

## Late Bronze Age Infant Mortality in the Arabian Peninsula: The Case of Al-Qusais (Dubai, UAE)

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### Abstract:

Archaeological research into the necropolises of south-eastern Arabia has led to advances in the knowledge of the demography and mortality of Late Bronze Age populations. The Al-Qusais necropolis, with 126 burials currently exposed, has become a reference site for understanding the interaction between members of the same community. The manner in which inhumation was practiced suggests that there were neither marked inequalities nor significant distinctions between children and adults. The same recurrent traits can be observed, as well as identical anatomical positions of the deceased during burial. In the case of the children, all but one were with an adult. The number of children is small compared to the total excavated population. Considering factors such as high levels of degradation and the recent development of bioarchaeological studies, it is expected that in future excavations this proportion will increase and reach values similar to those observed in nearby necropolises.

**Key Word:** Late Bronze Age, Early Iron Age, bioarchaeology, anthropology, infant mortality, funeral rites, necropolis, Arabian Peninsula

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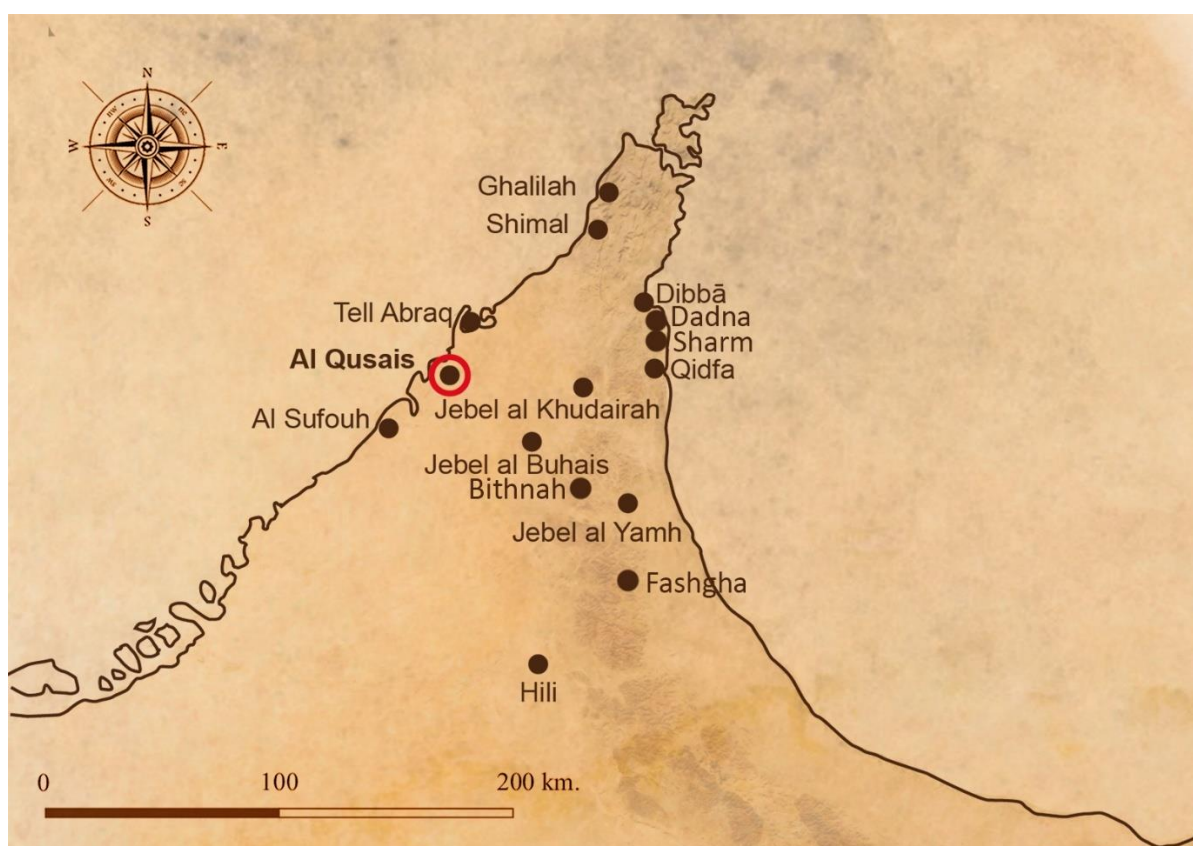
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### I. Introduction

