



Burials that Rewrite the Ancient History of the Arabian Peninsula: "Al-Mustatel and Keyhole Burials as a Model"

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ABSTRACT

The exploration and analysis of burial sites have identified key areas of significance, including AlUla, the town of Muqiy on Mount Al-Abd in Hamil, the Khaybar Harrah region, and Mount Arnaan in Hail. Over a period of five years, through repeated visits to various locations within the KSA, we traversed valleys, mountains, and volcanic hotspots to document an impressive array of stone structures. Our observations led us to conclude that it is improbable for ordinary individuals to have constructed hundreds of thousands of personal or collective burials using massive stones and meticulous designs on mountain summits without the advantages of a luxurious lifestyle and a favorable climate. Given the diversity in burial styles and shapes, this study focuses on two specific types: the Al-Mustatel (rectangular burial) pattern and the keyhole burial pattern. We analyzed and examined the nature of each pattern independently, elucidating their significance and interconnections through interpretative frameworks. These burials are predominantly located in highland regions, adorning the summits and slopes of mountains across multiple volcanic fields (Harrat) in north, south, east, and west of the kingdom. This study aims to shed light on the architectural nature of these tombs and their intended purposes, with the hope of reaching a convincing conclusion. We have re-analyzed and traced the design of these tombs, linking them to the pictorial forms of the earliest known pictorial writing from southern Mesopotamia by the Sumerians. Remarkably, the interpretations of the symbols' forms and meanings were largely consistent in terms of purpose and design.

Keywords: Al-Mustatel Burials; Keyhole Burials; Pictorial Symbols; Pictogram; Saudi Arabia.

INTRODUCTION

The Kingdom of Saudi Arabia is home to extensive collections of stone burials, characterized by their unique layouts, designs, and distinctive architecture. These burials, numbering in the thousands, are concentrated in specific regions, each exhibiting unique features and diverse -patterns that carry ambiguous and intriguing meanings. This phenomenon is poised to reshape our understanding of the history of the Arabian Peninsula and the civilization of Saudi Arabia (Figure 1, Map 1).



Figure 1. (Map 1) Archaeological and Geographical Sites in Arabian Peninsula

This study aims to elucidate the forms and designs of these burials, exploring their significance and symbolism. By revisiting the symbols and meanings of ancient pictorial writings from the original inhabitants of the Arabian Peninsula, we gain insights into the cultural and religious contexts of these burials. Specifically, we examine cuneiform writing symbols in their pictorial context, which often align with the overall shape and design of the burials. These symbols convey meanings related to the purpose of constructing burials, their connection to the afterlife, and the belief in the safety of the souls of the deceased. The choice of burial designs often harmonizes with the symbols of deities believed to protect the deceased.

Most of these burials are located in volcanic highlands and plateaus, making access challenging. It is remarkable that the builders, despite facing harsh living conditions, managed to construct these burials using massive volcanic rocks, some weighing up to half a ton or more. This suggests that these individuals lived in conditions of abundance, with ample food resources from animals and plants. This period, known as the Holocene Humid Period (HHP) in the Arabian Peninsula, spanned from approximately 8000 to 4000 BCE, before the onset of desertification (Dalton et al., 2022; Engel et al., 2012; Petraglia, Groucutt, Guagnin, Breeze, & Boivin, 2020; Preston & Parker, 2013). It is unlikely that such elaborate burial grounds would have been constructed during periods of drought and scarcity.

This study highlights the distinctive burial patterns, and variations in nomenclature, quantity, distribution, and meaning. These patterns are connected to their meanings through the design and symbolism of ancient languages. The heritage value of these findings provides cultural coherence in the ideas of cemetery designs throughout Saudi Arabia whose features may resemble or differ comparable to the 1st millennium tombs located on the Silk Road (Luo, 2022). The multiplicity of burial types reflects the diversity of ideas, concepts, and beliefs related to cemetery design. The interpretation of these designs reveals symbolic meanings related to worship, the afterlife, and the gods.

AL-MUSTATEL (RECTANGULAR) BURIALS

Another architectural pattern that reaffirms our previous understanding is that the people of the Kingdom of Saudi Arabia made significant strides in their lifestyle and settlement patterns during prehistoric eras. We firmly believe that their philosophical thought and beliefs transcended many of the conceptions that intelligent beings

around the world could conceive during the Stone Age. The study of this pattern of burials and its symbolic implications will likely provide a complementary and qualitative addition to the other burial patterns we have already discussed in the study or those that will be included later.

Despite our agreement on the historical timeline and significance of the rectangular burial pattern, as published by a team from the University of Western Australia, their surveys revealed that these architectural structures, referred to as "the rectangle," (Mustatel) are among the oldest stone relics in the Arabian Peninsula. They constitute one of the oldest archaeological building traditions identified worldwide. The study dates them to the late 6th millennium BCE. However, we do not entirely concur with their interpretation of these structures as evidence of cattle worship in the Arabian Peninsula. Thus, we found it necessary to consider that these structures might have been built for this purpose, according to their assertion (Thomas et al., 2021, p. 605).

Firstly, it is important to mention that naming these stone structures was a challenge, even in terms of nomenclature. They were referred to as "gates," due to their apparent similarity with the traditional European field "gates" when viewed from above (D. Kennedy, 2017, p. 155). Given the significance of the rectangular burial pattern and its associated features, we need to delve into it as follows:

Description of the Construction and Purpose

The stone structures in the form of Mustatel were recognized by this name and have also been referred to by their Arabic name, later transliterated as "Mustatel" This architectural pattern consists of two parallel short walls connected by two perpendicular and parallel walls on each side of the rectangle, with some having central dividing walls in the middle (Figure 2).



