is derived from the stem verb "ح ر ب: haraba). The word (الحَرْبُ: alharbu) is the antonym of peace (Ibn Manzur, 1955, entry: حرب).

It has been mentioned in the same form in Safaitic inscriptions, see (25HIN؛ 185: Ababneh,2005, In 279).

Wa wajama

و وج م

"**Wajama**" is a past tense verb, rhyming with (فعل) (fa’ala), and it is preceded by the conjunction (و: wa), meaning “and”. This phrase is one of the common contexts in Safaitic and Thamudic inscriptions. The (و: wa)is a conjunction, and "Wajama" is an abstract past verb that rhymes with (فَعَلَ) (fa’ala). It has been mentioned in Safaitic language with the meaning: became sad; and put a stone on a grave; whereas the (و: wa)is a resumption conjunction, meaning “and” (HCH,5). The word also indicates several meanings, including: sadness or became sad (Sadaqa, Harahsha, 2005, Inscription 2: 55). The word (الوجم: alwajm) in Arabic dictionaries refers to rocks piled on top of each other and stand high above the ground in a form of a cairn. Such cairns are placed on top of mountains and hills, as landmarks and structures to guide people in the deserts. (Ibn Manzur, 1955, entry: وجم).



Picture 9: Inscription (8)

Hashti

ه ش ت ي

The letter (هـ: haa) is a definite article in ancient Arabic inscriptions (Safaitic), and (ش ت ي) (shati) is an adverb of time, and the phrase is thought to mean sadness for lack of rain. The word (ش ت ي) (shati) is also known in Safaitic inscriptions in another form (ش ت و: hashto) (Clark, 1980: 324).

Therefore, the phrase “**Hashti” is** an adverb of time used in other Safaitic inscriptions (Ababneh, 2005, In :180 ؛LP649, 264).

Figure 8: Picture 9 transcript

Fawalli

ف و ل ي

The letter (ف: faa) is for request, and “**walli”** is an augmented intransitive verb that rhymes with (فعل) (fa’ala), meaning to turn away or flee a place seeking a certain need.

It has been mentioned in this form in Safaitic inscriptions, see (CIS,5274; WH,151a).

Shatawt

ش ت و ت

“**Shatawt”** is an adverb of time that rhymes with (فعلت) (fa’alat) referring to the rainy season; winter was referred to as one of the seasons in ancient Arabic (Safaitic) inscriptions " ر ع ى د ب ر ه م ش ت ي ف ص ي ف" (WH3500).

Hasnat

ه س ن ت

“**Hasnat”** is a simple feminine genitive noun, and it is also an adverb that refers to time. The word (سنة: sanah) refers to “year”, and the letter (هـ: haa) was dropped. People often use the word (سنيهة: sunayha) and use it to say “the palm tree has (سنهت: sanahat), meaning that it has become very old. The word (سنة: sanah) means a year and the plural is (سنين: sineen) (Ibn Faris, 1958, V3: 103). In the Holy Quran, Allah says: (فَانظر إِلَىٰ طَعَامِكَ وَشَرَابِكَ لَمْ **يَتَسَنَّهْ**: meaning that, “now look at your food and drink; **they have not gone stale or spoiled**). (Surat Al-Baqarah)

The word was used in Safaitic inscriptions with the meaning of a “year” (Littmann, 1936-47: 249؛WH1198; Aloulo, 1996: 2). It is usually followed by the verb directly, such as: سنت مردت نبط(WH 2815), and it might be also followed by a noun, such as: "سنت جشم" (WH1267). In Nabataean, it was used as "ش ن ت: shanat" (WRNA, No14: 144), and the form "س ن ت" (Al-Theeb, 2002, Inscription 90: 113). In Lihyanic, it was used as "س ن ت: sanat" (Abu Alhassan, 2002, Inscription 197: 38).

Ha Radhi

ه ر ض ي

The letter (هـ: haa) is an interjection used before Safaitic titles of gods in supplication (Alabbadi, 2006: 46). The god Radhu is mentioned in Safaitic inscriptions in two forms: It can end in (ي: i) as in this inscription or (و: u). In terms of frequency in Arabic inscriptions, it comes after the goddess Al-Lat. Littmann considered "Radhu" as a god, while "Radhi" is a goddess. However, we believe that the two letters (ي: i) and (و: u) are interchangeable in the ancient Arabic inscriptions (Safaitic dialect). There are some verbs in Safaitic that sometimes end in (ي: i) and other times in (و: u), such as: "shati, shatu" and "Radhi, Radhu" based on their position in a sentence (Littmann, 1940: 106,7). Diso thinks that this god was in a form of a naked woman stretching her hands, with a crescent touching the back of her head. However, the inscription mentioned this god with the letter (و: u) “Radhu" (Diso, 1959:136). Even though a third form appeared as "ر ض ا: Radha" (Clark, 1979: 127), we believe that such a contrast in the vowels at the end of some words in Safaitic inscriptions is closer to the reality and variety of ancient Arabic dialects. Such a variety in vowels can be categorized under vowel change in these inscriptions. Desert dialects tend to replace long vowel sound (أ: a) with the vowel sound (ي: i), such as: "سماء، samaa and سمي“”:, sami", "رضاء, Radha, and Radhi رضي ", "شتا،: shata, and shati شتي ”, "عصاء: asa, and asu عصو", "مناف،: manaf, and manuf منوف", and "رضاء: Radha, and Radhu رضو". This phenomenon is still used in the dialect in the Jordanian Badia (Talafha, 2005: 54). This phenomenon is categorized as the vowel change of (أ: a) into (و: u) in the Jordanian Arabic dialect. We believe that this contrast is not related to the interpretations that Radhi is the god of the beginning of the day while Radhu is the god of the end of the day; besides, one of them is masculine whereas the other is feminine (Talafha, 2007: 7). The word "ر ض ر: Radhu" was mentioned in the Thamudic inscriptions in three forms: "ر ض: Radh" by dropping the (و: u), "ر ض ا: Radha" that ends in (أ: a), and "ر ض و" that ends in (و: u) (Tilfah, 1993: 65).

Hayut

ح ي ت

Oxtoby read "ح ي و ت: hayut" as a noun form meaning "حياة: hayat" or life. This form has been used in this inscription without the vowel (و: u). The equivalent Arabic form is the word "حيوة: hayat" (Malkawi, 1999: 71), and it means life (Ibn Manzur, 1955, entry حيا).

The word "هحيت" (hahyt) is used in Safaitic inscriptions to refer to a group of animals (Almaany, 2017, Inscription 1: 23).

Inscription 8A (Picture 8A):

ل ع م ر ب ن

By Omar

“**Omar”** is a simple masculine proper noun that refers to the existence and extension of time; "العمر: alomr"; age refers to lifetime (Ibn Faris, 1972, entry: عمر).

It was used in the same form in Safaitic inscriptions, see (436HIN, Ababneh, 2005, In78: 113), and in Thamudic in the same form as well (King, 1990: 530).

Inscription 9 (Picture 10, Figure 9):

ل ع ل ي ن ب ن س ع د ذ ا ل ر وح وب غ ي ف وج د م ي وم ر ت ع

By Alian son of Saad Dhaal who went seeking water and pasture and found them.

Alian

ع ل ي ن

“**Alian”** is a simple masculine proper noun, and if a person is described as "alian", it would mean tall and big (AlJawhari, 1987, entry: علا).

This name has been used in the same form in Safaitic inscriptions, see (Almaany, 2017, 434, Inscription 58: 113, HIN), and in Thamudic in the same form as well (King, 1990: 529). It was also used in Nabataean in the same form (Al-Theeb, 2200, Inscription 215).

Sa’ad

س ع د

Sa’ad is a simple masculine proper noun, and it refers to goodness and happiness as an antonym to curse (Ibn Faris, 1972, entry: سعد **(sa’ad)**. The word "sa’ad" means happiness or good luck, which is the opposite of curse or bad luck. The Banu Sa’ad were one of the ancient Arab tribes (Ibn Manzur, 1955, entry: سعد (sa’ad)). Sa’ad was also an idol on the sea coast in Tihamah (the Red Sea coastal plain of the **Arabian** Peninsula). Arabs also used the names Sa’ad, Saeed, and Masa’ada as names for their children (Ibn Duraid, 1958: 56).

Picture 10: Inscription (9)

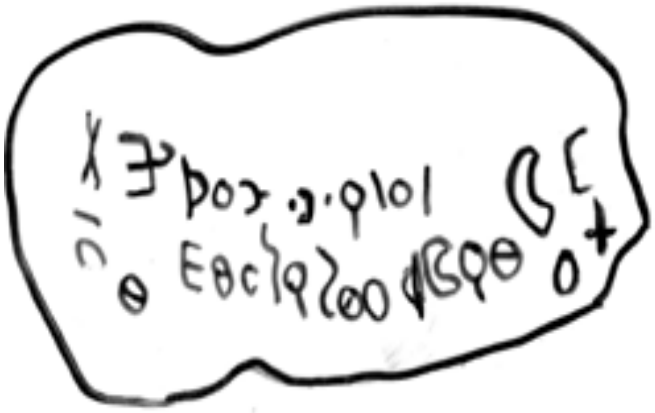


Figure 9: Picture 10 transcript

It has also been used in the same form in Safaitic inscriptions, see (Ababneh, 2005, In37: 97؛318 HIN). The name appeared in Thamudic (King, 510), and in Lihyanic in the same form too (Abu Alhassan, 2002, Inscription 197: 34). In Nabataean (Al-Theeb, 2200, Inscription 41: 49) and in Qatabanian the form "س ع د أ ل: sa’adaal" the same form was used (Hayajneh,1998: 160), and in Sabaean too (CIS, 102). However, in Palmyrene, it appeared as "ش ع د أ ل: sha’adaal" (Stark, 1971: 115), and in **Maenia,** too (Al-Said,1995: 118). The name Sa’ad was mentioned in a compound form with a name of a god, such as: Sa’ad 'Amm, Sa’ad Shams, Saad Lat, Sa’ad Lah, Sa’ad Wid and others (Abu Alhassan, 2002: 34).

Dhaal

ذ ا ل

"**Aal**" is the word used before proper nouns to indicate that it is a tribe's name. It comes originally from "ذ أ هـ ل: Dha'hal" as it is evidently recorded in the Maenian inscriptions. The difference between the two is that the letter (هـ: ha) was changed in the norther Arabic inscriptions into (ء: a' – glottal stop), which is also the case in Standard Arabic (Alsaeed, 1424: 99). "Aal" comes originally from "أهل: aahl: family", and the (هـ: ha) was dropped for reduction (Harahsha, 2006, Inscription 2: 114). Other researchers believe that "aal" is a transformation from "ahl" based on the semantic and structural relationship. They see that the (هـ: ha) was transformed into (ء: a' – glottal stop) then into a long A (aa), so eventually it became "aal" (Sadaqa, 2005, Inscription 1: 48). Littmann believes that the (ذ: tha) is a relative pronoun, and it should be pronounced as (ذو: dhu) as it is in Tayy tribe's dialect (Littmann, 1949: 252). In some inscriptions, (ذأل: dha'al) precedes families while (آل: aal) precedes tribes, and this tradition is still common in many Arab countries (Alabbadi, 2012, Inscription 2: 106).

Rawaha

روح

“**Rawaha”** is a simple singular proper noun that rhymes with (فَعَلَ) (fa’ala). The word "الروح: ar-rawh" means breeze, and the phrase "رَوْحٌ ورَيْحان: rawh wa rayhan" means mercy and livelihood (Ibn Manzur, 1955, entry: روح).

It is also the name of an Arab Safaitic tribe that once lived in the Jordanian Badia in Umm El-Jimal. It was also mentioned as a proper noun in Safaitic and Thamudic inscriptions (Alrosan, 1987: 313).

Wa baghi

و ب غ ي

The letter (و: wa) is a conjunction, and the word (ب غ ي: baghi) is a transitive past tense verb that rhymes with (فَعَلَ) (fa’ala). The word "بَغَيْتُ" (baghitu) means that I sought something, while the word "والبِغْية: albighya" means the need (Ibn Faris, 1972, entry: بغي) (baghi).

The verb was found in the same form in Safaitic inscriptions, see (WH,1177).

Fawajada

ف و ج د

The letter "ف: fa" is a resumption letter, and the verb "و ج د: wajada" is an abstract past tense of the verb, rhyming with (فَعَلَ) (fa’ala), meaning to find something lost or something needed or sought (Ibn Faris, 1972, V6: 86). This verb is usually followed by the things found, such as things, a trace, or travel. (Abbadi, 2006, Inscription 5: 44).

The verb "wajada" (found) was mentioned in other Safaitic inscriptions with the meaning "fond" (Aloulo, 1996, Inscription 8: CIS93;26; LP10). In Thamudic, the verb "wajada" was used with the meaning "met" (Almihbash, 2003: 141)

Mai

م ي

The word "مي: mai" means water, derived from the root "ماه: mah". In the inscription (3663 WH), it was "م ا ه : mah", whereas in inscription (WH 189) it was "mai" " وورد عري بن…

همي ". Ibn Manzur, 1955 mentions: that the origin of the word "ماء: maa'" is "mah" and the (ء: glottal stop) was originally (ه: ha), as the "ha" was stressed with the preceding consonant, so it was transformed into a long sound; therefore, the word "ماء: maa'" came into existence. In the word "مه: mah", the "ـه: ha" developed into (ء: glottal stop) "ماء". After that, the (ء: glottal stop) was transformed into (ي: ya); therefore, the word "ماء" originally included (ه: ha), which is evident in the conjugation, as the diminutive form is "مويه: moya" and the plural form is "أمواه: amwah". Some Arabs say "ماءة: ma'ah" like Tamim Tribe (Ibn Manzur, 1955, entry: ماء). In the Holy Quran, Almighty says: "قال سَآوِي إِلَى جَبَلٍ يَعْصِمُنِي مِنَ الْمَاءِ: "He said: I shall betake me to a mountain which will defend me from the water." (Surat Hud). However, Bergsträßer opposes what was said earlier, as he says that the original form of word is as shown in this inscription "مي: mai" and the (ه: ha) in the word "مياه: miah" and other similar plural words is just an addition (Bergsträßer, 1981: 32).

In Sabaean, it was found as "مو: mu" and "موي: moi" (Piston et al, 1982: 88). However, in Nabataean, it was found as "ميا: mia" (Al-Theeb, 2000: 153). As for Thamudic, it was used as "ما: ma" (TIJ481) and "مي: mai" (Almihbash, 2003: 128).

Wa marta'

و م ر ت ع

The letter (و: wa) is a resumption conjunction, and "Marta'" is a name of a place derived from the verb "رتَع: rata'". The word "marta'" is the place where the livestock graze. If a land has "أرتعت: arta'at", it means it has abundant of pasture (Alwaseet, dictionary, entry: رتع). If someone says 'the livestock "rata'at", it would mean that the animals are grazing, and the place is called "marta'" (AlJawhari, 1987, entry: رتع).

The verb "rata'" was found in Safaitic inscriptions, see (Talafha, 2017, Inscription 1: 93).

This inscription indicates that Alian, the person who engraved this inscription, knew this place, so he went there and found it as expected, with water and pastures for his animals. He and his tribe "Rawh" used to go there frequently for many years. We found that this name was mentioned for the first time in the Arabic "Safaitic" inscriptions.

Inscription 10 (Picture 11, Figure 10):

ل ع ذ ر بن ص م بن ج ج ه ف ر س ت

"By Aather son of Sum son of Aaj Alfaras"

Aathar

ع ذ ر

"Aathar" is a simple masculine proper noun that rhymes with (فاعل), and the derived word "العذير: Al-Atheer" means supporter or protector (Ibn Manzur, 1955, entry: عذر), whereas the word "العِذَار: Al-Ithar" means a type of palm tree (Almaany dictionary, entry: عذر). We believe that the second meaning of this noun is more likely, as the Arabs used to name their children after plants especially wild trees, such as "Shehan: alsheeh = artemisia", Ramthan: alramath = haloxylon", "Ghodhayan: alghadha = haloxylon ammodendron", and "Toulyhan: altalh = acacia".

It was found in the same format in Safaitic inscriptions, see (Al-Theeb 3200, Inscription 67; 138; 412HIN; 104: 55; Ababneh, 2005, In). In Thamudic, the format is "ع ذ ر: athar" (BP11, 154), and in Nabataean, it was found as "ع ذ ر: athar" and "ع ذ ر و: atharu" (Negev, 1990: 49).

Sum

ص م

"**Sum"** is a simple masculine proper noun, that brave, courageous and lion-hearted. As for the word "الصِمَّةُ: alsimmah", it means ear block and hearing loss (Ibn Manzur, 1955, entry: صمم).

It was found in the same format in Safaitic inscriptions, see (375HIN; 320: 815; Ababneh, 2005, In), and it is "صم: sum" in Thamudic.

Jaj

ج ج

It is a simple masculine proper noun, and when the phrase: "ajjaja" is collocated with fire", it means to inflame it, and when it is collocated with hostility, it means to instigate or provoke it (Almaany dictionary, entry: وجج). The stem word can be ": ج ج و wajaja"; the word "Al-wujuju" means ostriches that run fast (Ibn Manzur, 1955, entry: وجج).

It was found in the same format in Safaitic inscriptions, see (WH563; 217: 383; Ababneh, 2005, In).

ه ف ر س ت

The letter (هـ: haa) is a definite article in the Arabic Safaitic dialect. "ف ر س ت: farsat" is a name of an animal, and the word "faras" means a mare with the plural form as "afras" (for both male and female horse); however, the singular female horse (mare) is **not** referred to as "farasah". The inscription includes a drawing of a mare.

This word has been found in other ancient Arabic "Safaitic" inscriptions, and it was also mentioned in the plural form "afras" (Harahsha, 2010, Inscription 310: 166LP; 339; SIJ187; WH 643). In Sabaean, it has been found as "faras" (mare) as well (Piston, 1982: 117).

Picture 11: inscription (10), a hunting scene, portraying the zebra, the game, and the person on top right hand delighted with this hunt.

Figure 10: Picture 11 transcript

Inscription 10A (Picture 11, Figure 10A):

ل ع ب د ال ب ن خ ب ت

By Abd Al son of Khabet

Abd Al

“**Abd Al”** is a compound proper noun that consists of two components; the nominal "Abd" and the god's name "Al". It is a common Semitic proper noun, and the word "Abd" means a human whether free or enslaved (Ibn Manzur, 1955, entry: عبد).

This name has been found in the same format in Safaitic inscriptions, see (LP98؛HIN,397). In Thamudic, it was also found as "Abdal" (Shatnawi: 718) and "Abd Al" (Negev, 1990: 46).

Khabet

خ ب ت

“**Khabet”** is a simple masculine proper noun that rhymes with (فاعل), and the word "الخَبْثُ : alkhabtu" means vast valley lands, whereas the word "أَخْبَتَ : akhbata" means to be humble and modest (AlFairouze Abadi, 2005, entry: خبت).

This entry has been found in the same format in Safaitic inscriptions, see (HIN, 213).

Commentary on Inscription 10

The writer of the "ع ذ ر" (Athara) inscription says that this horse is his, and such a context is well known in ancient Arabic (Safaitic) inscriptions.

Scene Description: The inscription portrays a person riding his horse, while the foal was feeding form its mother. It also shows the owner of the horse pointing his spear at his game (a zebra). The person at the top right-hand corner of the picture expresses his delight of this hunting. In general, the picture depicts a hunting scene. However, one thing remains ambiguous; the inscription shows the man and the horse standing in a stand still pose, so as the foal came feeding from the mother with a complete sense of assurance! Yet, the game itself might be standing as well, so the hunter was aiming his spear while standing too; therefore, the foal took the chance to feed from its mother.

Inscription 11 (Picture 12, Figure 11)

ل ن ج ش بن خ ط ف ت بن ش ك ر بن ه ف بن ا ث ع بن ع ذ ر بن ح ر ت

By Najash son of Khatifah son of Shaker son of Haif son of Athaa son of Ather son of Harit

Najash

ن ج ش

“**Najash”** is a simple masculine proper noun that rhymes with (فاعل) and be pronounced “Najash” from the root "نجش:

Njsh", which means a hunter or game collector (Ibn Manzur, 1955, entry: نجش).

It has been found in the same format in Safaitic inscriptions, see (HIN223; 582; Ababneh, 2005, In :266).

Khatifah

خ ط ف ت

It is a simple masculine proper noun that rhymes with (فاعلت) (fa'elat", and the word "الخَطْفُ : alkhatf" means robbery, and when used with something it means to snatch something quickly (Ibn Manzur, 1955, entry: خطف).

It has been found in the same format in Safaitic inscriptions, see (LP317 ؛HIN,223).

Shakara

ش ك ر

" **Shakara"** is a simple masculine proper noun, and the word "الشُّكْرُ : alshukr" means appreciation and gratitude, or appreciating blessings. When one says (the camels have " شَكَرَتِ: shakarat"), it would mean that they have found a pasture and where they grazed and gotten fat (Lissan Al-Arab, entry: شكر).

It has been found in the same format in Safaitic inscriptions, see (Ababneh, 2005, In6175: 150؛ HIN354). It has also been found in Thamudic in the format "ش ك ر" (shakara), see (King1990: 515). In Sabaean, however, it has been found as "ش ك ر أ ل: shakara al", whereas in Qatabanian it was "ش ك ر ع م: shakara aam" (Hayajnah, 1998: 170).

Picture 12: Inscription (11)

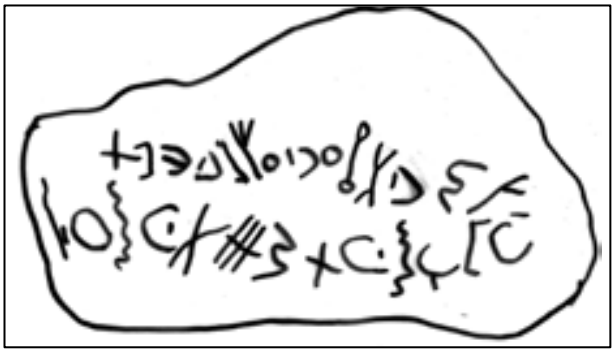


Figure 11: Picture 12 transcript

Atha'

ا ث ع

See inscription 5A "ع ث ي: Yatha'"

Aathar

ع ذ ر

See inscription 1 "ع ذ ر: Aather"

Haret

ح ر ت

It is a simple masculine proper noun, and it refers to rubbing. When it is said that someone has "حَرَتَه حَرْتاً " (harata hartan), it means that he rubbed something intensely (Ibn Faris, 1972, V2: 49).

It has been found in the same format in Safaitic inscriptions, see (Ababneh, 2005 In888: 336 ؛HIN182). It has also been found that "ح ر ث: haratha" with the sound "ث: thaa" is a name of one Safaitic tribe (Alrosan, 1987: 295). In Nabataean, it has been found in the format of "ح ر ت" (hareth) (Negev, 1990: 32). In Safaitic and Thamudic it has also been found in the form "ح ر ث: haratha" (HIN,182).

In this noun, a substitution was made between the "ث**:** thaa" and the "ت**:** taa", so the word became "ح ر ت: harata" instead of "ح ر ث: haratha". Littmann believes that the letter "ث: thaa" can be pronounced "ت: taa" influenced by the Aramaic dialect. Furthermore, in the inscription " ف ل ع ب د أ ل ب ن خ ل أ ل ذ أ ل" ر ت " ووج د" there is a name of a Safaitic tribe with the sound "ت**:** taa": "ف ر ت: Fart", which is a tribe known with the sound "ث: thaa"; therefore, this influence might have been also related to the Aramaic dialect (Talafha, 2008: 70). The "ث: thaa" is a voiceless interdental frictional sound, whereas the "ت: taa" is a voiceless alveolar stop (Istetiah, 1988: 97). The sound "ث**:** thaa" has faced many changes due to the fact that it is difficult to pronounce interdentally. This is why it disappeared from many ancient languages, and one of its transformation forms is being substituted by the sound "ت: taa" (Alzoubi, 2005: 123). It has also been found in Syriac with the sound "ت: taa": "ܬܶܩܶܠ" "téqal", meaning "ثقل: theqal". Moreover, it has also been found with the sound "t" in "تلج: «ܬܰܠܓܳܐ»: talgā" (395 Costaz, 1963: 392). In Hebrew, the word "תֵּלֶם": "tēlem" was found with the sound "t", which means: "ثلم: thelem" (Gesenius, 1979: 1068).

Inscription 12 (Picture13, Figure 12):

ل س ور بن ث ل م بن ح رب بن غ ث بن ي ع ل ى ه رض ي ع ي ر

By Sewar son of Thelem son of Harb son of Ghaith son of Yali, O Radhi "eer"

Sawar

س و ر

"**Sawar"** is a simple masculine proper noun that refers to elevation and height. Thus, the words "سار: sara" and "يسور: yasuru", mean to become angry and enraged (Ibn Faris, 1972, entry: سور). As for the word "السَّوْرَةُ: alsawratu", it means a leap; therefore, if someone says: (I "سُرْتُ: sirtu" towards him), it would mean that he leaped towards him (Ibn Manzur, 1955, entry: سور).

It has been found in the same format in Safaitic inscriptions, see (Ababneh, 2005, In214: 162; HIN,335). It has also been found in Thamudic as "س ور**:** sawara" (Bp1,182).

Thalam

ث ل م

It is a simple masculine proper noun that means a slash that happens at the edge of an object, such as a slash at the edge of a pot (Ibn Faris, 1958, V1: 384). The word "مثلم: mathlam" is a name while "الثلماء: althalmaa'" is a place (Lissan Al-Arab, entry: ثلم). In Arabic heritage, one can find the name Alshirhaf Ibn Almathlam, and the word "mathlam" rhymes with "مفعل: mafaal" (Ibn Duraid, 1958: 196).

It has been found in the same format in Safaitic inscriptions; see (WH1424; Alabbadi, 1987: 135). It has been found in Nabataean in the form of "ت ل م و: talmu" (al-Khraysheh, 1986: 188) and the form "ت ل م ي: talmi" (Cantineau, 1978: 156). It has also appeared in Thamudic in the format of "ث ل م: thalm" (Branden, 1956II: 298b).

Harb

ح ر ب

It is a simple masculine proper noun, that means "war", as opposed to peace (Ibn Manzur, 1955, entry: حرب).

It has been found in the same format in Safaitic inscriptions; see (Abbadi, 2006, Inscription 48: 84). It has also been found in Thamudic in the same format (King, 1990: 492). It was also found in Lihyanic as "Harb" (Abu Alhassan 2002: 428), and in Minaean as "Harb" (Al-Said,1995: 86).

Ghath

غ ث

It is a simple masculine proper noun, and the words "غيث: Ghaith", "غوث: Ghawth", and "غياث: Ghiath" are proper nouns (Ibn Manzur, 1955, entry: غوث)

This format of the word has been found in Safaitic inscriptions; see (Almaany, 2017, Inscription 22: p59). In Thamudic, it has been found as "غث: Ghath" (King, 1990: 532), and in Nabataean as "ع وت و: Aauto" (Negev, 1990: 50). In Minaean, it has been used as "غوث: Ghawth" (Al-Said, 1995: 148).

Picture 13: Inscription (12)

Figure 12: Picture 13 transcript

Yali

ي ع ل ي

It is a masculine proper noun that rhymes with (يفعل: yafa'alu), and it comes from the root "Ali", referring to highness and superiority. When someone says that (the day has "تعالى: ta'ala"), it would mean it has become later in the day. The phrase (the camel is "عِلْيانٌ: Ilyanun" means that it is a huge one (Ibn Faris, 1972, V4: 112).

This format of the word has been found in Safaitic inscriptions; see (Abbadi, 2006, Inscription 37: 77). It was also found in Thamudic as "Yali" (King, 1990: 564).

O Radhi

ه ر ض ي

See inscription 8A

Ayara

ع ي ر

This format of the word is an augmented past form verb that rhymes with (فَعَلَ: Fa'ala). Some Arab tribes replace the (و: wa) letter sound with a (ي: yaa), such as Bani Dhamra from Bin Baker from Kinana tribe in Hijaz (Littmann, 1947: 31). This verb was found in many inscriptions in the form "عير: ayara" (Al-Husan, 2016: & Rawabdeh10) as well as in Harahsha "هرضي عير: O Radhi eer" (Harahsha, 2007, Inscription 29: 52). It was interpreted as withdrawing and going away based on the root "عار: aara", which means to walk around (Ibn Manzur, 1955, entry: عير). It has also been found in a full form "هرضي عير من عير: "O Radhi ayara from eer" (King, 1990, In 1695: 500). Littmann reads "ayara" as a noun phrase "عيار: Iyar" meaning revenge, deriving this meaning from the verb "عاير: Aiyar": equalize. Rickmans considered it a noun phrase "عير" (ayara) meaning "bounty" (Malkawi 1997: 114). Both meanings don't exist in Arabic dictionaries nor are they mentioned by Talafha or others. The following inscription has been found with the "و: wa" form (هرضي عور ل ح ت....ع د ه ب ن ي ث ع وه ي ل ت ن ح س ل ض ب ا ه ج " :(من عور ر ه ر ض ي ع ور م ع ور" (Talafha 2011: 35). It might be read as "ع ز ر: azara", as the word "التعزير: alta'azeer" means: admiration, exaltation, and triumph (Ibn Manzur, 1955, entry: عزر).

Inscription 13 (Picture Figure 13)

ل ب ك ر بن ع ك ل ه ف ر س

The horse belongs to Baker son of Ikel

Baker

ب ك ر

It is a simple masculine proper noun that rhymes with (فَعَلَ) fa'ala), and the word "البكر: albikr" is the first or initiation, whereas "البَكْرُ : albakru" is a young male camel while the female is "بِكْرَةٌ: bikratun" (AlJawhari, 1987, entry: بكر).

This format of the word has been found in Safaitic inscriptions; see (Ababneh, 2005, In 88: 119 ؛HIN,114).

In Thamudic, it was found as "ب ك ر: baker" (King, 1990: 480), while in Nabataean, it was used as "ب ك ر و: Bakru" (Negev, 1990: 16).

Ikel

ع ك ل

It is a simple masculine proper noun, and the verb form "عَكَلَ: "akala" something means to collect it, and if some said, "he aakala the luggage", it would mean to stack it on top of each other (Ibn Manzur, 1955, entry: عكل).

This format of the word has been found in Safaitic inscriptions; see (HIN, 429). In Thamudic, it was mentioned as "عَكَلَ: aakala"; see (HIN, 429).

ف ر س ت

See inscription 10

Commentary on inscription 13

The writer of the inscription, "Baker", says that the horse is his, and such a context is well-known in the ancient Arabic "Safaitic" inscriptions.

Scene description: Inscription 12 portrays a horse, and inscription 13 appears behind the horse drawing.

Inscription 14

ل ود ع

By Wadaa

Wadaa

و د ع

It is a simple masculine proper noun, and the word "ودع" (wadda'a) means to bid farewell. However, the phrase (لا ودَعَ الله له) (May God never leave him in peace or tranquility) (AlJawhari, 1987, entry: ودع).

This format of the word has been found in Safaitic inscriptions; see (HIN, 638). In Thamudic, it has been mentioned as "ودع: wadaa"; see (HIN, 638).

Inscription 15

ل س ج

By Saj

It is a simple masculine proper noun, and when someone says (the wall "سَجَّ: wassajja"), it would mean to plaster it. "السَجاجُ: alsajaju" is the milk that has a lot of water, which is the lightest form (AlJawhari, 1987, entry: سجج).

In Safaitic inscriptions, the name "سججت: Sajajat" was found; see (HIN,311). In Thamudic, it was mentioned as "سجج: sajaja"; see (HIN, 311).

Abbreviations

ADAJ: Annual of the Department of Antiquities of Jordan.

CIS: Crops Inscriptionum Semiticarum

CSNS: Study of new Safaitic Inscriptions from Jordan1979.

HIN: Harding, G. L. 1971. An Index and Concordance of pre-Islamic Arabian Names and Inscriptions: Toronto.

HCH: G.L. Harding.1953.

HCH: The Cairn of Hani`; ADAJ 2: 8-56

ISB: Oxtoby, W. 1968. Some of the Safaitic Bedouin, New Haven: American Oriental Series 50.

NST: G.L. Harding.1951.

JS: Jaussen. A,. Savignac, M.R1909-22. Mission Archeologique en Arabie.

RĖS: South Arabian Inscriptions in: Repertoire d, Epigraphie, Semitique, Acadamie des Inscriptiones et Bells-Lettrs , Paris.

LP: Littmann,E. Safaitic Inscriptions,1943.

PNASI: Tairan, Die Personennamen in den altsabaischen Inschriften.

PNNP: Negev, A.1990 Pesonal Names in the Nabatean Realem. (Qedem) (32), Jerusalem

PNP1: Stark, J.,1971. Personal Names in Palmyrene Inscriptions.

SIJ Winnett. F.V. Safaitic Inscriptions from Jordan,1957.

TIJ: Harding, G. and Littmann, E.1952.

WH: Winnett, F. Harding.G.1978. Inscriptions from Fifty Safaitic Cairns: Toronto: University of Toronto Press.

WSM: Wuthnow, H., Die Semitischen Menschennamen

VdBHT: Van Den, Branden, (1956) Thamudic.

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The Carved Aqueduct System in the Diwan in Al-Hijr (Mada'in Saleh)

Ali Bin Mobarak Saleh Toiman

Abstract: *The research addresses the aqueducts carved in rock (Mada'in Saleh), located specifically on Mount (Ethlib), near what is known as Diwan, and highlights the Nabataeans' ancient water system. This study is both analytical and descriptive of the water facilities that the Nabataeans carved into the rocks to store water and use it when needed. Perhaps the importance of the Diwan had forced the Nabataeans to secure water near the site. The research also attempts to explore the accuracy of the Nabataeans' hydraulic system. The research is significant because it represents a new study exploring the Nabataeans' ancient water system in Al-Hijr (Mada'in Saleh), concluding that the capabilities of the Nabataean sculptors were not limited to carving facades of tombs religious and residential facilities. The Nabataean sculptor also used their sculptural skills in water engineering.*

Keywords: *Nabataean, Al-Hijr, Mada'in Saleh, Ethlib, Diwan, Aqueducts, Reservoir, and Measuring tool.*

Introduction

The Nabataeans were famous for sculpting their religious and residential architectural facilities. Palaces and public gathering places, whether religious or social, such as temples and tombs, and their façades were decorated with unique engraved portraits; one example is the renowned "Diwan" (court), in Mount Ethlib. Since the Nabataeans were known for their creativity in sculpting, their knowledge in hydraulics enabled them to use their skills to bring in fresh water, and manage to benefit from rainfall on the mountains and redirect it through carved aqueducts that flow across the mountain to reach lower areas where it could be stored in a place that looks like a reservoir carved deep into the mountains. One of the most important examples of Nabataean creativity in sculpting is the water system and carved aqueducts on the sides of Mount Ethlib in Hegra site, or as known for Muslims, Al-Hijr, Saudi Arabia (Mada'in Saleh).

Mount Ethlib is one of the most important mountains that surround the residential city in Al-Hijr Oasis, Saudi Arabia, as it represents a natural formation that the Nabataeans used to establish and carve the renowned "Diwan" in the mountain. The Diwan is characterized by precision sculpture, highlighting unique decorative architectural elements that indicate its importance to the Nabataeans in that era. It consists of structure on its three sides with sculptured stone benches leaning on the mountain, and the corners have been decorated with several artistic architectural motifs (Nima, Villeneuve, 2019 AD 71).

Studies confirm that the Diwan was used a temple for the Nabataeans; as compared to the (Siq) in Petra, Jordan; the capital of the Nabataeans. Hegra or Al-Hijr is a narrow passage similar to the Siq in Petra in its overall structure, the representation of a several religious symbols, and the writings that indicate the use of the Diwan for worshipping practices. Religious celebrations must have had a significant role in the location of the Diwan, especially burial rituals, as some pictures with religious characteristics have been inscribed in Nabataean script, stating:

1- "This Mosque was established by,
2- Shakoh Bin Thor le Aara" (Al Ansari, et al, 1984 AD:40).

Based on the importance of having water in such a facility, the Nabateans focused their experience on carving water aqueducts. The Nabateans used the southern area of the mountain (Map:2), especially the eastern side, to carve water aqueducts to smoothly redirect the natural water flow. There are three aqueducts; two on the southern side;

Map 1: Map of the Kingdom of Saudi Arabia showing the most important archaeological cities and locations, identifying the location of the study area Al-Hijr (Mada'in Saleh), copied from (Alghaban, et al, 1433H, 231). Translated into Arabic by the researcher.

one on top, and the other below it. The aqueduct on the lower side is more obvious than the one on top, and the third aqueduct is on the northeast side of the mountain, where the water flows to the opening of the reservoir to meet the two other aqueducts flowing from the southern side to the opening of the reservoir. The entrance of the reservoir is carved vertically with the shape of a house door. The entire reservoir is carved in the mountain, approximately 5×4m, and 3,5m deep; the depth of the mountain. This is, in fact, the area currently visible of the reservoir depth, since the debris and rubble cover part of the reservoir.

The Geographic Framework of the Study

The location of Al-Hijr (Mada'in Saleh) is one of the most important archeological sites in the Kingdom of Saudi Arabia, as important as other sites such as (Dumat Al Jandal, Tayma, Najran, Al-Kharj, and Al Aflaj) (Al-Theeb, 1998 AD:3).

Hegra or Al-Hijr is a "small village with few residents, in an area known as Wadi Al-Qura today, in a group of mountains known as Ethlib [(1)], where the Thamudic culture once lived" (Istakhri, (classification 957 AD), 1967 AD:19).

In 958 AD, Al Maqdisi described Al-Hijr a small and fortified village with many cisterns and farms, with Al-Saleh Mosque nearby on a small hill, like a piece of art carved in rock[(2)] with entrances ornamented with drawings and inscriptions (Al Maqdisi, 1991 AD: 84).

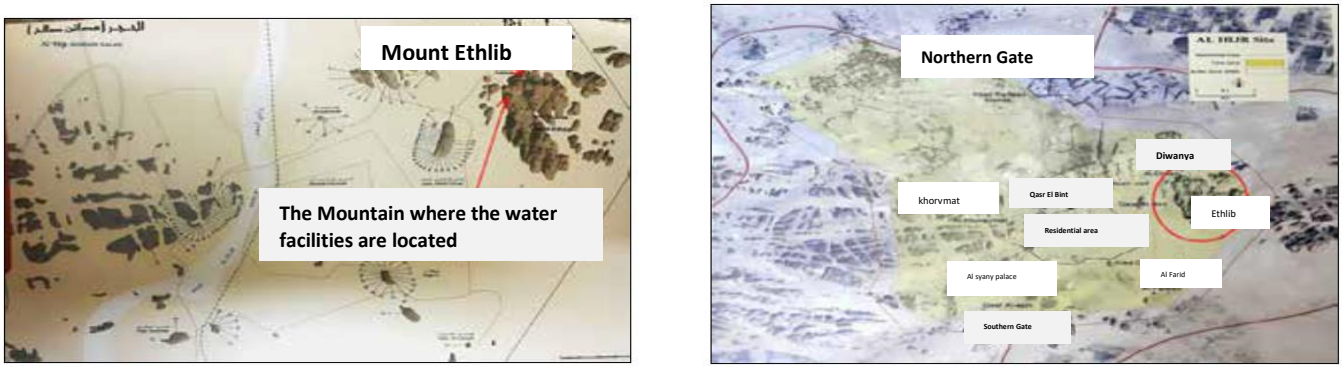
Al Hamawi in his book, Mu'jam Al-Buldān, also

mentioned the site as "Al-Hijr" and "Al-Hujr", saying that it was the homeland of the Thamudic nation in Wadi Al-Qura, between Medina, Saudi Arabia and Bilad **al-Sham**, Levant now (Al Hamawi, "classification 626 H." 1977 AD V2:221).

Ibn Manzur in his book "Lissan Al-Arab", believes that Al-Hijr in Arabic refers to the homeland of the Thamud nation near Bilad **al-Sham** in Wadi Al-Qura, and Thamud are the nation of Prophet (Saleh), peace be upon him (Ibn Manzur, classification 711H.), 1999 AD V3: 59).