The Al-Qusais necropolis is located in the south-east of the Arabian Peninsula and dates from the Late Bronze Age and Early Iron Age, over an interval between 1600 and 800 BCE (Velde, 2003; Righetti, 2015, pp. 26-31). The chronological analyses carried out in 2025 delimit the period of Al-Qusais between 1400 BCE and 800 BCE. During that time, nomad populations in inland regions of the Peninsula can be distinguished from sedentary people settled near watercourses or coastal plains (del Cerro, 1999). The latter took advantage of nearby agricultural and coastal marine resources (del Cerro, 1999; Magee, 2014, pp. 138-144). Studies of coastal sites similar to Al-Qusais, like Shimal (Ras Al Khaimah) (Voght & Franke-Vogt, 1987) and Tell Abraq (Sharjah/Umm Al-Quwain) (Potts, 2000), show that during the second and first millennium BCE, the diet of these populations consisted largely of fish, shellfish and marine products (Grupe & Schutkowski, 1989; Potts, 2001, p. 44).

Archaeological documentation from this period is essentially based on funerary testimonies from various necropolises (Figure 1), which mainly included collective tombs whose use would extend over many centuries (Döpper, 2023), such as those of Shimal, Qidfa'1 (Fujairah) (Al Tikriti, 2022) and Dibbā (Musandam, Sultanate of Oman) (Genchi et al., 2022) among others, or other smaller rock tombs, often located on top of hills, such as those of Jabal al Yamh (Hatta, Dubai) (Valente et al., 2022) or Jebel al Khudairah (del Cerro et al., 2024). In both cases human bone remains have been analysed to determine the minimum number of individuals and distinguish adults from children by examining dental remains and bone development. Other burials that include children, from between the third and first millennia BCE, have been described and are considered relevant for a better knowledge of the bioarchaeology of the region. On the one hand, more than sixty burials have been studied by Sanisera Archaeology Institute in Jabal Al-Yamh, where the remains of six children, buried in tombs reused from Prehistory to the Islamic period, were identified (Valente et al. 2022, p. 427). Moreover, in the Emirate of Dubai, during the study of skeletal remains from the third millennium BCE Al Sufouh tombs, 31 children were counted (Benton, 1996, p. 51). Lastly, the study of human remains from Jebel Al-Buhais in the Emirate of Sharjah (Uerpmann et al., 2006, pp.82-4) should be highlighted, where the remains of four other children were recorded. As regards studies in paleodemography, instances of burials at Galilah Tomb SH 103 in the Emirate of Ras Al Khaimah (Schutkowski & Hermman, 1987), Hili in Abu Dhabi (Gatto et al., 2003) and Tell Abraq (Baustian & Martin, 2010), all dated to the Early Bronze Age, also contained child inhumations.