Figure 2. Three Examples of the Rectangular Burial Pattern Atop a Mountain in AlUla

Figure 2 depicts three examples of the rectangular burial pattern atop a mountain in AlUla. They consist of two parallel walls, while the larger burial features a central dividing wall in the middle, as reported by Thomas et al., 2021, p. 607.

As for their dimensions, they range from 20 to 620 meters. These structures are found in numerous locations within the Kingdom of Saudi Arabia. A count was conducted in an area estimated to be around 200,000 square kilometers in the northwest of the Kingdom, specifically in the cities of AlUla and Khaybar. The count revealed that there are over a thousand of these architectural structures (Thomas et al., 2021, p. 605). It is certain that there are likely multiples of this count in other regions of Saudi Arabia that the Australian mission supported by the Royal Commission for AlUla did not have access to. Their work was confined to Khaybar and AlUla only.

To emphasize the existence of these rectangular structures, which we've named a s "Rectangular Burial Pattern," our field discoveries have led to the identification of numerous structures dispersed across volcanic plains or on the surfaces and slopes of mountains. For example, there's a rectangular burial located to the northwest of the Kingdom near the town of "Muqiq," beneath the slopes of Mount Al-Abd in Hail, its approximate area is 6,600 square meters, with dimensions of 30 meters in width and 220 meters in length. The walls' height does not exceed 1 meter (Figure 3).



Figure 3. A Model of the Rectangular Burial in the Town of Muqiq on Mount Al-Abd in Hamil

Figure 3 depicts a model of the rectangular burial in the town of Muqiq on Mount Al-Abd in Hamil.

What concerns us about these structures is their intended purpose, which they were likely built for – a significant burial where the deceased was interred at one or both ends of the rectangle. The rest of the construction holds symbolic significance in terms of design, a method we have followed in analyzing the symbolism of all burials in our research.

Returning to the beginning, we do not agree with the idea that the rectangular burial served as a place of cattle worship among the peoples of the Arabian Peninsula in prehistoric times, an idea proposed by the Australian mission from the University of Western Australia supported by the Royal Commission for AlUla (AAKSAU and Royal Commission for AlUla). Their evidence was the discovery of cattle horns within the burial chamber (Thomas et al., 2021, p. 618, fig. 9) (**Figure 4** - a, b, c). This may apply to what is stated regarding worship, in the same cultural area from the Late Neolithic of north-west Arabia (Kennedy et al., 2023). However, they seem to overlook that offerings of sacrificial animals, food, and drink were placed with the deceased in the grave, either as offerings to the gods for protection or out of the belief that the deceased would require sustenance in the afterlife.

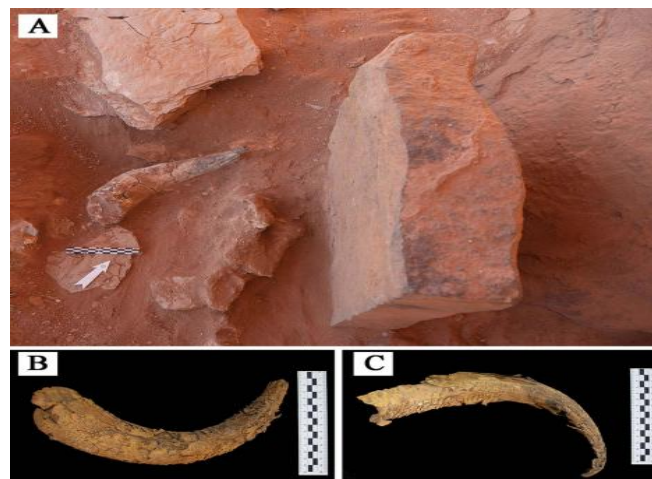


Figure 4. The Burials of the Rectangular Burial Style with the Exposed Cattle Horns

Figure 4 shows one of the burials of the rectangular burial style with exposed cattle horns, which the archaeological research team believed to be evidence of cattle worship in the Arabian Peninsula, according to Thomas et al., 2021, p. 618, fig. 9.

The phenomenon of burying animals with the deceased is well-known in the cultures of the East and the Arabian Peninsula. We have numerous examples, research, and studies that confirm this practice. From the far southeast of the Arabian Peninsula, convincing evidence comes from burial findings (Weeks, 2017, pp. 25-31). Moving to the north of the Arabian Peninsula, specifically in the eastern Mediterranean, at the famous site of Sheman in Palestine, dating back to the 10th millennium BCE, burials were discovered containing both the human remains and the bones of wild animals buried inside the graves (Grosman, Munro, & Belfer-Cohen, 2008, pp. 17665–17669). Through the analysis of these animal bones buried alongside the deceased, it was determined

that they represented wild cow, tortoise, eagle, wild boar, and martes foina (Figure 5). So, would it be logical to conclude that the prehistoric people of Palestine 12,000 years ago worshiped the wild animals found in the graves of the Shaman site?