Al-Hijr (Mada'in Saleh) is located 110km to the southeast of Tayma (Haily, 1986 AD:135), 22km to the north of Al Ula city. Al-Hijr occupies a strategic location at a crossroad connecting old trade convoys that carry the myrrh and frankincense from the southern part of the Arabian Peninsula to the north, Gaza, Mesopotamia, and Egypt (Al Ansari, 1434H:303), (Map 1). It is one of the most important Nabataean archeological sites in the south, located on a sandy level area surrounded by mountains from every side. The area is mostly made of rocks, covered with sand dunes in different areas. Overall, it is made of the quaternary deposits, consisting of sand, stones, silt of the natural valley, in addition to saline clay soil (Ababneh, 1998 AD:2).

Al Hijr is located within the following coordinates: 37,52 degrees longitude, and 26,47 degrees latitude. The location itself is a wide sandy delta surrounded by mountains from all directions where Wadi Al Hamdhah meets Wadi Al Mzaz, with the branches of Wadi Al Hamdhah extending from the west of Daraseh area, and the branches of Wadi Al Mzaz from the eastern areas of Al-Hijr (Mada'in Saleh), flowing into what is known as Wadi Duhays (Map:1) (Al Ibrahim, Al Talhi, 1988 AD:57).



Map 2: Aerial photos of Al-Hijr (Mada'in Saleh) showing all the areas inside the city and its geological nature of the Daraseh location (Mount Ethlib), copied from (Al Ghaban, et al, 1433H:14-230) translated into Arabic by the researcher.

As for the name "Al-Hijr" itself, it means "rock", with "rocks", as the plural. It was also said that "Al-Hijr" also meant 'the circular fence' (Ibn Manzur (classification 711H.), 1999 AD part 3:65-59).

It was named (Hegra) or (Haegra) in ancient times, and people there were in contact with the Thamudic nation, as Al-Hijr was in the same area where they lived (Ababneh, 1998 AD:2).

Historians and the early geographers who had the privilege to visit the location knew the site under the name Al-Hijr, as we mentioned earlier. As for the name (Mada'in Saleh), it is a religious name that dates back to the pre-Islamic era, or the Early Islamic Age (Haily, 1986 AD:135).

This study focused on the water aqueducts carved in the "Diwan" on Mount Ethlib, specifically on the southeast side of Diwan. It is one of the most significant and valuable ancient Nabataean monuments in the area. It was built on a pillar shape with square corners, 10 meters wide, and 12 meters

deep, with a carved ceiling 8 meters high. The entrance of "Diwan" (Court) is an open entrance as wide as the building itself, approximately 8,35 meters wide. The entrance of Diwan was vandalized; there were columns on both sides of the entrance, but they no longer exist now (Jwad Ali, 1993 AD: V3:56) [(3)].

The geological formation of Mount Ethlib is similar to the other mountains in the area; they are easy for carving or sculpting and work with. It is formed of yellow sandstones (blond), with crossed layers, with the surface containing moderate grits with yellow quartz (Al Ibrahim, Al Talhi, 1988 AD:57).

Al-Hijr History (Mada'in Saleh)

As the Dadanites settled in the area they formed a trading center in the southeastern area of Al-Hijr (Mada'in Saleh), known as Al Khraibah (Dadan). The trading activities started in the eighth century before Christ. They were followed by the Lihyanite kingdom who came from the southern Arabian Peninsula and considered (Dadan) their trading center as it was located on the route of the trading convoys. The Lihyanites took up trading and showed excellence. The previous settlements paved the way for the Nabataeans who settled in Al-Hijr near Al Khraibah at the beginning of the first century before Christ. (Dadan) (Ibrahim, Al Talhi, 1988 AD:58).

The Nabataean inscriptions found are still the main source that provided researchers with historical information about the Nabataeans in Al-Hijr. They are the most important inscriptions that provide historical information, and are fundamental for the tombs carved at the mountain façades. There are approximately 263 Nabataean inscriptions found in Al-Hijr; 33 of which were with the oldest dating back to the first century before Christ, specifically to the first year after the birth of Christ, and the most recent inscription dating back to the fourth century AD. This is a proof that the Nabataeans of Al-Hijr used the Nabataean pen for up to almost five centuries. However, the Nabataeans settled at Al-Hijr as their main place of residence starting from 40 BC – 106 AD (Al-Theeb, 1988 AD:3).

Moreover, the conflict between the Nabataeans and the Romans raged until Petra and the adjacent Nabataean areas were taken over and governed by the Roman Empire in 106 AD. Then the Nabataean areas became a part of the Roman Empire, and were late known as, "The Arabian State", with its administrative center at Busra, Levant (Haily, 1986 AD: 137).

As for Islamic resources, Ibn Battuta, an Arab explorer, mentioned Al-Hijr in his journey in 1326 AD, saying that Al-Hijr included a cistern known as (Hijr Thamud), He added that nobody drank from that cistern, following the teachings of Prophet Muhammed, peace be upon him, for his Companions in the Expedition of Tabuk, Saudi Arabia; he told them not to drink from that cistern. Ibn Battuta also mentioned Al-Hijr, saying that "Al-Hijr is the homeland of the Thamudic nation on carved in mountains rose red rocks, with an adorned threshold. When one sees that threshold, they would think it was recently made. Their bones are decayed inside these homes, as an example for people. There is also a place for camels to rest and between two mountains" (Ibn Battuta "classification 1377 AD" 1987 AD, V1:127).

The Architectural Sculpture for the Nabataeans of Al-Hijr (Mada'in Saleh)

The significance of mentioning architectural sculpture in this study comes from the fact that this profession was not only limited to sculpting tombs and the Diwan at Al-Hijr (Mada'in Saleh), but included aqueducts also. Moreover, not all Nabataeans were experts in sculpting, but there were families known for this profession. These families were famous and their names were frequently repeated in the Nabataeans inscriptions at Al-Hijr. Using these sculptors from these families definitely played a significant role in carving aqueducts with precise hydraulic system to collect the largest

amount possible of the rainfall on Al-Hijr mountains. One of the most important models of these families' work is the carved aqueducts and the reservoir engraved in rock, addressed in this study.

The word (ف س ل ا) (f s l a) refers to the sculptor who took sculpting in the mountains as a profession. The Nabateans were famous for this profession as they sponsored and developed it and were excellent sculptors, especially sculpting the facades for tombs and statues (Al-Theeb, 1998 AD:7), as well as water canals and reservoirs, giving thorough attention to ease of water flow to guarantee maximum preservation for longer periods. They also paid careful attention to water flow and the amount of water that aqueducts can hold.

The sculpting profession at Al-Hijr (Mada'in Saleh) was a profession passed on from one generation to another. Accordingly, inscription No. (23) from (Al-Theeb) collection of inscriptions mentioned that (Hamljo) was the father of Wahb Allah who is the father of one of the famous sculptors who lived at the beginning of the first century AD in Al-Hijr (Al-Theeb, 1998 AD:60). In this regard, the word (*Bana*) (built) is different from the word (Fsla) (decorate by engravings), as the former was used to refer to building and establishment of a building using construction materials and so on, and the latter, (Fsla), was used to refer to making and ornamenting buildings by sculpting, cutting rocks, and facades made of rocks (Al-Theeb, 1998 AD:61).

Water Resources at Al-Hijr, Mada'in Saleh:

Al-Hijr is an oasis where rainwater collects, and it has been one of the oases famous for collecting rainwater. Even though the area is characterized by drought, water was easy to reach. Oases started as relaxing stations for travelers, but soon developed to become big villages and settlements bustling with people. Two of the most famous among these oases are Al Ula and Al-Hijr Oases (Mada'in Saleh) (Al Ansari, et al 1434H:21).

The Nabataeans were famous for their precise skills in hydraulic engineering to leverage water resources, as the city was famous for abundant water supplies, given its distinguished location at the alluvial flatland. The nature of the sail made it easy for the Nabataeans to find water at depths not more than 10 meters. The Saudi French Archaeological Mission has found around 132 wells by the year 2019 AD; most of these wells are still intact until this day (Map:3) (Nima, Villeneuve, 2019 AD: 71).

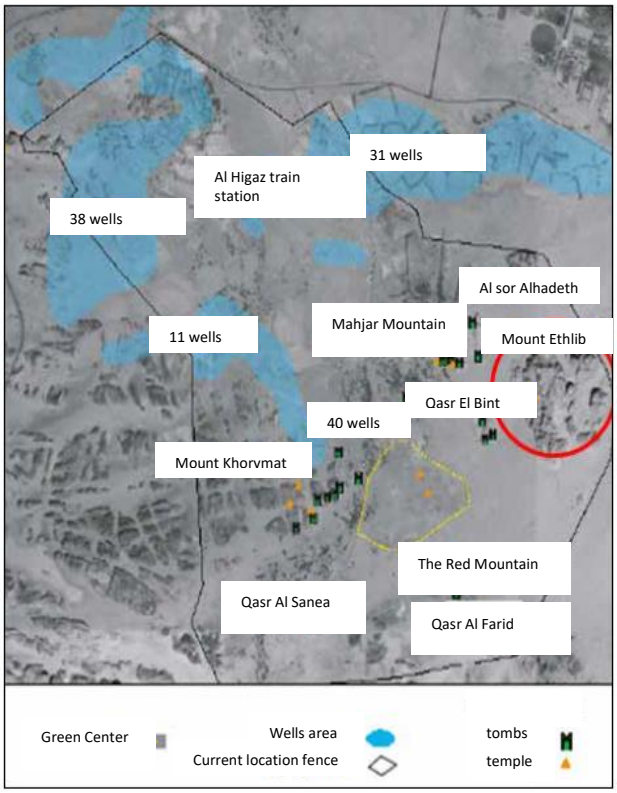
One of the significant water facilities the Nabataeans of Al-Hijr (Mada'in Saleh) were famous for are the water reservoirs made to collect water from the rainfall in the mountains, streaming through the ravines and valleys. The rainwater was then channeled through aqueducts carved in rock. One of the advantages of these reservoirs is that it was always closed and never opened unless necessary (Al Ghaban, et al 1433H.:30).

The researcher believes that the aqueducts carved in Mount Ethlib south of Diwan were the most important water systems and reservoirs the Nabataeans used to provide water to the Diwan facility and its visitors. The Diwan was a gathering place for clergy men, government, and the local society (Nima, Villeneuve, 2019 AD: 71). These reservoirs were not opened unless it was necessary, since it was clean water, under supervision and control, or its relation to the most important architectural facilities at Al-Hijr (Mada'in Saleh).

The Nabateans of Al-Hijr were famous for their skills in identifying the secrets of the desert environment and its volatility; therefore, they leveraged the desert and its scarcity of water as a source of protection against external enemies. Attackers would not be able to reach without ample water supplies. The Nabataeans themselves, on the other hand, would have prepared underground water reservoirs padded with plaster or carved in rock to conserve water (Hilinda, 2010 AD:100).

The Diwan water system: An analytical descriptive study

The desert oasis between the Nabataean mountains at Al-Hijr is one of the oases shaped through rainwater collected in that location, streaming down from the mountains surrounding the city. The Nabataeans leveraged the mountainous area since they were easy to carve.



Map3: Locations of water reservoirs and aqueducts in Mada'in Saleh and Mount Ethlib. Copied from (Nima, Villeneuve, 2019 AD: 71).

One of the most important accomplishments of the Nabataean sculptors in Mount Ethlib was the Diwan (the Court) and its hydraulic water system, made by the Nabataeans to collect water and conserve it for unrainy seasons due to the nature of the desert.

For this study, the researcher relied on field work to study the location[(4)] and track the aqueducts and their unique hydraulic system in the irrigation architecture in the Arabian Peninsula. These aqueducts have been mentioned in some of the scientific studies; for example, the report presented by researchers with the Saudi French Archaeological Mission working on the site (Nima, Al Talhi, and Villeneuve: 2010 AD), and published in the Yearbook of Saudi Antiquities (Atlal). One of the reports that mentioned discovering the religious aspect in places outside cemeteries is the fifth report of work during the years 2014-2015 AD; this was a Saudi and French joint expedition (Nehme, et al, 2015,36). In addition, there were some signs that the researcher dealt with in an encyclopedic way. Given the religious and social significance of the area, the researcher has thoroughly addressed the aqueducts and their hydraulic system and did a descriptive analytic study.

Perhaps one of the aspects that assisted the Nabataeans in collecting water was the nature of the area with its mountains with their smooth surfaces that do not absorb water. The Nabataean utilized these rocks and carved them to channel water from ravines nearby to the reservoir next to the valley down the mountain (Figure:1). The researcher addressed both types of water systems as follows:

1. The Aqueducts

The Nabataean engineers and sculptors followed the valleys with streams of rainwater. They must have seen these streams during rainy seasons and the flow of water ravines coming down the mountains to see the places where aqueducts would divide. They were keen to using the best designs to make sure they collect the largest amount of water possible from these streams. They were also keen to use the best design to reduce the effect of water on the carved aqueducts, and the amount of water that would be redirected, whether the amount of water running down the mountains was large or small. The Nabataean engineers and sculptors must have considered all these aspects to avoid these points.

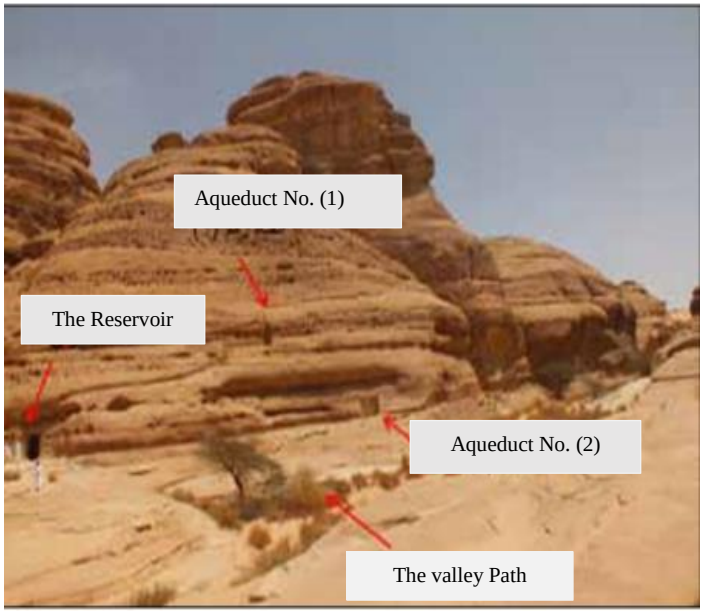
The reservoir of the Diwan relied on three main aqueducts that brought water. Accordingly, the researcher commences the descriptive analytical study of the two aqueducts coming from the south. As shown in Picture (1) below, No. (1) is the higher aqueduct, and No. (2) is the lower aqueduct, while No. (3) is the aqueduct coming from the north. Figure (1-2) is a typology study based on the significance of each aqueduct in terms of redirecting water from different amounts to the reservoir.

Aqueduct No. (1) and its Water System

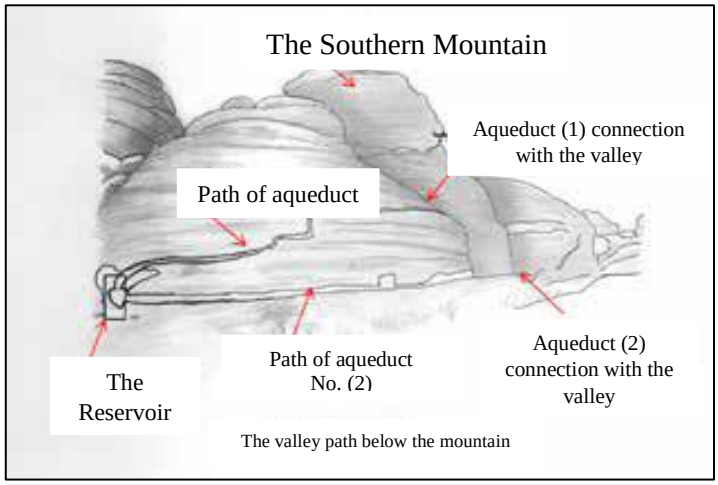
Aqueduct No. (1) is the upper aqueduct of the two aqueducts coming from the south to the reservoir site. The geographic nature of the area played an important role in determining the path of the aqueduct. The southern area includes three heights, with the middle one as the highest. The reservoir is carved in the northern mountain, and aqueduct No. (2) comes down the southern mountain.

The mountain in the middle, being higher than the other two played an important role in forming two small ravines different in size. Aqueduct No. (1) branched out of the southern small valley (Figure: 1) (Picture: 1), accordingly, the architectural sculptors chose the right site to channel a quantity of waterfall descending from the top of the mountain and then redirect it by the partly open head of the aqueduct, connected to the path of the valley to ensure continuity with moderate inclination and winding reaching about 53 meters long, (Figure: 1) (Picture: 1).The aqueduct was not carved in a straight inclination down the mountain; rather, it was initially, inclined downward to insure stream water flow safely, the capacity of the aqueduct, into the reservoir. After that, the sculptors began carving the aqueduct in a winding manner to reduce the water flow in the aqueduct in order to avoid any damages to its path. The water continuously flowing through the aqueduct over time may cause rock erosion, given the nature of the sandy mountains and easy erosion. Continuous water flow with steep inclination may ultimately cause damages to the aqueduct.

The aqueducts were carved with a height of 70-90 cm, and an average width of 100-120 cm across the mount, depending on the site. Some parts of the aqueducts were left open in the form of diversion

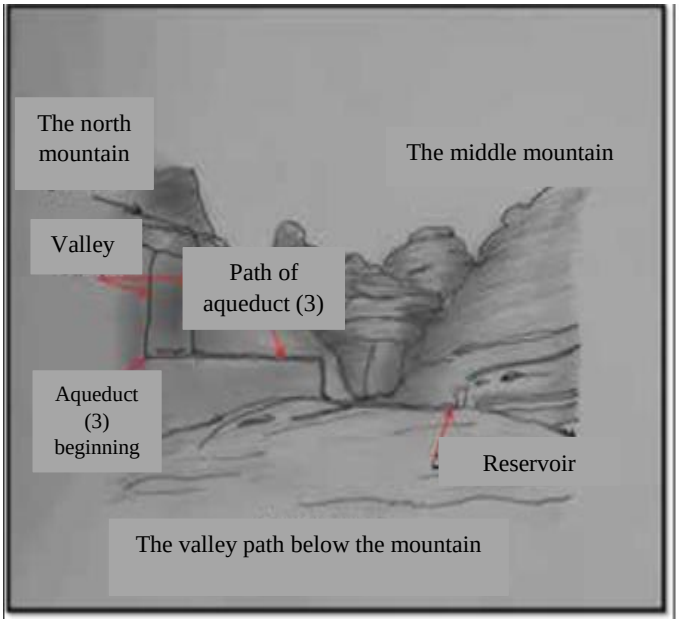


"Picture (1): The two aqueducts coming from the south; No. (1-2) and the system concerned with redirecting their water to the reservoir"

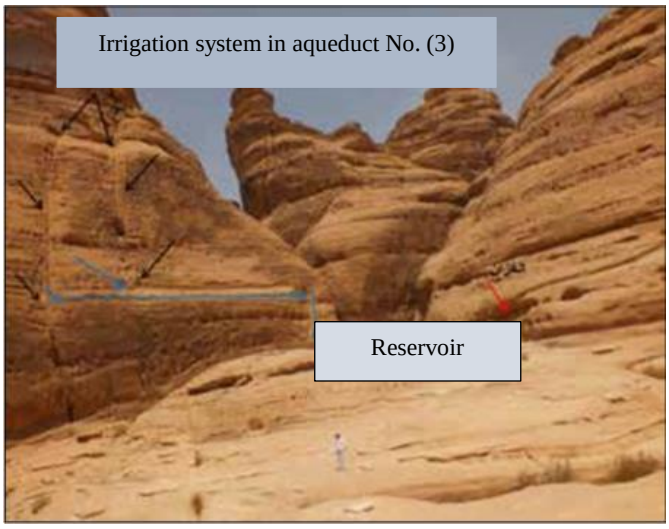


"Figure (1): Paths of the two aqueducts coming from the south; No. (1-2) in Diwan at Al-Hijr- and their direction

aqueducts carved across the mount to pour into the reservoir. The aqueducts from their beginning in the valley to the reservoir, would be around 180 meters (Picture: 1) (Figure: 1).



"Figure (2): Course of aqueduct No. (3), and its connection with the valleys pouring water into the reservoir."



"Picture (2): Irrigation system in the northern aqueduct No. (3) and redirecting its water towards the reservoir"

In the steepest areas of the mountain, the aqueducts appeared in the form of deep carving in the depth of the mountain; not on the side, to use the mountain support and prevent water from changing its course running down the slope (Picture: 1). After steep inclination, the aqueduct would continue in a winding course to reduce the intensity of the water flow, and to follow the less solid and easy to carve areas in the mountain.

Aqueduct No. (2) and its Water System

Aqueduct No. (2) begins at the far southern valley, (Figure:1), and it is larger in size and dimensions than aqueduct No. (1). It was made straight and larger in size due to the widening of the southern valley where the aqueduct runs, as with a little slope to pour into the reservoir. Redirecting the water through the aqueduct happens about 15 meters before the water descends from the mountain to the valley.

The geological nature of the mountain played an important role in carving the aqueduct following the natural course from the ravine to the aqueduct, taking into consideration its inclination and water capacity. The aqueduct was carved across the mountain with an average height of 100 - 140 cm, and the straighter the course is, the wider the aqueduct would be, specially at the beginning. However, when the slope is less inclined, the aqueduct would be shallower.

The aqueduct could hold large quantities of water with an average width of 70-90 cm. Aqueduct No. (2) was wider than aqueduct No. (1) and could hold larger quantities of water, (Picture:1) (Figuer:1). The aqueduct extends from its beginning at mouth of the valley to the end at the mouth of the reservoir, (220 m), about 20 meters longer than aqueduct No. (1), (Picture: 3).

Aqueduct No. (3) and its Water System

This is the aqueduct located at the northern side of the reservoir, on the western side of the mountain (Picture: 2). The sculptors must have been aiming to make use of the rainfall on the mountain to the north of the reservoir, since the natural formation of the mountain does not have any water slopes, except for some courses naturally made by the rainwater running naturally into the rocks.

The sculptors managed to make use of such water by carving an aqueduct to intercept the water course down the mountain. At this point, there were two small ravines that meet the course of the aqueduct

and then redirect the water to an area below the mountain near the reservoir (Picture: 2) (Figure: 2). However, it was not clear to the researcher whether the water poured into the reservoir or in an area between the reservoir and the mountain.

It appears that the aqueduct was horizontally carved into the mountain with a little inclination and for about 55 meters long, ending up with a course that redirects the water directly to the reservoir (Figure: 2).

2. The Reservoir

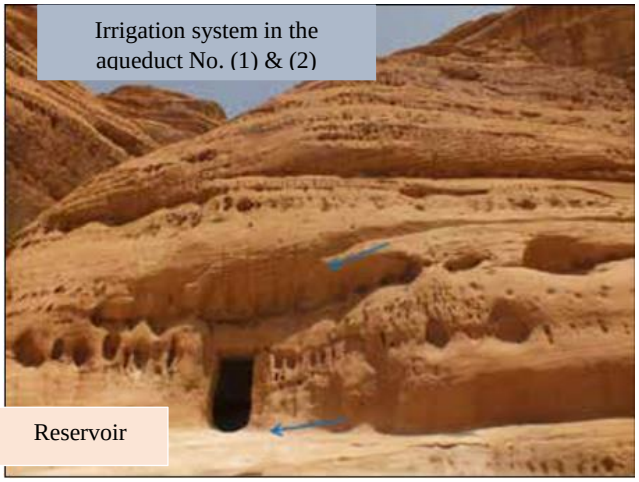
The location of the reservoir was not chosen in a random area; rather the Nabataean sculptors took into consideration all the required aspects, the most important aspect being the natural protection of the upper side of the reservoir. The reservoir was carved at the bottom of a natural cavity in the mountain, in the most solid area, especially on the upper side. These considerations were taken to protect the reservoir from erosion made by rain and wind, taking into consideration the slope area in the reservoir, which must be the closest one among Ethlib heights from the north and south (Map: 2).

As for the way of directing water to the reservoir, aqueduct No. (1) redirected water directly to the reservoir, as it was carved into the mountain from the upper side of the reservoir in order to smoothly pour water into an area below the mouth of the reservoir. As for aqueduct No. (2), it was directly linked to the upper mouth of the reservoir, since it had an almost straight course to pour water directly to the reservoir (Picture: 3) (Figure: 2).

Aqueduct No. (3) runs in a course different from the two previous aqueducts; it channels water from the northern side of the reservoir. Due to natural effects or the unfinished carving of the aqueduct to the reservoir, or because of the mountain natural slope, it poured water directly to the reservoir (Picture: 2).

As for the measurements of the reservoir, an entrance was carved vertically into the mountain, similar to the entrance of a house or a room. The entrance of the reservoir is 197 cm high, and between 80-100 cm wide. The entrance of the reservoir varies in width due to the erosion factors.

With regard to the internal measurements of the reservoir, the researcher was unable to go directly into the reservoir and only took pictures and examined the reservoir from its entrance. The reservoir is 2.60 meters wide, and we found that the debris and clay have accumulated inside and covered a large part of its depth. However, it appears to be approximately 2 meters deep and maybe a lot deeper (Picture: 4).



"Picture (3): Selecting a naturally protected location from the upper side with a little slope at the entrance for building the reservoir, as well as demonstrating its dimensions."

On the upper part of the rock on the opposite side of the entrance of the reservoir, there is a carved rectangular shape standing out, approximately 40 x 25 cm, and another one below it was found attached to it of about 10 x 13 cm (Picture: 4), (Figure:3).

The researcher believes that the carved distinguished shape found at the entrance of the reservoir was related to a water measuring tool, may be made of wood or stone, that would be installed vertically penetrating the water to the bottom of the reservoir. The tool would be used to measure the amount of water inside the reservoir, and through such measurements people would be able to estimate the extent of water consumption, especially

during seasons with little or no rain. Rain was the only source to fill the reservoir.

The researcher also believes that the distinguished carved shape at the entrance of the reservoir was used to install, along with the water measuring tool, a board that had been removed from its place, perhaps containing phrases confirming the ownership of reservoir water for a specific party, whether religious, social or otherwise. The board might have contained amulets for protection, or perhaps phrases related to the establishment of the reservoir and the other related aqueducts. These phrases were usually found in the Nabataean inscriptions written on facades of tombs, carved in Al-Hijr (Mada'in Saleh).

If we compare the water facilities the Nabataeans built in and around Petra from a scientific point of view, we will discover that they were similar to the aqueducts carved by the Nabataeans in **Maaysra** mountain with a little winding. However, we found that the Nabataeans added some aqueducts made of pottery, to help channel and redirect water in such aqueducts (Bellwald, 2007, 322).

Among the aqueducts the Nabataeans used in Petra was "Ain Baraq". This aqueduct was used to drain water downward by aqueducts carved into the mountain. This technique is an indication to the ones known to the Nabataeans in the ancient periods of their history. They carved these aqueducts and protected them from seasonal floods, to remain effective in refining draining water (Bellwald, 2007, 322).

In the first century AD, such aqueducts were carved specifically near temples, which is an indication that the Nabataeans were keen to provide temples with water for purification and other purposes (Bedal, L.A. 2004). We have also found that Nabataeans carved aqueducts near the Diwan in Al-Hijr, to provide water, rather than search for other sources in surrounding areas, such as cisterns or streams that usually ran in the alluvial plains around the mountainous area of Mada'in Saleh in general.

Aqueducts were carved to provide palaces with water. Aqueducts channeling water from the mountain slope were found in a palace near Petra, Jordan, (Kolb, 2002, 279). Furthermore, the way they provided Petra with water was associated with providing water to palaces and political facilities that ran their kingdom in such historical periods. It is possible that the Diwan was the gathering place for religious and political parties to address affairs in Mada'in Saleh; similar to what happened in Petra, the capital of the Nabataeans.

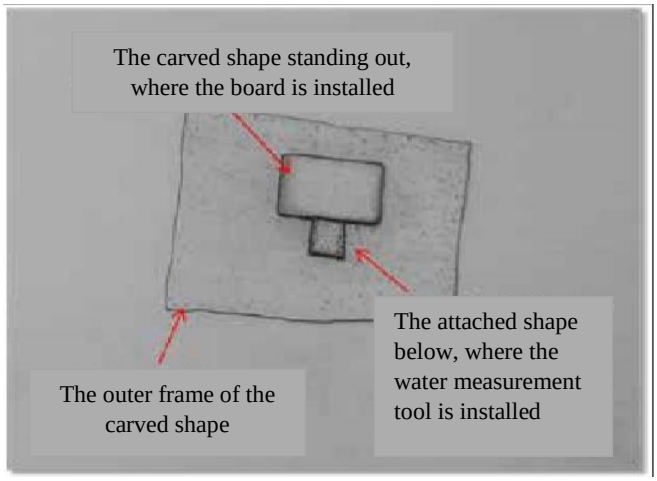
"Picture (4): The reservoir depth and the accumulated debris inside it. To the left of the picture, a sculpture that shows where they inscribed words indicating the establishment of the reservoir or legislative inscription, alongside the water measuring tool."

Conclusion

The Nabataeans were famous for their architectural sculpture in the mountains for all sorts of buildings, and carving cemeteries was one of the most significant achievements of the Nabataean civilization, whether in Petra or Al-Hijr (Mada'in Saleh). However, the sculpting was not limited to religious and residential buildings, but sculptors exploited their expertise and technical engineering capabilities in carving aqueducts in the mountain to channel, store, and drain water.

Since water is the essence of life and has been an attraction factor for human civilizations since time immemorial, given the dry and harsh environment of the Arabian Peninsula, the ancient Nabataeans were keen to secure water resources, relying on rainfall. Once the rain falls on the mountains, it flows down and causes streams into the valley, and soon flows into the desert. Once water reaches the desert, these streams disappear in the sand giving people little chance to use it or store it. However, the ancient Nabataean managed to channel water from its course coming down the mountains to an area below, where a large reservoir would be carved, with three aqueducts from three ravines, pouring water into the reservoir. The ancient Nabataean relied on storing water in a reservoir carved into the mountain with padded and strong ground that prevents leaking and preserved water inside the reservoir.

Since the reservoir was located near Diwan in Ethlib, it was an important source of water for the Diwan and the surrounding areas. The Diwan was the gathering place for the nobles, clergymen, and state officials. This was discovered in remaining part of a possibly legal inscription, in addition to a carved place where a water measuring tool would be installed to determine the extent of water consumption and the period of time the water would be enough for.



"Figure (3): The carved shape standing out inside the reservoir wall on the opposite side of the entrance, shows how to install a board and a water measuring tool in the reservoir."

The Nabataeans knew that the aqueducts needed to be maintained repeatedly, and the water redirected out to avoid erosion due to the continuous water flow, given that sandy mountain rocks are easily eroded. The reservoir too needed maintenance and cleaning from the accumulated silt and debris. Such water facilities and aqueducts are a significant part of the ancient Nabataean civilization in the field of hydraulic systems.

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Notes:

1) Ethlib: Refers to Mount Ethlib in Al-Hijr-Mada'in Saleh, (Ababneh, 1998 AD: 2; It is the mountain where the Diwan and its associated water facilities were carved.

2) From the researcher's point of view, the "Mosque" mentioned by Al-Maqdisi in his description of Al-Hijr, is the (Diwan) as it had a religious significance, as well architectural aspect that does not resemble any carved building that the Nabataeans constructed in Al-Hijr. The most common sculptures were burial places. Furthermore, the Diwan was characterized by distinctive architectural elements that reflected the sculptors' interest in the Diwan at such period, in addition to the Nabataean inscriptions that were found near the Diwan, which stated: "This mosque was established by Shakoh Bin Thor leraa" (Al-Ansari, et al., 1984 AD: 40).

3) The researcher agrees that the entrance of the Diwan mentioned by Jwad Ali was closed with a door that may have been made of wood. This is similar to the ancient temples' gates installed on a platform in the entrance of such temples in the southern part of the Arabian Peninsula, such as the pillars of Aual Sirwah Temple in the ancient city of (Sirwah), known for the carved traces on the bottom of the doors to install its handles on the lower bases.

4) The researcher visited Al-Hijr site on 4/8/1438 H, with a scientific expedition planned by the Archeology Club at King Saud University in Riyadh, with Mr. Majed Al-Mhanah, a lecturer at the College of Tourism and Archeology, King Saud University, in cooperation with the "Live Saudi Arabia" Program organized by the Saudi Commission for Tourism and National Heritage (SCTH) at that time; I am thankful and grateful for the opportunity.

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A Study on the Current Status of Al-Amir Azbak Al-Yusufi School in Cairo

Rajab Abul-Hassan Muhammad

Abstract

The Mamluk era is the golden age of Islamic architecture in Egypt. The Circassian Mamluk era witnessed the establishment of various urban facilities in Cairo, the most important of which is Al-Amir Azbak Al-Yusuf School, located in Azbak Street, branching from Al-Khudairi Street in the Sayyidah Zaynab neighborhood of Cairo, Egypt. Al-Amir Azbak Al-Yusuf School was established in 900 AH - 1495 AD. Despite its small size, the building includes a school, a Mosque, a Kuttab (a preliminary place for memorizing Quran), a potable water outlet, and a mausoleum. They were built by Al-Amir Azbak Al-Yusufi, a prominent Circassian Mamluk Al-Amir. The School followed Islamic school design in the Mamluk era with orthogonal planning, consisting of a roofed courtyard with a Shekhsheikha (a type of ceiling with a wooden decorated square or octagonal shape with windows) simulators for ventilation and lighting) in the middle, surrounded by four Iwans. School also contains multiple building materials such as limestone blocks that were used in the construction of the walls and the various architectural elements of the School, the cementing material used to stick together the stone blocks and marble tiles used in the cladding of the floors of the building and the grid bar-iron for windows. The current state of the building was examined by sampling building materials and various aspects of damage, analyzing it using XRD and examining it with the Polarizing Microscope and SEM equipped with EDX unit, and measuring the physical and mechanical properties of the limestone to examine its current state because it is the principal material in the building. This was also done to uncover the components of the building materials and their types, explain the existing aspects of damage, and determine the factors that caused them as a prelude to conducting renovation and restoration operations for School

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Keywords*: Azbak Al-Yusufi, physical properties, building materials, Mamluk era, limestone, Sayyidah Zaynab.*

Purpose of the study

This study aims at shedding light on the current status of Al-Amir Azbak Al-Yusufi School, with its numerous spectacular architectural and decorative elements, including stone motifs represented by the calligraphic inscriptions covering the walls of the School, the minaret covered with stone decorations, the wooden ceilings decorated with colorful flora motifs, the marble floor tiles, the brass-armored doors, the windows decorated with metallic fences, and the wooden seashell-inlaid pulpit, etc. This School has been directly exposed to many threats that threatened its existence. The most prominent threat has always been the human factor; however, other threats include the rising groundwater levels, air pollution, and negligence. Moreover, the civil society organizations and the concerned authorities in the area fail to preserve the cultural heritage and rescue the School. As a result, the School loses an essential part of its irretrievable elements on a daily basis.

The significance of this study lies in the fact that not many studies addressed the current status of Al-Amir Azbak Al-Yusufi School and the threat factors it undergoes. These threats have already led to the destruction of a number of the architectural and decorative elements, such as the stone motifs (calligraphy inscriptions) and some other premises that no longer exist in the School.

Figure 1: The location of Al-Amir Azbak School in Cairo (Urban Revival Project for Historic Cairo, 2014) Significance of the study

Furthermore, the high level of the water and the salt it contains in the foundations of the School have led to the corrosion of the lower parts of the wooden doors decorated with embossed fillings. The leakage of rainwater from the cracks in the ceiling has also led to color loss in some parts of the colored wooden ceilings and the separation of some walls from each other; thus, aggravating the already grave situation. These and more made the Ministry of Antiquities close the School building permanently. The people in the area would use the School as a place for prayers. In 2014, a report by the UNESCO described the condition of the School as very poor, and no studies or projects were done to restore and preserve it.

Introduction

Circassian Mamluk Era in Egypt witnessed the establishment of numerous religious, civil, commercial, and military facilities that outnumbered the facilities established during the Bahriyya Mamluks Era, from mosques, schools, domes, khanqahs (special religious facilities), and khans, agencies, palaces, houses, clinics, charities, public baths, and other architectural buildings that remained a witness to this Circassian Mamluk Era. An essential thing that must be noted here is the large number of antiquities from this era despite the poor economic conditions that the country witnessed during the second period of the Mamluks, which extended between (784 AH / 1382 AD and 923 AH / 1517 AD), perhaps due to the large number of wars in this period. Al-Amir Azbak Al-Yusufi School in Cairo is an example of the facilities of this period, as the architecture in this era, in particular, was not related to the economic conditions. The architecture in the Circassian Mamluk Era was characterized by several characteristics, such as the small area of the buildings due to the overcrowded areas where these buildings were built, with the population and many other facilities, followed by the small size of the iwans (a rectangular hall or space, usually with vaulted, walled on three sides) and the emergence of the two flaps (the two small iwans), which led to the small area of the courtyard with a wooden roof. This was one of the architectural solutions that led to new architectural elements in Islamic architecture. In some cases, in schools, especially those with iwans, the architect would separate the courtyard from the iwans, making it lower by (25 cm). It is called Dirqa'a, (a Persian word that means the lower part of the hall) (Atayesh, 1990, 32-52).

History al-Amir Azbak al-Yusufi School, Cairo, Egypt

Al-Amir Azbak al-Yusufi School is located in *Sayyidah Zaynab*, Cairo, Egypt; Monument No. 211 - Date of building: 900 AH / 1495 AD; Era of establishment: Circassian Mamluk Era; Name of builder: Al-Amir Azbak Al-Yusufi; Type of monument: School; State of the monument: Existing - Administrative district: *Sayyidah Zaynab*; Archaeological area: South Cairo; Monument address: Azbak Street, Al-Khudairi Street (Figure 1)

(Urban Revival Project for Historic Cairo, 2014, 99).

Picture 1: The three façades of the School: (A) the southern façade, (B) the eastern façade, and (C) the seaside façade with School's main entrance.

Azbak Al-Yusufi came to Egypt as a slave with the Mamluk merchants in 841 AH. Sultan Abdulaziz Yusuf ibn Barsbay bought him, and he has been known as Azbak Al-Yusufi since then, after the Sultan. Azbak showed skill and intelligence in arithmetic from a young age, and Sultan Jaqmaq admired him, freed him, and put him in charge of the treasury of the Sultanate. He was one of the greatest princes of the Circassian Mamluk state and one of the most outstanding leaders in the era of Sultan Qaytbay. Moreover, he was assigned several significant positions and became the counselor of the Kingdom (the Grand Vizier) during the era of King Al-Nasir Muhammad Ibn Sultan Qaytbay. Prince Azbak Al-Yusifi established the School in 900 AH / 1495 AD. Arabic decorations and inscriptions are almost everywhere the School; on stones and wood, indicating that various industries and delicate arts were combined. Carpentry represented in the pulpit, the surah chair, the wooden ceilings, the floors, and the marble socles, all show the accuracy, mastery, and perfection of these industries. Prince Azbak Al-Yusifi died in 904 AH during the era of Sultan Qanswa Al-Ghouri. Sultan Al-Ghouri attended his funeral, and the funeral ritual went through As-Saliba Street (Toulon Neighborhood). He was buried next to his wife in the tomb he built inside the school (Maher, 1971, 282-292).