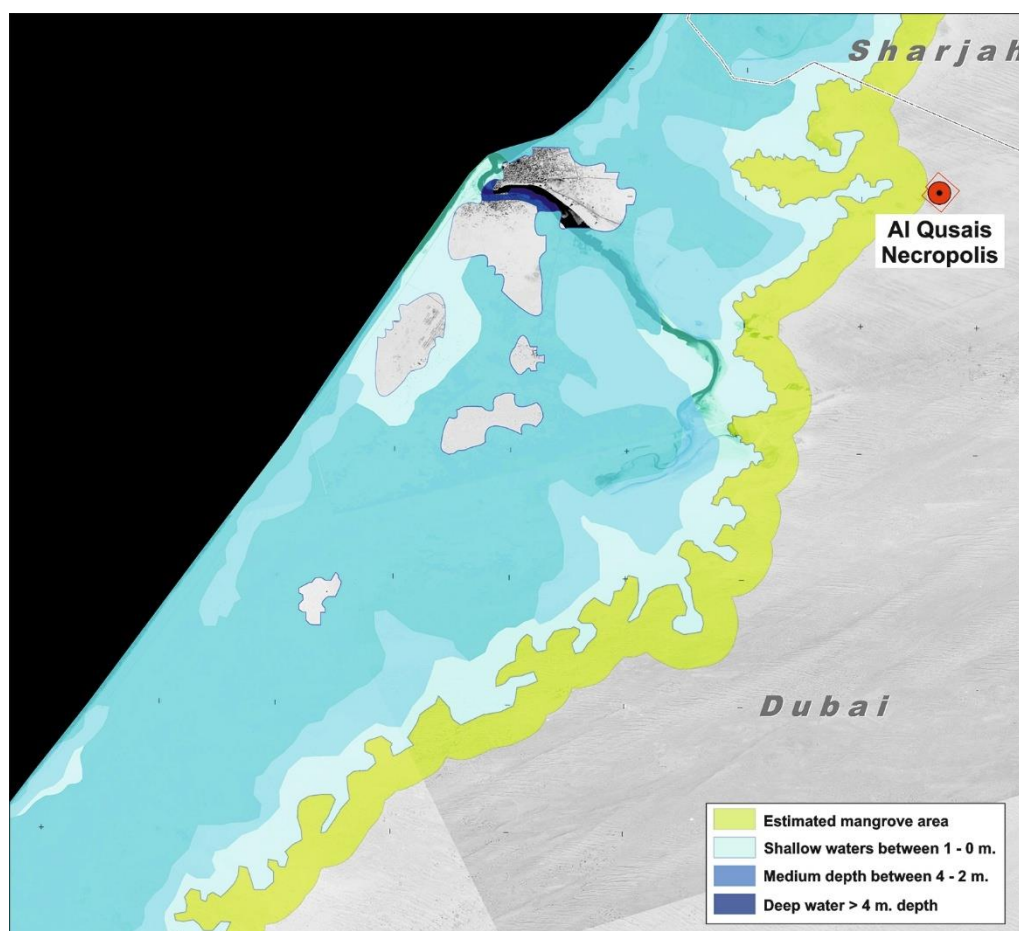


**Figure 1.** Reference necropolises of the southeastern Arabian Peninsula cited throughout the text.

### **The Al-Qusais necropolis**

The archaeological site of Al-Qusais is located in Dubai's north-westernmost part, not far from the international airport, and lies within a modern cemetery on land that can be considered desert. The graves are the remarkable remains of an extensive necropolis intended for a human population that dwelled in the area (Valente et al. 2023).

The most recent studies related to the paleoenvironment of this region confirm the way in which the archaeological remains of Al-Qusais can be integrated into a typical mangrove ecosystem, as the site was then only seven hundred meters from the coast (Figure 2) (Fernández-Sánchez et al., 2025). In the immediate surroundings of the Emirate of Dubai, calculations on Arabian Gulf Sea levels in the second millennium BCE have measured how the coastline has undergone profound changes (Valente et al., 2023), with coastal waters once extending further inland and reaching levels four to five meters higher than today (Evans et al., 1969, 2002; Ridley & Seely, 1979; Wood et al., 2012).



**Figure 2.** Paleoenviromental reconstruction during the period of activity in the Al-Qusais necropolis.

Archaeological excavations in Al-Qusais began in the 1970s under the direction of Munir Taha, who uncovered two settlements that no longer exist, along with an extraordinary funerary array, including two unusual collective tombs and a notable set of smaller graves. These consisted of simple pit graves used for the burial of individuals, whether singly or in groups. (Taha, 2009, pp. 77-87; Valente et al. 2023, p. 356). The unusual nature of M. Taha's discoveries contributed to the decision of the Dubai Government Institutions to resume excavations in 1992 and 1993 under the supervision of H. Qandil (Valente et al. 2023, p.359).

More than twenty years later, investigations at Al-Qusais have been resumed, with a new project proposed by *Dubai Culture & Arts Authority*, in collaboration with *Sanisera Archaeology Institute*, focusing on the area of the necropolis previously excavated by H. Qandil, in which 44 new simple graves were identified. These have been analyzed using state-of-the-art methods and techniques, allowing a detailed study of human burials and associated archaeological objects.

The graves discovered most recently continue to present shapes and dimensions identical to those unearthed by M. Taha and H. Qandil. They are pits cut into bedrock, roughly oval and limited in size, reaching 1.5m in length and 1m in width, with maximum depth of 0.6m.

No stone blocks or slabs, mortar, or mudbrick were used in the construction of the graves or to line their bases. Basically, simple pits were dug in a soft bedrock to place the corpse. The pit was likely covered with stone slabs, now lost, to mark its position for future grave construction within the necropolis (Figure 3).