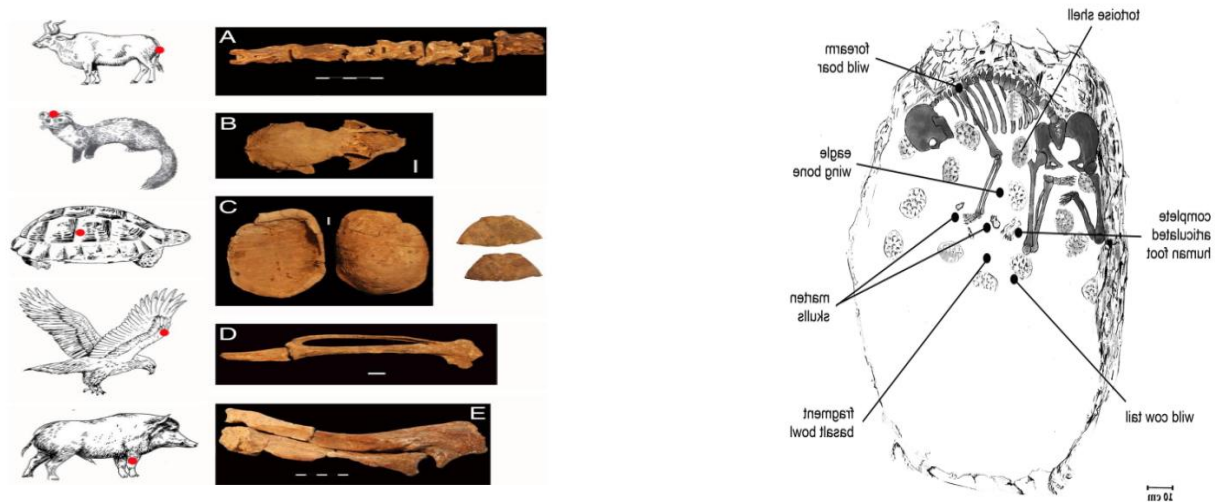


Figure 5. Remains of Wild Animal Bones Alongside a Human Skeletal Structure Discovered at the Shaman Site in Palestine (Grosman et al., 2008, p. 176679)

The people of Mesopotamia, including the Sumerians and others in the ancient Near East, during prehistoric and subsequent eras, believed that honoring the deceased and offering sacrifices to them during burials established a connection and communication with the dead while simultaneously providing comfort to their souls (Al-Ruwaishidi, 1970, pp. 373-388). Among these offerings were domesticated animals like sheep, goats, cattle, as well as fish and birds (Muhammad, 2005, p. 27). However, this doesn't imply that they worshiped livestock, fish, and birds.

Returning to the start, the most plausible conclusion regarding the construction being a burial with its symbolism - which we will discuss later has led to the identification of the burial chamber at the end of each rectangular head. It has been accurately described by archaeologists as follows:

The burial chamber, resembling an alcove, is situated at the head of the rectangular structure, with a typical length ranging from 10 to 50 meters and wall heights ranging from 0.3 to 1.2 meters. Numerous morphological variations are visible in this distinct shape. In most cases, a single rectangular or oval-shaped chamber can be identified within it, ranging in size from 2.8×2.8 meters to 10×3 meters. These chambers have entrances (less than 0.5 meters) connecting them to the courtyard (Thomas et al., 2021, p. 610, fig. 3). This description of the rectangular burial style comes from recent archaeological surveys conducted in a specific area, north-western Saudi Arabia Figure 6 (refer to Map number -2- for the location of Khaibar and AlUla), north of the city of Medina and southwest of the famous archaeological site of Tayma (Thomas et al., 2021, p. 608, fig. 2), where the expedition's work was limited to.

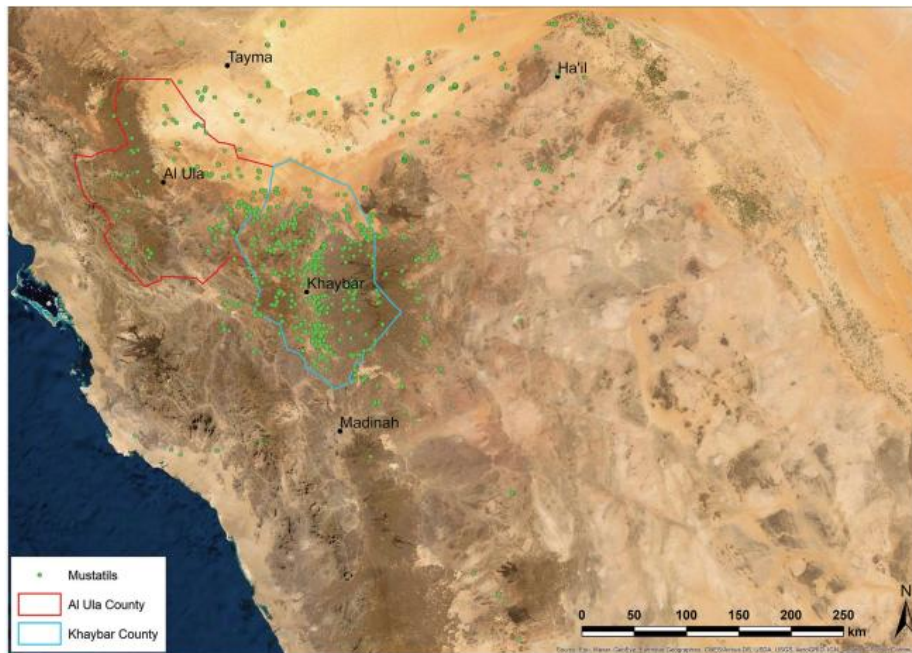


Figure 6. (Map 2) Map of the Khaibar and AlUla Area Where the Archaeological Surveys Were Conducted (Thomas et al., 2021, p. 608, fig. 2)

With around 1600 Mustatels scattered throughout northwestern Saudi Arabia, their unprecedented distribution, as described in recent reports and research, points to them being considered one of the oldest known and most widespread sites for practicing burial rituals in the world (Heggie, 2023).