Architectural Details of the School

The School was built on an area with irregular dimensions of polygonal land to conform to the street organization line with the main façade of the School (Azbak Street). The School has three façades: seaside, east, and qibla (towards Mecca, Saudi Arabia) side (Picture 1). The main façade of the School is located on the northeastern side, 17.5 meters long, with the main entrance on this side. On the western end, there is a basin for animals to drink, and remaining other buildings, while at the eastern end, there is a **Sebil or Sabil (a small kiosk in the Islamic architectural tradition where water is freely dispensed to members of the public)** with a small room used as a class to teach children (called Kuttab) on top (Behrens, 1998, 150). There is also a **Minaret** (**a type of tower typically built into or adjacent to mosques**) next to the entrance consisting of a base and three floors. The first floor is octagonal in shape with four windows; the second floor is circular in shape, and the third floor consists of eight columns with the metal top of the dome, topped by the copper crescent. There was a conical obelisk on the top, placed instead of the third floor in the Ottoman Era. The Department of Preservation of Arab Antiquities removed it in 1947 AD and reconstructed this upper part of the **Minaret** as its original design was in the Mamluk Era. This School was built on an orthogonal planning system, consisting of a covered courtyard (Dirqa'a) with a square shape of 7.5 meters long, with a skylight in the middle, surrounded by four iwans, two of which are large. The qibla iwan is the largest (Mubarak, 1304, 126) with an area of (10 x 5.75) meters, and the opposite iwan has an area of (7.5 x 3.90) meters. The other two iwans, the side iwans, are small with an area of (3.5 x 2.75) meters (Figure 2).

The courtyard is one of the beautiful examples of colored marble floors, as the qibla iwan is surrounded by colored marble, with a marble mihrab

(altar) in the middle, about (1.10) meters wide and a (0.85) meters deep. There is a semi-circular arch above the mihrab based on two marble columns with crowns in the shape of leaves. Next to that, there is a wooden pulpit adorned with delicately made shells. The texture of its decorations is from the star-shaped plate. At the top of the mihrab, there are windows of hollow plaster ornamented with colored glass. All the inscriptions engraved in stone or wood include Quranic verses and the name of the builder. Above the main entrance to the School, there is an inscription with the date of construction, saying: "This school was built with an order by the worshipper, the poor to Allah Almighty, the honorable ruler and decision maker, Azbak Al-Yusufi, the prince of the head of the nobility of the honorable royal deputies, in **Sha'ban (the eighth month of the Islamic calendar)** 905 AH; Azbak Al-Yusufi was a prince of Sultan Qaytbay. He died in 904 AH" (Maher, 1971, 292-282).

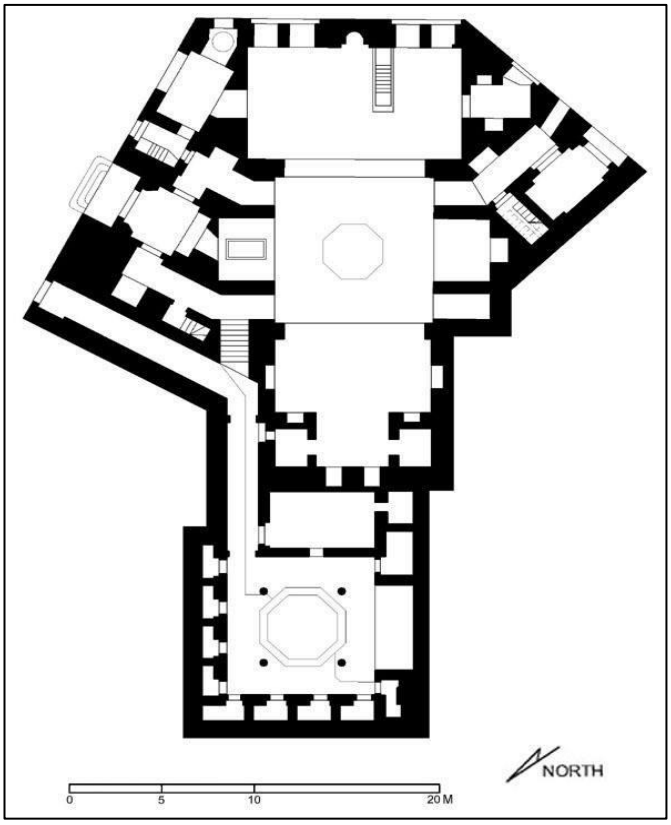


Figure 2: The horizontal plan for Al-Amir Azbak Al-Yusufi School (Maher, 1971).

Damages images in Al-Amir Azbak Al-Yusufi School

Several images of damage on the exterior of the seaside façade and the qibla façade of the School have been recorded and documented in several different colors on a geometric drawing of the two façades. These damage images include delapidated stones and wood, some missing parts, places of electricity work, rusting of metalwork, details added to the walls, stone crusts, cracks, and breaks in the walls, as illustrated in (Figures 3 and 4).

A. The Marble Tiles

The School contains numerous colored marble tiles with magnificent structures and designs that cover all the floors of the School and the potable Sebil. These tiles are covered with black spots, concealing the original color of the marble and giving it a dark color. There are minute cracks in many marble decorations and separations of the polished surface layers of the marble in some areas. Some parts of the separated surface crust turned to powder, and the surfaces of the marble decorations are covered with a thick layer of calcified salts, dust, and sticky plankton. There are also some fractures and separations in many marble tiles (Picture 2).

b. The Limestone

Limestone is one of the most important stones used in the construction work in Egypt over the past centuries, and it was the most used type of stone in building and construction during the Islamic Era. It is basically a sedimentary rock consisting mainly of calcium carbonate $CaCO_3$. Limestone is the name given to sedimentary rocks containing more than 55% of calcite $CaCO_3$, while dolomite ($CaMg(CO_3)_2$) contains magnesium and calcium. If the limestone included more than 45% magnesium carbonate, it would be called dolomitic limestone (Fitzner, Heinrichs, and La Bouchardiere, 2002, 217-239).

The limestone used for Azbak Al-Yusufi School suffers from several kinds of damage, including:

- Crystallization and calcination of large amounts of salt material on the interior stone walls of the mosque, especially the lower parts of the walls: such as the flaking of the stone surface in the form of layers, loss of the cementing material between the stone courses, and cracks and separation of the building stones due to the crystallization of salt material inside the cracks and between the stone blocks (Selwitz, Doehne, 2002, 205-216) (Picture 3).
- The loss of some parts of the stone decorations in the upper parts of the walls, as a result of erosion and falling due to rainwater leaking from the ceiling (Picture 4); the formation of a dark black layer on the exterior walls of the School, which led to the obliteration of the stone features caused by air pollution, and a black layer from (automotive grease and oils) on the exterior walls of the School as a result of the presence of auto repair workshops nearby.
- The use of black Portland cement in the restoration of some parts of the walls and the erosion and disintegration of the outer surface of the stone decorations (Picture 5).

Figure 3: The seaside façade of the School with images of damage. (The Researcher)

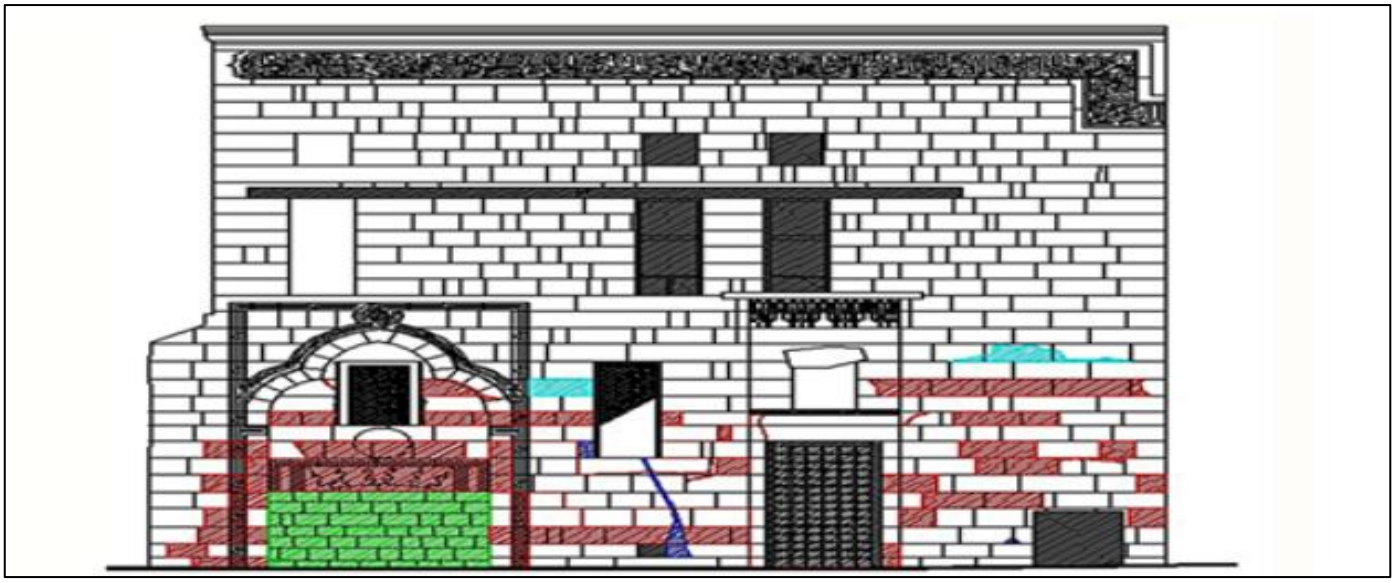


Figure 4: The south façade of the School with manifestations of damage. (The Researcher)

Picture 2: A variety of geometric marble decorations with manifestations of damage. (Picture by the researcher)

- Deterioration of the cementing material between the stone blocks, which led to the distortion of the stone and made it appear as broken units. Dust and dirt have piled up and stuck to the School walls from the outside, which covered and concealed parts of the stone decorations due to the high level of the street floor. In some parts, some decorations have been covered due to the loss of layers of stone surface of the exterior walls of the School. There are also very dangerous cracks and vertical breaks (Jinhyun Chooa, b, WaiChing Sun, 2018, 349-379) between the west and south walls (Picture 6).
- The loss of some stone blocks, especially in the outer corners, and the infringement by building a modern building utterly adjacent to the School.

The School has lost its campus, and the windows are covered with rust and a thick layer of dust and dirt due to air pollution (Charola, and Centeno, 2010, 269-278).

- The School ground level has become lower than the surrounding streets, which made it a gathering place for mold, dust, and rainwater, in addition to the high level of water in the stone blocks close to the ground.
- The deterioration of wood condition in general inside School (Picture 7), and the level of the modern toilet adjacent to School has become higher than School ground, which led to leakage of sewage into the School walls.

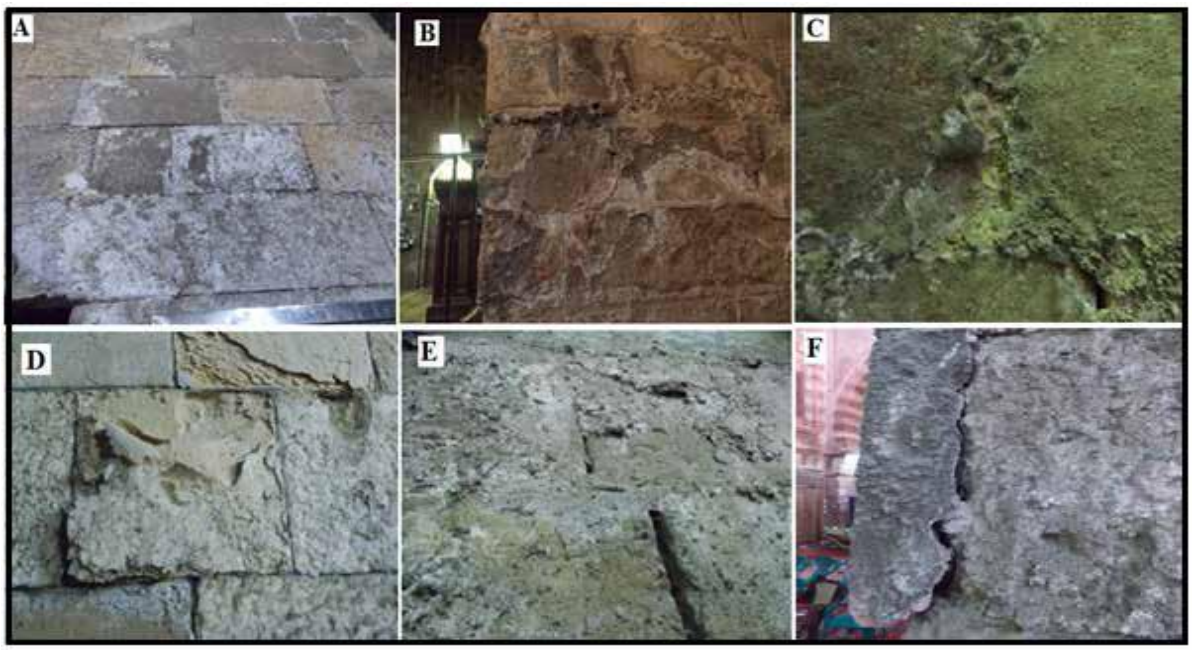
C. The Mortar

Mortar is a building material used to bind bricks or stone blocks horizontally and vertically, fill cracks and breaks between them, and break down pressures and loads on the walls evenly. It also functions as an insulator for the permeation of heat, moisture, and sound from the outside. The mortar in Azbak School has undergone severe disintegration and deterioration due to the high level of ground dampness in the walls, and the crystallization of salts within the archaeological components of the mortar, which led to its disintegration and destruction (Picture 3 – D and E).

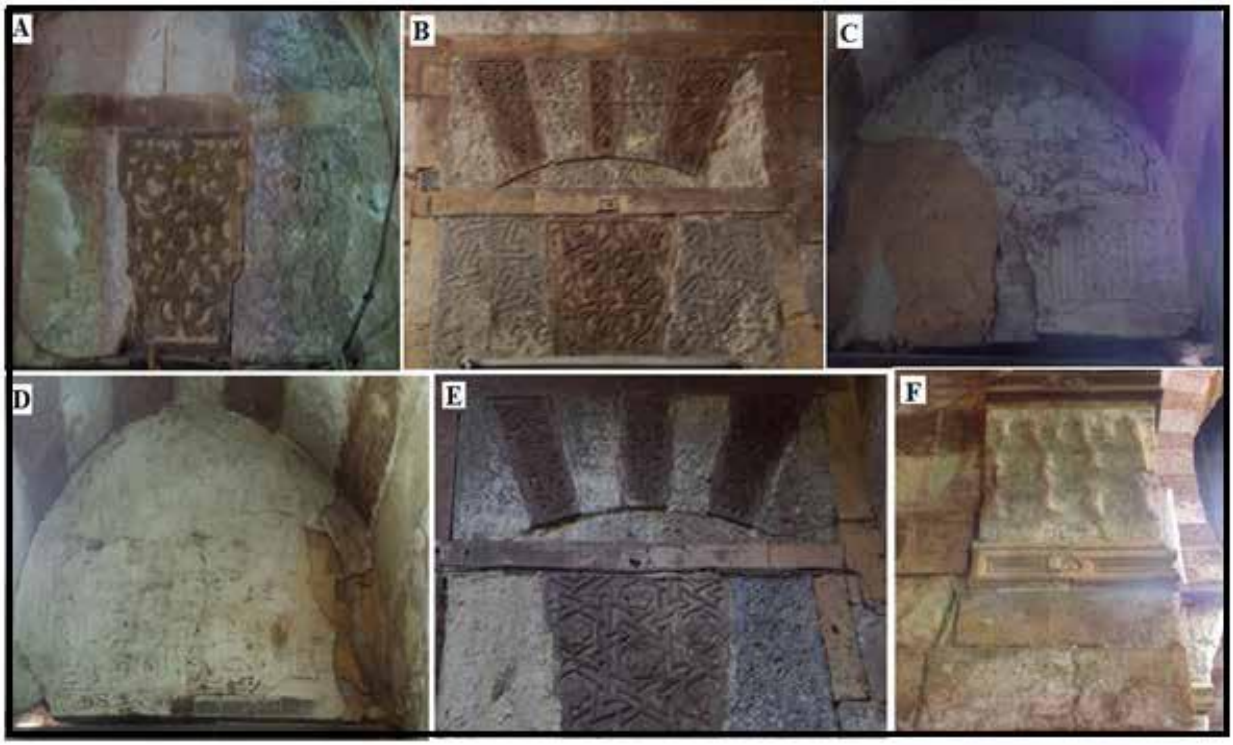
Materials and Methodology

Several samples of building materials (limestone, marble, and mortar) and salts were taken, examined, and analyzed using the following:

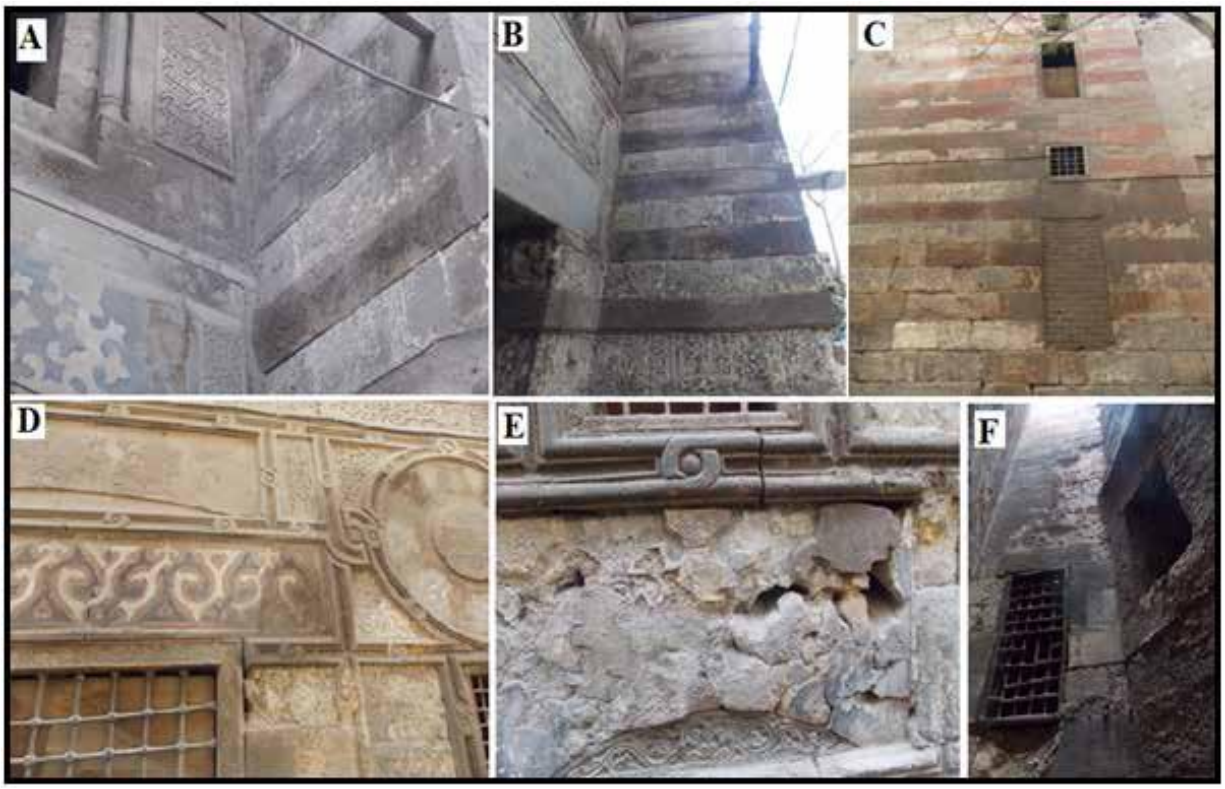
- Polarizing Microscope (PLM)
- X-ray Diffraction (XRD)
- Scanning Electron Microscope (SEM)
- Energy Dispersive X-ray analysis (EDX)
- Chemical Analysis of Building Materials
- Measuring the physical and mechanical properties of the limestone, which is the primary building material of the School to identify the characteristics, components, and types of building materials, to interpret and analyze the manifestations of their damage, and to identify the factors causing them.



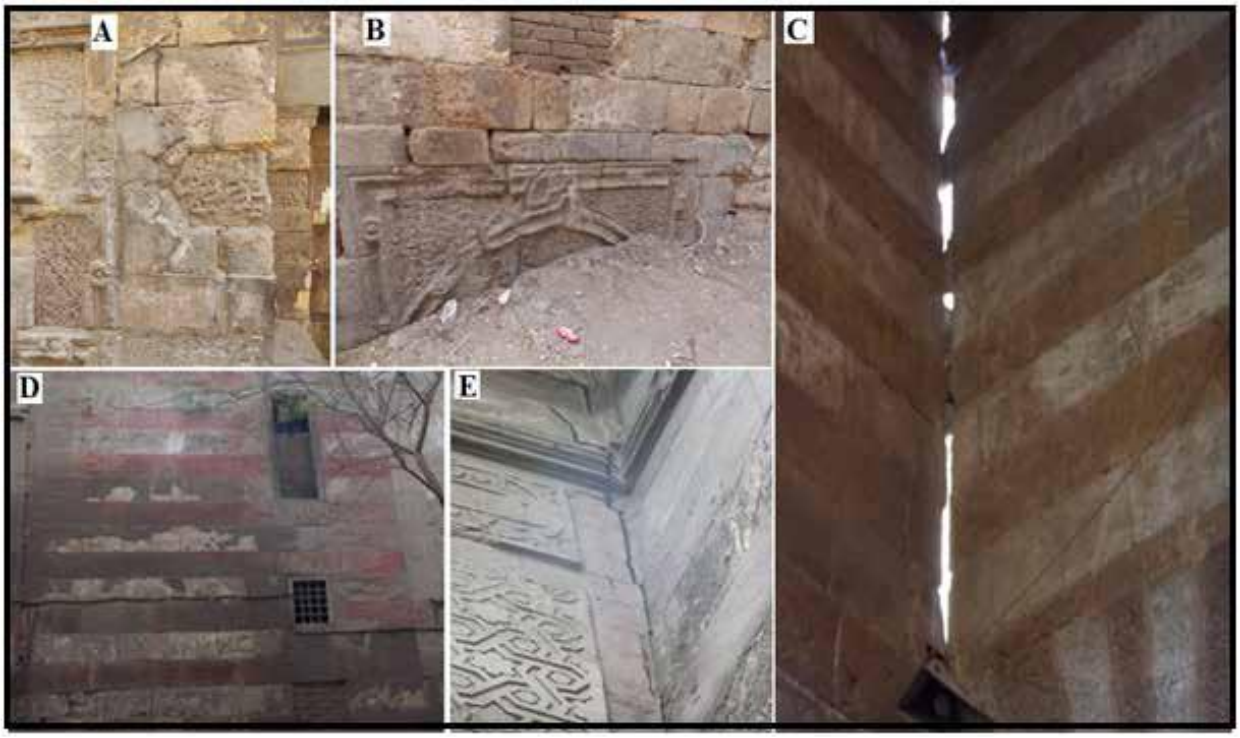
Picture 3: Crystallization and calcination of large amounts of salts on the surface of the stone on the interior walls of the mosque A, B, and C. The flaking of the stone surface in the form of layers, D. loss of mortar between the stone courses E. cracks and breaks in the stone due to salts F. (Picture by the researcher)



Picture 4: The loss of some parts of the decorations as a result of erosion and falling due to rainwater leaking from the ceiling. (Picture by the researcher)

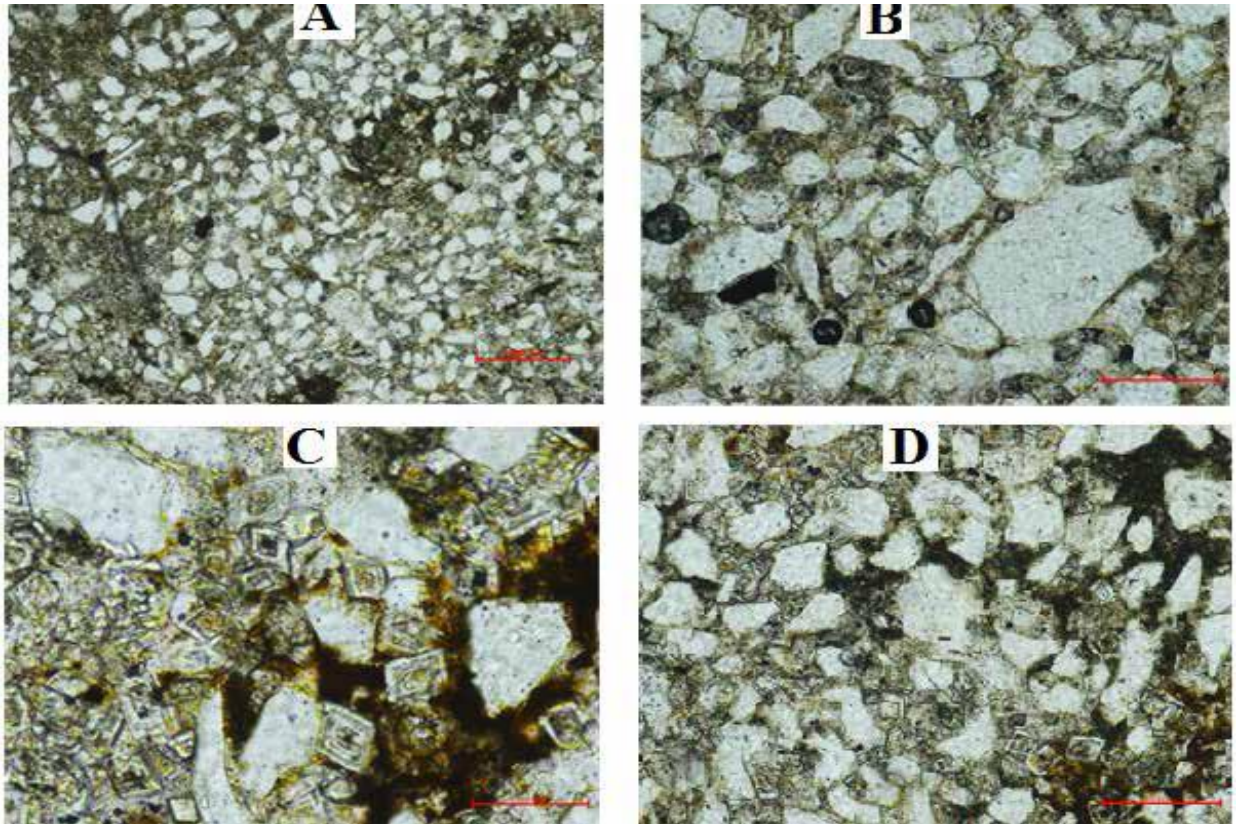


Picture 5: (A, B, C, D) illustrate the formation of a dark black layer on the decoration and the surface – (E) demonstrates the use of black cement mortar – (F) shows the erosion in the stone and decorations. (Picture by the researcher)



Picture 6: (A) illustrates the use of black cement mortar on the stone decorations - (B) demonstrates the amount of dust on the School walls covering parts of the stone decorations - (C and E) illustrate the large and hazardous cracks and breaks between the walls along with the building - (D) demonstrates the high humidity in the walls. (Picture by the researcher)

Picture 7: (A) illustrates the infringement of modern building around the School - (B) illustrates the loss of some parts of the stone courses - (C) illustrates the low level of the court as opposed to the street level - (D and E) illustrate the extent of rust of the iron windows and their coverage with a black layer - (F) illustrates the deterioration of wood due to moisture and salts. (Picture by the researcher)



Picture 8: Polarizing Microscope examination of limestone samples showing calcite, quartz, shale, iron oxides, and dolomite (1000X).

Results

First: Polarizing Microscope (PLM) Examination

Samples of the building materials from the School, taken from places that do not affect the School walls (limestone, broken marble, and old mortar), have been examined by a polarizing microscope. The examination was conducted at the laboratories of the Department of Geology, College of Science, Cairo University, and the results came as follows:

A. The Limestone

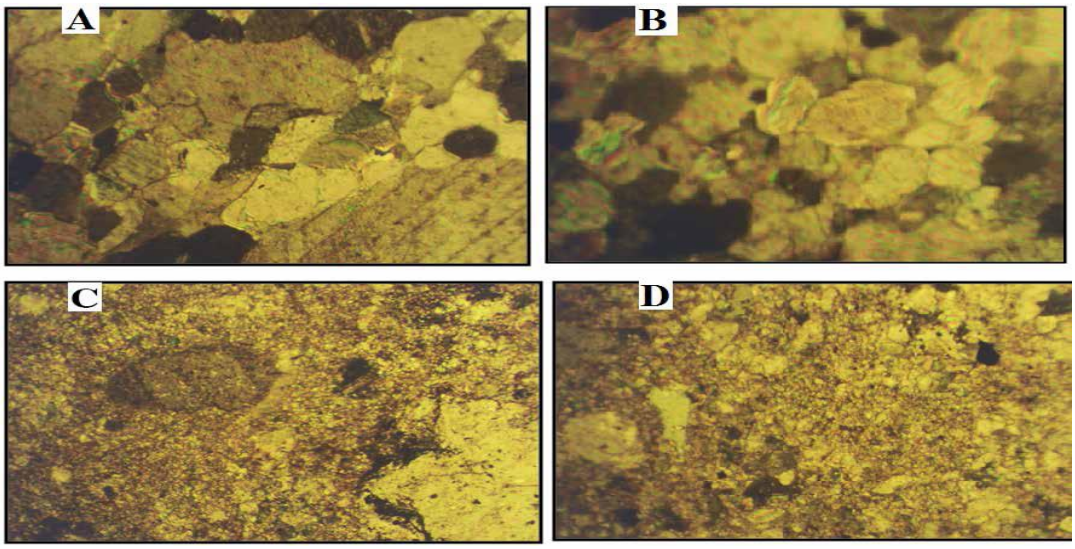
Two limestone samples taken from the qibla side of the School and west walls have been analyzed and examined. Examination of the stone samples under the microscope revealed the presence of calcite minerals with quartz grains and rhombic dolomite crystals, a percentage of clay minerals, and concentrations of iron oxides in the calcite mineral floor. It was also observed that some gaps were spread in the samples (Picture 8).

B. The Marble

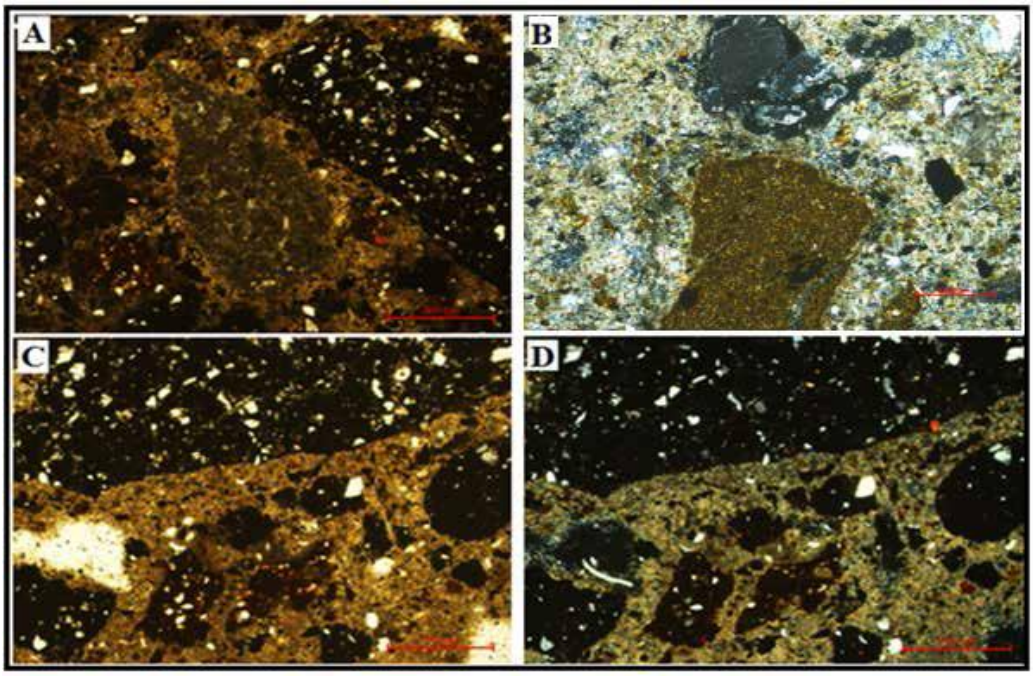
Two white and red samples of floor marble, taken from the separated and degraded parts of the School floors, were examined by a polarizing microscope to identify their components and manifestations of damage. The examination revealed the presence of calcite, iron oxides, and grains of quartz, coupled with the appearance of the characteristic overlapping texture of calcite in the white marble sample due to transformation processes, as illustrated in Picture 9 (A and B). Results of examination done to samples from the red marble, iron oxide, clay minerals, calcite grains, and fine quartz showed no overlapping texture of calcite grains, which means that the (red marble) used on the School floors was not a natural marble, as illustrated in Picture 9 (C and D).

C. The Mortar

Two samples of old building mortar were examined with a polarizing microscope to identify its components and manifestations of damage. The examination revealed the presence of lime as a background for the mortar, with the spread of sand grains of different sizes in the middle of the lime spread irregularly and a variety of color from white to gray, as well as the presence of calcite, quartz, and carbon, as illustrated in (Picture 10 - A, B, C, and D) (Bader, Abu El-Hassan, 2016, 102-118).



Picture 9: A and B illustrate the overlapping texture of calcite crystals characteristic of marble, as well as the deterioration and disintegration of calcite grains of a damaged white marble sample using the polarizing microscopy - C and D: A damaged red marble sample demonstrating iron oxides, clay minerals, calcite grains, and fine quartz, with the absence of calcite overlapping texture (PLM.50 X).



Picture 10: A, B, C, and D illustrate the presence of lime as a background of the mortar and the spread of sand grains in the middle of the lime with a variety of colors from white to black using the polarized microscope of mortar samples under the light and without light (1000X).

Second: Analysis Using X-ray Diffraction (XRD)

This method is one of the most important analytical methods that made significant contributions to analyzing archaeological materials due to its non-destructive nature, which is one of the essential requirements for treatment, maintenance, and restoration. Moreover, the results obtained through this method help identify the composition of the archaeological material and the types of damage. This method was used to study the composition of building materials at Azbak Al-Yusufi School. The researcher used the Philips Analytical X-ray diffractometer, in the Department of Restoration, College of Archeology, Cairo University, under the following operating conditions:

Diffract meter type: Pw 1840 Tube anode: Cu Generator Tension (KV): 40 Generator current (ma): 25 Wavelength Alphal (A): 1.54056 Wavelength Alpha2 (A): 1.54439 Intensity ratio (alpha2 / alphal): 0.500 Receiving slit: 0.2 Monochromator used: No Full Scale of recorder (Kcounts / s): 20 Time constant of recorder (s): 0.5. The following is a description of the different samples examined by the X-ray diffraction method:

1. Limestone

Three stone samples taken from Azbak Al-Yusufi School were analyzed by X-ray diffraction. The analysis revealed that the stone used in building the School consisted mainly of calcite ($CaCO_3$) in addition to the presence of quartz (SiO_2), dolomite ($CaMg(CO_3)_2$), and halite (NaCl), demonstrating that the stones used in building the School were Limestone and Dolomitic Limestone. It also reflected a high percentage of halite, which caused damage and deterioration of building materials, as illustrated in Figures (5,6, and 7).

2. The Marble

Three samples of marble decorations of different colors (white and red) taken from the floors of the potable water outlet and the School were analyzed by X-ray diffraction to identify their components as illustrated in Figures (8, 9, and 10). The analysis demonstrated that the red marble decorations consisted mainly of calcite and a percentage of quartz, dolomite, and hematite, which gave the red color to the marble.

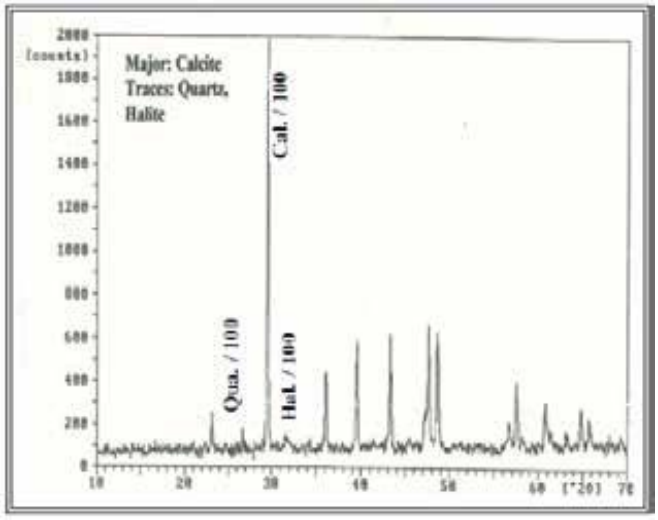


Figure 5: X-ray diffraction pattern of a limestone sample (qibla wall) demonstrating calcite, quartz, and halite.

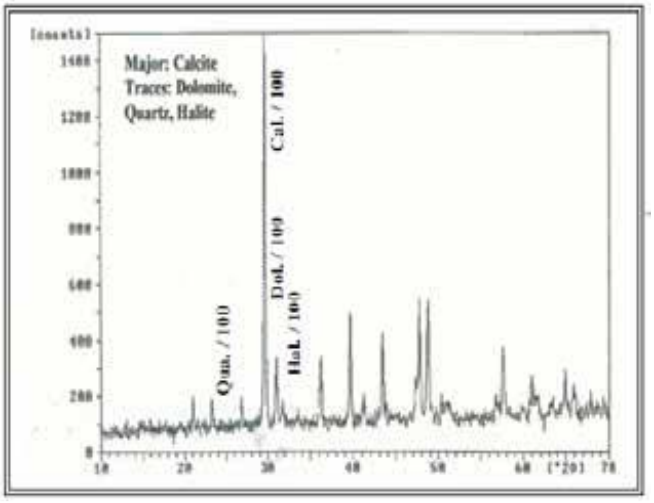


Figure 6: X-ray diffraction pattern of a limestone sample (seaside) demonstrating calcite, quartz, dolomite, and halite.

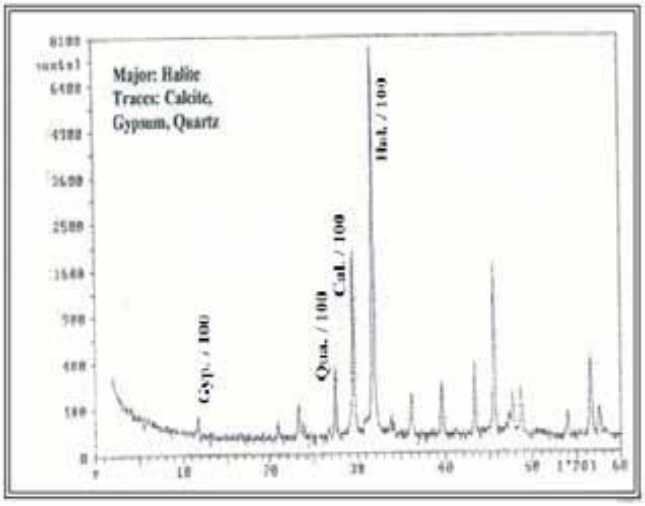


Figure 7: X-ray diffraction pattern of a limestone sample containing salts (the wall facing the qibla) demonstrating halite, calcite, gypsum, and quartz.

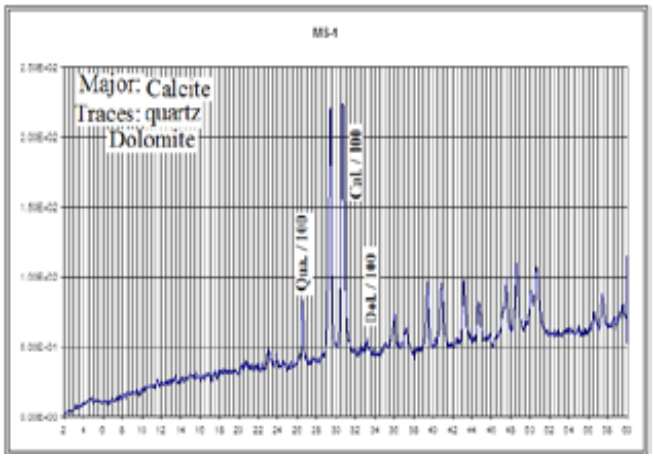


Figure 8: X-ray diffraction pattern of a marble sample from (the floor of potable water outlet) demonstrating calcite, quartz, and dolomite.