**Figure 3.** Grave 58 with possible collapsed cover inside: the only example in the necropolis. Photograph taken by H. Qandil in 1992.

Comparing these simple grave type with those from contemporary necropolises such as Shimal (Voght & Franke-Vogt, 1987), Qidfa' 1 (Al Tikriti, 2022), Jabal al Yamh (Valente et al., 2022), Sharm (Weeks, 2000) or Jebel al Khudairah (del Cerro et al., 2024), one can notice that stone was commonly used to enhance the status of the funerary structure and, in some cases, to confer a degree of monumentality. This can be partly attributed to the abundance and easy availability of stone resources at these sites.

Contrasting with those cases, the simple burial pits of Al-Qusais contained one or two individuals and, on rare occasions, three. In these cases, the individuals were buried simultaneously or within a short time frame, and the graves were neither reopened nor reused.

The graves are uniformly distributed throughout the necropolis, showing deliberate planning that prevented any overlap or superimposition, with a separation margin of 0.4m and 1m (Figure 4). The pre-established planning of burials, with no transformation and modification of earlier ones, signals that any person buried at Al-Qusais was an important member of the clan and was thus worthy of respect.

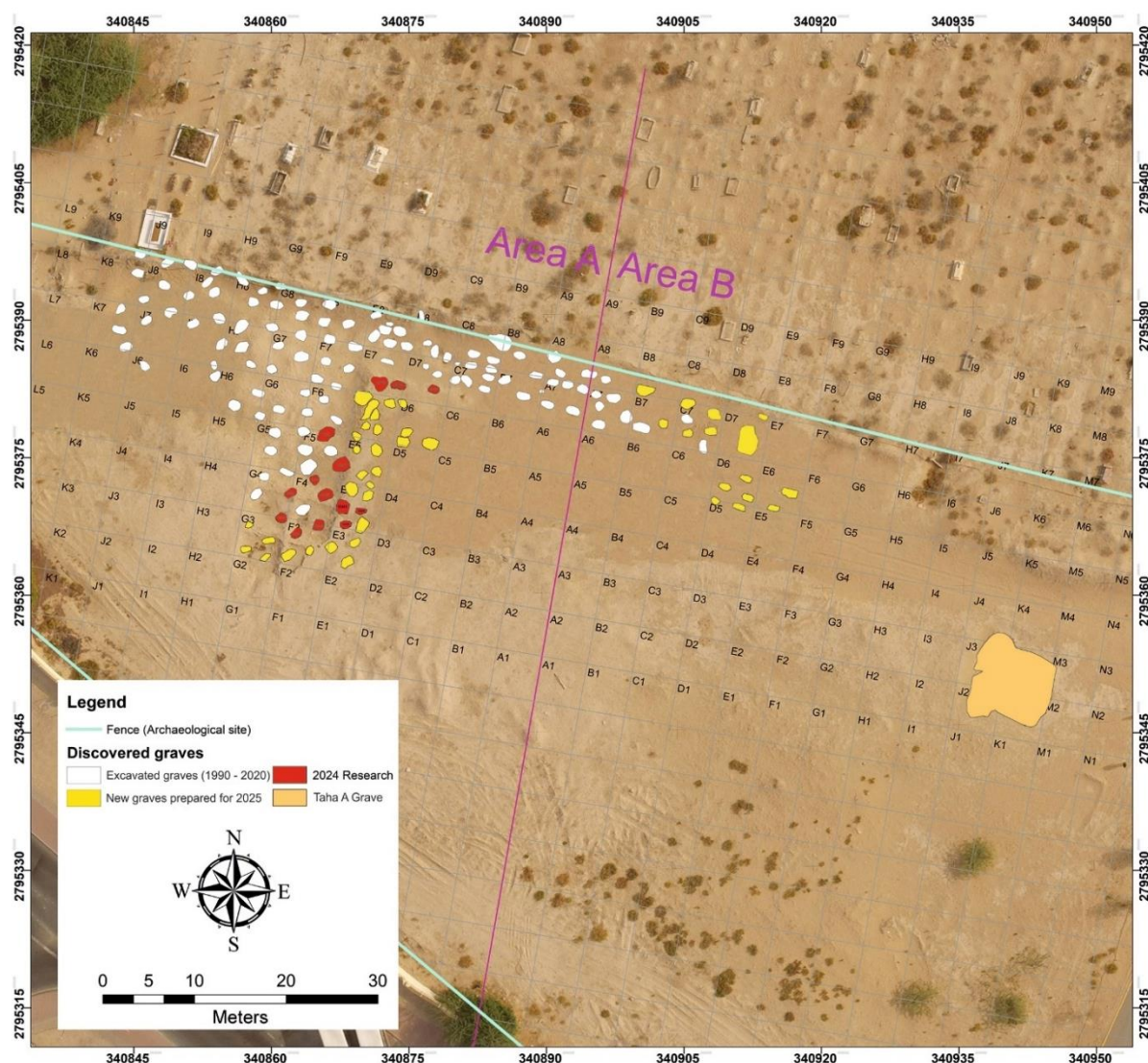
It can be inferred that this planned organization follows a chronological order in which the space used for burial is shifted without a determined sense. Within this trend, some graves would be interspersed among other older ones. Therefore, the choice of burial space was made to avoid overlapping with previous graves. The age of the individual did not influence the location of the grave, as both children and adults were buried in the same space.