Who Are the Inhabitants of the Mustatel Burial Builders

An important conclusion drawn from field observations of circular structures near groups of rectangular burials, along with published information about those circular structures, especially in "Harrat Uwayrid," leads us to hypothesize that the builders of the rectangular burials in this specific area were the inhabitants of the circular structure village. On the volcanic plateau in AlUla, Saudi Arabia, dark basalt rocks are spread out, often forming well-defined circular arrangements consisting of two rows of upright stones with one or more stones in the center. The results indicate that these structures date back around 7500 years. These formations were dubbed "Standing Stone Circles" (SSCs) by the archaeological excavation mission from the - University of Western Australia in 2019, funded by the Royal Commission for AlUla (Figure 7). This term was coined in a report published by the famous "National Geographic" magazine, which featured a concise photographic coverage of them (Heggie, 2023). It is worth noting that there is a similarity between these circular tombs and Nawamis (Liritzis et al., 2016).



Figure 7. A Top-Down View of One of the Circular Stone Dwellings, Taken from a Video Published by the "National Geographic" Magazine in its July 2023 Issue, Page 13 (Heggie, 2023)

The working hypothesis adopted by the Australian team was that these structures were ritualistic constructions built by the Bedouins during the late Neolithic period for certain forgotten rituals. However, after conducting excavations in some of these stone circles, they discovered that they were actually domestic dwellings from the late Neolithic era. It became evident that the early inhabitants of AlUla were the ones who constructed them, especially considering their numerous presences in AlUla and Khaybar. Their dating ranges from around 5800 to 5500 BCE (Heggie, 2023).

The man has carved stone pillars to serve as the central supports for the circular houses. It was observed that each house had more than one stone pillar, usually shaped like the head of an arrow (resembling an inverted triangle), making it easier to secure them in the ground. Flexible branches of trees were then used to stabilize these pillars between the circular stones, allowing for easier roofing. These branches could be combined with animal hides for added structural integrity. These circular houses are spread across a wide area at the following coordinates: (26° 22'49.6 N, 44° 21'31.2 E). Each dwelling had a small entrance and an open hearth, either inside or outside. While some isolated permanent stone circles exist, the majority are clustered in groups containing up to 25 dwellings (Figure 8) which illustrate the shape of these circular houses. It is worth noting here that similar villages, architectural characteristics, and even the number of houses resembling these have been found in some of the oldest settlements dating back to the early Neolithic era, around 7000 BCE, such as the village of Jarmo in Northern Mesopotamia. Excavations revealed that the village covered an area of 1400 square kilometers with over twenty-five circular dwellings. These houses were roofed with flexible branches of trees, and numerous funerary artifacts were discovered in their graves (Braidwood, 1954, pp. 120-138; Braidwood & Braidwood, 1950).



Figure 8. The Shape of Circular Houses in Harrat Uwayrid, Al-Ula, Kingdom of Saudi Arabia (Heggie, 2023)

There are in the Al-Ha'it Governorate (ancient Fadak), we find circular settlements of huge stones arranged in a circular shape forming one room with one door. Eid Al-Yahya stood on the ruins of these multiple rooms, and he suggested that entering the circular house is by bending slightly with a threshold for the entrance, and the remaining circular wall does not exceed one meter in height (figure.9). As for the roof of the circular house, it is likely that it was covered with tree branches with a cover of animal skins that have been available in large quantities in the region since ancient times, such as wild buffaloes, eland gazelles, and other animals that lived in the region during the savanna era. Through inspection inside the circular houses in Al-Ha'it, Eid Al-Yahya found stone tools in the form of stone axes made of volcanic stones used by the residents of these houses, and they were shown in the program *Ala KHota Alarab* (on the Footsteps of the Arabs) in 2022, the seventh journey - episode thirteen.



Figure 9. The circular houses of the inhabitants in the Ha'it Governorate, quoted from the "Ala KHota Alarabs" program, seventh journey - episode thirteen

There is no doubt that the inhabitants of the circular houses are the ones who built the massive stone "Mustatels" (rectangular structures), individuals from the Stone Age who constructed homes for their families. It also appears that they congregated as village communities. Their distinct thinking is evident in the design of the burial structures and their choice of symbols with significance tied to deities and the afterlife.