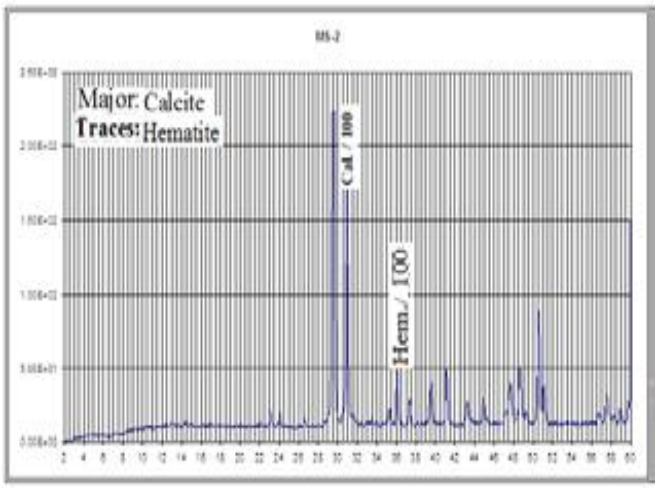


Figure 9: X-ray diffraction pattern of a marble sample from (the School entrance) demonstrating calcite.

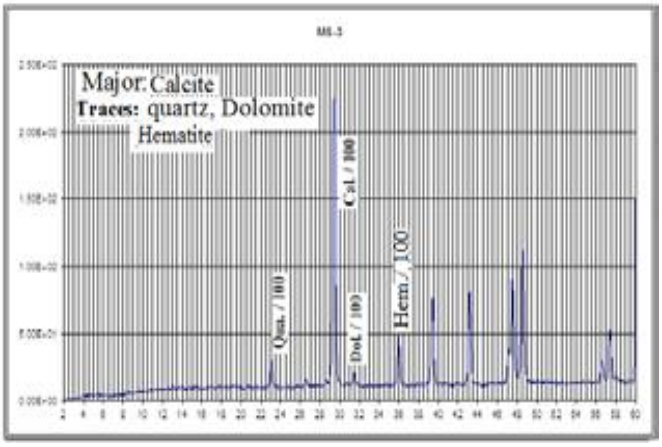


Figure 10: X-ray diffraction pattern of a marble sample from (the School courtyard) demonstrating calcite, quartz, dolomite, iron oxides.

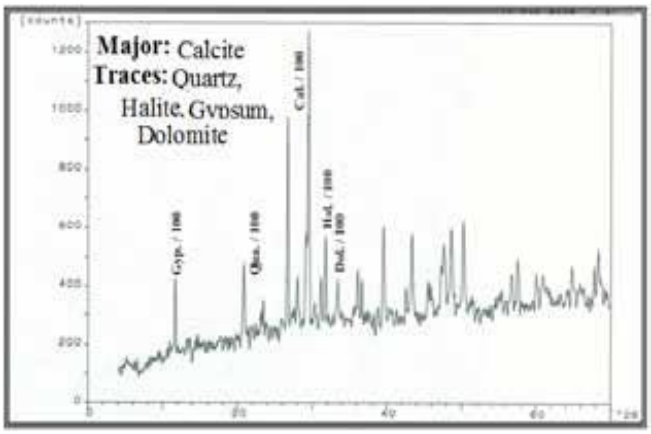


Figure 11: X-ray diffraction pattern of a mortar sample from (the wall facing the qibla) demonstrating calcite, quartz, halite, gypsum, and dolomite.

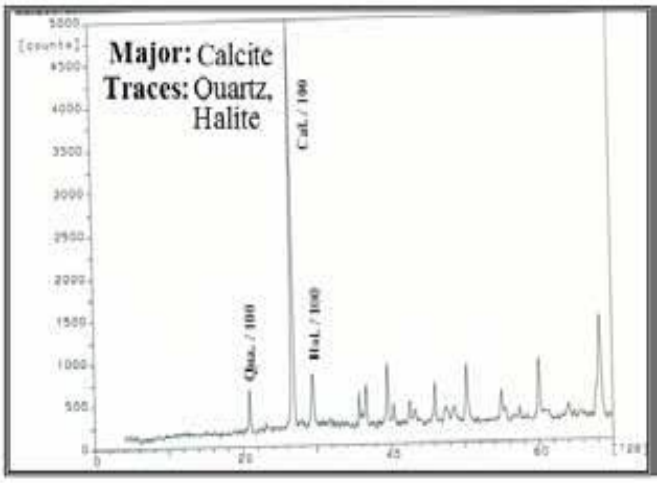


Figure 12: X-ray diffraction pattern of a mortar sample from (the qibla wall) demonstrating calcite, quartz, and halite.

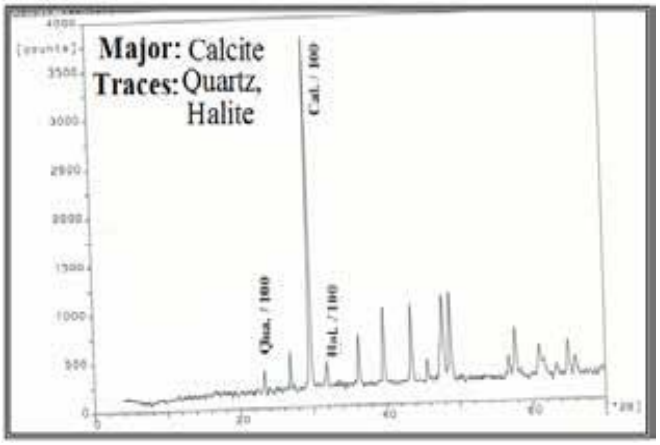


Figure 13: X-ray diffraction pattern of a mortar sample from (the east wall of potable water outlet) demonstrating calcite, quartz, and halite.

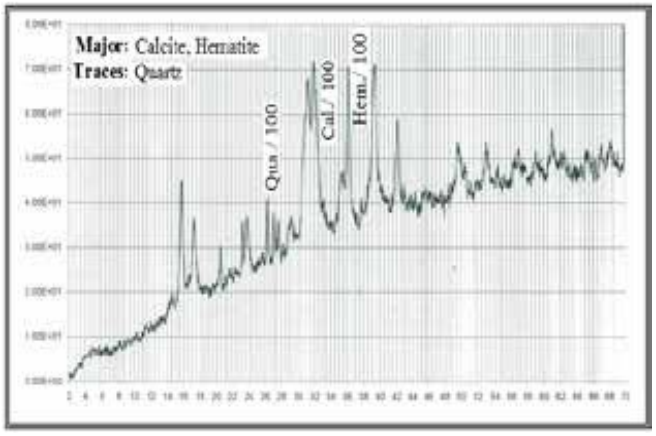


Figure 14: X-ray diffraction pattern of a sample of (iron bars of potable water outlet window) demonstrating calcite, hematite, and quartz.

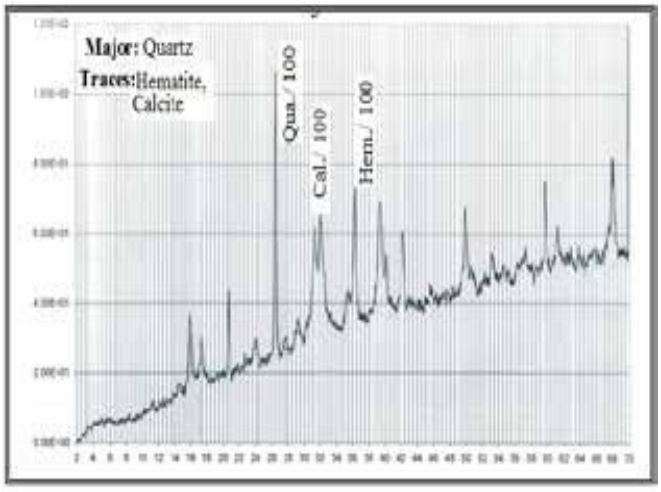


Figure 15: X-ray diffraction pattern of a sample of (iron bars of potable water outlet window) demonstrating quartz, hematite, and calcite.

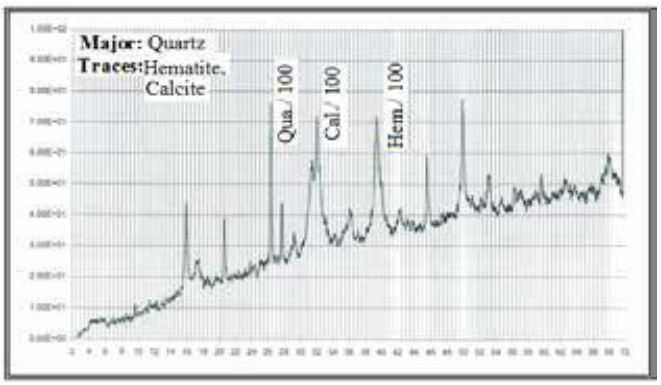


Figure 16: X-ray diffraction pattern of a sample (iron bars of the seaside window) demonstrating quartz, hematite, and calcite.

3. The Mortar

Three samples of mortar were analyzed using X-ray diffraction. The analysis revealed that the mortar used in building the School consisted mainly of calcite and quartz and a percentage of gypsum, dolomite, and halite, as illustrated in Figures (11, 12, and 13).

4. The Iron Bars

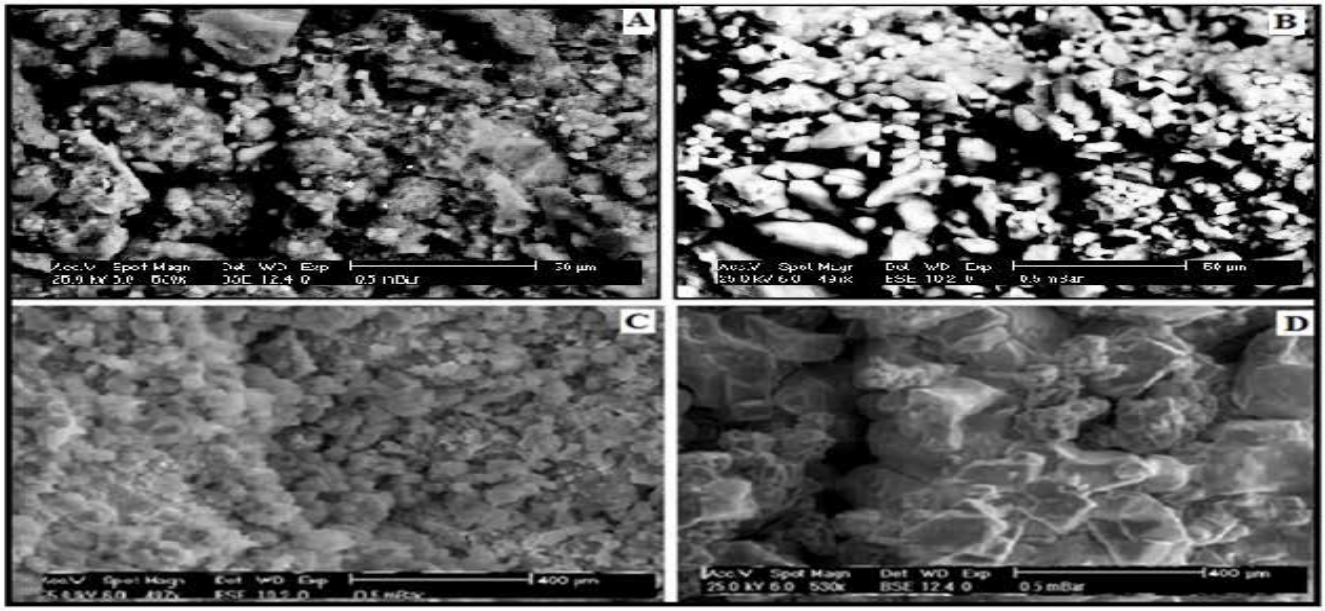
Samples of rust on the iron bars were analyzed by X-ray diffraction method, and the results demonstrated the presence of hematite (Fe_2O_3), calcite ($CaCO_3$), and quartz (SiO_2). Figures (14, 15, and 16) illustrate the X-ray diffraction pattern of rust from the iron bars, and the results indicate erosion of the surface layers, in addition to the presence of a new brown paint layer on the surface. These layers covered the features of the archaeological shape of the iron bars and grains of calcite ($CaCO_3$) and quartz (SiO_2) accumulated on top.

Third: Examination and Analysis Using Scanning Electron Microscope (SEM) with (EDX)

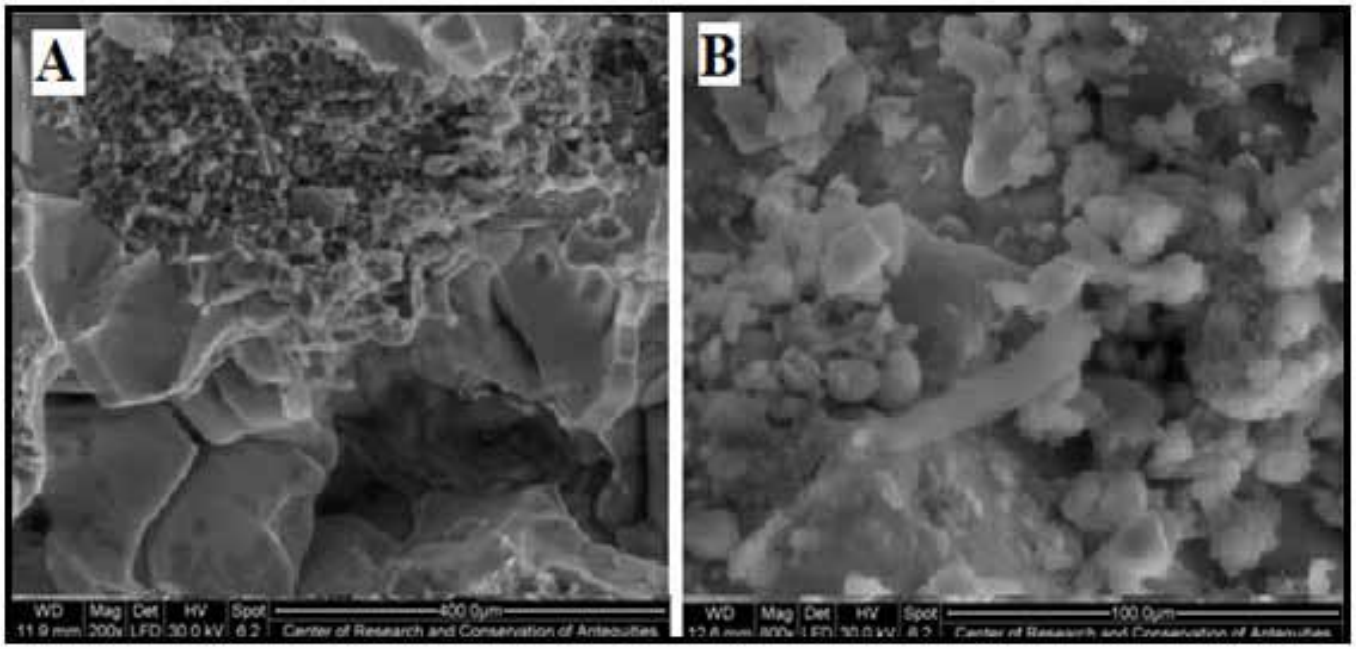
Examination and analysis were conducted using a scanning electron microscope in the Archaeology Research and Conservation Center at the Ministry of Antiquities and a scanning electron microscope in the Building Materials Research Center in Dokki.

1. The Limestone

Two samples of limestone taken from the School were examined with a scanning electron microscope with (EDX). One of he samples was taken from the interior wall facing the qibla wall, and the second was taken from the outer seaside façade of the School, as illustrated in (Picture 11 and Figure 16-A).



Picture 11: (A and B) illustrate gaps and cracks between calcite crystals revealed using a scanning electron microscope of a limestone sample – (Cand D) demonstrate the appearance of halite crystals between calcite crystals.



Picture 12: (A and B) illustrate the presence of halite crystals among the calcite crystals of the mortar using a scanning electron microscope of a salt sample from inside the mortar.

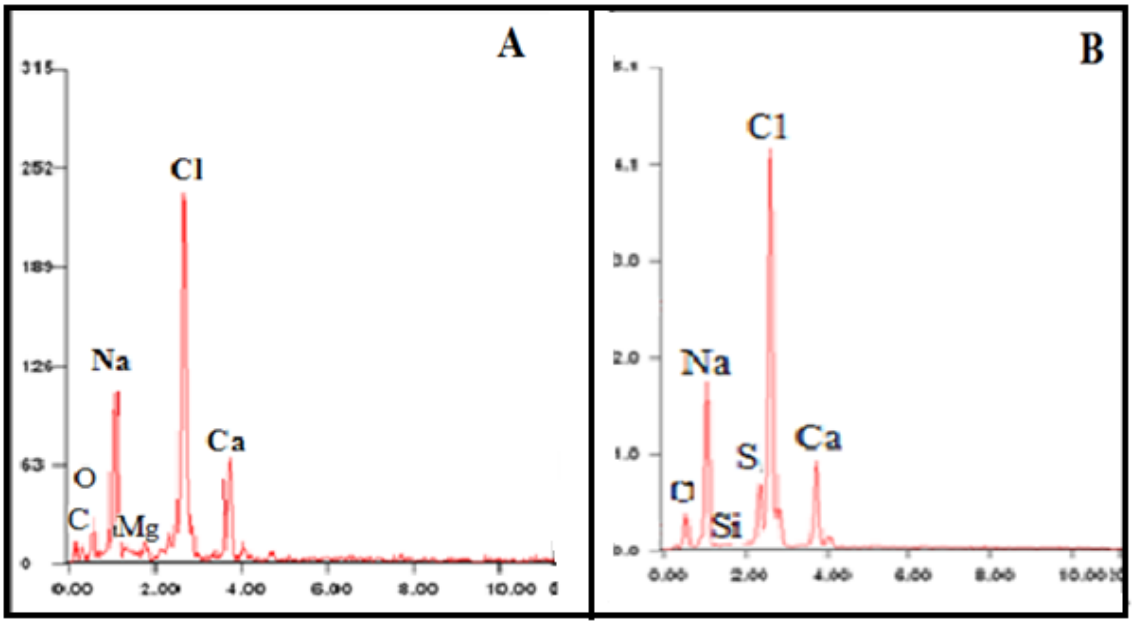


Figure 17: (A) illustrates the analysis of a limestone sample using EDX, demonstrating the presence of calcium, magnesium, carbon, chlorine, and sodium. (B) presents the analysis of a mortar sample using EDX, indicating the presence of calcite, carbon, silicon, and sulfur.

2. The Mortar

A sample of the archaeological mortar of the School taken from the wall facing the qibla wall, which is the wall separating the School courtyard and the toilet, was examined using a scanning electron microscope with EDX (Picture 12, Figure B-16).

Fourth: Chemical Analysis of Construction Materials

A chemical analysis was conducted (in the laboratories of the Construction Materials Research Center) on the School construction materials (two limestone samples, two marble samples, and four mortar samples, taken from different places in and around the School). The results of the samples were identical, confirming the previous examination and analysis results.

Table 1: The results of chemical analysis (by weight) of two marble samples from Azbak Al-Yusufi School.

Sample type and location	The remainder of the acid solubility	Calcium Oxide	Magnesium Oxide	Ferric Oxide	Chlorine	Sodium	Sulfate	Loss after burning
Marble	By weight %							
White/ the potable water outlet	4.5	48.1	2.5	0.62	0.4	1.67	2.9	39.37
Red/ School	3.1	49.5	0.2	0.6	2	3.24	2.45	39.82

Table 2: The results of chemical analysis (by weight) of two limestone samples from Azbak Al-Yusufi School.

Sample type and location	The remainder of the acid solubility	Calcium Oxide	Magnesium Oxide	Ferric Oxide	Chlorine	Sodium	Sulfate	Loss after burning	Total
Limestone	By weight %								

West wall	3.5	48.51	0.35	2.46	3.7	3.51	0.09	37.57	99.69
South wall	3	48.46	0.2	2.16	4.2	2.61	0.06	38.47	99.16

Table 3: The results of chemical analysis (by weight) of four mortar samples from Azbak Al-Yusufi School.

Sample type and location	The remainder of the acid solubility	Calcium oxide	Magnesium oxide	Ferric oxide	Chlorine	Sodium	Sulfate	Loss after burning
Mortar	By weight %							
1. East façade	1.5	51.1	0.2	0.59	2.7	1.54	9.6	32.77
2. West wall	2	49.55	1.5	0.71	1.5	2.74	1.3	40.70
3. The wall facing qibla	3.4	50	1.3	0.7	2.6	3.44	2.5	39.67
4. Seaside façade	3.5	52.1	0.4	0.49	2.74	2.5	1.5	36.77

Table 4: The results of measuring the physical properties of limestone samples at Azbak Al-Yusufi School.

Sample #	Sample location	Density g/cm^3	Water absorption %	Porosity %
1	School rooftop	1.94	7.86	15.98
2	Potable water outlet rooftop	2.12	8.09	48.15
3	School rooftop	1.98	8.92	14.87
4	Below the south wall	2.18	7.76	15.69
5	Potable water outlet rooftop	2.01	8.95	14.28
6	Below the south wall	1.91	7.96	14.94
7	Potable water outlet rooftop	2.23	8.39	14.67
8	Below the west wall	2.14	8.68	15.37
9	Below the south wall	1.95	8.16	15.12
10	Below the west wall	2.03	7.99	14.98

1. The chemical analysis results of the two samples of white and red marble tiles are illustrated in (Table 1).

The results of the chemical analysis in Table (1) show a high percentage of magnesium oxide in the white marble sample due to the presence of dolomite. The results also show low percentage of sodium and chlorine (halite salt) due to the narrow pores in the natural marble. These results confirm that the white marble used is natural marble. In addition, the percentages of the rest of the elements are relatively close.

2. The chemical analysis results of the two limestone samples taken from the west and south walls of the School and the results of the analysis are illustrated in (Table 2).

The results of the chemical analysis in Table (2) show a high percentage of chlorine and sodium in the two samples, which confirms the high percentage of halite salt (sodium chloride) in the building stone. The danger of this salt lies in its rapid dissolution with low percentage of moisture, as well as the rapid crystallization when dry. Although this salt dissolves rapidly in water, it often crystallizes on the surfaces of inscriptions and walls,

making it difficult to remove using water because it bonds with some of the ions present in the medium and turns into a solid salt almost insoluble in water.

3. The chemical analysis results of the four archaeological mortar samples taken from walls from various areas, and the results are illustrated in (Table 3).

The results of the chemical analysis in Table (3) show a high percentage of calcium is all samples, which confirms that the main mortar used in building the School is made of lime. The high percentage of the sulfates in the first sample and the slight decrease in the usual percentage of calcium indicate adding a portion of gypsum sometimes to the lime mortar. The presence of a high percentage of chlorine and sodium in all samples confirms the spread of halite salt (sodium chloride) in all walls, especially in the third sample taken from the wall adjacent to the toilet.

Fifth: Measuring the Physical Properties of the Limestone Used in Building the School:

The physical properties of limestone samples used in building Azbak Al-Yusufi School were measured (in the laboratories of the Building Materials Research Center) by making ten cubes of limestone (3 x 3) cm. The results show A slight discrepancy in the physical properties from one sample to another, based on the wall where the sample was taken. The damage and deterioration of the stones affected the durability of the stones. The results also show that the stone samples taken from places closer to the ground were weaker than those taken from places farther up (the effect of groundwater). Table (4) illustrates the results of measuring the physical properties of ten limestone samples taken from different places from the School walls.

The results of measuring the physical properties in Table (4) show that the physical properties of the stone samples are relatively close. The blue and yellow colors (in the table above) demonstrate each higher and lower percentages. This confirms that the stones used in building the School were brought from the same quarry, and that the condition of the stones, in general, is good. However, some slight differences are found between the samples taken from the upper and lower parts of the walls. The results also show that the relationship between water absorption and porosity is continually fluctuating, as some samples were found to have high porosity and low water absorption (Sample 4). Moreover, the results also indicate that the relationship between density, porosity, and water absorption is not always inverse (Sample 7 high is in density, high in porosity, and high in water absorption), but each stone has its own properties, in addition to the physical properties of the type of rock constituent elements.

Sixth: Measuring the Mechanical Properties of Limestone Used in Building the School

The mechanical properties of seven limestone samples taken from different places of Azbak Al-Yusufi School were measured, and the results are illustrated in (Table 5).

Table 5: The results of measuring the mechanical properties of limestone samples in Azbak Al-Yusufi School.

Sample #	Sample location	Pressure durability strength kg/cm^2	Tensile durability strength kg/cm^2
1	School rooftop	256.2	39.4
2	Potable water outlet rooftop	248.8	38.7
3	Below the south wall	198.5	39.5
4	Below the wall, western side	207.7	39.6
5	School rooftop	267.9	36.8

Sample #	Sample location	Pressure durability strength kg/cm^2	Tensile durability strength kg/cm^2
6	Below the south wall	216.1	37.9
7	Below the wall, western side	204.8	39.3

The results of measuring the mechanical properties in Table (5) show that the percentages of the results of measuring the mechanical properties of the stone samples are relatively close, and the difference is related to the location of the sample, whether the upper or the lower parts of the walls. The samples taken from the upper parts of the walls are characterized by a relatively high ability to bear pressure, as opposed to the samples taken from the lower parts of the walls. However, the results of measuring the durability are relatively close, which confirms that the stones came from the same quarry.

Discussion of Results

The study of the environmental situation of the School had a significant impact on understanding many of the factors and images of damage that caused the deterioration of the School. The results show high level of groundwater below the School due to the fact that the School ground has become lower than the surrounding houses and streets (about 1 meter lower). Furthermore, since the School is located in a crowded and overpopulated area, the school is sustaining numerous problems, such as the deterioration of the water and sewage networks, the water leakage to the foundation, (Oestrreish, 1993, 34-36), air pollution resulting from vehicle exhaust and dust in the streets, and the infringement on the campus from all sides, by the houses adjacent to the School, or the narrow streets surrounding it. Adjacent private and public facilities do not consider the sanctity of the monument. In addition, there has been no preventive or periodic maintenance done to the School; thus, worsening the conditions over time. The conditions of the School were described as ‘deplorable conditions’ (Urban Revival Project for Historic Cairo, 2014).

The results of the examinations and analyses of building materials and the measurement of the physical and mechanical properties of building stones, show that the archaeological materials represented by limestone, marble tiles, and mortar suffer significantly from the damage and deterioration that affect the School, most importantly being sodium chloride salt (NaCl), which is a very dangerous element, resulting from the high level of groundwater contaminated with salt that seeps into the walls of the School by the capillary property. This water often leaks from the water and sewage networks, especially the toilet facilities adjacent to the School. This groundwater contains salts, especially the hazardous halite salt, mainly from the soil, (Selwitz, Doehne, 2002, 205-216).

The results of the polarizing microscope examination of the stone samples used as a building material in the School revealed that the stones consisted mainly of calcite, with the presence of dolomite crystals mixed with the ground of fine-grained calcite grains (dolomitic limestone), in addition to the presence of quartz grains, and a percentage of clay minerals and iron oxides. The results also show some gaps in the samples. It is clear from the polarizing microscope examination of the marble samples used in the School floor tiles that it consisted mainly of calcite, iron oxides and grains of quartz. The results also found that the white marble tiles are originally natural marble, evidenced by the overlapping texture of calcite crystals that appeared upon examination with a polarizing microscope. However, the red marble tiles did not have this overlapping texture of the marble; therefore, this marble would be one of the calcareous sediments known as semi-marble. Results also revealed some gaps in the segments of the samples, resulting from the salts that dissolved

while preparing the samples (Abd El-Tawab, 2012, 163-178).

The results of the polarizing microscope examination of the mortar samples used in building the School indicated that it consisted mainly of calcite, quartz, and carbon (furnace ash).

The results of the X-ray diffraction (XRD) examination of the limestone samples showed that the stone used in the building consisted mainly of calcite in addition to a small percentage of quartz and dolomite, which indicated that the stone used in the building is dolomitic limestone. The analyses also demonstrated the presence of a high percentage of halite salt in the building stones, especially in the lower parts of the walls, which indicated that the source of the salt was the soil and groundwater. It is also clear from the X-ray diffraction examination results that the marble samples decorations consisted mainly of calcite and a small percentage of dolomite, hematite, quartz, and halite salt, which is the leading cause of damage to the marble tiles.

The results of the X-ray diffraction examination of mortar samples demonstrated that they mainly consisted of calcite and quartz (lime mortar) in addition to a small percentage of gypsum (Charola, Puhringer, and Steiger, 2007, 339-352), dolomite and halite salt (sodium chloride). It is also clear from the X-ray diffraction results examination of samples of metal bars (windows) that iron rust compounds were formed as a result of the oxidation processes that resulted from moisture and the interaction of the metal components of the bars with moisture and oxygen, which led to the erosion of the outer surfaces of the metal bars. Field inspection showed that the use of modern coatings for metal bars has hidden the original features of the monument and did not protect the bars from damage or rust if the rust components were not cleaned before the coating process. Consequently, the rust compounds persisted underneath the paint, playing their destructive role in transforming other layers of metal bars into corroding rust. Also, the unpainted parts were still exposed to climate factors, including moisture and air pollution, and they became renewed sources of rust, aggravating damage.

The electron microscope scanning with EDX showed that the bonding material of the limestone grains was in a state of weakness and disintegration. In addition, the results showed some gaps between the crystals and a high percentage of halite crystals inside the stone, especially in the lower parts of the walls. Moreover, results also showed that the mortar used in the building contains a high percentage of halite salt, which causes its deterioration and loss of its binding property (Charola, 1998, 185).

The results of measuring the physical and mechanical properties of the limestone used in building the School showed that the results of all the samples were relatively similar. The slight difference from between samples is attributed to the place where sample was taken and the damage and moisture it experienced. These factors and more negatively affected the physical and mechanical properties of some sections of the School. In general, examination of that the stone samples taken from the lower parts of the walls showed that their physical and mechanical properties were weaker and more dilapidated than the samples taken from the upper parts of the walls farther up, away from dampness and salt (Aly, N., Wangler, T. & Török, 2018). Results of the study in general indicate that the School is a very bad shape. It needs an urgent comprehensive restoration project before the situation aggravates and the School loses irreplaceable archaeological features.

5. Recommendations

Based on the results of studying the current situation and monitoring the damage and deterioration of building materials in the School, the researcher recommends the following:

- Preparation of a comprehensive (architectural and meticulous) restoration project for the School as soon as possible.

- Building a fence around the School from all sides and removing all infringements around it.
- Reducing the level of the dirt and soil around the School from all sides.
- Developing appropriate solutions to reduce the level of groundwater in the School walls. Such solutions could include insulating the foundations with materials that prevent the groundwater and its salt seeping into the walls.
- Improving the drainage system around the School to reduce the groundwater level in the area.
- Permanently closing the toilet facilities adjacent to the School.
- Conducting mechanical and chemical cleaning operations using materials suitable for layers of dust, dirt, and mold.
- Conducting a process of extraction and removal of salts from the walls and floors of the School.
- Reinforcing the weak, corroded, and damaged surfaces, internal structures, and external surface layers using suitable materials.
- Repointing (pointing) the walls with lime and sand mortar.
- Conducting a surface insulation process for the decorative elements at the School to protect them against air pollutants and moisture.
- Performing periodic maintenance after completing the restoration operations.

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Al-Bayder "Threshing Square" in Sanfaha Village, Tafilah Governorate, Jordan: An Ethnographic Study

Wael Al Hajjaj

Abstract*: This study explores the socio-economic relations of an architectural unit that was present in the villages of Jordan until the end of the last century, known as Al-Baydar, or "the threshing square". In this square, farmers did processes to wheat and barley to loosen the edible part of grain from the chaff to which it is attached. The main focus of this study was on Sanfaha village in Tafilah Governorate, Jordan. This study follows the ethnographic approach to unravel the socio- economic relations associated with this architectural unit (Al-Baydar) and provide information and ideas that would benefit researchers in archeology and anthropology about the nature of ancient societies by focusing on Al-Baydar's socio-cultural, spatial and functional dimensions. Threshing squares reflect many of the cultural, social, and economic features that differ from one threshing square to another, depending on the nature of the groups that owned them.*

Keywords: *Al-Bayder, threshing board, Sanfaha village, social groups, ethnographic approach, clan and ownership.*

Introduction

Studying the social formations or social groups that make up ancient villages in Jordan is one of the aspects that need further analysis and deeper research, especially with studies focused on lifestyles. The lack of clear written sources and the vanishing of cultural material about this village led to the absence of any clear framework that could describe these social formation or social groups.

The community within the village of Sanfaha is divided into several clans of the same tribe. A new clan from another tribe, however, came into the village a while later. They all share the economic resources available and social status. Every typical village in Jordan reflects a social and economic pattern based on herding and farming, therefore, various forms of relations and ownerships emerged.

This study, consequently, addresses an architectural unit known as 'the threshing square' (Bayder) [(1)], where people process their yearly harvest by threshing, in an attempt to unravel the nature of the economic and social relations between these clans or social groups that inhabited the Sanfaha village until the end of the last century. During the last century, Sanfaha village underwent radical changes in its social, economic and demographic composition. These radical changes were clearly reflected in the distribution and ownerships of real estate.

Methodology and Tools

This study adopted the ethnographic approach, describing material cultural evidence in attempt to link this evidence to human behavior. Al-Amin defines the ethnographic approach as: 'a scientific activity that depends on field observation and specializes in describing contemporary nations from different cultural levels. It includes describing physical and nonphysical elements of those nations, to explain the economic, social, and political aspects, in an attempt to uncover information and discover more ideas about the style and lifestyle of ancient archaeological communities' (Al-Amin, 2008). This study also utilizes the available historical sources about this architectural unit. The tools used for this study were as follows:

1. Personal interviews with concerned individuals

and people who witnessed threshing squares [2].

2. Written historical sources.
3. Field survey of the village through photographing and drawing some important details.
4. Citing some pictures from previous studies to document some of the activities and tools no longer used.

Study Site

In the Semitic languages, the name of the village, 'Sinifha', means the place of thorns and holes in the ground. It also means bitter cold. The word consists of two syllables, the first (Sin), meaning thorns and the second (Fha), meaning bitter cold, (Rahhal, 2006).

In the Aramaic languages, however, the word consists from two syllables, the first (Sin), meaning holes in the ground, and the second (Bha), meaning severe cold (Hatamleh, 2010). The village, 'Sinifha', is located on the western side of Tafilah Governorate, about 11 kilometers to the west (Maps 1 & 2). It was mentioned in the Ottoman Land Title Book No. 970 as a village located near Hamida Mountain, and it has three (khans)[3] and six (mujrad) [4] (single men) and one preacher. In the Ottoman Land Title Book No. 185, it was mentioned as a village located near Karak Mountains and a property of the Prince in Karak and Shobak county, with eighty-one khans (Al-Bakheet & Humoud, 2011). In addition, the village was built on a mountain known as the 'Qasr Al-Deir Mountain', with the neighboring villages on its northwestern side. The village is estimated at about 1316 m above sea level (Salman, 2009). The village lies between 35 degrees, 34 minutes east and 30 degrees, 50 minutes north (Picture 1) (Hatamleh, 2010), with an area of 542,778 m2.

The village generally has a Mediterranean climate, with some influence from the desert climate from the eastern side. The amount of rainfall varies from year to another, with frost occurring in the mornings and night, and snow falling in the winter. Rainfall ranges between (300 mm-500 mm) annually. Finally, the summers are hot and dry, and the temperature reached 36 C^o in 1980 (At-Tarawneh, 1992).

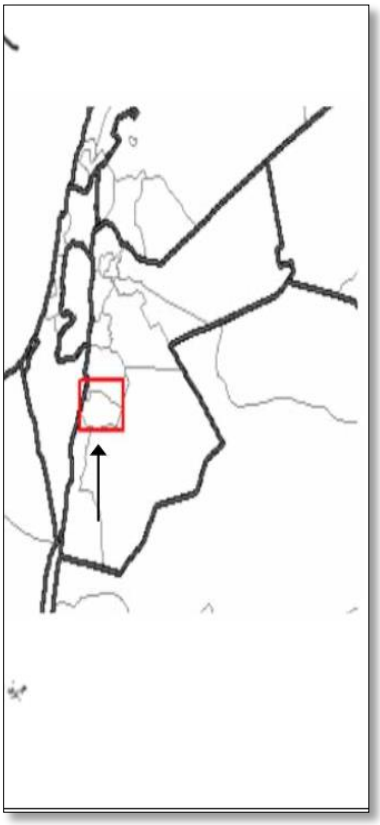
Furthermore, the village has had many water springs, which represented an attraction to all clans that settled there. The springs include: Ayn Al-Yabus, Ayn Al-Abed, Ayn Sarara, located on the southern side of the village, and Ayn Artama, and Ayn Nahla in the northern side of the village, and Ayn Al-Deir, Ayn Al-Qur, Ayn Al-Hanana, and Ayn al-Hawda. In addition, there are also 'Samy' well, and 'Fadel' well, which according to village residents, were dug before 1890. The village Sanfaha was also famous for its Roman olive orchards, and had olive-growing lands, including the lands of Abel, Sawa, the lands of Al-Shaban, Al-Dhira, Talah Al-Hawda, and the lands of Abu Al-Tawabin and Umm Al-Shair (Salman, 2009). The Ottoman Land Title Book No. 185 indicated that Sanfaha had three farms, namely Napata, Qalat Al Silaa, and Batana (Dana). The estimated crop yields of each farm is 500 (Akçe) (5) (around 15,000 US$) (Al-Bakheet & Humoud, 2011).

It has been reported that the residents of the village planted different types of wheat, such as Moroccan, Jaljuli, Nursi and local wheat. They also planted barley, local barely, Harawi and Marioti barley. The Ottoman Land Title Book No. 970 mentioned that the share of the village from wheat, 25% of the total crop, was sixty sacks at the value of six thousand and eight hundred Akçe and of barley, sixty sacks, at the value of four thousand and two hundred Akçe, and the olive is one thousand five hundred Akçe (Al-Bakheet & Humoud, 2011).

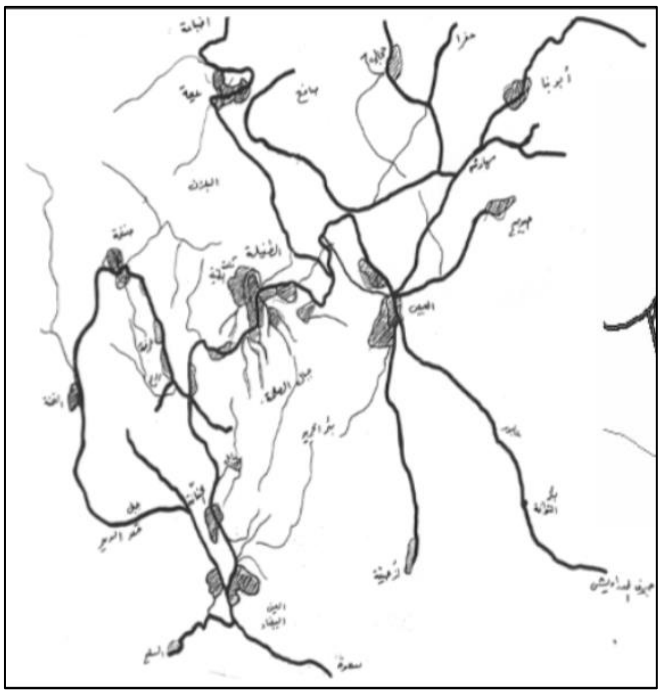
Village Demographics

Sanfaha is located to the west of Tafilah, Jordan and was mainly the homeland of Al-Hamayda tribe,

with a number of clans branched out: Al-Sawalqa, Al-Hassasnah, Al-Amour, Al-Shatiyat and others.