The position in which the bodies were buried seems to have been part of the ritual and was constantly repeated. Individuals were buried on their sides, with flexed limbs, regardless of their orientation and age: children were generally buried with adults, placed between the upper and lower limbs of the latter, in an area close to the abdomen.

The majority of graves, when not looted, were rich in grave goods and comprised a homogeneous set of personal or votive artifacts made of copper, such as daggers, arrowheads, anklets, bracelets, axes and metal vessels. There are also softstone, alabaster and ceramic vessels along with mangrove shells, some polished and decorated, and others containing atacamite pigment remains. Jewelry pieces, part of necklaces or bracelets, were also found associated with the belongings of each person, along with occasional fragments of raw carnelian (Taha, 2009; Valente et al., 2023, pp.366-8).

Some of the excavated graves were chronologically dated using bioapatite dating, an analysis of bone minerals that are more resistant to time and adverse conditions, to determine the time since death and burial (Cherkinsky, 2009). These analyses were carried out at the Center for Applied Isotope Studies at the University of Georgia, USA.





**Figure 4.** Plan of Al-Qusais necropolis.

## II. Child mortality at Al-Qusais

The poor preservation of bones in the Al-Qusais necropolis has limited the information that can be obtained from skeletons using conventional methods. Unfortunately, the sex of the individuals and their pathologies could not be determined. Despite the degraded state of the skeletons, it was possible to estimate the age at death of the individual by analyzing the dental development (Ubelaker, 1989) and wear (Lovejoy, 1985) from teeth recovered during the excavation.

One hundred and twenty-six simple burials pits were excavated, and the human remains of seven children were found in seven of them. The youngest child was a toddler who died approximately at the age of two. Another three children, aged between two and four, as well as one who died around the age of six, and two whose age could not be estimated, were also located. The graves where child remains were identified were numbered 67, 88, 91, 302, 305, 324 and 326, and will be described below.

Grave 67 was excavated by H. Qandil in 1992. It was described as the disturbed burial of an infant, buried with a copper cup and a ceramic vessel. Unfortunately, only some of the child's limbs could be identified from the record, and it was not possible to determine the anatomical position or the connection to the objects, or whether other individuals were buried. The size and maturity of the child's bones suggest that they died before the age of fourteen. According to the typology of the artefacts, this grave date to between 1200 and 1000 BCE.

At the time of studying the child burials of the Al-Qusais necropolis, grave 88 proved to be the most peculiar testimony of all. This is the only individual grave discovered so far where a child was buried unaccompanied by an adult. The teeth suggest that the child died around six, likely between four and eight. The child's age may explain the individual burial, as other children were younger and always accompanied by adults.

This child was found in a right lateral position with limbs bent towards the body, the most standard position for adults buried at Al-Qusais. The corpse was placed in the central part of the grave's base, taking advantage of sufficient space. Parts of the skull and the mandible, the two humeri, the left ulna and radius, the right tibia and fibula, both femurs, ribs from both sides, part of the spine, a scapula and the pelvis, were recovered.