Symbolism of the Rectangular Burial Pattern

The discovered symbolic representations, found through pictorial scripts dating from the end of the 4th millennium BCE, concerning the design of the rectangular burial pattern, indicate a symbol that conveys several related meanings and signals in its general form. However, in terms of content, these symbols are connected to the thoughts and beliefs of ancient humans, related to the worship of deities or aspects of the universe, particularly celestial and earthly phenomena (Figure 10 illustrates Pictorial Cuneiform Sign -8-). Among the most significant symbols and their meanings are:

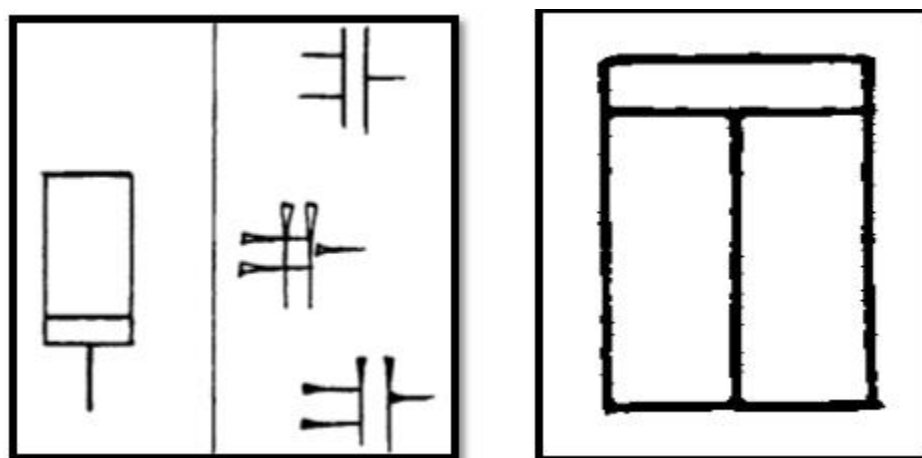


Figure 10. The Pictorial Symbol of the Rectangular Burial in the Pictorial Stage of Cuneiform Writing (Labat, 2002, pp. 140-141, no. 307; pp. 148-149, no. 324; pp. 242-243, no. 595)

Deluge

Pronounced in the Jaziri-Akkadian language as "abubu", notably, the phonetic and semantic resemblance to the Arabic word "الأبواب / Ubab" meaning "abundant water" is striking (Labat R, 2002, p.140-141). The cuneiform pictorial representation of this symbol in Sumerian is given as "MAR-RU", resembling a Mustatel, closely resembling the design of the rectangular burial. This symbol is recognized in pictorial stage cuneiform writings and signifies the deluge, which is strongly believed to have occurred in the Arabian Peninsula. Its primary characteristics were abundant waters, including rainwater and wadis. This pictorial representation gains significance when linked to the conclusions drawn by archaeologists after conducting aerial surveys of the rectangular burial sites. This work revealed that most of these burials were oriented towards bodies of water or were closely associated with water sources like wadis. Archaeologists theorized that sacrificing certain animals and offering them as offerings was a means to ensure fertility and continued rainfall (Kennedy et al., 2021). Based on this conclusion, the symbolic design of the above-mentioned cuneiform sign was adopted, which is often closely linked with water bodies.

For the purpose of visual comparison between the design of the rectangular burial pattern and the pictorial cuneiform symbol, one can refer to the image of a group of rectangular burials near a wadi, where the availability of water was necessary for the burial occupants (Figure 11).



Figure 11. Mustatel Burials Near the Wadi, According to Kennedy et al., Fig. 27

The God Amurru and His Pictorial Symbol

They bear a resemblance to the Musatatel burials. Amurru was worshipped by the Amorites, who studies confirm originated from the heart of the Arabian Peninsula and migrated to its northern regions around the 4th millennium BCE (Mahran, 1974, p. 260). In the Jaziri-Akkadian language, he is pronounced as "dAmurru", and in Sumerian as "dMAR.TU" (Beaulieu, 2005, pp. 31-46). He is known as the lord of plains and mountains, while the Akkadians and Sumerians described him as the god of deserts and the nomads, aligning with the environment of deserts and arid regions characteristic of most of the Arabian Peninsula's geography. Considering him as the god of mountains, while maintaining a significant position among a group of important deities, (Johandi, 2021, p. 276) makes us hypothesize that the placement of his symbols could be related to the design of burials on mountain surfaces, as observed in the Mustatel burials.

It is worth noting that pictorial cuneiform writings provide us with other meanings for the term "rectangular burial," all of which are associated with the sky or the underworld after death, such as "Great Bear Constellation" expressed as mulMAR-GID-DA, and "permanent house or dwelling" expressed as E2 =bitu. The same pictorial symbol also signifies "imaginary depth of a shallow pit" expressed as TUN = šuplu/ šupultu/ hubbu (Labat, 2002, pp. 140-141, no. 307; pp. 148-149, no. 324; pp. 242-243, no. 595).

KEYHOLE BURIAL

A distinctive pattern in its design and architectural structure, this type has unique and notable examples within volcanic areas, including the 'Khaybar Harrah' north of Medina. This pattern has been accurately documented by the field researcher and anthropologist Eid Al-Yahya's team. It was presented as part of the

program 'On the Trails of the Arabs - Season Seven'." (AlArabiya, 2022)

The term 'Keyhole Burial' in media was first introduced in 2014 by Eid Al-Yahya, marking the symbolic resemblance in architectural design to the well-known keyhole shape. The design features a circular base with a triangle extending from it. Notably, there is a fleeting reference in a field survey by the Comprehensive Archaeological Survey Team at the Saudi Commission for Tourism and National Heritage (Gilmore, Al-Ibrahim, & Murad, 1982, p. 15, Plates 8A, 14A). This term has become prevalent within archaeological research circles in recent years (Groucutt & Carleton, 2021; Dalton et al., 2022, p. 186).

Observing the design of the burial from above, one can speculate that the architectural layout of the Keyhole Burial suggests the builder's contemplation of the sky. The sky remained an enigmatic puzzle for ancient humans throughout different eras and cultures, with a belief that deities reside in the heavens and that their post-death existence is linked to their burial's significance and its connection to the sky.