Map 1 Shows its location in Jordan



Map 2 Shows the location of Sanfaha village and the surrounding villages in Tafilah Governorate, (scale of drawing from 1: 50,000 m) (by the researcher)

They settled in this area towards the end of the 19th Century. Their livelihood revolved around two patterns: herding and farming. They inhabited the village because of its mountainous nature, which formed a defensive area against enemies around. The village location was like a gateway to the western side, through which Sanfaha village connected to some other areas such as Karak and Palestine. Furthermore, the abundance of water springs, as the villagers mentioned that it contained more than 120 water springs scattered in different areas of the village.

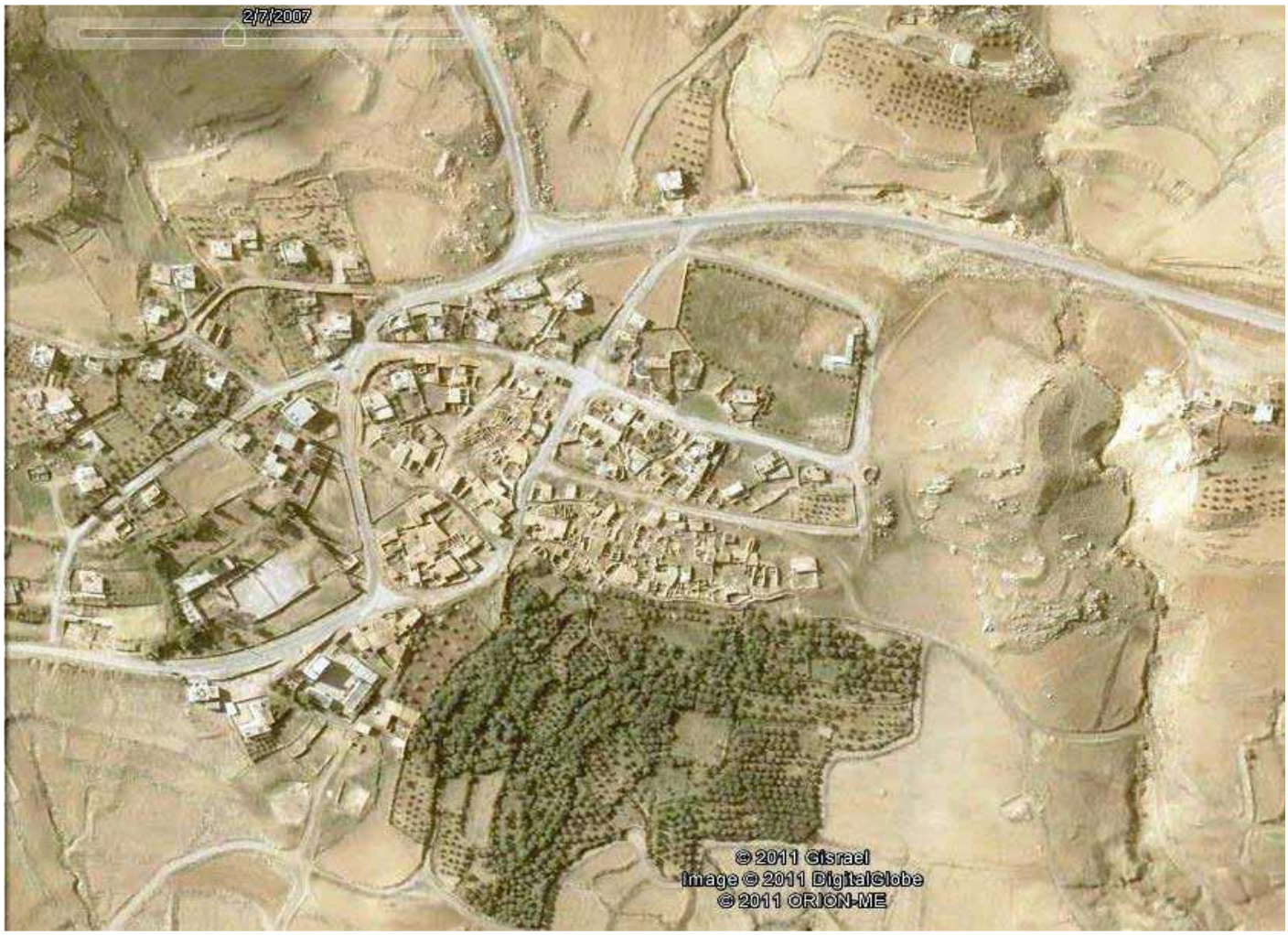
Al-Hamayda in Tafilah

The tribe of Al-Hamaydah from Al-Tafilah provided evidence to the validity of the migration line of all Bani Hamaydah clans, as they continued living in their first home of Sanfaha. Whereas the villages they currently reside in Tafilah are (Abel, Al-Sila, Erweim, Al-Maten, Al-Namtah, and Al-Ain Al-Bayda). If had it not been for the ancestors who left Sanfaha and settled in other areas, Sanfaha would have been the largest of all the villages in Tafilah, which is the reason it is called (the mother of villages). The truth is that the first ancestors of Bani Hamydah lived in Sanfaha, and they are today scattered in 40 different towns and villages. Most residents of Theban county are from Bani Hamydah. The rest of the regions know and acknowledge that their first ancestors travelled from Sanfaha in Tafileh, which confirms that it is not only the origin of the six villages inhabited by Hamaydah in Tafileh, but it is also the origin of villages of all Bani Hamydah (Salman, 2009). Al-Hamaydah tribe also practiced many types of economic activities, namely, herding, farming, and trading on a small scale (Jobser, 1988). Some of them owned windmills. An example of which is Faleh Al-Hawawsheh owned a windmill in Wadi Al-Wala (At-Tarawneh, 1992). Salname, a Syrian State, mentioned that in 1880, their population reached about 1,500 people living in 300 tents. At the beginning of the 20th century, their population

raised to 3,500 people living in 700 tents. (Sheikh Abu Bariz) owned 230 tents in the areas of Faqoua and Al-Jabal (Al-Hourani, 1910), and after settling down and beginning to farm, as Land Title Book of Ajloun county mentions, "Sanfaha village included: 103 khanah, 6 mujrad (a single man), and one preacher (Imam)" (Al-Bakheet & Humoud, 2011). At the beginning of the 19th Century they built houses after settling in Sanfaha village. In 1910, the number of registered houses in Sanfaha reached 150 houses" (Al-Hourani, 1909). Accordingly, the clans that inhabited Sanfaha were: Al-Sawalqah [6], Al-Shatiyat [7], Al-Amour [8], Al-Hasasana [9], Al-Awran [10].

Why this Village, Sanfaha

People chose to settle in Sanfaha for various reasons. First, the village has a good number of threshing squares that are still visible, and some clans still have their threshing squares till today, which helped us collect direct information for this study. One of the main factors that helped us collect information is that some of the elders who worked in farming, harvesting and threshing are still alive. This helps the researcher to identify the most diverse cultural aspects and will provide another dimension in tracing the village history, as well as, the different phases that accompany the process of harvesting and threshing.



Picture 1: An air image of Sanfaha and its surroundings (Google Earth)

Literature Review

Despite the importance of the subject of this study, it did not receive the sufficient care and attention it deserves, whether in archaeological or anthropological studies carried out by specialized researchers. Most of these studies had only incidental reference to some archaeological sites and traditional villages. Those studies focused on farming practices and crops threshing processes without addressing the characteristics of the threshing squares and their reflection on social and economic relations within the clans or families.

Carol Palmer, a researcher, in her study "Following the plough: The Agricultural Environment of Northern Jordan", mentioned the changes that took place in agricultural techniques and cultivation methods in northern Jordan; harvesting and threshing. She considered threshing squares as places or social centers for people in general. She also mentioned several types of crops grown in the northern villages, such as lentils, chickpeas, and others. She addressed the nature of the environment, climate and livestock in northern Jordan, and mentioned the use of ethnographic measurement in the field of agriculture, which may be useful for archaeologists and anthropologists analyzing their information about archaeological sites (Palmer, 1998).

The researchers, Carol Palmer and Kenneth Russell in another article titled (Traditional Arts of Jordan), discussed the ploughing process in the northern and southern parts of Jordan. They mentioned that the ploughing patterns in the two regions were different based on spatial and environmental considerations; not for cultural or ethnic differences. They also elaborated and said that the type of plough in the north was very different from the plough used in the south, in terms of the type of wood used in manufacturing the plough, and the type of animals used to pull it. Their study sheds some light on the animals used in ploughing and threshing (Palmer & Russell, 1993).

In another study, researcher Lucian Turkowski, titled (Peasant Agriculture in the Judean Hills), addressed the customs and traditions that the villagers would follow when ploughing and threshing. The villagers used to have a dedicated place for threshing and all the families would share the place. Rich families, however, would thresh their crops in August, as per the researcher, after all other farmers have finished threshing their crops. The researcher also mentioned methods of threshing other types of crops such as legumes (beans, lupine and lentils) (Turkowski, 1969).

Another study, a doctoral thesis for Louise Sweet, titled (Tell Toqaan: A Syrian Village), addresses all the cultural aspects of the village of "Tel Toqaan" in Syria. The researcher addressed the real estate ownership in the village, and the work roles according to certain considerations, such as age groups and specialization. This meant that each family member had his/her own role; women would make storage tools, bakery, pottery and cleaning the land before ploughing, while the eldest son in the family would make agricultural tools such as the threshing board, the plough and the like. Finally, the youngest son in the family would do herding and take care of livestock (Sweet, 1960).

Ghassan Al-Tal in his book "The Jordanian Society: Aspects of Popular Lifestyle", addressed various common areas in the Jordanian society, starting from stability to the formation of the clan, the family, and social relations, such as marriage, consanguinity, and others. He also discussed family traditional remedies and food, as well as, customs and traditions related to them. The book also included a special chapter about popular artifact. The chapter addressed work in agriculture in particular and the customs and traditions related to it. The author mentioned that planting grains and threshing the crop were carried out meticulously in the farming community. He also pointed out that the threshing square was "a paved yard and sometimes it is a compacted floor, where produce is collected.

This produce would also be saved as an asset for the next season (Al-Tal, 2006).

In a study titled "Threshing Floor in Cyprus" describing agricultural processes in the Mediterranean region, specifically in Cyprus, Whittaker mentioned that the threshing grounds reflected the complex relationships between crops and technology on the one hand, and local materials and the agricultural social organization on the other. The Threshing squares in the village would be owned by some families from the same clan, built on hills near their lands. The ground of the threshing squares would also be covered with limestone to mark its boundaries and surrounded by stone walls to protect the crops from theft or loss (Whittaker JC, 2014).

The Three Waves of Migration to/out of the Village

The village, Sanfaha, has witnessed three waves of migration throughout its settlement history, and Al-Fawadila clan was the first to settle in the area, along with a number of other clans, with the arrival of Sheikh Fadel. In the beginning, Al-Hamayda tribe were nomads and lived in tents. Sheikh Fadel had a cistern dug in the center of the village and the cistern was named after him (Fadel Cistern). This tribe and other clans settled in the village for the abundance of water springs in and around the village. Also, the law enforced by the Ottoman Empire at that time, encouraged settlement, farming and building villages. This law gave tribal leaders and clan heads real estate and even allowed them to take over land, as was the custom at the time. This, in turn, enabled Al-Hamaydah tribe with all of its branches and clans to settle in Sanfaha. The village was also an attraction for other clans that settled in the village later. One elder from the village, named (S.B.) [(11)] says, "One day, my grandfather told me that his family and other families came from Hejaz (Saudi Arabia now) and other areas such as Palestine and Jordan in 1830 (approximately). They settled in Sanfaha to avoid clashing with the Turks (the Ottoman Empire at the time). He also said that the village had many water springs, and that his grandfather lived in a tent.

From this testimony, we could infer that the first residential facilities built in the village were tents (canopies made of goat hair for nomads). This was also confirmed by another elder, named (M.S.) [(12)] when he said: "For a long time, my grandfather and my father after him lived in tents, even before 1850. They were sheikhs, sons of sheikhs, until the Ottoman Empire tortured them; we hate them (the Turks); they imposed taxes and we never paid them anything".

With the advent of Al-Hamayda clans, such as Al-Sawalqa clan from an area called Sawlaq in the West Bank of River Jordan, and part of Al-Awran clan from Tafileh, in 1850s, their lifestyle changed to become totally dependent on farming and herding. This also marked the construction of the first houses made of stone and mud in the village.

Conflicts erupted between various clans of Al-Hamayda tribe and the Al-Awran clan, which drove a large number of people from other clans, such as Al-Amour, Al-Shatiyat, and Al-Hassasnah, to leave the village. They established villages around Sanfaha, such as Al-Namtah, Al-Salaa, Arafa, Erweim, Abel, and Al-Maten. This marked the second wave of migration from Sanfaha village in the period between 1870-1900.

The elder we met, (M.S) added saying, "We gathered forty men from Al-Awran family, and we agreed with Al-Hassasnah clan to wage a war against Al-Sawalqa clan, over the turn to irrigate the olive orchards. We also had other problems with them (he did not mention)". When the researcher asked a number of people from the village about the problems that led to the clashes with other clans, they reported, saying "all our problems were about herding areas and turns to irrigate olive orchards".

The third wave of migration occurred at the beginning of the 20th Century, when all the clans, including Al-Sawalqa and Al-Awran clan leaving

the village. This was also marked by the construction of concrete houses in Ain Al-Bayda and Arafa areas, following the availability of services and ease of access. Besides, a large number of the villagers had bought land in those areas, and the area provides governments jobs and services. However, a very small number of families of Al-Hassana, Al-Shatiyat and Al-Sawalqa clans stayed in Sanfaha. Another elder, named (S.B.) said, "Why leave Sanfaha? Our lands and olive orchards and a water spring are all available here. My son left the village and moved to Arafa (a village nearby), and he visits every now and then to help me in harvesting and threshing." The elder, named (M, S) said, "I bought some land in Arafa, and I am staying here with my wife, and when my children grow up (his oldest son is 15 years old), I will have a house built for him here".

These three waves of migration (Figure 1) to / out of Sanfaha indirectly affected the shape of the village and the lifestyle of the families living there. Each clan started to have its own resources. Al-Sawalqa clan, for example, had their own cemetery and a threshing square, in addition to springs to irrigate their trees such as the springs (Al-deir). Al-Awran clan too had their own threshing square, and a cemetery, where no one from outside the clan was buried. They also had their water spring called Ayn (Nahleh) and Ayn (Kifaf) and a small threshing square. However, Al-Shatiyat, and Al-Hassasnah clans had a cemetery and a threshing square of smaller size.

Al-Bayder (Threshing Square)

The threshing square is as an open yard located close to the village or the cultivated land, where the crops are threshed and husked (separating grains and chaff). This is the first stage in preparing the grains for grinding. The threshing square normally has a hard-rough floor and often paved with rocks. It would have a wall made of rocks as well; one meter or lower. Farmers usually consider building the threshing square on a high ground (hill), often facing winds, to easily process threshing and husking.

Alqam (2006) defines the threshing square as a place dedicated for collecting crops to extract grain, with an area that ranges between 150-350 meters. Farmers would also call it (الجرن, Al jurn), and the plural form is (Ajran, أجران).

Furthermore, the 'threshing square' was mentioned in ancient sites, and some archaeological studies indicated that the threshing square was used in the late Neolithic and early Chalcolithic (Copper) Ages. It was widely used in the Bronze and Roman Ages. Microscopic analysis conducted by Anderson on flint blades and saws used to manufacture threshing boards indicated the presence of friction and abrasion marks as a result of their use on hard floors (Anderson PC, 1994). At the site of (Tell Nusstel), located in northern parts of Syria, and dates back to the Bronze Age, some flint tools, blades, and saws were found with rough surfaces and bore friction marks. These were known as the 'Canaanite blades' (Picture 2: A and B), specially made for making sickles and threshing boards (Chabot, Jand, Eid, P: 2007).

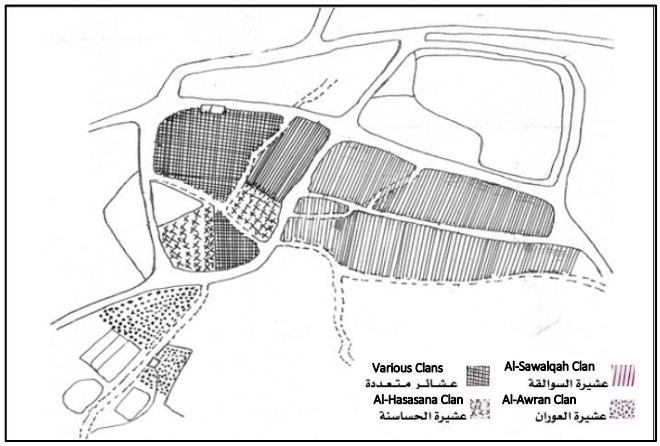


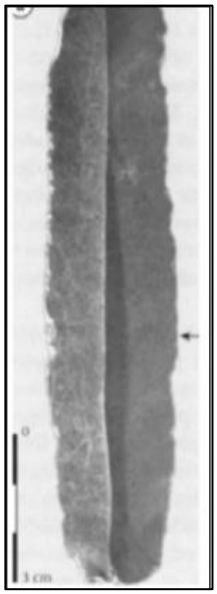
Figure (1) Clans distribution in Sanfaha (The Researcher)

Tools were made of flint stone and fixed at the bottom of threshing boards made from Canaanite blades, that came originally from Mesopotamia. They were widely used in Syria and Turkey. This is clear evidence of the existence of some squares where threshing boards were used. The results were

obtained through an ethnographic study on villages that used flint stone tools made of Canaanite blades to manufacture sickles and threshing boards in the Neolithic and Copper Ages (Anderson, P.C. and Gijn, A.V. and Chabot, J.: 2004).

In the Uvda site near the Negev, which dates back to the period of the 4th millennium BC, grains of wheat and barley were found, as well as workshops to manufacture flint stone tools near circular squares used to manufacture wooden boards for threshing grains. This proves that the threshing squares were used in that period (Avner U. et al: 2003).

Richard Yerkes (2012), a researcher, inferred the existence of threshing squares through the use of threshing boards in Mesopotamia, Levant and Turkey. These threshing boards were made of certain types of flint stones and basaltic tools found on high grounds from the Roman period (Yerkes, R.: 2012).



Picture 2 A: Canaanite blades (Avner, U et al, 2003)

Picture 2 B: Wooden threshing board with flint stone blades (Waters J. L., 2013)

The use of threshing squares increased in the Iron Age, and several flint stone tools were found at the site of 'Tel Megiddo' in Palestine, as well as, a geoarchaeological layer covered in white, as chalk was used to mark the borders of threshing areas in the past. In one of the layers of the archaeological site, wood ashes and inorganic materials were found (Shahack-Gross, R., et al: 2009).

In addition, at certain periods of time, threshing squares considered among the squares that held a sacred status, especially in the Roman era. They were controlled by gods and supervised by priests. They were sites where human prayed for gods on the one hand, and sites of social communication between the residents of the village on the other hand. Thus, threshing squares were considered sacred places controlled and cared for by gods and supervised by priests through performing rituals, blessings and making fortifications (Waters J, L, 2013).

A threshing square from the Roman era was discovered in the remains of a village called "Mansour El-Aqab", 6 km away from Al-Qaysariyyah. A circular square carved out of rocks was found and the boarders were marked with chalk. The square also had threshing marks (slashes and friction resulting from flint stone tools). It was between 6 - 7 meters long and 1.8 meters wide. A rectangular basalt stone used to thresh grains was also found nearby. This square is located on a high ground facing wind (Waters. J. L., 2013).

Shapes and Types of Threshing Squares:

1. The Stone-Paved and Fenced Threshing Square:

The first appearance of this type of threshing squares was in the Roman period, and was widely used later. It was close to the cultivated land and was available for the public. However, it was under the control of the ruler of the region.

The ruler would arrange turns for farmers and provide them with workers and necessary tools to do the threshing work. This type is paved with flat rocks, fenced with rocks and has a circular shape. This threshing floor would be chosen on a high ground to face the wind. The threshing board, made of flint stones and basalt tools was widely used in this period. The crops would be distributed as follows: the largest share goes to the ruler; the state treasury; the workers; and finally, to the farmers (Yerkes, R. 2012). An example of this type of threshing squares is the threshing square found in the village of "Bir Al-Tafi" in Wadi Musa in the southern parts of Jordan. People in the village reported that this threshing floor dated back to the Roman period and was reused again and again, but was never owned by any of them (Picture 3).

2. Threshing Square with Compacted Floor:

This type has been one of the most common types of threshing squares since ancient times. A piece of land, not suitable for cultivation, would be dedicated and cleared from stones and weeds. Sometimes this floor would be sprayed with chalk to mark the borders of the square and prevent the soil from becoming muddy in the winter. This type continued to be used until the end of the last century in some Jordanian villages. These threshing squares would usually be located near or within the cultivated land and would then be restored after every winter. This type of threshing squares would be the property of the owner of the crops or land (Picture 4).

3. Unwalled Threshing Square

This type is one of the most common types of threshing squares; it would be prepared by choosing a small part of land and clearing, removing dirt and stones, and then preparing it for threshing. After the end of the season, it would be ploughed and planted for the following seasons. This type of threshing square would not have a fence, or a specified place. It might be on the southern side of the land on one season, and on the eastern side the following season, provided that it is on a high ground to facilitate the threshing process. It would be the property of the land owner, and this threshing floor would usually be made for small crops or for families that do not have an independent threshing square (Picture 5).

Picture 3: Stone-paved threshing square in Bir Al-Tafi village- Wadi Musa (The Researcher)

Picture 4: Threshing square with compacted floor (Avner, U. et al, 2003)

Picture 5: Unwalled threshing square (Anderson C.P, 2014)

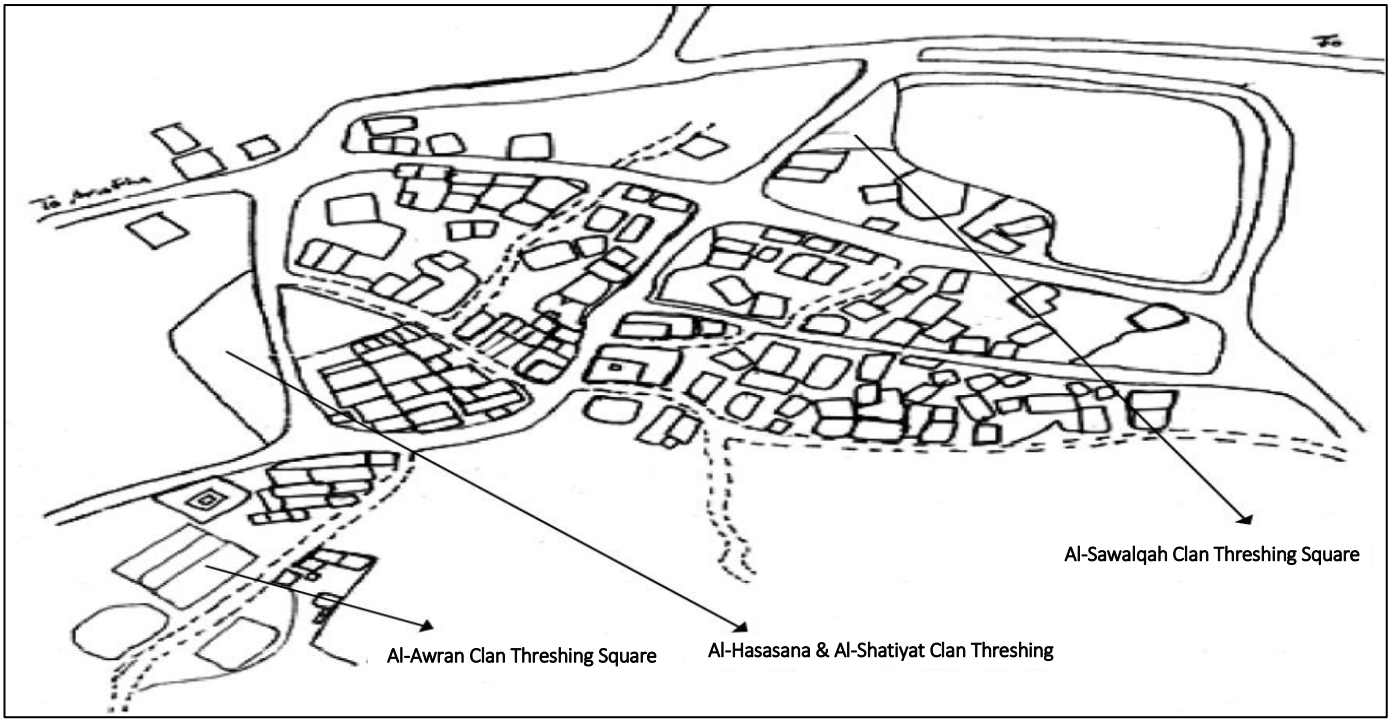


Figure 2: Threshing squares in Sanfaha Village (source: The Researcher)

Al-Sawalqa Clan Threshing Square

Before describing the threshing square, it is necessary to address farming activities, starting from planting the wheat seeds to the arrival of the crop to the threshing square. The majority of Al-Sawalqa clan worked in winter and summer farming, ploughing, seeding, weeding, harvesting, threshing and winnowing. Some families of the same clan worked as herders, farmers, harvesters and workers. This would be done on the basis of exchanging services within the same clan. The farming system in the village is an integrated economic system, where family members are on one hand, and clan members on the other. With the end of the Ottoman Empire, the British Mandate came and distributed the real estate property among the large tribes that included families or small clans. The real estate would be named after the sheikh or chief the clan, and the land would be distributed based on the tribal leader's discretion (Picture 6). During the 20th Century, the lands would be commonly distributed according to an internal clan organization, and no one needed to know the exact location of his/her share of the land. They would cultivate it (based on rotation); they would leave one side of the land and plant another, according to an agreement among the clan members. They would change the division in the following season (Hatter & Abu Khaleel, 2014).

For Al-Sawalqa, the farming season begins at the end of October and continues until the end of August. They would start work by cleaning the land, removing dry and harmful weeds, typically by women, especially young women. Then, a man with other members of only the same clan would begin to plough the land before the rains fall. The land would be ploughed twice. Elder (M.S.) [13] said that would be done by (As-Sikkah, السكة) the plough[14], to prepare the surface so the soil would breathe. It would be ploughed, making wide paced lines called (Talem تلم)[15]. Then the land would be ploughed again in January and sowed with Norse or Moroccan wheat. These types of wheat would be used because they can withstand high temperatures and dry

weather in the summer. It was also known in the village that Al-Sawalqa farmers would plough their lands in February again; they would redo the wide spaced lines, so rain water would reach all the seeds. Elderly (Mah. S.) said, "This method is called "Affeer sowing" (sowing the seeds before the early rain)". Most of the other clans in the village would follow this pattern in cultivating their lands. The harvest process in Sanfaha village starts in early June and continues until the end of August, depending on the climate. The owner of the crop or the owner of the land would meet with a number of families from the clan with women and children, to start the first step of reaping the crop, either with their bare hands or using a tool called "sickle". The owner of the crops would have to provide food for the families and members of the clan helping him with the harvest. They would usually prepare a certain type of food, as elder (L.S.)[17] said, "I used to make a meal called "Khalil" (Hebron), after prophet Ibrahim (nick named "Al-Khalil" in Islamic scripture), hoping for blessing, and it was mainly rice with animal fat". However, at the end of the threshing process, we would make another meal, called (Bahtah, بحتة)[18] (mainly rice, milk and animal fat). After reaping the entire crop, we would collect it and pile it up in small piles called (Ghamar غمار)[19]. Then, these small piles would be arranged in eight rows called (Halla حلّة) (small pile put next to each other horizontally). After that, these horizontal piles would be transported on a tool called (Al-Kadem القادم)[20] (a special primitive tool, usually carried by animals, made of wood and ropes to hold as much as possible of the crop) to the threshing square, where the crop would be processed. Some poor families from the same clan would then come to field to collect whatever left over from the crop. The sheikh of Al-Sawalqa clan chose to set up the threshing square in the northeastern side of the village, close to farming lands. The spot chosen was also favorable for the wind direction for winnowing the harvest. This spot was also favorable since it would not cause any harm to other crops or neighbors. The chosen spot was hard and flat; it was first cleared, removing rocks and weeds, and it was later fenced with stones. The area of Al-Sawalqa threshing square was approximately 500m long and 400m wide. It is owned by elder (M.S.), who is the sheikh of Al-Sawalqa clan. This square would not usually be shared with other clans in the village. Each clan would usually have its own threshing square. Sometimes, some families would be allowed to use the threshing for something in return, depending on an agreement. The person using the square would have to offer something in return, usually a part of the crop, an amount two measure of wheat (equal to 30kg) and one measure of barely (equal to 15kg of barely). Sometimes, a farmer would use the square in exchange for a service, such as working for the owner of the square. The process of threshing the harvest would starts with piling the harvest in the center of the threshing square in the form of a circle. Al-Sawalqa clan used, as the elder (F.S.) called it (the threshing board) (Fig. 2, Pictures 6-8). This threshing board was known in the past as 'Dikran', a word of a Roman origin and influenced by the ancient East (Turkowski, 1969). The board is a flat farming tool made of iron or wood and is dragged using animals (usually a pair of animals or more tied together in a formation going around in a circle). Sometimes, people would add a rock or a couple of rocks to the weight of the person on the threshing board. The sheikh of Al-Sawalqa clan had a threshing stone made of wood by his eldest son. The elder, (Mah. S.) mentioned three types of boards used for threshing in the village; the first type was an iron board called tin (the metal), ranging from 100-85cm wide and 120-150 cm long, with holes opened in the longitudinal rows from the bottom. The second type was a wooden board provided with blades made of small flint pieces for breaking and chopping the harvest. The flint stones would be brought from an area known as 'Jurf Al-Darawish'; an area located and 50 km to the west of the village. The flint stone blades would be prepared and made in the same area. The third type of board is also made of wood of the same size, with some flint

stones (Al-Radf الرضف), fixed on the back side. The flint stones would be irregularly shaped stones and sometimes would be used at the bottom of traditional Arabian baking ovens (taboon الطابون) to distribute heat and facilitate baking. Making the board and fixing the stones would usually be done by the owner of the crop, his family members and some members of the clan. Elderly (Mah. S,) would have an abundant crop, and he would put his harvest in the form of two circles for the threshing board. His children would do the threshing for several days. One of the family members, known for his honesty, would guard the harvest and the threshing square.

After the first threshing process, the crops are turned over for two or three days until they dry out using a pitchfork (called Ash-aoob, الشاعوب in Arabic), and then the crops would be threshed again early in the day. It was customary to place a barrier of rocks in the form of a line to separate the grains from the straw. After that, a wooden winnowing pitchfork (called Al-Mithrah in Arabic, المذراة) is used to separate the grain from straw (hay). This process is avoided when there is strong wind coming (Picture 8).

After collecting wheat in the form of a heap called the (Subbah, الصبة), the first measure known as "Al-Khalili Saa" is taken (Picture 9), and people in some clans would usually say (Nus mudd Al-Khalil نصمد الخليل) (something said for blessing in these occasions). This quantity would then be distributed to poor members and families of the clan, as charity and blessing for harvest. Then the owner of the land or the crops would supervise the distribution. The owner of the threshing square would then be given an amount of three measures of (Saa) (between 45 – 60 kg, depending on the kind of harvest), if the owner of the harvest is not the owner of the square. After that, the corps would be distributed among the family members, and the eldest son would take a sack of wheat that weighs, round 50 kg (again, depending on the kind of harvest). After that, the hay is collected in sacks, taken by the owner of the crops to be stored as fodder for livestock in dry periods, and used in manufacturing storage units and traditional ovens. The middle son would be given the amount of half of a sack (around 50 kg), and so on for the other male children. As for female children, unmarried girls would get their share with their parents. However, married girls, would take shares on ad hoc bases, either one or two measures, depending on the abundance of the harvest.

Picture 6: Al-Sawalqa clan threshing square (source: The Researcher)

Picture 7: Threshing the crops using threshing board (Whittaker J.C., 2014)

Picture 8: Using pitchfork and threshing board in the threshing square (Anderson P.C, 2014)

Picture 9: Al-Khalili Saa (Turkowski, L. 1969)

After the distribution is completed, the harvest is then collected in sacks and stored, and an amount of wheat is set aside to be cleaned using special tools, often similar to a regular sifter and sieve. The sieve would be used to remove grains from large-sized gravel. The clean portion would then be grinded and used for baking bread and similar products. Another quantity would be stored in boxes called (Alqawayer الكوايز) (similar to silos in function but mostly rectangular) for later in the year. Another amount would also be set aside for bartering for other goods and food items.

Al-Awran Clan Threshing Square

The process of seasonal farming begins for all of the clans at the end of October and continues until August. Al-Awran clan's property of land was in the northwestern side of the village and belonged to elder (A.A.). This clan is not so big as others; in fact, it had few members. Their threshing square was located in the southwestern side of the land, far from their houses and close to their land (pictures 10, 11). The square was owned by elder (A.A.). The threshing square was 300m long and 200m wide with a fence made of rocks, with an entrance on the southern side. The threshing square was made of flat hard floor, cleared of stones and weeds. The lentils, chickpeas and beans harvests would usually be threshed by women, usually before bringing in the wheat and barley harvests, through hitting the crops on the floor using a pestle called (Almadakkah المدقة). Al-Awran and Al-Sawalqa clans cultivated only these types of grains. Sons and cousins would handle the threshing process, and the eldest son would be responsible for threshing the crops using the threshing board. They also used another way of threshing harvests, called (Faddan), which a pair of farm animals tied together (Pictures 12, 13) and they are driven around in the form of a circle several times over the harvest. This method is done by arranging animals according to their strength; the weakest animal would be placed towards the center of the circle and the strongest closer to the outer boarder of the circle, but within its outer limits. There would be a small space between the pair of animals with cattle or donkeys. Sometimes, the animals would be blindfolded to avoid distractions, specially by eating. Elderly (A.A.) mentioned that his eldest son was responsible for this method of threshing, and that he controlled the animals by using a stick of wood called (Almulqah الملقاه) to guide the animals. He also mentioned that his other hand would use a tool for collecting animal waste to prevent it from mixing with the grains. The third method of threshing the harvest was usually done by women; they pile up the harvest and then hit it using a wooden stick called (Altareh الطرح) (Picture 14) to separate the chaff from the grains. This method was in fact used in ancient times; it was first used in the Neolithic period, when farming first developed. This tool is a wooden stick with a special handle and a wide shape at the end. It was used by either a group of men or women, and was usually used by those with experience using it. The method of threshing was done by arranging a group of people (men or women) who would continuously be hitting the harvest (Calderon, J, 2014). This method was also mentioned in ancient Egypt, where the Egyptian farmers used for their harvest (Al-Tal, 2006). The nature of the land in the village varies from one area to another and this determines the quantity of crops, the nature of the animals used in the ploughing. Bulls or cows would be considered better than mules and donkeys in the ploughing and threshing processes (Palmer and Russell, 1993). Threshing processes using a threshing board would usually last

for two to three days. The owner of the threshing square from Al-Awran clan would usually let other families use the threshing square in exchange for an amount of grains, most likely four measures. The younger son of the owner, along with his cousins, would guard the threshing square at night. The threshing square for Al-Awran clan was a place to barter goods from people traveling from Palestine and Karak.

Picture 10: Al-Awran clan threshing square (source: The Researcher)

Picture 11: Al-Awran clan threshing square (source: The Researcher)

Picture 12: Threshing using a pair of farm animals (Anderson C.P, 2004)

After the threshing process has ended over, the winnowing process would start by placing some branches as a boundary between the seeds and the hay. This process would usually be done by the middle son along with some cousins. The winnowing process takes place in favorable weather conditions; moderate wind is required to push the hay away from the seed, and it would often occur during the evening time. Threshing boards would be made by a person from Tafileh within the same clan (S.A.). However, the wooden sticks (Altareh الطرح), the pitchforks, and the wooden grain pitchforks (Figure 3) would be made by the owner of the crops. Al-Kadem, (القادم) would be made by a person from the Shabatat family in Sanfaha, named (A. Sh). When the threshing process was over, the grains would be collected and a measure (Al-Khalili Saa) (10kg of wheat for example) is taken from the top of the wheat pile. Relatives by marriage would be given a share of two measures. Then the children would be given some small amounts, probably between 1 – 2 kg, usually to the young children and grandchildren to spread joy among the family members. Elder (A.A.) said he would distribute his crops according to the everyone's role in the work process. The person who threshed the crops would have a bigger share than the one who winnowed the crops or the one who cleaned it. Blood relatives, especially women, such as daughters, granddaughters or sisters, would have a share of three measures. However, in cases where the threshing square (the yard) would be used by another family for an exchange of part of the crop or a service, the owner of the threshing square would take the amount of two measures around 10 kg with a sack in exchange. In case the person using the square was from the same family, then the amount paid would be only one measure, but that person would expect to help in the threshing process. After the distribution of the shares has ended completed, the hay would be transported by women (Tabbanat التبانات) by placing it in sacks and sewing them, and then these sacks would be transported on animals. The crops are then divided into three sections: a

section for supplies for the current year, a section for seeds for the next year, and finally a section used for bartering for other food items.

Picture 13: Threshing using animals (Anderson C.P,2014)

Figure 14: Threshing using wooden sticks "Altareh الطرح" (Calderon, J:2014)

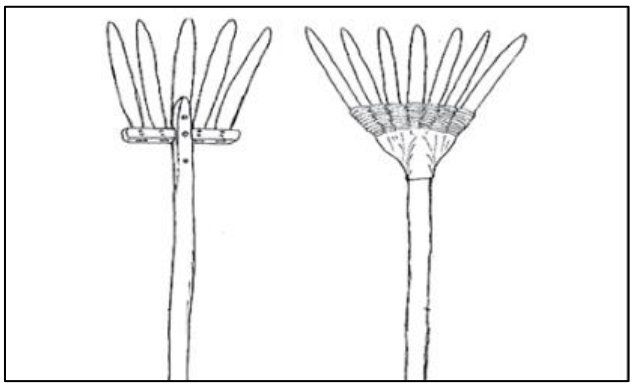


Figure 3: Wooden Grain Pitchfork and Alshaoob

Al-Shatiyat and Al-Hasasana Clans Threshing Squares

Most of the lands of these clans are outside the village, but they own land in the northern side of the village. The same method is followed by the clans when the farming season begins. Their threshing square would be located in the northern side of the village, usually an area of 200m long and 150m wide. The squares would usually be fenced with rocks, approximately 70cm high, with two entrances from the northern and southern sides. Everyone would use the threshing square (the yard), since it is not owned by a specific person. They would use government land because their property of land is limited. They would thresh the crops using animals tied together in a row and driven around in a circle. Sometimes, they would rent the threshing board from Al-Sawalqa clan in exchange for a part of the crop (usually a small measure caller a quarter of wheat or barley. These two clans did not settle long in the village for several reasons. First, their property of land was outside the village. Secondly, they had disputes and fallouts with other clans. Thirdly, most of their children worked in the armed forces. Finally, they moved to another village looking for abundant resources such as water springs and grazing pastures for their livestock.

Threshing practices for these two clans would go through several phases. The first phase would be called the 'crushing'; this would mean to crush the crops into small pieces with no more than 4cm long, using mules or donkeys. Elderly (A.Sh.) mentioned that some families in Palestine used to do this phase as well. This would be followed by the second phase, which is "Al-Tayyab" (الطياب), i.e. to collect fine grains that remained on the ground by the women and put them in bags. This quantity would usually be given to the poor people or set aside for bartering for other goods or items.

The owner of the crops would have his crops threshed with the help of his sons and brothers, and the produce would be distributed according to the percentage of each person's share of the land. In cases where the land is a common property for brothers and sisters, then each person would take his/her share based on the area of the land owned, whether a quarter or a half and so on. Women would not be given any share, and the father would take the lion's share of the crops. The shares would be

measured by "Al-Mudd" (المد) (around 20 kg). This distribution would variy from one family to another. For example, in cases where there are younger brothers, they would be given from their father's share, and the married ones would take a bigger share than the share of single ones by two measures.

Results

The study revealed the following:

1. The threshing square in Sanfaha village explains the nature of social relations between members within the same clan and other clans. The threshing square was considered a large social gathering place and a place where various relationships between family members on one side and clan members on the other were determined. Thus, the threshing square constituted a social center for the village.