Two copper arrowheads of Al Jawhari Ar2a and Ar2b type (Al-Jawhari et al., 2021, pp.29-30) were uncovered as grave goods near the child's back. Bioapatite dating results from the right humerus indicate that the burial took place between 1391 and 1220 BCE. The typology of the artefacts is consistent with this date.

Grave 91 was excavated by H. Qandil and contained three skeletons: two adults and a child. Normally, simple standard graves were characterized by the inclusion of one or, at most, two people.

The child and one of the adults in the burial were lying flexed on their right side, facing north, and spread almost over the entire grave floor. The child's body was placed at the level of the adult's head. Despite this, they did not touch each other, keeping a certain distance (Figure 5). The adult must have worn some form of clothing, as suggested by the copper dagger's original position, which was found at the level of the left hip. The dagger belonged to the Al-Jawhari D7 typological group (Al-Jawhari et al. 2021, pp.51-52). Near the abdomen, a sea conch, polished and circular in shape, was also unearthed. This piece could be a button sewn onto the strap holding the weapon to the body. Moreover, as part of the votive grave goods accompanying this adult, a bunch of eleven copper arrowheads was discovered around his head, and eight were identified as belonging to well-established typological groups: three are of Al-Jawhari Ar2a type, one is Ar2b, three are Ar1 and a last one Ar10b (Al-Jawhari et al. 2021, pp. 29-30). According to the classification of the artefacts, this grave dates to between 1400 and 1200 BCE.

The third skeleton belonged to an adult, placed between the child and the previously mentioned adult due to limited space. Although positioned similarly to the others, their legs were constrained against the grave's northern wall.

To conclude the description of grave 91, it should be mentioned that more than 50 necklace beads were discovered, as well as two marine shells whose precise location in relation to the individuals could not be determined. It is common to find beads made of different materials in graves from this period, as seen in the Jebel Al-Buhais (Jasim, 2012), Sharm (Barker, 2001), Bithnah (Corboud, 1996, p.83) or Qidfa' 1 (Al Tikriti, 2022).