To pinpoint the specific timeline of this burial style, especially in the Khaybar Harrah region (Figure 12), due to the absence of comprehensive studies and excavations, we can infer from the surface findings near these burials. These findings include stone tools like knives and volcanic stone pounders discovered in other parts of the world and the ancient Near East. These artefacts date back to the period of the Early Stone Age. This is further supported by the lack of pottery, suggesting that these burials predate the pottery era, which began in the ancient Near East at the end of the Neolithic and later periods (Matson, Sasson, & Baines, 1995, p. 1554).



Figure 12. Rows of Keyhole Burials in the Khaybar Harrah Region with Coordinates Indicated in the Figure

Through a detailed description of this communal style, it can be stated that the designer of this burial style constructed it in the form of parallel lines of stacked walls that lean against each other. This arrangement imitates a geometrical architectural pattern we've referred to as 'sequential repetition,' with a horizontal orientation. The sides of each burial are adjusted with each new repetition, going from the larger to the smaller (Figure 13).



Figure 13. Keyhole Burial Style in Khaybar Harrah with Sequential Repetition Design and an Illustrative Design Sketch for Clarification

As for the dimensions of the Keyhole Burial construction, research has described the walls as relatively thin walls built from small volcanic stones, with a longitudinal division ranging in width between 5-20 meters (Gilmore et al., 1982, p. 15) (Figure 14).



Figure 14. Volcanic Gravel Used in One of the Walls of a Keyhole Burial in Khaybar

Keyhole Burial style burials appear individually in various other regions of the Kingdom of Saudi Arabia, with a design that perfectly matches the descriptive semantic name of the Keyhole Burial (Figure 15). The presented model was discovered in Arnaan Mountains, within the following geographical location (https://maps.app.goo.gl/kBDV2BvxBV3EtByT9?g_st=iw).



Figure 15. Keyhole Burial Style from the Surface of Mount Arnaan at Coordinates: 27°03'50.0"N 39°40'50.5"E

It is worth mentioning that the overall design of the Keyhole Burial, along with a distinctive addition in the form of a horizontal burial shape at the point of contact between the keyhole circle and the end of the burial shape, was discovered in the city of "Fadak" (Figure 16). A symbolic parallel can be found in ancient Egyptian civilization under the name "Ankh," sometimes referred to as the "Key of Life," symbolizing eternal life in ancient Egypt, as represented by the following hieroglyphic inscription: 'ankh' (Neeteson, 2022, pp. 1-3; Allen, 2010). (See the sign below):

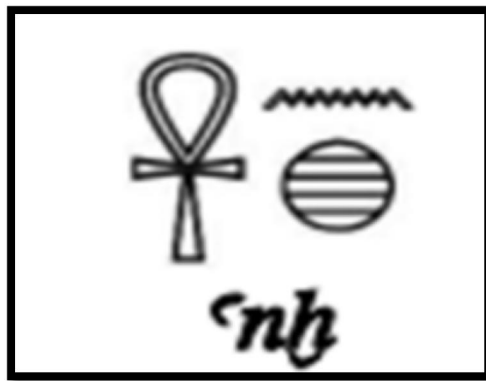


Figure 16. Sign of the Key to Life in Hieroglyphs (Neeteson, 2022, pp. 1-3)

It is worth noting that in its design, this symbol blends the form of ancient Egyptian design with that of the Christian cross. It often appears in Egyptian burial paintings, on museum walls, and is frequently depicted in

images representing resurrection from death for the deceased burial owner. As previously mentioned, it is called the 'Key of Life' and symbolizes resurrection and life after death anew. Therefore, the Egyptians' adoption of this symbol from the Arabian Peninsula and its association with death and resurrection through the Keyhole Burial in the Arabian Peninsula is evidence that the people of the Arabian Peninsula made this symbol a clear sign of life and rebirth (Figure 17)."

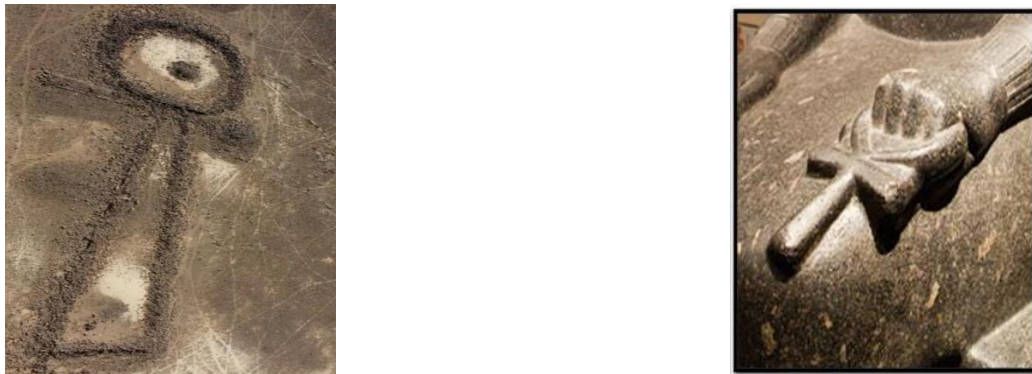


Figure 17. A Keyhole Burial in the Mountains of Fadak, Designed with a Horizontal Structure Between the Keyhole and the End of the Burial Shape, Closely Resembling the Symbol of Life in the Image of an Ancient Egyptian Statue

Expected Date of Keyhole Burials

The ancient dates of the Keyhole Burial style were not only intriguing, but the significant concentrations within a limited area, such as in Harat Khaybar, were even more noteworthy. Near the oases in this region alone, estimated at about 56.5 square kilometers, around 9,500 stone-built burials were discovered using remote sensing techniques (Dalton et al., 2022, p. 186).