2. The large threshing square would indicate that the owner had a high social or financial status. Such people would have a large property, and ample resources to manufacture tools. We also conclude that there were specializations in role that help us determine the type of society and the extent of technology development used in farming. Thus, we realize that the village had abundant production or was self-sufficient or self-sustained. In the case of our village, Sanfaha, the threshing square reflected the development of technology in tools used in harvesting and threshing.

3. The threshing square also provided further indication to the individual economic status, by the kinds of threshing tools used, their number and origin. For example, the number of tools in one house would indicate the size of the cultivated lands owned by the clan. Therefore, studying the types and number of farming tools would help understand the size of the agricultural land in the village. This evidence may help archaeologists in matching these results to the data they need to explain the function of archaeological sites. As was shown by (Williams, D., 1973), the tools discovered would give an indication of the specialization and the division of labor in any society, In addition, the origin of tools would determine the financial status of the population, and the types of tools used in farming and threshing would indicate the amount, size and type of the crops, and would give more information about the surrounding environment in the village (Williams, D, 1973).

4. The threshing square in Sanfaha explained the distribution of roles and specialization of labor carried out by individuals within the family. The division of labor, for example, reflected the social organization in traditional societies, which is based on gender and age. This does not mean specialization in the literal and professional sense; rather on the basis of gender and age. We have noticed through this study, that older women would participate in the threshing process by cleaning wheat using a sieve or sifter, or threshing the crop using wooden sticks called (Altareh الطرح). They would also help collect the crop in bags called (Al-Adl العدل). However, younger women would help transport these to the store at home.

5. The threshing squares in Sanfaha village shed some light on a special social behavior. The rations of crops are, for example, distributed in Al-Sawalqa clan according to age groups, while in Al-Awran clan, the shares of the crops would be distributed according to labor. In Al-Shatiyat and Al-Hassasnah clans, however, the distribution would be according to the person's share of the cultivated land.

6. The fence of the threshing squares did not reflect any cultural image in anyway; rather its architectural function was to mark the threshing square borders, and to protect the crops from theft or loss. It is also useful in ensuring that the crops remain inside the square and not affected in the event of strong winds.

7. The study of threshing squares (threshing yards) may help archaeologists and anthropologists have an idea about some types of crops cultivated in

the past. Thus, they are useful in the archaeological field.

8. This study helped preserve some vocabulary and terminology commonly used in ancient times, as well as, names of farming tools, almost no longer used in our present time. Thus, such studies may help preserve our heritage and its meanings.

9. This study provided important information about the diversity of threshing tools and their correlation with the size of the crops; for example, "the use of a threshing board with flint blades brought from an area known as 'Jurf Al-Darawish; near Tafila, Jordan, would mean that these boards were owned by families with large land and produce, such as Al-Sawalqa clan. However, using animals for threshing harvests was used by families with small amounts of produce, such as Al-Awran and Al-Shatiyat clans.

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Notes:

* This study referred to some of information about the history of Sanfaha village from a master's thesis titled "Traditional Houses in Sanfaha village in Tafila Governorate: An Ethnographic Study", written by Wael al-Hajjaj, and supervised by Dr. Mahmoud al-Naamneh.

(1) **Bayder**: the place where the farmers would pile up the produce and keep it protected for the next year (Al-Tal, 2006).

(2) Appendix 1: a table containing information about the people interviewed for this study.

(3) **Khanat**: a plural form of khanah (of Ottoman origin) it means families.

(4) **Mujradeen**: Plural of Mujrad (of Ottoman origin), it means single people.

(5) **Akce**: An Ottoman-Turkish currency that was circulating at the time, and it means Dirham.

(6) **Al-Sawalqa** : They originated from the Judham tribe from the north of Hejaz; they used to live in Wadi Al-Sayyalah. They moved to Gaza region and lived there in the town of Sawlaq; they were named after the village. Then Al-Sawalqa travelled from Gaza eastward, where Sufi members from southern Palestine joined them. They crossed Wadi Araba until they reached Sanfaha and found the clan (of Al-Fawadila, that later moved to become one of Al-Balqa clans). Al-Sawalqa settled in the region left by Al-Fawadila (Kahhaleh, 1968).

(7) **Al-Shatiyat**: an Arab tribe that migrated from the Arabian Peninsula, and then headed to the south of Palestine, and settled in the Gaza region. They settled in the village of Al-Namatah after they left Sanfaha village. Members of the clan are estimated about 570 people in 1979 (Al-Nawayseh, 1982).

(8) **Al-Amour**: Their migration from the Arabian Peninsula to southern Palestine is similar to the migration of their neighbors Al-Shatiyat clan. Al-Amour was their largest faction, and their families were organized into groups that could settle in one region. the areas where they lived were left by Hamayda Al-Basirawi to Karak and south of Madaba" (Al-Qawabaa, 1986).

(9) **Al-Hassasnah**: They travelled from the Arabian Peninsula, but some of them travelled from the town of Al-Sheikh near Hebron. They are originally from the Al-Rawashdah clan, and most of them lived in Shobak, Jerash and Karak. They left Sanfaha to move to Erweim village. Members of the clan are estimated in 1979 around 661 (Al-Nawayseh, 1982).

(10) **Al-Awran**: One testimony claims their origin to Al-Lahawi clan from Al-Shararat of Bani Kalb Al-Qahtaniyah tribe, and another links their origin to Al-Shahwan tribe from the Bani Hajar tribe. Al-Khattaba mentions that some of Al-Awran traveled to Shatana village, in northern Jordan and were known there as Al-Shatnawi. Then some of them traveled to kawkab Al-Hawa, a village in the West Bank of river Jordan that overlooks the Jordan Valley. Another part of Al-Awran travelled to Suf, a village near Jarash,, Jordan and then moved in Hawara, in Irbid, Jordan, and some of them settled in Tafileh (Al-Khutaba, 1985).

(11) **S.B**: Elder Salem Al-Bawaizah, 103 years old, from Sanfaha village, and he is known as Abu Ghazi.

(12) **M.S**: Mahmoud Al-Sawalqa, 78 years old, and a resident of Sanfaha village.

(13) **Mh.S**. Elder Muhammad Al-Sawalqa is 90 years old, from Sanfaha village and he is known as Abu Azmi.

(14) **The Plough**: An agricultural tool that was used in Mesopotamia in the past. It consists of a pointed iron piece attached to the animals. It has several parts, including the stick, the yoke, the iron piece and others (Al-Tal, 2006).

(15) Talem: The trace left by the plough on the ground back and forth.

(16) The Sickle: An agricultural tool that was used in ancient times. It is a curved piece of wood in the shape of a crescent, with flint stone or iron blades attached to it. It has a wooden handle and is used to cut tree branches and herbs (Al-Qam, 2006)

(17) L.S: Elder Lutfi Al-Sawalqa, 72 years old, from Sanfaha village, and he is known as Abu Abdullah.

(18) **Bahtah**: a popular dish made of rice and milk, and sometimes animal fat. The farmers used to prepare it after the end of the harvest and threshing season as a kind of celebration and thanks to the workers who participated in harvesting and threshing.

(19) **Ghamar**: heaps or piles of crops collected and placed separately, and one ghamar (pile) is equal to five sacks.

(20) **AlKadem**: pieces of wood and ropes placed in the shape of X and are put on the animal. One of each can carry two bags of hay or grain (Al-Qam, 2006).

(21) **F.S.**: Fayez Al-Sawlaqa, 76 years old, a resident of Sanfaha village and known as Abu Abdullah.

(22) **Threshing Board**: A wooden board 75-100 cm wide and 150-175 cm long. Its lower surface made with rough flint stones or basalt stones fixed in non-permeable holes. The knives were recently added (Hatter & Abu Khalil, 2014).

(23) **Qaran**: a group of animals tied together by a rope of fiber.

(24) **Taboon:** a furnace that is made of clay and hay, placed on the ground in a conical shape, and paved with stones, called "Radf" (Al-Qam, 2006).

(25) **Alshaoob**: (a pitchfork) an agricultural tool, made of a stick of wood attached to five iron holders, and used to turn the crop or to place it in the yard (Al-Tal, 2006).

(26) **The wooden gran Pitchfork**: a seven-finger wooden tool made of maple wood (Hatter & Abu Khalil, 2014).

(27) **Hay**: made of wheat husks and twigs separated when winnowing.

(28) **Subbah**: a heap of grains after being cleaned and usually done in order to divide the produce (supply, seed, barter, debt, Saa al-Khalili).

(29) **Saa Al-Khalili:** (a measure) the first Saa of wheat, taken from the top, and donated to the poor in the name of Khaleel, to be blessed.

(30) **Saa**: is a unit of weight. A cylindrical wooden bowl fixed from the top and bottom with an iron top. It is usually made of juniper wood, used to weight the grains and equals 10 kg (Hatter & Abu Khalil, 2014).

(31) **Sifter**: A tool that allows parts to be separated for either extraction or disposal. It is made of a net and a frame. Its action relies on exploiting the mesh to trap some parts that cannot pass through the holes formed in the net.

(32) **Sieve**: a tool with holes that are wider than the Sifter holes. Through these holes, the sieve allows grain, dust and small pebbles to go through, while retaining larger materials, such as gravel and husks.

(33) **Alqwara (silo)**: It is a box-like chamber made of clay mixed with fine straw and husks, as its outer and inner surfaces are polished to seal the holes. This silo shape has two large upper openings called Bab al-Kwara, and the lower one is small, as these boxes stand on clay base (Al-Hajjaj $ Al-Naamneh, 2016).

(34) **A.A**.: Ahmed Al-awran is a 60-year-old from Sanfaha village.

(35) **A.S.** Abdullah Al-Awran is a 70-year-old from Sanfaha village.

(36) **Almadakkah**: a tool made of wood, oblong in shape, used to hit the crop to separate the grains from husks, especially in lentils and beans.

(37) **A pair of farm animals**: a term given to the two animals used for ploughing and threshing, and consists of either a pair of oxen, cows or donkeys. It was also used in ancient Egypt and Iraq (Al-Tal, 2006).

(38) **Altareh**: a long, cylindrical wooden stick with a wide wooden handle (Al-TAl, 2006).

(39) **S.A.:** Salem Al-Awran is an 80-year-old from Sanfaha village.

(40) **A.Sh**.: Awwad Al-Shabatat is an 86-year-old, from Sanfaha village.

(41) **a quarter**: a weighing unit made of a cylindrical wooden bowl that is fixed from the top and the bottom with an iron handle. It is usually made of juniper wood, used to measure the grains and weighs 5 kg (Hatter & Abu Khalil, 2014).

(42) **Mudd**: a weighing unit made of a cylindrical wooden bowl that is fixed from the top and the bottom with an iron handle. It is usually made of juniper wood, used to measure grains and weighs 20 kg (Hatter & Abu Khalil, 2016).

(43) Al-Adl: bags made of animal hair woven and prepared by women, and these bags carry around 100 kg (Al-Tal, 2006).

Appendix 1:

Personal interviews:

Name	age	Town	Known as	abbreviation	occupation
Lotfi Al Swalaqa	72 years	Sanfaha village	Abu Abdullah	L.S.	farming
Fayez Al Swalaqa	76 years	Sanfaha village	Abu Abdullah	F.S.	farming
Muhammad Al Swalaqa	90 years	Sanfaha village	Abu Azmy	Mah.S.	farming
Mahmood Al Swalaqa	78 years	Sanfaha village	-	M.S.	farming
Ahmad Al-Awran	60 years	Sanfaha village	-	A.A.	farming
Abdullah Al-Awran	70 years	Sanfaha village	Abu Issam	A.A.	farming
Salem Al-Awran	80 years	Sanfaha village	-	S.A.	farming
Salem Al-Bawaizah	103 years	Sanfaha village	Abu Ghazi	S.B.	farming
Awwad Al-Shabatat	86 years	Sanfaha village	-	A.Sh.	farming

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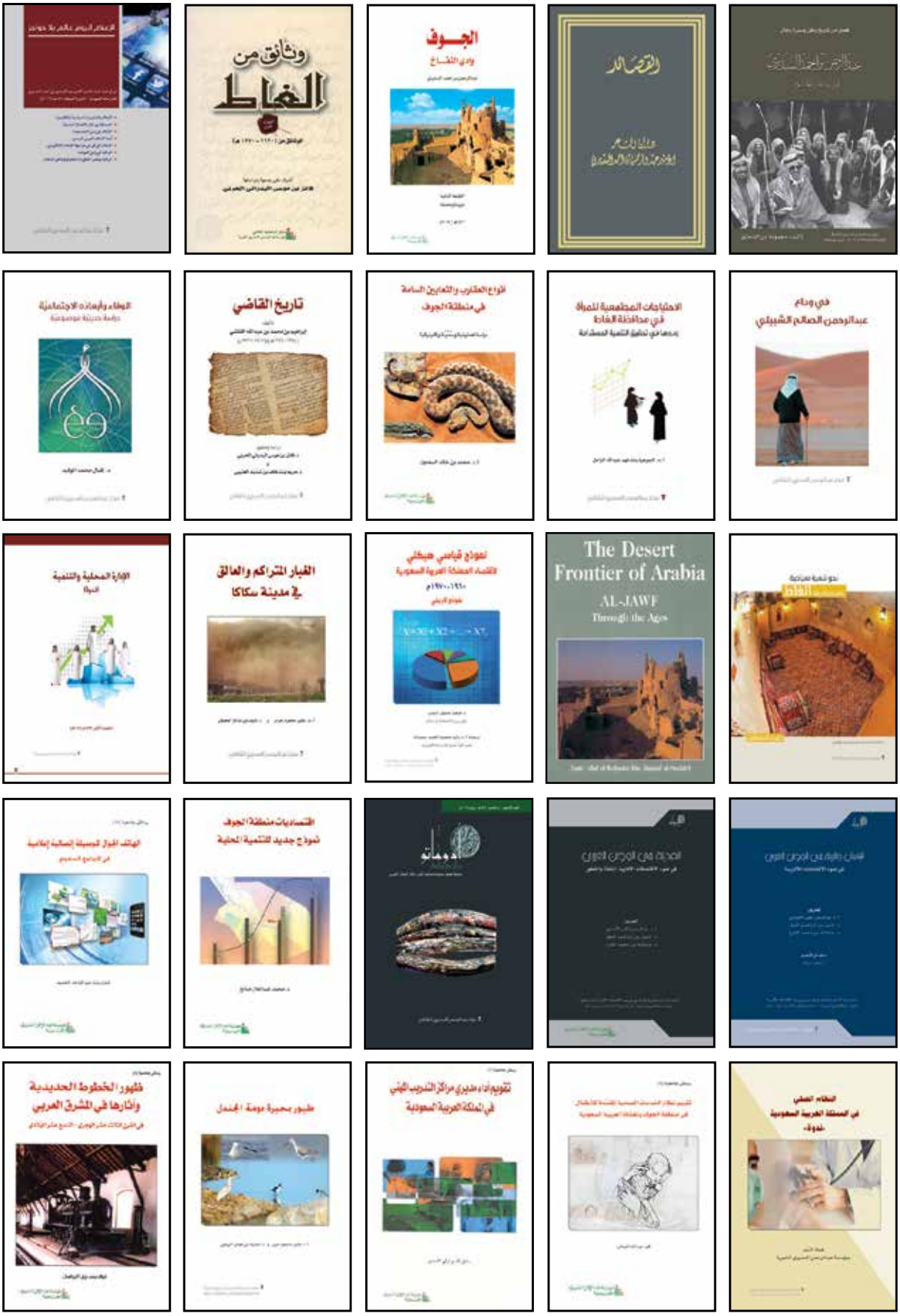

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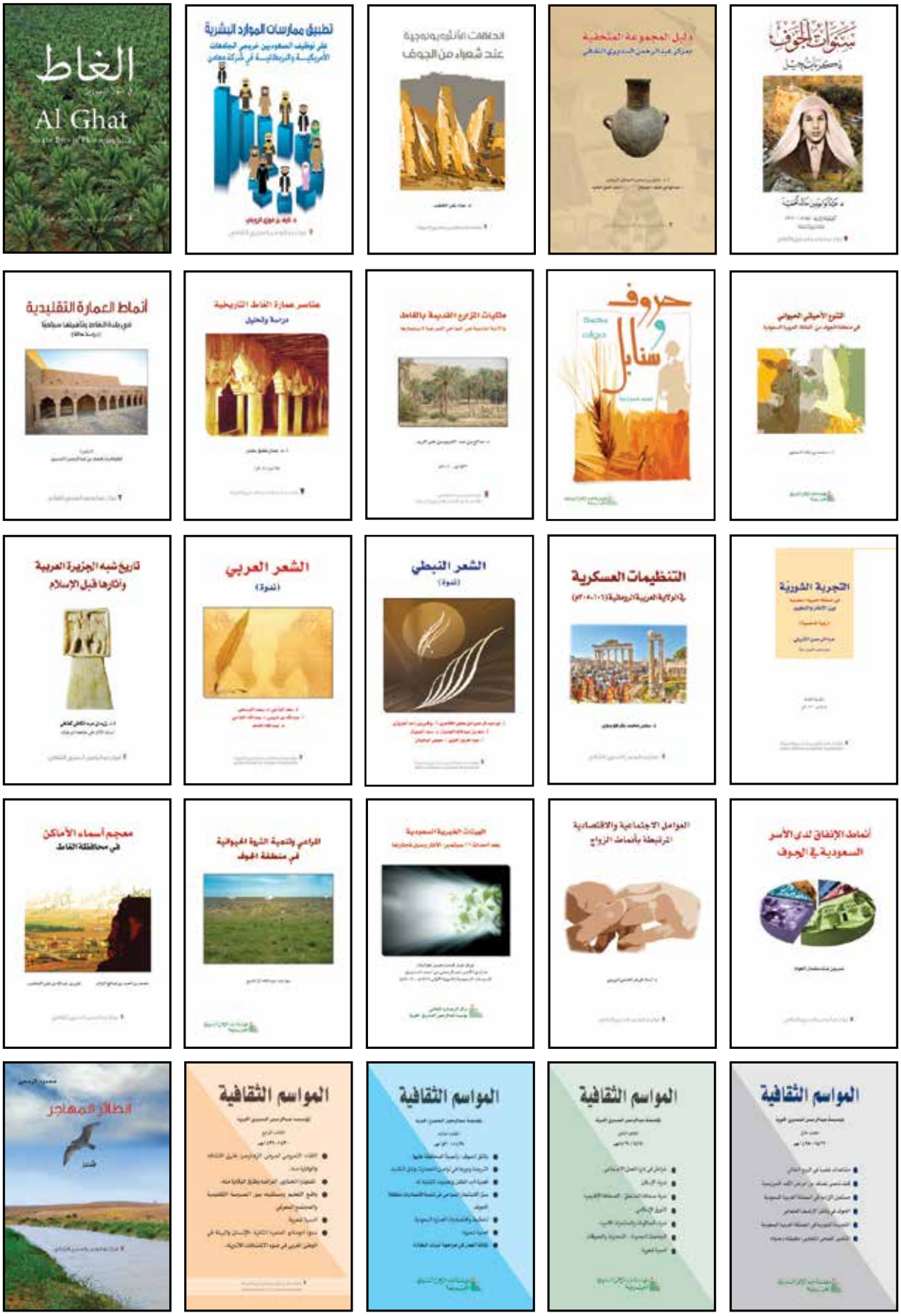

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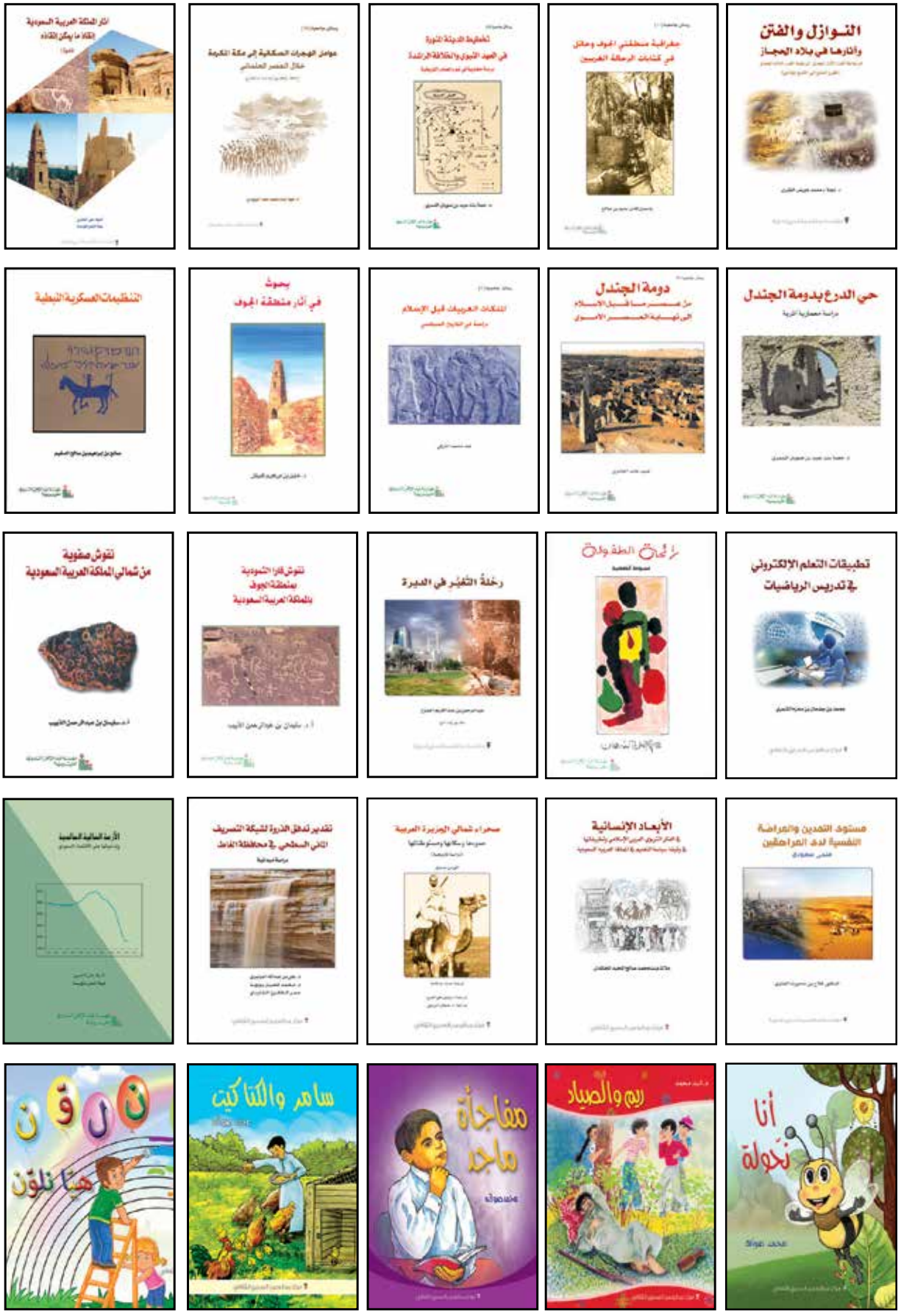

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A list of Previously Published Papers

No.	Article	Author	Pages	Issue
1- Prehistory				
1	Holocene Evironmental Change and the Origins and Spread of Food Production in the Middle East.	**Prof. Fekri A. Hassan**	7-28	1
2	Patterns of Settlement in the Southeast Arabian Iron Age.	**Dr. Peter Magee**	29-39	1
3	Indo-Arabian Maritime Contacts During the Bronze Age: Scientific Study of Pottery from Ras al-Junayz (Oman).	**Dr. Vishwas D. Gogte**	7-14	2
4	Young and Alone: Discussion of an Articulated Third Millennium BC Burial at Tell Abraq, United Arab Emirates.	**Dr. Soren Blau**	7-14	3
5	The Ostrich in the Rock Art of Oman.	**Prof. Ali T. Elmahi**	15-26	3
6	Archaeological Site Distribution in Jordan since the Paleolithic and the Role of Climate Change.	**Abdulla al-akkam**	7-26	5
7	The Lower Palaeolithic in southwestern Oman.	**N orman M. Whalen, Morgan Zoboroski & Kevin Schubert**	27-34	5
8	An Archaeological Study of Stone Structures in Northeast Riyadh, Saudi Arabia.	**Dr. Abdullah M. Alsharek**	35-68	8
9	Survey of Prehistoric Sites in Mahra, Eastern Yemen.	**Jeffrey I. Rose**	7-20	6
10	The Middle and Late Bronze Age Climate of Ya'amoun in Northern Jordan Using Oxygen Isotope Analysis from Human Tooth Enamel.	**Dr. Abdulla A. Al-Shorman**	21-26	6
11	Hima: Center of Prehistoric Art and Culture in Southern Arabia.	**Dr. Majeed Khan**	27-34	6
12	Archaeological Investigations at the Neolithic Site of Es-Sifiya/ Wadi Mujib, Jordan.	**Dr. Hamzeh M. Mahasneh**	7-28	7
13	Fieldwork at the Archaeological and Rock Art Sites of the Hemma Plateau (Hassake, Syria): Season 2002.	**P. -L. van Berg, N. Cauwe, J. -P. Hénin, S. Lemaitre, V. Picalause & M. V. Linden**	7-20	8
14	The Jordan Valley during the Iron Age and the Evidence from Deir 'Alla.	**Prof. Moawiyah Ibrahim**	21-32	8
15	The Oldowan in Arabia.	**Norman Whalen & Glen A. Fritz**	7-18	9
16	Late Paleolithic Warfare in Nubia: The Evidence and Causes.	**Prof. Fred Wendorf & Romuald Schild**	7-18	10
17	Surveys Along the Oman Coast: A Review of the Prehistoric Sites Discovered Between Dibab and Qalhat.	**Dr. Paolo Biagi**	19-30	10
18	Lithological Provenance of Prehistoric Ceramics From the Central Sudan: Aphysi Cochemical Approach	**Prof. Abdelrahim M. Khabir**	7-26	11

No.	Article	Author	Pages	Issue
19	Settlements of The Tlamrin Basin –Iraq- From Early Times to The End of The old Babylonian	**Dr. Ghassan T. yaseen**	27-38	11
20	Microliths Typology and Technology of the Upper and Epipaleolithic Transition Period, Jordan	**Dr. Maysoon Al-Nahar**	7-46	12
21	Neolithic Pottery From the Third Cataract (Mahas Region Northern Sudan)	**Dr. Azhari M. Sadig**	47-60	12
22	The Emergence of Village Settlements During the Early Neolithic un the Western of Egypt	**Prof. F. Wendorf & R. Schild**	7-22	14
23	The Lower Palaeolithic of the Maghreb: Current State of Knowledge	**Dr. Mohamed Sahonuni & Abdelkader Derradji**	7-44	15
24	Tethering Stones in Al-Mudhaibi, Oman Traps and Palaeoclimatic indicators.	**Prof. Ali el-Mahi**	37-62	16
25	Physico-chemical Analyses of Neolithic Pottery from Central Sudan	**Dr. Abdelrahim Khabir**	33-42	17
26	Towards Study of the Social organization and Settlement Patterns of the Neolithic communities in Central Sudan	**Dr. Azhari Sadig**	7-26	18
27	Early Bronze Age I Settlers and Transhumance in the Wadi az – Zarqa Basin	**Prof. Zeikan Kafafi**	27-40	18
28	The Rock Art of Southern Arabia Reconsidered	**Dr. Robert Bednarid**	7-20	20
29	The Paleodiet of the Iron Age Site of Pella in Jordan Using Stable Carbon Isotope Analysis.	**Dr. Abdulla Al-Shorman** **Dr. Steven Bourke** **Dr. Karen Hendrix**	7-14	21
30	Pastoralists Adjustment to Hematophagous Flies in Dhofar: An Analogy of an Ancient Adaptation.	**Prof. Ali Tigani ElMahi**	15-32	21
31	Networking in the Neolithic: Wadi Ziqlab in its Regional Context	**Dr. E. B. Banning, and Dr. Kevin Gibbs**	7-14	22
32	Defining The Neolithic of The Sudan	**Dr. Azhari Mustafa Sadig**	7-40	23
33	Rock Art in Somaliland: Discovery of Two New Rock Painting Sites	**M. Y. Ali & I. Ibrahim**	7-24	25
34	Palaeolithic Survey in Southwest Saudi Arabia Methodology and Preliminary Results	**Dr. Maud Devès,** **Dr. Robyn Inglis,** **Dr. Matthew M. Williams,** **Dr. Saud Al Ghamdi,** **Dr. Abdullah M. Alsharekh,** **Prof. Geoffrey N. Bailey**	7-30	27
35	In The Land of The Ichthyophagi - Prehistoric Occupation of The Coast and Islands of The Southern Arabian Gulf: A Regional Review	**Dr. Mark Beech**	31-48	27

No.	Article	Author	Pages	Issue
36	From Land-Locked Desert to Maritime Nation: Landscape Evolution And Taphonomic Pathways In Qatar From 14 Ka.	**Dr. Richard T. Cuttler & Dr. Faisal Abdullah Al Naimi**	7-22	28
37	Tethering Stones in Oman's Interior: Further Evidence.	**Prof. Ali Tigani ElMahi**	7-18	29
38	A New Archaeobotanical Evidence of Castor Plant [Ricinus communis L.] from the Central Sudan.	**Dr. Anwar AbdelMagid**	19-30	29
39	Sharing Food and Eating from One Plate: An Ethno-Archaeological Study.	**Prof. Zeidan A. Kafafi**	7-14	30
40	An Experimental Study of Bone Artifacts from the Neolithic Site of Tell Abu Suwwan (PPNB-PN), Jordan.	**Dr. Bellal Abuhelaleh, Dr. Maysoon Al Nahar, Dr. Ursula T. Hohenstein, Dr. Emanuele Cancellieri, Gabriele Berruti**	7-20	32
14	The University of Dongola Archaeological Investigations at El-Kurru Royal Cemetery (Northern Sudan)	**Prof. Abbas Mohammed–Ali, Dr. Jamal Elhassan, Dr. Mohamed Fathi, Dr. Jamal El-Ghali, Dr. Rasheed Ibrahim, Dr. Faisal Omer, Hanaa Hafiz & Huyam Saleem.**	7-20	33
15	Middle Bronze Age Oil Lamps from As-Salt (Jordan)	**Dr. Ali Al-Manaser, Yazid Alyan, Ali Al-Khyyat & Saad Al- Hadidi**	21-32	33
15	Bedouins' Adaptation in Oman: an Indicator of Climate Change and Prehistory.	**Prof. Ali at-Tigani ElMahi**	17-36	35
16	Contributions to the Early History of Saudi Arabia Initial Results of the Saudi-Belgian Research Project1 in the Region of the Al-Ghat Governorate.	**Dr. Joachim Bretschneider, Mohammed Ali Alsalouk, Jan Tavernier & Philip Van Peer**	7-18	36

2- Pre-Islamic

1	Some Anthropological Reflections on the Cultural Transformations Through the Development of High Cultures in Pre-Islamic Time.	**Prof. Walter Dostal**	40-46	1
2	Temples of Raybun Oasis, Wadi Hadramawt, Yemen.	**Prof. Alexander Sedov**	15-26	2
3	The City of Gaza And the Surrounding Area During the Roman-Byzantine Period.	**Dr. Mohammed-Moain Sadeq**	27-42	2
4	The Coinage of Pre-Islamic Yemen: General Remarks.	**Prof. Alexander Sedov**	27-38	3
5	Nabonidus in Arabia: A Re-assessement.	**Prof. Hassan El-Saady**	7-20	4

No.	Article	Author	Pages	Issue
6	Nabataean Archaeology from the Air.	**Dr. David Kennedy & Dr. Hamed Qatamin**	21-40	4
7	Did the Ancient Mesopotamin Royal Stone Originate in Oman?	**Dr. Paule Yule & Dr. Ingeborg Guba**	41-52	4
8	Wine presses on mosaic pavements of Jordan, Palestine and Lebanon.	**Dr. Taysir Atiat**	19-30	9
9	Coinage of the Nabataeans.	**Dr. Faraj Allah A. Yousef**	51-70	10
10	A l-Mujib Jordanian Nature Reserve: Historical traditions and Archaeological Evidence	**Taysir M. Atiat**	39-52	11
11	Provenances and Lithologic Analysis Mosaic Roman Villas, North Western Libia	**Dr. Haithem A. Minas, Mustafah Namu & Hassan Bu-Arabyia**	61-72	12
12	the Rewarding scenes Visual Evidence of Contact Between the King and his Subjects during the Amarna Period	**Dr. Sherine el-Menshawy**	7-14	13
13	Jebel Um Marrihi: a Late Post- Meroitic and Early Medieval Site (C. 325-650 AD) in Khartoum Province (Sudan)	**Dr. Ahmad A. el-Hassan**	15-38	13
14	The Raw Materiais of Ancient Roman Glassin Egypt and Analytical Study	**Ramadan Abdalla**	23-32	14
15	The Horse in the Archaeological remains of Qaryat al-Fau	**A. R. Al-Ansary**	15-22	22
16	T he Impact of the Desert Environment on the Formation of the Ancient Egyptian Heritage	**Dr. Mohamed I. Abouelata**	25-38	25
17	Place Names in the Dadanitic Inscriptions of al-'Uḍayb.	**Dr. María del Carmen Díez**	15-30	30
18	Clay Coffin Masks from Zagazig University Museum.	**Dr. Heba Mahran**	7-18	31
19	P rovenancing of a Group of Roman Lamp Potsherds from Abila (Qweilbeh), North Jordan.	**Dr. Lamia El-Khouri Dr. Ahmed Al-Shorman**	19-32	31
20	N ew Ancient North Arabian Inscriptions with References to Nabataea.	**Dr. Nada Al-Rawabdeh Dr. Abdel Qader Al-Husan**	7-12	34
21	Nabataean Rock Paintings at Higra (Mada'in Salih) Flower Vase Painting of Jabal Ethlib.	**Dr. Mohammad Al-Daire Dr. Ahmad Al-Abodi**	13-24	34
22	T he Kerma – Napatan Cultural Continuity Reflections from the Current Archaeological Investigations at Elkurru Royal Cemetery.	**Hanaa M. Hafiz**	7-14	38
23	A n Archaeometric Study on Some Selected Byzantine Cooking Potsherds from Tabqat Fahl (Pella), North Jordan.	**Dr. Ahmed Al-Shorman, Arabya Batyneh, Laith Shboul, H aneen Esa, Ruwayda Atoom, Hutaf AlAtaywi, Dr. Maher Tarboush, Ali Alrahabneh & Heba Abo Dalo**	15-26	38

No.	Article	Author	Pages	Issue
24	Geometric Decoration Mosaics at Rihab: A Comparative Study	**Dr. Mouhamad Nassar & Dr. Nizar Turshan**	7-18	39
24	History of Maryamah Town (Hajar- al- ʻAdī) in Wādī Ḥarīb in the Light of Its Musnad Inscriptions (٧th Century BC – ٣rd Century AD).	**Dr. Mohammad A. Alhajj**	7-40	40
3- Inscriptions & Rock Art				
1	Survey of Languages and Literacy in the Ancient Sudan (the Kingdom of Kush): (1) Ancient Egyptian and Meroitic.	**Prof. Abdelgadir M. Abdalla**	29-48	7
2	Four New Safaitic Inscriptions from Mafraq, Jordan.	**Dr. Sultan Maani & Ibrahim Sadaqah**	49-56	7
3	Safaitic Inscriptions From the Eastern Part of Mafraq Governorate/ Jordan.	**Dr. Sultan A. Maani & Fardous al Ajlouny**	33-49	8
4	Yatib its Environs and Rock Art.	**Dr. Dhaifallah al-Talhi**	7-16	35
5	New Safaitic inscriptions from al cAwshaji al Janoubi - Northeastern Bādyia of Jordan.	**Prof. Dr. Sultan AlMaani & Prof. Dr. Mahdi Alzoubi**	19-30	36
6	Some New Safaitic Inscriptions from Dhuweila - Jordan.	**Prof. Mahdi Alzoubi & Prof. Sultan Almaani**	7-16	37
4- Islamic				
1	The Archaeology and History of the Ottoman Frontier in the Middle Nile Valley 910-1233 AH/ 1504-1820 AD.	**Prof. John Alexander**	47-61	1
2	Dahlak Kebir, eritrea: from Aksumite to Ottoman.	**Dr. Timothy Insoll**	39-50	3
3	The Sudanic Feeding-Routes of the Egyptian Pilgrim Road.	**Dr. Ali Gabban**	51-62	3
4	The Authentication and Characterization of the Syrian Glass Lamps Dating to the Mamluk Period Ascientific Analysis	**Taysir M. Atiat**	45-56	15
5	Bidyah Mosque, Fujairah, U. A. E.	**Dr. Michele Ziolkowski**	7-32	17
6	Estimating the Condition of the Metal Embroidery Threads in Ottoman Textiles in the Al-Manyal Palace Museum in Cairo	**DR. Omar Abdel-Kareem**	7-16	19
7	The Coinage of Obayda b. Al-Muhager	**Dr. Atef Mansonr**	17-24	19
8	Islamic Sources and the Iconoclasm in the Levant Reinterpretation	**Prof. Adnan Shiyyab**	7-16	24
9	Arabic Scripts and External Factors Kufic and Naskhī Scripts: A Case Study	**Dr. Mohammad Shabib Alsubaie**	19-28	39
5- Others				
1	The Traditional Salt Extraction along the Atbara River, Sudan.	**Prof. Ali T. Elmahi**	43-56	2
2	Archaeology and Development: Dams and other Dangers.	**Dr. Harriet Crawford**	35-38	6
3	Degradation of Limestone Buildings in Jordan.	**Dr. Mohammad El-Gohary**	7-24	16
4	In Situ Glass Conservation	**Dr. Ramadan Abd-Allah Dr. Lamia El-konri**	25-36	16

No.	Article	Author	Pages	Issue
5	P rotected Areas and Cultural Resources Management in Jordan "Natural Cultural Integrated Approach with GIS"	**Dr. Sharaf Al-Kheder, & Dr. Mohammad Waheeb, & Nizar Adarbeh**	41-58	18
6	E valuation of the Dyes Used in Conservation and Restoration of Archaeological Textiles	**Dr. Omar Abdel-Kreem**	21-36	20
7	A ssessment of Merowe Dam Salvage Archaeological Project (The Sudan)	**Kabbashi Hussein Gisema**	23-34	22
8	A Proposed GIS-Based Documentation System for Historical Limestone Quarries in Amman/Jordan	**Dr. Sharaf Al-kheder, & Abdel Sami Abu Dayyah, & Dr. Mohammad Waheeb, & Ahmad Al-Malabeh**	41-52	23
9	A Study of Fibers and Weave Structures of three old Egyptian Textile Fragments	**Prof. Mohamed Marouf**	17-24	24
10	A proposed National Archaeological Database for Oman (NADO)	**Dr. Mohammed Ali K. Al-Belushi**	7-18	26
11	M icrochemical Investigation and Conservation of a Lion Figurine and Two Coins from Al-Kheraibah Excavation, Saudi Arabia.	**Dr. Abdulnaser Al-Zahrani, & Dr. Mohamed Ghoniem**	23-34	28
12	C onservation of an Archaeologically Human Plastered Skull Stored of the Jordanian Heritage Museum – Yarmouk University: A Case Study	**Dr. Abdelrahman El-Serogy, Prof. Zeidan Kafafi, Rasha AL-Ybroodi**	21-30	32
13	The Wavy line Pottery in Context	**Dr. Ahmed A. Elhassan Prof. Abbas Mohammed-Ali**	31-42	32
14	Preservation of Archaeology and Heritage in Jordan: Conflicts between the Jordanian Legislation and Public Interest.	**Dr. Ali Al-Manaser**	17-32	37