Figure 18. (Map 3) The Location of Harat Khaybar, Where Thousands of Burials Are Located, Based on Surveys Conducted by the University of Western Australia in Collaboration with the Royal Commission for AlUla (Dalton et al., 2022, p. 185)

Studies and archaeological surveys conducted by the University of Western Australia on these architectural structures, particularly in the same area (Harat Khaybar) (Figure 18, Map 3), reveal that these ancient architectural structures and others are burials. Recent radiocarbon dating indicates that these are sophisticated and variably designed structures, constructed during the mid to late third millennium BCE. Their numbers cover thousands of square kilometres and are located near perennial water sources, implying human settlement during the mentioned period (Dalton et al., 2022, p. 186). Other research suggests these human remains date back to an early time in the mid-third millennium BCE (Kennedy et al., 2021).

In our study, we do not lean towards the previously mentioned study in dating Keyhole Burials to the third millennium BCE due to logical reasons related to geomorphological and archaeological studies. The humid Holocene period (Holocene Humid Period = HHP) on the Arabian Peninsula is estimated to have occurred between around 8000 to 4000 BCE, followed by a continuous period of desertification and aridity up to the present time. Vast areas of the peninsula became arid around 4000 BCE, peaking in aridity around 2200 BCE, as numerous published studies suggest (Dalton et al., 2022, p. 193; Engel et al., 2012, pp. 131 - 141; Petraglia et al., 2020, pp. 8263 - 8270; Preston & Parker, 2013, pp. 87-94).

As a result of this climatic transformation across the Arabian Peninsula, human groups migrated towards permanent water sources like rivers and springs in the north and northeast of the Arabian Peninsula towards the Levant and Mesopotamia. The human groups that continued to inhabit the Peninsula by the end of the Neolithic period, particularly in the north-western region, either exploited seasonal areas with relatively available water (Petraglia et al., 2020, pp. 8265 - 8267) or devised methods for well-digging. The wells discovered through archaeological surveys in recent years indicate that they were built by early settlers or pastoralists around the early fifth millennium BCE (Gebel, 2013, pp. 111-126).

Consequently, we must correct the proposed historical timeframe before the fifth millennium BCE for the construction of these massive burials with their intricate designs. It is supposed that the construction of all these burials occurred in a natural and suitable climate that provided prosperity and livelihood for these human groups. The presence of these human groups likely predates the period of aridity, dating to around the sixth millennium BCE at least."

Symbolic Meanings of Keyhole Burials

The significance of the Keyhole Burial style in the symbolic imagery of Mesopotamian cuneiform writing is found in several closely related forms and meanings. These forms are often associated with the intellectual beliefs of the people of the Arabian Peninsula, most of which are connected to their religious practices and the concept of life after death, where the burial serves as the eternal resting place for humans, as follows:

Symbol of Celestial Deities

Symbols of celestial deities are referred to as (NUN.GAL.MEŠ=igigi), which also represents Enki (god of earth), referred to as (dNUN.GAL). It holds religious connotations, and it is associated with the new or grand temple, referred to as (E2. GIBIL = bit eššu), as well as known as a chamber or burial, referred to as (E.gišGEŠTIN = bit karani). The architectural pattern known as the 'repetition design' is most evident in this symbol, which was the prevailing architectural pattern for most burials of the same style (Figure 19), despite not clearly showing the circular burial chamber in the illustration below."

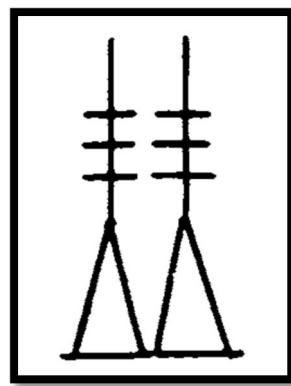


Figure 19. The Pictorial Symbol in Cuneiform Writings Representing Multiple Meanings, Including Burial, Celestial Deities, God Enki, Grand or New Temple (Labat, pp. 1482-1492, no. 324)

Symbol of the Capricorn Constellation in the Sky

Symbols of the Capricorn constellation in the sky are referred to as (mulUD5 = kakkab enzu). This specific symbol closely resembles many burials, where the circular burial chamber is represented, while the other parts depict the remaining shape of the key.

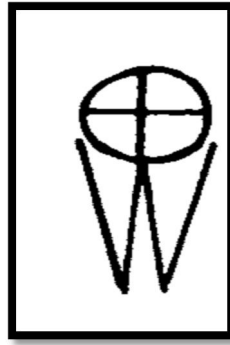


Figure 20. The Pictorial Symbol in Cuneiform Writings for the Capricorn Constellation in the Sky

Figure 20 represents the pictorial symbol in cuneiform writings for the Capricorn constellation in the sky, according to Labat, pp. 92-93, no. 122b.