ثبت الأبحاث المنشورة في الأعداد السابقة

	عنوان البحث	الباحث	صفحات	العدد
٢٠	العصر البرونزي في الجزء الغربي من إقليم جعلان بسلطنة عمان	**د. ناصر سعيد الجهوري**	٢٢-٧	٢٤
٢١	الكلدانيون في شرقي الجزيرة العربية	**د. نورة بنت عبدالله علي النعيم**	٣٤-٢٣	٢٤
٢٢	تحصينات منطقة الشلال الثالث في العصر الوسيط (٥٥٠-١٣٢٣م)	**د. محمد أحمد عبدالمجيد**	٢٨-١٩	٢٦
٢٣	القوس والسهم قبل التاريخ في عُمان: مواد الصناعة ومصادرها.	**أ. د. علي التجاني الماحي**	١٦-٧	٢٨
٢٤	اللباس في عصور ما قبل التاريخ. في شمال وشمال غربي الجزيرة العربية من خلال الرسوم الصخرية.	**أ. د. عبدالله العبدالجبار، و أ. نايف بن علي القنور**	٣٤-١٧	٢٨
٢٥	أنماط الاستيطان طويلة الأمد في جنوبي شبه الجزيرة العمانية: تحليل كمي للدليل الأثري.	**د. ناصر سعيد علي الجهوري شريفة عامر أحمد الشنفري**	٣٨-٧	٢٩
٢٦	طبيعة جدران الأودية ووظائفها في منطقة الشلال الثالث – السودان (دراسة تحليلية مقارنة).	**د. يحيى فضل طاهر أ. د. أزهري مصطفى صادق**	٥٠-٣٩	٢٩
٢٧	دراسة أنثروبولوجية لقبور العصر الحجري الحديث في تل القرامل، شمالي سورية.	**د. يوسف كنجو**	١٨-٧	٣٠
٣٨	الانتقال إلى القرى الزراعية الأولى والتغير في بنية المواقع الاستيطانية في جنوبي بلاد الشام.	**د. نبيل علي د. خالد أبو غنيمة**	٢٦-٧	٣٢
٣٩	أصداف القواقع البحرية في مواقع ما قبل التاريخ في عُمان: المدلول والمعنى.	**أ.د علي التجاني الماحي**	٤٨-٢٧	٣٢
٤٠	شعائر الدفن عند سكان بلاد المغرب القديم: دراسة للمدافن، والطقوس الجنائزية، ومعتقد ما بعد الموت أثناء العصور الحجرية وفجر التاريخ.	**د. بن عبدالمؤمن محمد**	٢٠-٧	٣٣
٤١	المباني العامة في العصر الحجري الحديث قبل الفخاري "أ" (شمالي العراق – جنوب شرقي الأناضول).	**د. أبو الحسن بكري**	٤٢-٢١	٣٣
٤٢	التحقق من ثقافة ألدوان في جزيرة سُقطرى.	**د. عبدالرزاق المَعْمَري**	٣٨-٧	٣٥
٤٣	مواقع التراكمات الصدفية في عُمان: الجغرافيا أم ما قبل التاريخ.	**أ. د. علي التجاني الماحي**	٢٦-٧	٣٧
٤٤	فلسطين خلال العصر الحديدي الأول (نحو ١٠٠٠-١٢٠٠ ق. م.) دراسة مقارنة بين الروايات التوراتية والبيانات الأثرية	**أ. د. زيدان كفافي**	٢٨-٧	٣٩
	ثانياً: أبحاث عصور ما قبل الإسلام:			
١	صناعة الطين المفخور في قرطاج.	**أ. د. محمد فنطر**	٧٠-٥٩	١
٢	الحصون والأبراج الأدومية.	**أ. د. زيدان كفافي، و أ. عبدالناصر الهنداوي**	٣٢-٧	٢
٣	موقع ميناء عمانا ودوره الحضاري والاقتصادي في منطقة الخليج العربي.	**د. حمد بن صراي**	٥٨-٣٣	٢
٤	دراسة لمشغولات فنية من موقع الأخدود بنجران.	**د. حميد بن إبراهيم المزروع**	٤٦-٤١	٣
٥	قبيلتان لوبيتان: الجرميون والنسمونيون.	**أ. د. محمد حسين فنطر**	٥٢-٤٥	٥

	عنوان البحث	الباحث	صفحات	العدد
٦	مسكوكات ممالك الجزيرة العربية قبل الإسلام.	**د. فرج الله أحمد يوسف**	٧٣-١٠٢	٥
٧	أضواء على الجريمة والعقاب في مصر القديمة.	**د. سمير أديب عزيز**	٦٧-٨٨	٨
٨	خربة الذريح: إضاءات جديدة على ديانة الأنباط ومعتقداتهم.	**أ. مولاي محمد جانيف**	٤٣-٥٨	٩
٩	نموذج للمسكن النبطي من مدائن صالح.	**د. ضيف الله الطلحي**	٤٣-٥٨	١٠
١٠	مكانة المعبود ذي سماوي في الديانة اليمنية القديمة	**د. منير عبدالجليل العريقي**	٢٥-٤٤	١١
١١	الصلات الحضارية بين إقليم عمان والمراكز الحضارية المجاورة خلال الألفين الرابع والثالث ق. م.	**علي راشد المديلوي**	٤٧-٧٢	١٣
١٢	الفينيقيون (البونيقيون) بشمال إفريقيا في ضوء البحث الأثري	**أ. د. زيدون حمد المحيسن، و مولاي محمد جانيف**	٧٣-٨٨	١٣
١٣	دمى حيوانية غير منشورة من متحف قسم الآثار بجامعة صنعاء/ اليمن	**أ. د. غسان طه ياسين، و د. عميدة محمد شعلان**	٢٧-٤٦	١٤
١٤	أثر السلطتين الدينية والمدنية في المعاملات القانونية النبطية	**د. مهدي عبدالعزيز**	٤٧-٥٤	١٤
١٥	ملكات الأنباط: دراسة تحليلية مقارنة	**د. هتون اجواد الفاسي**	٢١-٤٠	١٦
١٦	جبل البركل: دوره في تتويج الملوك الكوشيين من خلال النصوص ودلالاتها التاريخية	**د. جمال جعفر سليمان**	٤١-٥٠	١٨
١٧	بوابات بازليتة لمقابر كهفية من الأردن عليها رموز عراقية قديمة	**أ. د. عبدالجليل عمرو**	٧-٢٦	١٩
١٨	تنوع الخطوط على المسكوكات العربية قبل الإسلام.	**د. فرج الله أحمد يوسف**	٢٧-٤٦	٢١
١٩	اللباس في الجزيرة العربية قبل الإسلام.	**د. رحمة بنت عواد السناني**	٤٧-٦٢	٢٣
٢٠	ملاحظات تاريخية على حفائر قصر الملك «واح-إب-رع » (أبريس) بعزبة الجابري في مدينة منف القديمة (حتى موسم ٢٠٠٧/٢٠٠٨م)	**د. باسم سمير الشرقاوي، أ. شيماء عبدالمنعم حسانين، أ. منار مصطفى إسماعيل**	٧-٢٦	٢٥
٢١	مسكوكات مملكة الرها قبل الإسلام.	**د. فرج الله أحمد يوسف**	٥٧-٦٤	٢٥
٢٢	التواصل الحضاري من خلال نقش أثري للملك رمسيس الثالث المكتشف بواحة تيماء في شمال غربي المملكة العربية السعودية	**د. محمد بن عائل الذيبي**	٧-١٨	٢٦
٢٣	(تا – ور) مفهومه ورمزيته في مصر القديمة «دراسة أثرية تحليلية في طبوغرافية الموقع»	**د. سمير أديب عزيز**	٧-٢٨	٢٧
٢٤	خبيئة البرونزيات المكتشفة في قصر الملك «واح-إب-رع» (أبريس) بعزبة الجابري في مدينة منف القديمة: «دراسة أثرية-تاريخية».	**د. باسم الشرقاوي، وشيماء عبدالمنعم، ومنار مصطفى**	٧١-١٠٨	٢٨
٢٥	الحالة الدينية فى نجران قبل الإسلام.	**د. نورة بنت عبدالله النعيم**	٥١-٦٠	٢٩
٢٦	من حكم قرية ذات كهل (الفاو)؟	**أ. د. عبدالرحمن الأنصاري أ. د. سالم أحمد طيران**	١٩-٢٢	٣٠
٢٧	مسكوكات مملكة تدمر.	**د. فرج الله أحمد يوسف**	٧-١٦	٣١
٢٩	دمى ثاج: دراسة في الأساليب الفنية والدلالات الحضارية.	**د. وفاء يوسف بهاي**	١٧-٣٢	٣١

	عنوان البحث	الباحث	صفحات	العدد
٣٠	النحت في مدينة الحضر في ضوء الدلالات التعبيرية: دراسة آثارية فنية.	**د. زينة خليل السلطان**	٣٢-١٧	٣٤
٣١	دراسة تحليلية لبعض الأدوات المستخدمة في طقوس معابد بلاد الرافدين القديمة.	**أ. د. ليث مجيد حسين**	٧٤-٥٧	٣٥
٣٢	الدلالات الحضارية لهيئة الأسد في الفنون الدادانية.	**د. حسني عبدالحليم عمار** **د. محمد بن عائل الذيبي**	٨٨-٧٥	٣٥
٣٣	تاريخ وآثار مدينة سبسطية الأثرية من العصور البرونزية وحتى الفتح الإسلامي (٣٦٠٠ ق.م-٦٣٦م/١٤هـ).	**د. لؤي محمد أبو السعود**	٢٤-٧	٣٦
٣٤	العلاقات السياسية بين مملكة سبأ ومدن ممالك الجوف في ضوء نقش سبئي جديد من القرن السابع قبل الميلاد.	**د. منير عربش و** **د. محمد علي الحاج**	٣٦-٢٥	٣٦
٣٥	تحديد موقع الجرهاء على ضوء المكتشفات الأثرية الحديثة.	**د. عبدالرحمن السحيباني**	٦٢-٥٣	٣٧
٣٦	تحديد موقع الجرهاء على ضوء المكتشفات الأثرية الحديثة.	**د. عبدالرحمن السحيباني**	٦٢-٥٣	٣٧
٣٧	طب الأسنان في بلاد وادي الرافدين في ضوء المدرستين العلمية والعملية.	**د. زينة خليل السلطان**	٢٤-٧	٣٨
٣٨	تخطيط وعمارة سوق شمر في مدينة تمنع وسوق قرية الفاو ودورهما الاقتصادي (دراسة مُقارنة).	**د. علي بن مبارك طعيمان**	٤٢-٢٥	٣٨
٣٩	أضواء جديدة على تاريخ مملكة أمير ومعبودها ذي سماوي من خلال نقش مسندي من موقع الأخدود بنجران.	**د. محمد علي الحاج**	٦٢-٤٣	٣٨
٤٠	الأحجار الثلاثية في منطقة جعلان بني بوحسن، المنطقة الشرقية بسلطنة عمان.	**د. ناصر سعيد الجهوري**	٩٠-٦٣	٣٨
	ثالثاً: أبحاث النقوش والرسوم الصخرية:			
١	مذبح بخور (م ف ح م) عليه نص إهدائي للمعبود ذي سماوي.	**د. سالم بن أحمد طيران**	٥٨-٥٠	١
٢	كتابة عربية بالخط الثمودي من الأردن.	**د. فواز حمد الخريشة**	٧٠-٥٩	٢
٣	زوجات المعينيين الأجنبيات في ضوء نصوص جديدة.	**د. سعيد بن فايز السعيد**	٧٢-٥٣	٥
٤	نقش جديد من نقوش ذي سماوي.	**د. عميدة محمد شعلان**	١٤-٧	٦
٥	مناهج التأريخ عند العرب في ضوء النقوش العربية المبكرة.	**د. مشلح بن كميخ المريخي**	٢٦-١٥	٦
٦	نقش إسلامي لامرأة من القطيف بمتحف الدمام.	**أ. د. أحمد بن عمر الزيلعي**	٦٦-٥٧	٦
٧	نقش سبئي جديد من جدران: دراسة تحليلية في دلالاته اللغوية.	**د. عميدة محمد شعلان**	٧٤-٦٥	٧
٨	نشأة الكتابة بين واديي النيل والرافدين في ضوء الأختام الأسطوانية المبكرة.	**د. اسماعيل عبدالفتاح محمد**	٦٦-٤١	٨
٩	نقش غيل المِنْضح (المبرح) الإسلامي المؤرخ في سنة ٩٨هـ (٧١٦-٧١٧م) محافظة ظهران الجنوب -المملكة العربية السعودية.	**د. محمد بن عبدالرحمن الثنيان**	٨٢-٥٩	٩
١٠	لوحتان للملك «أمنحتب الثالث» بمدينة أيونو: دراسة تحليلية.	**د. اسماعيل عبدالفتاح محمد**	٤٢-٣٣	١٠

	عنوان البحث	الباحث	صفحات	العدد
١١	تقدمة نذرية للمعبود ذي سماوي وأسبابها: دراسة في ضوء النقوش	**د. محمد سعيد القحطاني**	٧-٢٤	١١
١٢	نقش شَعيّر بن كسحمان	**د. محمود الروسان**	٤٥-٥٢	١١
١٣	دراسة تحليلية لنقش معيني جديد من العلا	**د. حسين علي أبو الحسن**	٢٩-٣٨	١٢
١٤	أول نقش سبئي يذكر مدينة حدة/ صنعاء في حوالي القرن الثاني قبل الميلاد	**منير عربش، و محمد محمد الحلبي**	٣٩-٤٤	١٢
١٥	نقوش صفوية جديدة من منطقة مرب الغنم شمالي شرق الأردن	**إبراهيم صدقة، و د. رافع محيميد حراحشة**	٤٥-٧٤	١٢
١٦	نقش معيني جديد من هرم: دراسة في دلالاته اللغوية والدينية والحضارية	**د. سالم أحمد طيران**	٧-٢٦	١٤
١٧	نقوش صفوية من قاع الفهدة بالبادية الأردنية	**د. زياد عبدالله طلافحة**	٥٥-٦٨	١٤
١٨	ظاهرة التعدد اللغوي في ممالك النوبة	**د. محمد مهدي إدريس**	٦٩-٨٠	١٤
١٩	إمالة الألف إلى الواو بين الرسم القرآني الكريم والنقوش واللهجات العربية	**د. زياد عبدالله طلافحة**	٧-٢٠	١٦
٢٠	قراءة جديدة لنقش قتباني	**د. سالم أحمد طيران**	٥١-٦٢	١٨
٢١	تفسيرات لغوية ولهجية لبعض الأسماء الصفوية من كشاف هاردنج	**د. زياد عبدالله طلافحة**	٦٣-٨٠	١٨
٢٢	نقوش صفوية من تلة الفهداوي بالبادية الأردنية	**د. زياد عبدالله طلافحة**	٢٧-٤٦	١٩
٢٣	الحركات وأشباه الحركات في اللهجة اللحيانية، دراسة في نقوش منطقة العلا	**د. آمنة الزعبي**	٣٩-٥٦	٢٠
٢٤	معرفة المرأة للكتابة في مجتمع الجزيرة العربية قبل الإسلام، دراسة من خلال النقوش من القرن ٣ق. م إلى القرن ٧٧م	**د. فتحية حسين عقاب**	٥٧-٧٠	٢٠
٢٥	دراسة تحليلية لرسوم صخرية ونقوش ثمودية من طريب بمنطقة عسير جنوبي المملكة العربية السعودية	**د. خالد محمد أسكوبي**	٧١-٨٠	٢٠
٢٦	تقدمات مجامر ومسارج للمعبودات في اليمن القديم: دراسة من خلال النقوش والآثار.	**د. محمد سعد عبده القحطاني**	٧-٢٦	٢١
٢٧	نقش تأسيسي جديد لقنطرة باسم الأمير محمد بن عبدالرحمن (الأوسط) بالأندلس (٢٣٨ - ٢٧٣هـ/ ٨٥٢ - ٨٨٦م).	**أ. د. عبدالله بن إبراهيم العمير، و أ. توفيق إبراهيم**	٤٧-٥٨	٢١
٢٨	نقش إسلامي مبكر من موقع ضريّة بالمملكة العربية السعودية.	**د. سعيد بن دبيس العتيبي**	٢١-٢٨	٢٢
٢٩	رسوم صيد الإبل في «قرية» الفاو بالمملكة العربية السعودية: قراءة جديدة.	**أ. د. علي التجاني الماحي**	٧-٢٠	٢٢
٣٠	نقوش المسند والعربية الفصحى	**أ. د. رفعت هزيم**	٢٣-٣٢	٢٣
٣١	نقوش صفوية جديدة من تلة الفهداوي بالبادية الأردنية	**د. زياد عبدالله طلافحة**	٣٣-٤٦	٢٣
٣٢	نقوش نبطية جديدة من موقع السيج في العلا بالمملكة العربية السعودية	**أ. د. سليمان بن عبدالرحمن الذييب**	٣٥-٥٦	٢٤

	عنوان البحث	الباحث	صفحات	العدد
٣٣	نقش لاتيني نادر من قرية أم صيحون في منطقة البتراء	**أ. د. طالب عبدالله الصمادي**	٦٦-٥٧	٢٤
٣٤	رجم المعبود كهل من خلال النقوش العربية الشمالية.	**د. محمود محمد الروسان**	٤٠-٢٧	٢٥
٣٥	بيت داود: حقيقة أم خيال؟	**أ. د. زيدان كفافي**	١٠٢-٩١	٢٥
٣٦	الرسوم الصخرية في وادي الجفر بسلطنة عمان الدلالة والمعنى	**د. ناصرسعيدالجهوري، و أ. د. علي التيجاني الماحي**	٤٨-٢٩	٢٧
٣٧	النظام الأمومي بين النقوش الحسائية (الثاجية) والنقوش النبطية.	**د. هتون أجواد الفاسي**	٥٠-٣٥	٢٨
٢٨	نقش جديد من نقوش الاعتراف العلني من معبد غ رو.. دراسة في دلالاته اللغوية والدينية.	**أ. د.إبراهيم محمد الصلوي، ود.فهمي علي الأغبري**	٥٨-٥١	٢٨
٢٩	نقوش عربية شمالية من باير وصبحا في البادية الأردنية.	**د. زياد عبدالله طلافحة**	٧٠-٥٩	٢٨
٣٠	نقوش عربية شمالية من البادية الأردنية الشمالية الشرقية (رجم العبد، ارحاب، زملة الأمير غازي).	**نبيل بدر عطا الله** **د. عبدالقادر الحصان** **د. زياد طلافحة**	٧٦-٦١	٢٩
٢١	نقوش إسلامية من مسجد تلة الفهداوي بالبادية الأردنية الشمالية الشرقية.	**د. زياد عبدالله طلافحة**	٦٨-٤٩	٣٢
٣٢	اللعنات في نقوش المقابر النبطية في الحِجر (مدائن صالح).	**د. زياد مصطفى الشرمان**	٤٦-٢٣	٣٠
٣٣	دراسة تحليلية مقارنة لنقش قتباني إهدائي جديد مدون على لوح من البرونز (حاج – العادي ٢٨).	**أ. محمد علي الحاج**	٥٦-٤٣	٣٣
٣٤	نقش أسماء الأنبياء المملوكي من منطقة الصفاوي في الأردن.	**د. خالد سليمان الجبور، د. نزار الطرشان**	٦٢-٥٧	٣٣
٣٥	نقوش جديدة من المتحف العسكري في عدن.	**د. أحمد بن أحمد باطايع** **د. محمد عوض باعليان**	١٦-٧	٣٤
٣٦	نقوش ثمودية جديدة من هضيبات المضلعاني بمحافظة تيماء – المملكة العربية السعودية.	**د. زياد الشرمان**	٤٤-٣٣	٣٤
٣٧	نقوش صفائية من وادي سلمى وأم الجمال والدفيانة في محافظة المفرق – الأردن.	**د. زياد طلافحة** **د. عبدالقادر الحصان**	٥٦-٤٥	٣٤
٣٨	الصيد في الفن الصخري: شمال غربي الجزيرة العربية أنموذجا.	**د. نايف القنور**	٥٦-٣٩	٣٥
٣٩	نقوش عربية شمالية من متحف دار سرايا إربد.	**د. زياد طلافحة** **عالية خصاونة**	١٠٢-٨٩	٣٥
٤٠	نقشان من العصر المملوكي من البادية الأردنية الشمالية الشرقية.	**د. خالد سليمان الجبور** **أ. د. محمود رشيد**	٤٨-٣٧	٣٦
٤١	نقش سبئي جديد من قرية المَحْم بمديرية خَارِف – محافظة عَمْرَان، وملامح من نظام الملكية الزراعية للأقيال في اليمن القديم.	**د. محمد علي الحاج**	٤٤-٢٧	٣٧
٤٢	دراسة تحليلية لنقشين معينيين جديدين من شمالي العلا.	**أ. خالد بن حسان الحايطي**	٥٢-٤٥	٣٧

	عنوان البحث	الباحث	صفحات	العدد
٤٣	نقوش سبئية جديدة من قرية هجرة قروان سنحان باليمن.	**د. علي محمد الناشري**	٥٥-٦٨	٣٩
٤٤	النقوش المؤرخة في منطقة حائل، قراءة وتحليل.	**إيمان عثمان السماري**	٢٩-٥٤	٣٩
٤٥	عقد شراكه بين بني بوس وبني جدن في ضوء نقش بخط الزبور من منطقة مقولة.	**أ. أحمد علي صالح فقعس**	٧-٢٤	٤٠
٤٦	نقوش عربية شمالية قديمة من البادية الأردنية.	**د. علي المناصير**	٢٥-٣٦	٤٠
٤٧	نقوش عربية شمالية «صفائية» من جاوه البادية الأردنية الشمالية الشرقية.	**أ. د. عليان عبدالفتاح الجالودي، ود. عبدالعزيز محمود الهويدي، ود. زياد عبدالله طلافحة، ود. عبدالقادر محمود الحصان**	٣٧-٥٠	

رابعاً: أبحاث العصور الإسلامية:

١	درهمان من مسكوكات الدعوة العباسية.	**د. فرج الله أحمد يوسف**	٤٧-٥٤	٣
٢	نقود الخلافة العباسية والقوى المتصارعة في فارس وسجستان (٢٨٧-٣٠٧ هـ/٩٠٠-٩٢٠م).	**د. عاطف منصور رمضان**	٥٥-٨٨	٤
٣	استبدال البلاطات الخزفية بالفسيفساء على الجدران الخارجية لقبة الصخرة المشرفة.	**د. نزار الطرشان**	٨٩-٩٨	٤
٤	نقود القدس في العصر الإسلامي (العصرين الأموي والعباسي).	**أ. د. رأفت محمد النبراوي**	٢٧-٤٨	٦
٥	دينار فاطمي نادر باسم الخليفة المستنصر بالله ضرب صقلية سنة ٤٤٢هـ.	**د. خلف فارس الطراونه**	٤٩-٥٦	٦
٦	دراهم صفارية نادرة ضرب عُمان.	**د. عاطف منصور رمضان**	٧٥-٨٢	٧
٧	الآثار العثمانية في السودان	**د. انتصار صغيرون الزين**	٨٩-١٠٢	٨
٨	الدور الإعلامي لنقود الفترة الأموية ٤١-٦٤هـ/ ٦٦١-٦٨٣م	**د. خلف فارس الطراونة نجلة أحمد علي**	٨٩-١٠٤	١٣
٩	دينار نادر للمُعِزّ بن باديس ضرب مدينة المهدية سنة ٤٤٩هـ	**د. أحمد رستم تونى**	٣٥-٤٤	١٥
١٠	أهمية برج تامنتفوست في تحصينات مدينة الجزائر إبان الحكم العثماني	**د. فضيلة حمزاوي د. صالح خالد ساري**	٤١-٦٠	١٦
١١	درهم عباسي نادر ضرب مصر عام ١٧٥هـ	**د. سعيد عبدالفتاح عطا الله**	٧-١٠	١٧
١٢	قصر الملك عبدالعزيز بوادي الدواسر: دراسة معمارية وثائقية.	**د. خليل إبراهيم المعيقل**	١١-٣٦	١٧
١٣	التراث العمراني للبلدة القديمة بمدينة العلا والحفاظ عليه	**د. عبدالناصر الزهراني**	٣٧-٥٨	١٧
١٤	العقائد والديانات غير الإسلامية على النقود الإيلخانية	**د. عاطف منصور محمد**	٨١-١٢٢	١٨
١٥	نقشا جبل أم سنمان بمدينة جبة بمنطقة حائل، السعودية	**أ. د. محمد عبدالرحمن الثنيان**	٤٧-٧٤	١٩
١٦	ثلاثة نقود نادرة تلقي الضوء على تاريخ اليمن قبل الفتح الأيوبي	**د. سعيد عبدالفتاح عطا الله**	٧٥-٨٤	١٩
١٧	تشخيص لأهم عوامل ومظاهر تلف مواد البناء الأثرية في موقع قرح (المابيات) في المملكة العربية السعودية: دراسة ميدانية تحليلية	**د. عبدالناصر عبدالرحمن الزهراني**	٨١-١٠٢	٢٠

	عنوان البحث	الباحث	صفحات	العدد
١٨	دينار حفصي نادر ضرب مدينة حامّة لأبي فارس عبدالعزيز (٧٧٦-٨٣٧هـ / ١٣٩٣-١٤٣٣م)	**د. أسامة أحمد مختار**	٦٣-٧٢	٢٣
١٩	دراسة جديدة لمجموعة من النسيج السميك الطولوني.	**د. شادية الدسوقي عبدالعزيز**	٦٥-٩٠	٢٥
٢٠	الآثار الإسلامية في سواكن	**د. عبدالرحمن إبراهيم سعيد**	٤٩-٥٨	٢٧
٢١	الخزّاف غيبي بن التوريزي (القرن ٨- ٩هـ/١٤- ١٥م) إطلالة جديدة في ضوء توقيع يُنشر لأول مرة	**د. عبدالخالق علي الشيخة**	٥٩-٧٢	٢٧
٢٢	الذراع الملكي بالمتحف الأثري في تلمسان: دراسة أثرية.	**د. الرزقي شرقي**	٧٧-٨٦	٢٩
٢٣	كنز الحصن المملوكي من شمالي الأردن: دراسة وتحليل.	**أ. د. صالح خالد ساري**	٨٧-١١٢	٢٩
٢٤	نقش أثري في المسجد العمري في الكرك، من عهد السلطان برقوق، بإعفاء الأهالي من الضرائب على أملاكهم.	**د. سعد محمد المومني**	٣٧-٤٦	٣٠
٢٥	نقش عباسي مؤرّخ من بلدة حوارة، شمالي الأردن.	**د. زياد عبدالله طلافحة**	٤٧-٥٦	٣٠
٢٦	أثر الموريسكيين النازحين من الأندلس في صناعة الحلي الريفي بمطنقة «بني يني» في الفترة الحديثة.	**د. الرزقي شرقي**	٣٣-٤٢	٣١
٢٧	دراسة آثارية فنية لنسخة من القرآن الكريم على هيئة رول في مجموعة جامعة الإمام محمد بن سعود الإسلامية.	**د. عبدالسلام محمد العسيلي**	٦٩-٨٠	٣٢
٢٨	نوادر نقود مكة وأسباب ندرتها.	**د. محمد يونس**	٦٣-٨٢	٣٣
٢٩	مناهج تأريخ القصور الأموية في بلاد الشام: دراسة تحليلية نقدية.	**أ. د. نزار الطرشان**	٥٧-٦٨	٣٤
٣٠	حمام الحمداني بساحة بزة بمدينة حلب: دراسة أثرية معمارية.	**د. عبدالخالق علي الشيخة**	٤٩-٦٨	٣٦
٣١	ضرر الكشف على عمارة المسكن المغربي من خلال كتب النوازل مداخل مساكن تلمسان أنموذجاً.	**د. محمد بن حمو**	٦٩-٩٠	٣٦
٣٢	دراهم الخليفة الأموي عبدالرحمن الناصر (٣٠٠- ٣٥٠هـ/ ٩١٢-٩٦١م)، ودلالاتها السياسية من خلال نماذج جديدة.	**أ. غزيل بنت عبدالله السهلي**	٦٣-٧٨	٣٧
٣٣	فلس عباسي نادر ضرب حجر ١٦٧هـ بأمر الخليفة المهدي محمد أمير المؤمنين.	**د. رويدا رأفت النبراوي**	٩٠-٩٨	٣٨
٣٤	نقود الأمير الخارجي مسافر بن كثير (١٢٨-١٣٤هـ) في أرمينية وأذربيجان.	**د. نايف بن عبدالله الشرعان**	٦٩-٨٢	٣٩
٣٥	خزف موقع فيد بمنطقة حائل: المواسم الثلاثة الأولى للتنقيب (٢٠٠٦-٢٠٠٨).	**د. فهد بن صالح الحواس**	٥١-٧٤	٤٠
٣٦	مسكوكات بالس في العصر الطولوني.	**د. أحمد محمد دسوقي**	٧٥-٨٦	٤٠
	خامساً: موضوعات أخرى:			
١	نحو تأصيل التراث الحضاري للجزيرة العربية.	**أ. د. عبدالرحمن الطيب الأنصاري**	٢٩-٤٠	٣
٢	الممتلكات الثقافية بين المواطنة والاغتراب.	**د. عباس محمد علي**	٧-٢٦	٤

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أحمد حامد ناصر و أحمد أبو القاسم الحسن

ملّخص: *توصل البحث العلمي الرائد عن الآثار في الأجزاء الشمالية من المملكة العربية السعودية إلى حقيقة مفادها أن صحراء النفود هي إحدى المناطق التي نشأت فيها وانتشرت منها ثقافات ما قبل التاريخ في الجزيرة العربية. وعليه، ومنذ العام 2014م درجت جامعة حائل على تنظيم حفريات أثرية في منطقة فيد التي تبعد نحو 110 كلم جنوب شرقي مدينة حائل. وفي غضون بدايات العام 2019م جرت أعمال الموسم السادس من المسوحات والتنقيبات في موقع فيد التاريخي، وحينها تم الكشف عن المنخفض القديم الذي يبعد نحو 600 متر إلى الشرق من الموقع الأثري. وقد كشفت المسوحات الأثرية عن موقع مهم يعود للعصر الحجري القديم، يُظهر تكدسًا للأدوات الحجرية الكبيرة القاطعة على سطح تلال صخرية من البازلت على حافة مجرى مائي قديم. وقد توصلت المسوحات الأثرية القياسية إلى وجود انتشار للقطع الحجرية على السطح، وجرى تصنيف عينات منها إلى أن السمات التقنية والنوعية للأدوات الحجرية بالموقع هي بالطابع ذاته المعروف بالأشولية ذي الوجهين والأطراف القاطعة. كما أسفرت تلك الدراسات الأولية عن أن وضع الموقع الأثري والسمات المميزة للأدوات الحجرية تماثل ما هو معروف من آثار الفترة الأشولية من العصر الحجري القديم المبكر، في كل من منطقة الدوادمي، وصحراء النفود بالجزيرة العربية. هذه الورقة تلقي الضوء على الاكتشاف الحديث لموقع أشولي بمنطقة فيد الأثرية، وأهميته لدراسات ما قبل التاريخ في الجزيرة العربية.*

الكلمات المفتاحيّة: *العصر الأشوليّ، أدوات حجريّة كبيرة قاطعة، منطقة فيد، فأس حجري، العصر الجليدي.*

مقدمة

تمثّل الصحراء العربيّة في المملكة العربيّة السعودية إحدى المناطق الأساسيّة الخاضعة للدراسة والتنقيب لتحرّكات أشباه البشر وانتشارهم من إفريقيا. وكشف البحث عن وجود أشباه البشر من العصر الجليديّ في الأجزاء الشماليّة من شبه الجزيرة العربيّة، وأثبت دورها المحوريّ (Whalen et al 1983؛ Petraglia 2003؛ Alsharekh 2006؛ Groucutt et al 2018؛ Shipton et al 2018). كما يشير موقع الصحراء بين شرقي إفريقيا وانتقالهم خارجها إلى أن يصبح النافذة الرئيسيّة لدراسة انتشار البشر في أوراسيا (Petraglia et al 2010؛ Jenniags et al 2015؛ Groucutt et al 2017؛ Scerri et al 2018).

لقد أظهر البحث القياسي في صحراء النفود، وما وراءها في الأجزاء الشماليّة من المملكة العربية السعودية، العديد من أماكن السكن في العصر الحجري القديم. وتشير الاكتشافات الحديثة على المواقع الأشولية في الصحراء الشرقية (Masojć et al 2019) وساحل البحر الأحمر (Beyin et al 2019) للسودان إلى تعقيد طرق انتشارهم من شمال شرقي إفريقيا وخروجهم منها.

ويتضح عند دارسة الخريطة الحالية لمواقع العصر الحجري القديم في شبه الجزيرة العربية والاكتشافات فيها، أن المملكة العربية السعودية كانت منطقة سكن استوطنتها مجموعات العصر الحجري القديم لفترات طويلة (العصر الأشوليّ والعصر الحجري الأوسط (Petraglia et al 2012). وخضع التوسع في حدود العصر الأشوليّ والعصر الحجري الأوسط وتطوّرهما لبحث متعدد التخصصات (Scerri et al 2018). وساندتها الأدوات الحجريّة الكبيرة القاطعة بصفتها المؤشرات السائدة للعصر الحجري القديم السفلي الموجودة في العديد من المواقع مثل الدوادمي، والشويحطية، ووادي فاطمة، وعبر صحراء النفود (Whalen et al 1988؛ Petraglia 2003؛ Shipton et al 2014؛ Shipton et al 2018).

ونادرًا ما تجري مقارنة مواقع العصر الحجري القديم السفليّ مع سياقات أحدث منه مثل أواخر العصر الأشوليّ، كما وجدت في مواقع العصر الحجري القديم الأوسط مجموعات عديدة وفي وادي فاطمة وعبر صحراء النفود (Whalen et al 1988؛ Petraglia 2003؛ Shipton et al 2014؛ Shipton et al 2018). كما تواجدت في مواقع العصر الحجري القديم الأوسط مجموعات عديدة امتدَّت على طول البحر الأحمر، ووصلت وسط المملكة العربية السعودية،

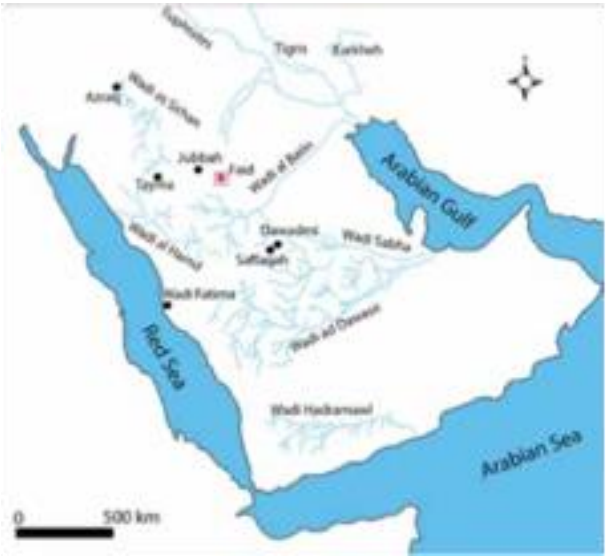
والحدود الشمالية لصحراء النفود (Petraglia et al 2011؛ Groucutt et al 2017؛ Scerri et al 2018).

وعثر الباحثون على المجموعة الرئيسة التي تعود للعصر الأشوليّ على امتداد وادي فاطمة، بالقرب من البحر الأحمر (Whalen et al 1988)، وانتشرت كذلك على قمم التلال القريبة من بلدة الدوادمي في وسط المملكة العربية السعودية (Shipton et al 2018). ويشير عدد المواقع المسجلة إلى الكثافة العالية للسكن في كلتا المنطقتين، تعود للعصر الحجري القديم؛ فالمواقع تتميّز بوفرة الفؤوس الحجريّة الأشولية المصنوعة من رقائق الحجر الكبيرة. وتدلّ المواقع المفتوحة على سكن صانعي الأدوات من العصر الأشوليّ في قمم التلال البازلتيّة، وتشييدهم لمعسكرات صغيرة على ضفاف قنوات العصر الجليدي الواسعة بالقرب من التلال الصخريّة من البازلت والريوليت والكوارتز (Petraglia et al 2011، Jennings et al 2015).

وسلّط الاكتشاف الأخير لمواقع العصر الأشوليّ والعصر الحجري الأوسط المدفونة في صحراء النفود مزيدًا من الضوء على أهمية المملكة العربية السعودية، ودورها في الانتشار المبكّر للإنسان في أوراسيا (Alsharekh 2006؛ Scerri et al 2015؛ Groucutt et al 2018). كما كشفت الأبحاث التي جمعت بين التحرّي في التضاريس الطبيعية للمواقع، ودراسة تركيبة الأرض القديمة، والبيئة القديمة، أن مناخ العصر الجليدي وفّر العديد من الموارد للمجموعات البشرية المبكرة (Scerri et al 2018). وكذلك فإن اكتشاف بقايا أحافير الإنسان شجّع على البحث متعدِّد التخصصات، لإعادة بناء التكيُّف البشريّ في هذه المنطقة خلال العصور الجليديَّة والعصر الحديث (Groucutt et al 2017).

يقع موقع فيد الأثري على أطراف صحراء النفود، وتحديدًا بين هذه المنطقة الصحراوية والدوادمي في وسط المملكة العربية السعودية (الشكل 1). ويتضمّن مشروع البحث الأثري لجامعة حائل في منطقة فيد 2019 خلال الموسم السادس إجراء مسح أثري في موقع منطقة فيد وما يحيط بها. ويهدف المسح إلى تسجيل التسلسل الزمني للموقع الرئيسي، وتحديد سياقه، ففيه عثر الباحثون على موقع سكن جديد يعود للعصر الأشوليّ.

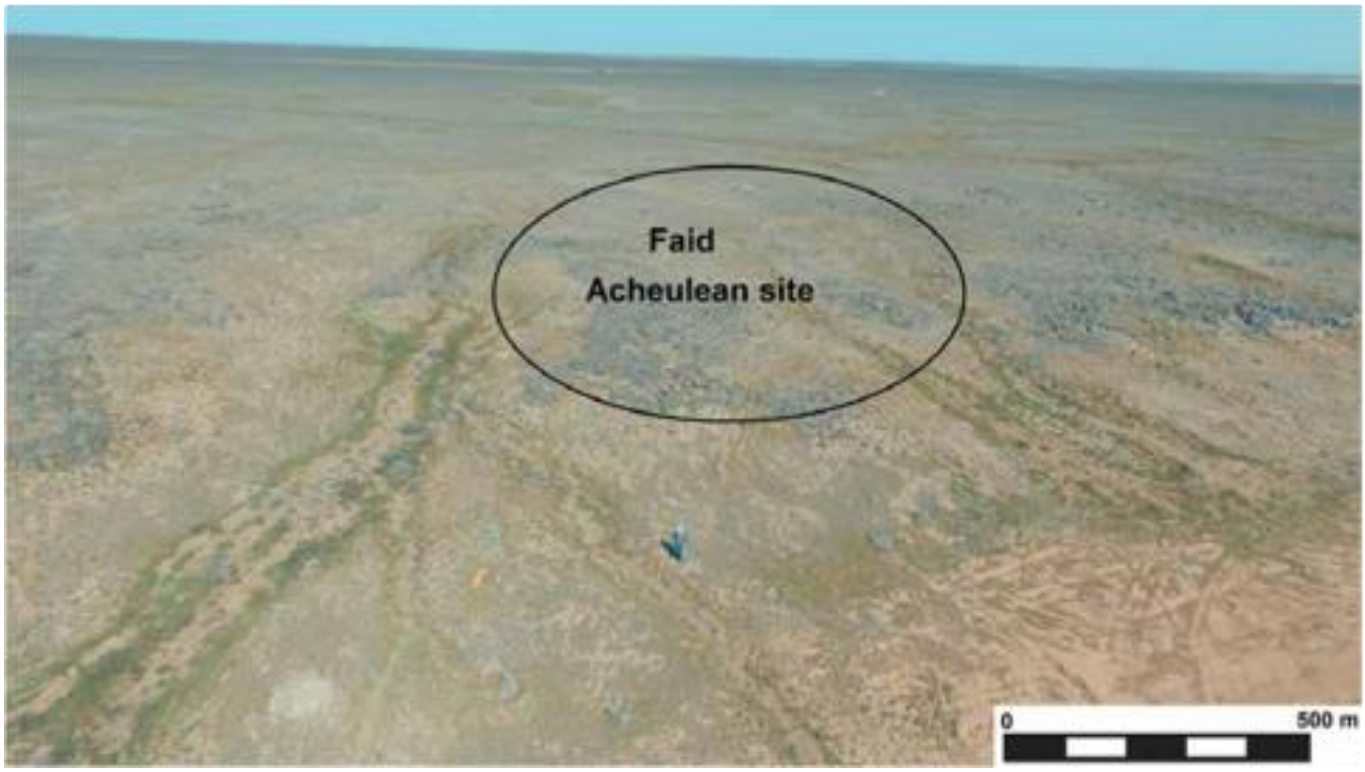
يهدف هذا البحث إلى تقديم ملاحظات حول اكتشاف الأدوات الحجرية الأشوليّة الكبيرة التي تعرضت لعوامل التجوية في موقع منطقة فيد، ودراسة وضع الموقع وتكدّس القطع الأثرية فيه، وإجراء مقارنات إقليمية للسمات التقنية والنوعية للأحجار.