Symbol of the Goddess Inanna (dINNANA/dINNIN) (Ishtar)

One of the symbols of the goddess Inanna (dINNANA/dINNIN) (Ishtar) is known as the Lady of the Sky and the favourite daughter of the chief sky god "Anu" in Mesopotamian mythology (Lambert, 2004, pp. 35-39). One of her notable symbols is the bundle of reeds, typically ending with a semi-curved circle and a wide tail representing the ends of the reeds (Figure 21). This symbol bears a striking resemblance in shape and design to one of the significant keyhole burials discovered by the Saudi Arabian Authority for Tourism and National Heritage (Figure 22), which can be observed at the following coordinates: (26°07'30.7"N 39°56'11.3"E). We informally named this burial "Twin Keyhole Burial."



Figure 21. Twin Keyhole Burial Near Hail in Khaybar

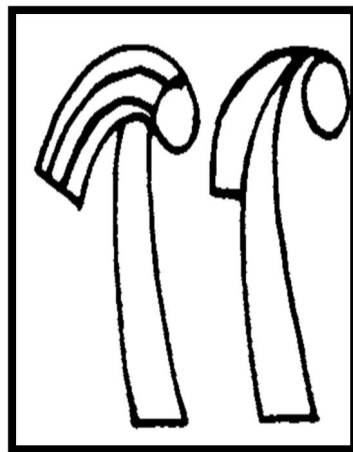


Figure 22. The Pictorial Symbol in Cuneiform Writings for the Sumerian Goddess Inanna, Which Is Symbolized by a Bundle of Reeds (Labat, p. 84, no. 103)

RESULTS

We have drawn our unique conclusion about the distinctive connection between the design patterns of burials and their pictorial shape and meaning, based on our understanding that the origins of the earliest Mesopotamian inhabitants were largely from the Arabian Peninsula and the Arabian Gulf, according to historians and archaeologists. It is important to note that this original homeland constitutes a vast repository for the peoples of the Ancient Near East in general, not just the peoples of Mesopotamia. Most historians and anthropologists agree that migrations from the Arabian Peninsula to various parts of the Ancient Near East began in ancient times, not limited to the end of the Pleistocene and the Palaeolithic.

The withdrawal of the last Pleistocene around 10,000 BCE led to drought in parts of the Middle East, especially in the Arabian Peninsula. This climate change caused many Arabian Peninsula peoples to leave their original homeland in the heart of the Arabian Peninsula and spread to areas outside of it to the north and east. Among these peoples were the Akkadians, who left the Arabian Peninsula and settled in the Fertile Crescent and the valleys of the Levant. They settled in the Fertile Crescent and the valleys of the Levant. They settled in the central and northern parts of Mesopotamia, establishing the first and oldest empire in history. They made the city of Akkad their capital, hence they were named the Akkadians. We relied on their language and cuneiform writings to understand the meanings of the terms related to the forms and designs of burial patterns depicted in pictorial cuneiform writings.

DISCUSSION

The study revealed that the people of the Arabian Peninsula were concerned with the afterlife, as evidenced by the various burial designs that align with individual or familial beliefs. The choice of design harmonizes with the symbol of the worshipped deity or the concept of the desired afterlife. Therefore, we found patterns mixed with each other in one volcanic area or on the surface of one mountain, but in most cases some areas have a specific pattern and not others, as is the case with the patterns of burials in "Al-Mestawi" and Mount "Tuwaiq" elsewhere, or in Harrat Khaybar and Al-Ula is where the Al-Mustatel burial ground, or keyhole in many places in Saudi Arabia. This openness indicates intellectual diversity and belief in the worship of various deities, whether those linked to cosmic-celestial phenomena or to geographical-life meanings and connotations. Noting that there are a number of burials whose designs suggest a style from the lifestyle associated with the afterlife as we found in the keyhole burial style.

CONCLUSION

We have drawn our unique conclusion about the distinctive connection between the design patterns of burials and their pictorial shape and meaning, based on our understanding that the origins of the earliest Mesopotamian inhabitants were largely from the Arabian Peninsula and the Arabian Gulf, according to historians and archaeologists. It is important to note that this original homeland constitutes a vast repository for the peoples of the Ancient Near East in general, not just the peoples of Mesopotamia. Most historians and anthropologists agree that migrations from the Arabian Peninsula to various parts of the Ancient Near East began in ancient times, not limited to the end of the Pleistocene and the Palaeolithic.

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The identified tombs, numbering in the thousands, are predominantly in poor condition, having suffered deliberate exhumation by antiquities thieves, particularly in areas where bodies were interred. While the constructed stones remain largely intact, some have experienced partial demolition. It is proposed that an integrated restoration project be developed and implemented to preserve these tombs. This project should involve comprehensive documentation, periodic maintenance including cleaning, consolidation, and stabilization of fragile parts. Additionally, the sites should be rehabilitated for tourist visits, aligning with the ambitious Vision

2030 of the Kingdom of Saudi Arabia.

It became clear from the study of the cemeteries from an architectural and artistic point of view, that there are similar patterns for the cemeteries built by these human groups in distant areas reaching more than two thousand kilometres and more, from the south of the Empty Quarter all the way to the north, east and west, where we find patterns that are completely identical with The burials discovered in Harrat Al-Haet and other Harrats, as if the engineers and builders of these burials were one team, while at the present time, we find great differences in the design of buildings from one city to another. The question that must be asked here is: How can a single pattern and identical design exist between these distant regions with the lack of methods of communication and transportation in prehistoric times?

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ETHICAL DECLARATION

Conflict of interest: No declaration required. **Financing:** No reporting required. **Peer review:** Double anonymous peer review.