الشكل 1 موقع منطقة فيد والمو اقع الرئيسة من العصر الحجري القديم في المملكة العربية السعودية (عدّلها Nassr 2019، Source Shipton et al 2018**).**

وقد قاد عاملان رئيسان المؤلفيَن إلى التحرّي عن مستوطنات ما قبل التاريخ في المنطقة؛ أ): العثور على فأس حجرية واحدة في عام 2015 خلال الموسم الثاني والذي يندرج ضمن سياق البناء الإسلامي، مما يشير إلى استيطان يعود للعصر الحجري القديم حول المنطقة (Alhawas et al 2015).

ب): احتوت التضاريس الطبيعية حول الموقع قنوات ضحلة وواسعة، ورواسب، وأخاديد، ترجع للعصر الجليدي. وتشير هذه الأوضاع الجيومورفولوجية إلى مواقع سكن ترجع إلى العصر الحجري القديم. يظهر على الموقع أكوام مسطحة من التلال الصخريّة البازلتيّة على حوافّ المنخفض العريض، يحدّها جبل من الجنوب وهضبة من الشمال. أجرى المؤلفان مسحًا أرضيًّا على الأقدام تتبّعا فيه مسار القناة من الجنوب إلى الشمال؛ لاستكشاف التلال الصخريّة البازلتيّة الممتدّة على طول المنخفض. كما لاحظا على بعد نحو 600 متر شمال موقع فيد تكدُّسًا للقطع الأثرية الحجرية تعود إلى العصر الحجري القديم، وتشمل بعض القطع الأثرية الحجرية من العصر الأشوليّ أدواتًا حجريَّة كبيرة قاطعة ذات وجهين متمركزة على السطح بحيث تغطي مساحة 300 × 250 مترًا عند سفح تلال الأخاديد البازلتيّة على ضفّة الشاطئ الغربي للمنخفض (الشكل 2).



الشكل 2 صورة جوية لموقع منطقة فيد الأشوليّة.

إحداثيات موقع الاكتشاف ومكان العصر الحجري القديم في منطقة فيد: 50 ،′31 °42 E ،25 ′07 °27 N

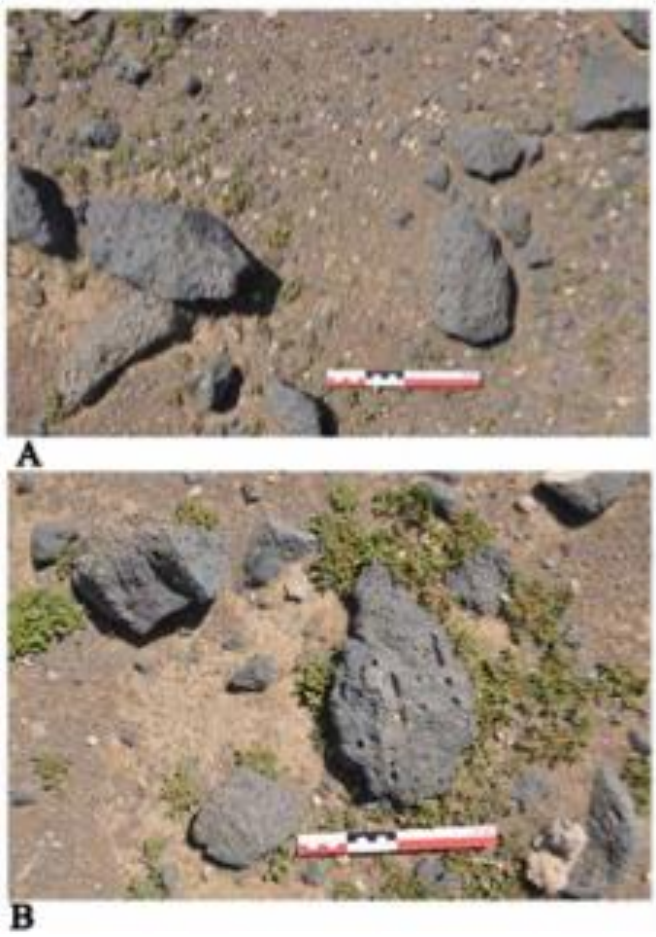
منطقة فيد اليوم هي قرية تقع على بعد 110 كيلومترات جنوب شرقي منطقة حائل، في المنطقة الشمالية من المملكة العربية السعودية. ومن الناحية التاريخيّة فقد عرفت المنطقة بأنها إحدى المدن الإسلامية القديمة، وتقع على طريق الحج الرئيس الذي يربط بين العراق ومدينة مكة المكرمة (انظر المشروع الأثري لتقرير 2015). ويضمّ الموقع توسعًا كبيرًا لمستوطنة إسلامية حضرية تغطّي أكثر من 2 كم^2. وتضمنت البؤر في المنطقة تلالاً بازلتيّة مكشوفة على أخاديد مفتوحة مجاورة للشواطئ، يحدّها جبل كبير من جهة الجنوب. وتتدفق القنوات من السهل الداخلي إلى الواحة الجافة القريبة من الجبل؛ حيث تقع المدينة التاريخية بالقرب منها.

أظهر المسح القياسي الحالي لموقع المدينة وجود عدد قليل من هذه الأدوات التي تعود إلى عصور ما قبل التاريخ، بما في ذلك الرقائق الحجريّة والشفرات الصغيرة، والفؤوس الحجريّة. وشجّعنا هذا لتتبع حدود المنخفض الممتدة في جميع الأرجاء الداخليّة حتى الشمال. كان الأساس المنطقي لاستهداف هذا المنخفض هو التضاريس، والتي تشابه حالته الأساسيّة لمنطقة العصر الحجري القديم في المملكة العربية السعودية (Jennings et al 2015). وعثرنا في منطقة فيد أيضًا على موقع العصر الحجري على سفح أخاديد صخرية من تلال صخريّة بازلتيّة في حافة الخط الساحلي للمنخفض.

أما على سطح الموقع فقد ظهرت تركيزات عالية من القطع الأثرية الحجرية من العصر الحجري القديم، تضمنت النواة والرقائق الحجريّة والأدوات الحجرية الأشولية ذات الوجهين. واكتشفنا كذلك قِطَعًا أثرية متراكمة على سطح الترسبات الطينيّة وبين التلال الصخريّة البازلتيّة وطبيعة القناة (انظر الشكل 3).

تتميز جيولوجيا الموقع بصخور أرضية ناريَّة مغطاة بتلال صخريّة بازلتيّة، ورواسب نهرية، تعود للعصر الجليدي. ويمكن تحديد التضاريس الطبيعية للبيئة القديمة من تضاريس الموقع الظاهرة على واجهة نظام المنخفض المنقرض، ما يشير إلى طقس العصر الجليدي الرطب (ربما واحة). كشفت حالة الموقع عن وجود أدلّة لوجود مجموعة من أشباه البشر من العصر الأشوليّ ، عاشوا في الأخاديد على ضفة المنخفض القديم، وسكنوا في مخيم صغير. تشبه هذه التضاريس الطبيعية موقعًا سبق تحديده في بحث سابق عن علم آثار العصر الجليدي في مدن المملكة العربية السعودية،

مثل: الدوادمي، وصفاقة (Whalen et al 1983؛ Shipton et al 2018؛ Scerri et al 2018).



الشكل 3 تراكم أدوات حجرية كبيرة من الأشوليّة على سطح الموقع (أ: سواطير وأدوات تقطيع، ب: فأس حجرية).

كشفت حالة الموقع عن وجود أدلّة لوجود مجموعة من أشباه البشر من العصر الأشوليّ ، عاشوا في الأخاديد على ضفة المنخفض القديم، وسكنوا في مخيم صغير. تشبه هذه التضاريس الطبيعية موقعًا سبق تحديده في بحث سابق عن علم آثار العصر الجليدي في مدن المملكة العربية السعودية، مثل: الدوادمي، وصفاقة (Whalen et al 1983؛ Shipton et al 2018؛ Scerri et al 2018).

وفي شمال الموقع المحتمل لوجود الآثار الأشوليّة تتبعنا مسوحات منطقة المنخفض حتى الهضبة؛ إذ عثرنا فيها على رواسب نهرية مسطحة، ورواسب من آثار العصر الحديث القديم، وعدد قليل من التلال الصخرية الجيريّة والبازلتيّة. وكثر العثور على القطع الأثرية الحجرية؛ وقد تركّز وجود بعضها بكمّيات كبيرة. وتتكون التجمعات المسجلة من صناعة النواة الصخريّة والأسنان الحادة والرقائق الحجريّة بتقنية الليفالوس، وكذلك الشفرات الحادة. إلا إننا فشلنا في العثور على أي فؤوس حجريّة أو أي أدوات حجريّة كبيرة قاطعة. وتشير هذه التجمعات من القطع الأثرية الحجرية إلى تآكل مخيّمات العصر الحجري القديم الأوسط على طول المنخفض.

طريقة جمع العينات من القطع الأثرية الحجرية

أجرى بعض المؤلفين مسوحات منهجية على الأقدام إلى جانب استخدام التصوير الجوّي. ومن الأساليب الرئيسة المستخدَمة في المسح توثيق تضاريس الموقع، واستكشاف تركيز المصنوعات الحجرية.

وأعقب المسح العشوائي الأولي تسجيل أنماط القطع الأثرية الحجرية في الموقع، تلاه جمع عينات من التجمعات تكشف عن تنوُّع المصنوعات الحجرية في تقنية صنعها ونوعها وحجمها، وركزت مسوحاتنا على الأخاديد المستوية والسهول الرسوبية المستقرة والتلال الصخريّة المجاورة للمنخفض.

غطّت القطع الأثرية الحجريّة مساحات شاسعة، تنوّعت من تلال صخريّة بازلتيّة إلى منحدرات لضفة المنخفض، وتنوعت في مقاديرها بين أعداد كبيرة أو فرديّة. وقد تأثرت التركيزات الرئيسة للقطع الأثرية الحجرية بعوامل التجوية، وغطت مساحة 300 × 250 مترًا، توزعت على قمم أخاديد المنخفض وشواطئه. وتغلب الأدوات الحجريّة الكبيرة القاطعة عليها؛ إذ شمل توثيق حواف النواة الحجريّة الأشولية، والفؤوس الحجريّة الكبيرة، وأدوات التقطيع، ودرجة تركيزها على السطح وعلى التلال الصخريّة. كما نجح الباحثون في العثور على بعض الفؤوس الحجريّة الصغيرة، والأسنان الحادّة، والرقائق الحجريّة، مدفونة تحت درجات رسوبيّة قليلة من الرواسب، بينما عُثر على المجموعات الأثريّة الحجرية بكثافة أعلى على السطح (40 قطعة أثرية لكل 20 م^2).

يشير تكدّس الأدوات الحجرية الكبيرة القاطعة، ووجود النواة الصخريّة، والرقائق الحجريّة، إلى أن هذه القطع الأثرية الحجرية صُنعت محليًّا. من ناحية أخرى، يستدل من جميع القطع الأثرية المصنوعة من الصخور البازلتيّة المحلية أن هذه القطع الأثرية الحجرية قد تم صقلها في الموقع.

وقد وثّق الباحثان القطع الأثرية الحجرية في الموقع، وبلغ عددها نحو 35 قطعة أثرية، وفقًا لتنوع المصنوعات الحجرية من ناحية تقنية صناعتها ونوعها (الأشوليّة، والعصر الحجريّ المتوسّط (الشكل 4).

وعثر الباحثان على جميع الاكتشافات بعد تعرضها لعوامل تجوية شديدة. وغلبت عليها الأدوات الحجريّة الكبيرة القاطعة؛ لأنها السمات التقنية الأساسيّة المستخدمة؛ إذ يُستدل على أنماط التشخيص من تباين الفؤوس الحجريّة في أشكالها وأحجامها.

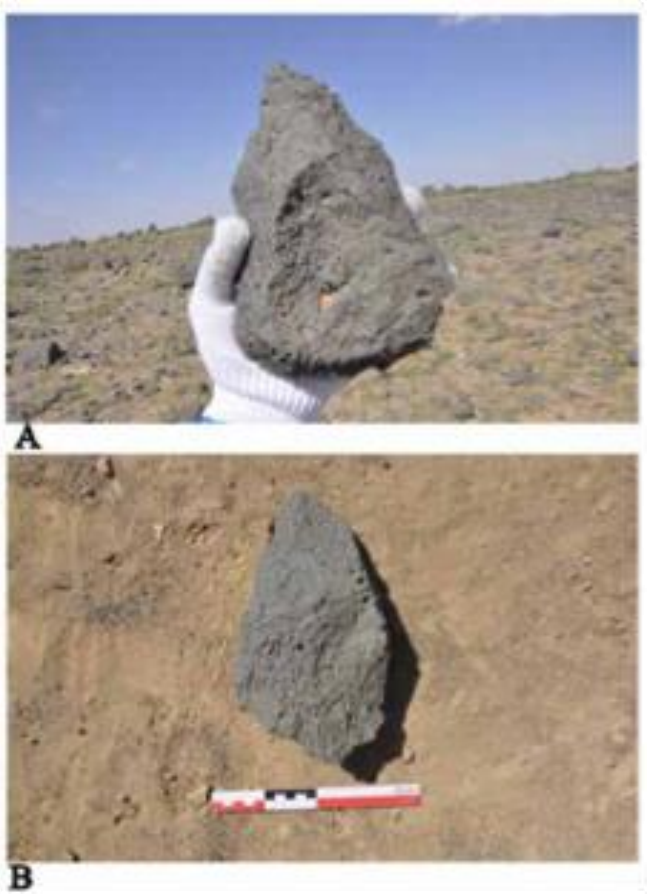
تشير تركيزات القطع الأثرية الحجرية، ووجود رقائق كبيرة ثنائية الوجه مع أطراف القطع وحوافها، إلى أن الموقع عبارة عن مسكن أشولي عربي نموذجي. ومن أبرز التقاليد التقنية هي النمط الأشوليّ الثاني (ذات الوجهين، وأدوات القطع الكبيرة)، والثالث (تقنية إعداد النواة الحجريّة). ويندر وجود هذه الأنماط من القطع الأثرية الحجرية في علم الآثار العربية، وهي تشبه أدوات العصر الأشوليّ في الدوادمي في وسط المملكة العربية السعودية (Petraglia et al 2010؛ Scerri et al 2015).

كما تشير تكدّسات القطع الأثرية الحجرية من النواة الحجريّة والرقائق الحجريّة والأدوات ومخلّفاتها الموجودة على السطح إلى وجود مخيّم صيد من العصر الحجري القديم وورشة لصقل حجارته.

خصائص القطع الأثرية الحجرية والمقارنة الإقليمية بينها

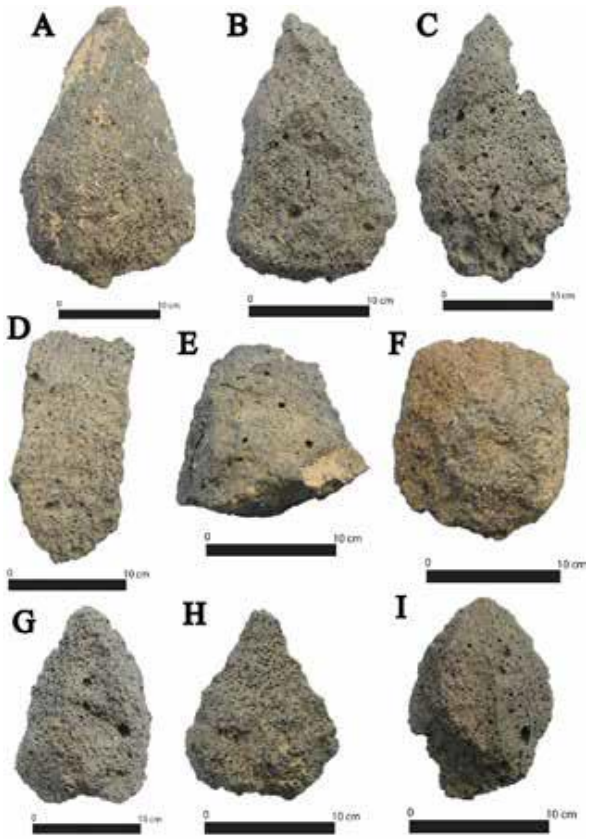
من الملاحظات الأوليّة للقطع الأثريّة الحجريّة، نستدلّ بأنها أدوات حجريّة كبيرة قاطعة، تعود للعصر الأشوليّ، مصنوعة من الصخور البازلتيّة؛ وقد عثر الباحثون على هذه الأدوات الحجريّة بعد تعرّضها لعوامل تعرية شديدة مدفونة تحت رواسب متآكلة، ويبلغ عدد القطع الأثريّة الحجريّة الخاضعة للدراسة 35 قطعة أثريّة. وكشف التحليل الأساسيّ لهذه المصنوعات الحجريّة عن بعض العناصر المهمّة، مثل الرقائق الحجريّة الأشوليّة بأسنانها الحادّة ذات الوجهين من العصر الحجري القديم الأوسط. وتشير الرقائق الحجريّة الكبيرة إلى عمليّة صقل الأحجار بطرقها بمطرقة صلبة، وأسفر عنها رقائق حجريّة كبيرة شكّلت محور الأداة، وشحذت أطرافها، وصنعت لها أسنانًا حادّة وأطرافًا قاطعة، وقد تم صُنع بعض هذه الأدوات الحجريّة من نواة حجريّة ذات قشرة بنسبة 50-70٪. كما تتميّز معظم الأدوات بأنها رقائق حجريّة كبيرة تشكلت جراء طرق أطرافها السفليّة والجانبيّة. وساد استخدام الرقائق الحجريّة بصفتها التقنية الأساسيّة للتعامل مع الأطراف الحادّة (نحو 5-7 سم من رقائق الأحجار). ومن ناحية الشكل الخارجي، فإن معظم هذه الأدوات تأخذ شكل قلب مع أسنان مقعّرة وحادّة، ولها نهاية طرف منحنية من المنتصف (انظر الشكل 5).

الشكل 4 مجموعة من القطع الأثرية الحجرية الأشولية وجدت في الموقع.



الشكل 5 تقنية الرقائق الحجريّة الكبيرة القاطعة. A: الرقاقة الحجريّة من الخلف1. B: الرقاقة الحجريّة من الأمام2.

تمثّل الفؤوس الحجريَّة أحد الأدوات الحجريَّة التي يمكن صيانتها في موقع منطقة فيد، وبها يمكن إجراء التصنيف النوعي، والذي يشمل أشكالاً وأحجامًا مختلفة من فؤوس حجريّة كبيرة، ورقائق حجريّة كبيرة، وعاديّة، وصغيرة، وقلبيّة الشكل. وظهرت على معظم الفؤوس الحجريّة علامات استخدام على حوافها؛ بحيث تأثرت أعقابها لتصبح نصف دائريّة، وصقل سطحها المرتفع، وتغيّر شكله المستقيم أو القشري إلى أسنان حادَّة. ويبلغ عدد الندبات المكوّنة للرقائق على الفؤوس الحجريّة الكبيرة من 5-7 رقائق حجريّة كبيرة بكامل الرقاقة الحجريّة الأصليّة من الجهة الخلفيّة وعلى رقاقة كبيرة أخرى من الجهة الأماميَّة. ويكثر اكتشاف هذه الفؤوس الحجريّة المصنوعة من رقاقات كبيرة ذات أطراف حادّة وأسنان قاطعة في منطقة الدوادمي (Shipton et al 2014). ويتسم شكل الفأس الحجريّة العاديّ بتوسّط حجمها وشكلها المثلث والبيضاويّ وسنها الحادّة (انظر شكل 6). ويعود تاريخ هذه الخصائص اليدويّة في العديد من المواقع إلى أواخر العصر الأشوليّ في الدوادمي وصحراء النفود (Shipton et al 2018؛ Petraglia et al 2010).



أدوات التشخيص في العصر الأشولي والأدوات الحجرية من العصر الحجري القديم الأوسط في منطقة الفيد (A-B: فؤوس الحجريّة الكبيرة، D: ساطور،E-F :اقراص، G: فؤس حجرية شكل ورقي، H: نهاية حادة، I: نهاية ليفالوس)

وتشيع كذلك الأسنان ذات الوجهين الحادّة، ويقل فيها استخدام تقنية الليفالوس، وتتخذ شكل قمم مثلثة؛ فالأسنان الحادّة المصنوعة بتقنية الليفالوس توجد على الجهة المستقيمة للطرق، بالسطح المرتفع، وطرفها المنحني الحادّ، وانتهاءً بسنها الحادّ في نهايتها. تحدّدت هذه الخصائص للأسنان الحادّة في العصر الأشوليّ القديم، والعصر الحجري الأوسط في منطقة النفود كالتي عُثِرَ عليها في موقع جبَّة (Groucutt et al 2017؛ Scerri et al 2018).

كما عثر الباحثان على أدوات التقطيع الحجريّة والسواطير والأقراص والمكاشط والمطارق المصنوعة من النواة الحجريّة ورقائق الفؤوس الحجريّة؛ ما يؤكد تعدُّد أنواع القطع الأثريّة الحجريّة، واختلافها بين العصر الأشوليّ والعصر الحجري الأوسط في موقع منطقة فيد، ويشير كذلك إلى استيطانهم في تلك المنطقة طويلاً.

وتعود معظم القطع الأثريّة الحجريّة الموثقة في الأجزاء الشرقيّة في منطقة فيد إلى العصر الحجري الأوسط، وتشمل النواة الحجريّة المصنوعة بتقنية الليفالوس المتعرّضة لعوامل التجوية بأسنان حادّة ورقائق حجريّة مصنوعة كذلك بتقنية الليفالوس، ولبعضها شفرات قاطعة.

الخلاصة والتوصيات:

تشمل تقنية الأدوات الحجريّة المأخوذة من الموقع رقائق حجريّة كبيرة وأطرافًا قاطعة وأسنانًا حادّة. ومن ناحية نوعها تصنّف هذه الأدوات تحت ثلاث فئات أساسيّة، هي: أ) الفؤوس الحجريّة، وهي النوع الأساسيّ، ويتسم بتنوّع أحجامه وأشكاله. ب) التعديلات ذات الوجهين مثل الأشكال المثلثة وتقنية الليفالوس. ج) تجمّعات مختلفة، تشمل: أدوات التقطيع، والسواطير، والأقراص، والمكاشط، والرقاقات الحجريّة، والنواة الحجريّة، والمخلّفات. وعمومًا تمثّل هذه الفئات القطع الأثريّة التي تعود للعصر الأشوليّ، والعصر الحجري القديم.

وتلفت الاكتشافات للموقع الأشوليّ في منطقة فيد النظر إلى زيادة المعرفة حول الآثار من العصر الحجري في المنطقة الشماليّة الداخليّة في المملكة العربيّة السعوديّة. وهذا يلقي الضوء على الروابط بين وسط المملكة العربيّة السعوديّة وحدودها الشماليّة (صحراء النفود). كما تُقدّم الاكتشافات للمصنوعات الحجريّة المحتملة من العصر الأشوليّ والعصر الحجري الأوسط في منطقة فيد فرصًا لدراسة عمليّة انتقال العصر الحجريّ في هذه المنطقة. ويمكن مقارنة استيطان العصر الحجري في منطقة فيد بالمناطق المجاورة للعصر الحجري في شبه الجزيرة العربية. ويفتح هذا المجال الباب لمناقشة انتشار البشر من المنطقة الصخريّة إلى المناطق الداخليّة مرورًا بعدد من المواقع الرئيسة، مثل: الدوادمي، وجبّة، وصولاً إلى صحراء النفود، عبر منطقة فيد.

وما تزال منطقة شمالي المملكة تخضع للدراسة والتنقيب عن الآثار لتتبُّع انتقال أشباه البشر من جنوبي شبه الجزيرة العربيّة إلى جنوب غربي آسيا (Alsharekh 2006, Petraglia et al 2011, Shipton et al 2014, Groucutt et al 2017, Groucutt et al 2018). كما سبق توثيق مناطق العصر الحجري والتي كشفت عن تمركز عالٍ لسياقات العصر الأشوليّ والعصر الحجري الأوسط (Scerri et al 2018). إلا إن السياقات الطبقيَّة والتاريخيّة شحيحة، والتي يمكن بها إعادة بناء التسلسل الزمني للموقع والتطورات الثقافيَّة التي شهدها. وتُسلّط هذه المسوحات الضوء على إمكانات البحث الجديدة في العصر الأشوليّ والعصر الحجري الأوسط في المملكة العربيّة السعوديّة.

وأخيرًا، يمكن أن تشير النواة الحجريّة، والأسنان الحادّة المصنوعة بتقنية الليفالوس، والشفرات الصغيرة، ورؤوس الأسهم الموجودة في الهضبة الشرقيّة، على بُعد 2-4 كم من الموقع المحتمل إلى الانتقال من الأخاديد إلى الأراضي المفتوحة، خلال العصر الحجري الأوسط.

وفي الختام، نقدّم هذه الاقتراحات:

1- كشفت الآثار المكتشفة والأدوات الحجريّة الكبيرة من القاطعة الأشوليّة في موقع منطقة فيد عن أهمّية الموقع للآثار في المملكة العربيّة السعوديّة، ليست المتعلّقة فقط بعلم الآثار الإسلاميّة، ولكن بعصور ما قبل التاريخ أيضًا.
2- تشير التراكمات السطحيّة للقطع الأثريّة الحجريّة المتميّزة، مع تنوّع خصائصها التقنية النوعيّة؛ إلى استيطان مجموعات من البشر في العصر الحجري القديم في منطقة فيد لفترة ليست بالقصيرة.
3- تدلّ التضاريس الطبيعيّة في الموقع إلى ارتباط منطقة فيد بأنظمة قنوات النفود القديمة عبر وادي الباطن خلال العصور الجليديَّة القديمة.
4- نستدلُّ من تنوّع الأشكال المختلفة للأدوات الحجريّة الكبيرة القاطعة من فؤوس حجريّة، وسواطير، وأقراص، إلى أدوات تقطيع، وأسنان حادَّة، من صخور بازلتيّة على وفرة علم آثار العصر الحجريّ في المملكة العربيّة السعوديّة.
5- تتطلّب الاكتشافات المزيد من أعمال التنقيب والبحث، وكذلك الدراسة المكثّفة للقطع الأثريّة الحجريّة للوصول إلى معلومات مهمّة.

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الافتتاحية

لقد اعتنت المملكة العربية السعودية بالمواقع الأثرية والتراثية الموجودة في مختلف مناطق المملكة، وعملت على الكشف والتنقيب عنها، والحفاظ عليها، وحرصت على إنشاء جهة رسمية تعنى بذلك، هي إدارة الآثار والمتاحف ألحقت ابتداءً بوزارة التعليم (المعارف سابقاً)، وقد حرصت الدولة على تنظيمها وتنميتها وتوفير متطلبات العناية بالآثار، وتنفيذ أعمال التنقيب الميداني بإشراف بعثات علمية مؤهلة؛ كما عملت على تعزيز دورها في تأهيل المواقع الأثرية، بأعمال الترميم والحماية، وتذليل أي معيقات تحول دون تطور العمل الآثاري في المملكة، باعتبار المواقع الأثرية والتراثية تعد مقوما أساسيا في التاريخ الوطني، وبوصفها تمثل رافداً مهماً من روافد الاقتصاد الوطني، وذلك بما يتوافق مع مكانة المملكة وقيمها، والاهتمام بالآثار والمحافظة عليها وتفعيل إسهامها في التنمية الثقافية والتراثية والاقتصادية؛ كما اعتنت بإنشاء المتاحف الرسمية وتوفير الكوادر المؤهلة للإشراف عيلها وتطويرها، والرقي بالعمل الأثري في المملكة بوصفها مهد الحضارة العربية والإسلامية.

والاهتمام بالآثار، وكشف المواقع الأثرية العائدة للعصور التاريخية المختلفة منذ عصور ما قبل التاريخ، والممالك العربية قبل الإسلام، والعصر الإسلامي من شأنه أن يسهم في التنمية المستدامة والناجحة لصناعة السياحة الوطنية، وقد قام قطاع الآثار والمتاحف بتعزيز قدرته على المسح والتنقيب عن الآثار وحمايتها، وتسجيلها، ودراستها، وتطوير المتاحف والتراث العمراني، وزيادة المعرفة بعناصر التراث الثقافي بالمملكة، وإدارة الآثار والمتاحف بشكل أكثر فعالية، كمرحلة أولى في الحفاظ على الموروث الحضاري والتراثي للمملكة.

وخلال الفترة منذ نشأة إدارة الآثار سنة ١٣٨٦هـ/١٩٦٦م ثم تحولها إلى وكالة مساعدة للآثار والمتاحف في وزارة المعارف عام ١٣٩٦هـ/١٩٧٦م ثم إلى الهيئة العامة للسياحة والتراث الوطني ١٤٢١هـ/٢٠٠٠م، وحتى انضمام قطاع الآثار والمتاحف مؤخرًا إلى وزارة الثقافة في العام الحالي١٤٤١هـ/٢٠٢٠م، تحققت العديد من الإنجازات الملموسة في تطوير قطاع الآثار والمتاحف والتراث الوطني، وتأسيس منظومة متكاملة تعتمد عليها التنمية السياحية، وما تبع ذلك من الإقبال عليها والتعامل معها بثقة من جميع فئات المجتمع.

بدأ مشروع البحث الأثري الشامل لآثار السعودية معتمدًا على أنواع المسح الأثري المعروفة مثل: المعلومات المتوافرة عن المواقع الأثرية؛ سواء الشاخصة والماثلة أمام العيان، أو المشي على الأقدام، حيث يمكن تحديد خطوات المسح الأرضي، أو قياس المجال المغناطيسي داخل التربة وعناصرها، ثم استحدث فيما بعد المسح باستخدام المعلومات الجغرافية، وغيرها من نظم المسح الأثري الحديثة.

أكدت أعمال المسح والتنقيبات الأثرية على أن استقرار الإنسان في المملكة العربية السعودية يرجع إلى نحو مليون سنة من الوقت الحاضر وهي فترة العصر الحجري القديم الذي توجد آثار تعود إليه في موقع الشويحطية بمنطقة الجوف، وموقع شعيب دحضة في منطقة نجران.

وقد أفاد المسح الأثري الذي بدأ في المملكة سنة ١٣٩٦هـ/١٩٧٦م واستمر حتى سنة ١٤٠٠هـ/١٩٨٠م في توفر المعلومات والبيانات الإحصائية التي تجسد شبكة العلاقات الحضارية الواسعة والمتشعبة التي شهدتها الجزيرة العربية منذ عصور ما قبل التاريخ وفجره، وعصر الممالك العربية قبل الإسلام والعصر الإسلامي.

بدأت أعمال المسح الأثري في فبراير وأبريل ١٩٧٦م بالمنطقتين الشرقية والشمالية ثم امتدت لكل أنحاء المملكة العربية السعودية، وقد خططت لهذا العمل وأشرفت عليه إدارة الآثار والمتاحف بوزارة المعارف آنذاك، كما تم تكوين كل فريق ميداني وإدارته بالتعاون المشترك بين أخصائيين سعوديين وأجانب.

وأعقب أعمال المسح الأثري الشامل التنقيب وكانت البداية في تيماء سنة ١٣٩٩هـ/١٩٧٩م حيث تبين أن تاريخ الموقع يرجع إلى مطلع الألف الثامن قبل الميلاد.

وتبع ذلك التنقيب في مواقع طرق التجارة والحج وتحديد مساراتها ومحطاتها، وأجري أول تسجيل الرسوم الصخرية، ثم كان أول مسح أثري للرسوم الصخرية والكتابات القديمة والإسلامية في سنة ١٤٠٤هـ/١٩٨٤م.

ثم استمرت أعمال المسح والتنقيب على أيدي آثاريين سعوديين، وبدأت في السنوات الأخيرة بعثات مشتركة مع آثاريين من أوروبا، وأمريكا، والصين، واليابان في العمل بالمواقع الأثرية

المختلفة، وتنشر الأبحاث الخاصة بالمسح والتنقيب في حولية الآثار العربية السعودية (أطلال) التي صدر العدد الأول منها سنة ١٣٩٧هـ/١٩٧٧م، وما تزال تصدر حتى الآن.

كما أسهمت في أعمال المسح والتنقيب أقسام الآثار والمتاحف بجامعة الملك سعود قبل أن يتحول إلى كلية السياحة والآثار، وقسم السياحة والآثار في جامعة حائل، وقسم السياحة والآثار في جامعة جازان، وشكلت العديد من الفرق الأثرية التي نفذت العديد من التنقيبات الآثارية في مواقع عديدة في المملكة، وخرجت بنتائج نشرت تقارير عنها في المجلات العلمية المحكمة سواء التي تصدر عن تلك الجامعات أو مجلات علمية غيرها، ومنها مجلة أدوماتو التي انطلقت من العام ٢٠٠٠م. ويسهم ذلك في إثراء المعلومات عن المواقع الآثارية في المملكة، وكذلك في توثيق تأريخ الفترات الحضارية، والممالك القديمة التي سادت خلال العصور التاريخية السابقة؛ كما أن النشر العملي لها، يسهم في إتاحتها للباحثين والمهتمين والمتخصصين بعلوم الآثار والتاريخ والحضارة الإنسانية، في مختلف مراكز البحث العلمي والجامعات والمكتبات العامة ومتابعي النشر العلمي في هذا المجال المهم.

وبضم مسؤولية المواقع الثقافية والأثرية والتراث والمتاحف إلى وزارة الثقافة في المملكة العربية السعودية، فإن الأمل معقود بالمضي قدما إلى مزيد من العمل المؤسسي، وكذلك إلى إيلاء أعمال المسح والتنقيب في المواقع الأثرية، التي يزخر بها الوطن، الاهتمام الذي يستحقه وطننا بحضارته وتاريخه عبر العصور.

رئيس هيئة التحرير

الهيئة الإستشارية

بسم الله الرحمن الرحيم

مجلة نصف سنوية محكّمة تُعنى بآثار الوطن العربي

الناشر

مركز عبدالرحمن السديري الثقافي

قواعد النشر

١- يقدم البحث باللغة العربية أو الإنجليزية ويرسل إلى المجلة بالبريد الإلكتروني، في ملف رقمي.

٢- يرفق مع البحث مُلخّصان أحدهما باللغة العربية والآخر باللغة الانجليزية على أن لا يزيد عدد كلمات كل منهما على ١٠٠ كلمة.

٣- يشترط ألا يكون البحث المقدم للمجلة قد قدم للنشر في أي وعاء نشر آخر، كما لا يجوز إعادة نشره كاملاً أو جزئياً، إلا بإذنٍ خطيّ من هيئة تحرير المجلة.

٤- يجب ألا يتجاوز حجم النص خمسة آلاف كلمة، وألا تتجاوز نسبة الأشكال التوضيحية ٣٠٪ من حجم البحث.

٥- يفضل أن تكون الصور ملونة إن أمكن، وأن تكون ذات جودة عالية ومناسبة للنشر.

٦- ترفق الخرائط واللوحات والأشكال مع التعليقات الخاصة بها.

٧- توضع إحالات المراجع المذكورة في داخل النص، في نهاية الجملة بين قوسين، على النحو الآتي: (الجاسر ١١:١٤١٧).

٨- توضع الهوامش (التعليقات) في نهاية البحث. وتليها المراجع مرتبة ألفبائياً، ويراعى اتباع الطريقة الآتية في رصدها:

أ- الكتب: اسم العائلة، الاسم الأول، سنة النشر، **عنوان الكتاب**، دار النشر، مكان النشر، (وفي حالة وجود أكثر من مؤلف فتكتب بقية الأسماء مرتبة بشكل عادي).

ب- الكتب المحررة: اسم العائلة، الاسم الأول، سنة النشر، «**عنوان البحث**»، اسم المحرر، اسم الكتاب، صفحات المقال، مكان النشر.

ج- الدوريات: اسم العائلة، الاسم الأول، سنة النشر، «**عنوان المقال**»، اسم الدورية، العدد، الصفحات.

د- الرسائل العلمية: اسم العائلة، الاسم الأول، السنة، « **عنوان الرسالة**»، نوع الرسالة العلمية، القسم، الجامعة، المدينة، البلد.

٩- تمنح المجلة الكاتب نسخة مطبوعة من العدد، الذي ينشر فيه بحثه، ونسخة رقمية بصيغة PDF من بحثه.

١٠-أصول البحث والمقالات التي تصل المجلة لا تُرد أو تسترجع، سواء نُشرت أم لا.

١١-ترفق مع البحث سيرة ذاتية مختصرة عن الكاتب، وعنوانه الحالي.

المراسلات :

سكرتير التحرير: أ. محمد صوانة

مجلة أدوماتو

ص. ب ٩٤٧٨١ الرياض ١١٦١٤

المملكة العربية السعودية

هاتف: ٢٨١٧١٨٩ (١١) (٩٦٦+)

فاكس: ٢٨١١٣٥٧ (١١) (٩٦٦+)

بريد الكتروني: adumatu@alsudairy.org.sa

الموقع على الانترنت: www.alsudairy.org.sa

الاشتراكات: (عددان سنوياً شاملاً أجور البريد)

- **داخل المملكة:**

الأفراد	٨٠	ريالاً سعودياً
المؤسسات	١٤٠	ريالاً سعودياً

- **العالم العربي:**

الأفراد	٢٥	دولاراً أمريكياً
المؤسسات	٤٠	دولاراً أمريكياً

- **خارج العالم العربي:**

الأفراد	٣٥	دولاراً أمريكياً
المؤسسات	٥٠	دولاراً أمريكياً

(قسيمة الاشتراك داخل العدد).

رقم الإيداع في مكتبة الملك فهد الوطنية: ٢٠/٣٧١٩

الرقم الدولي المعياري (ردمد) : ٨٩٤٧ - ١٣١٩

مركز عبدالرحمن السديري الثقافي

يُعنى المركز بالثقافة من خلال مكتباته العامة في الجوف والغاط، ويقيم المناشط المنبرية الثقافية، ويتبنّى برنامجاً للنشر ودعم الأبحاث والدراسات، يخدم الباحثين والمؤلفين، وتصدر عنه مجلة (أدوماتو) المتخصصة بآثار الوطن العربي، ومجلة (الجوبة) الثقافية، ويضم المركز كلاً من: (دار العلوم) بمدينة سكاكا، و(دار الرحمانية) بمحافظة الغاط، وفي كل منهما قسم للرجال وآخر للنساء. ويصرف على المركز مؤسسة عبدالرحمن السديري الخيرية.

- **الغلاف:** منظر صيد حمار وحشي، من نقوش مربّ حمدة بالبادية الأردنية.

العدد الحادي والأربعون - رجب ١٤٤١هـ - يناير ٢٠٢٠م

أدوماتو
Adumatu

مجلة نصف سنوية محكّمة تُعنى بآثار الوطن العربي

مركز عبدالرحمن السديري الثقافي