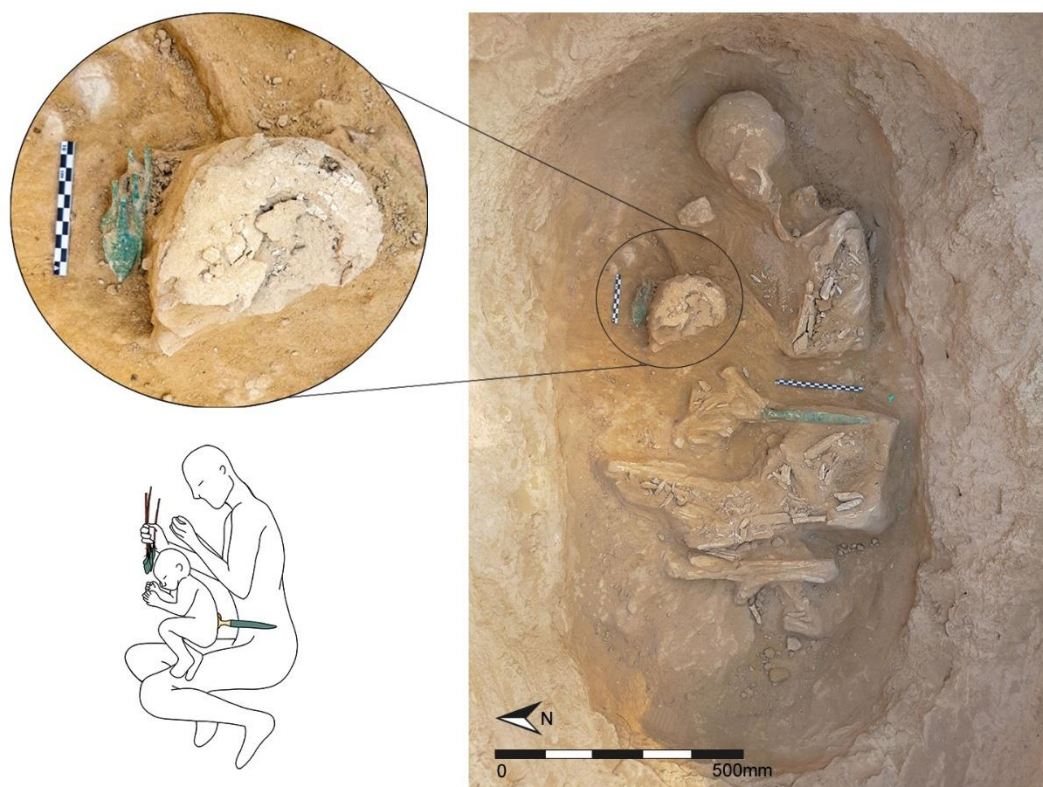


**Figure 5.** Grave 91. The skeleton of the infant individual is highlighted. Photograph taken by H. Qandil in 1992.

In grave 302, human remains belonging to an adult and a child were discovered. These were comfortably deposited on the base of the grave. The adult's skeleton was almost complete. The body was lying on its right side, facing north-east, with its arms and legs bent. As part of grave goods, four arrowheads were found around the head, two of them close to the cranium and the other two not far from the hands. The child was lying in the same anatomical position as the adult and died at an age between two and four years. Based on the typology of the artefacts, this grave could be dated between 1400 and 1200 BCE.

Continuing with the description of burials with children, a child accompanied by an adult was found in grave 305. In this case, the child was placed at the level of the adult's abdomen, in direct contact with one of the adult's arms (Figure 6). It was possible to infer that they were buried simultaneously, first the adult and then the child. Both skeletons were in the same anatomical position, lying on their right side, with the body oriented from east to west, facing north and with arms and legs flexed. Both were easily placed without constraint at the base of the pit.





**Figure 6.** Grave 305, highlighting the arrangement of arrowheads and the reconstruction hypothesis.

The child's remains included part of the skull, ribs, the left humerus and some bones belonging to the lower limb bones. The examination of the teeth allowed the estimation of the age at death, around two years old. This child is until now the youngest preserved individual of the Al-Qusais necropolis.

Almost all the adult's bones were recovered, showing traits very similar to those of the adult of grave 91, described earlier on. They would have been dressed, provided with a copper dagger and a belt to hold the weapon around their waist. The dagger was classified as belonging to type D8 (Al-Jawhari et al., 202, pp. 51-52), and on the belt (of which no evidence remains), the applique of a circular button made from a polished sea conch was found. Fourteen carnelian beads were also found among their personal belongings during excavations: these were scattered around the adult's hip and may have formed a bracelet of sorts or alternately, may have decorated the belt itself (Figure 7).



**Figure 7.** Artefacts recovered from Grave 305: (6) copper dagger, (7.1-7) copper arrowheads, (8) carnelian beads, (9) belt button.

The votive deposit of grave goods in grave 305 was exceptional. Almost all finds belonged to the adult, to the exception of a container manufactured in softstone, with decorative motifs typical of the Early Iron Age (Genchi & Tursi, 2022). This vessel was found in front of the child's skull, with which it would have some kind of connection that cannot be determined (Figure 8).

There was a copper vessel in front of the adult's skull and at the time of the burial they were holding in their right hand a group of six copper arrowheads belonging to the typological categories Ar2a and Ar5a (Al-Jawhari et al., 2021, pp. 29-30) (Figure 6). The ritual of symbolic deposition of the array of bronze arrowheads in the deceased's hands is a pattern of behavior repeated in other graves of Al-Qusais. The only variable is the quantity of arrowheads included in each votive handful. Some of the arrowheads in these sets usually included



incised motifs (Magee, 1998), as has also been seen in Shimal SH102 (Vogt & Franke-Vogt, 1987, Fig.19,20), Dadna grave (Benoist & Hassan, 2000, p.95), Sharm Tomb (Weeks 2000, p. 183), Qidfa'1 (Al Tikriti, 2022, p. 140), Bithnah Tomb 4 (Righetti, 2015, Fig. 219), Ghalilah Tomb (Donaldson, 1984, Fig. 26) or Fashgha-1 (Phillips, 1987, Fig. 38).

The bioapatite dating of a sample from the left humerus of the adult individual in this grave aligns with the relative dating based on the typology of the personal and votive objects, placing the burial between 1391 and 1220 BCE.



**Figure 8.** Softstone vessel placed near the child's skull in Grave 305.

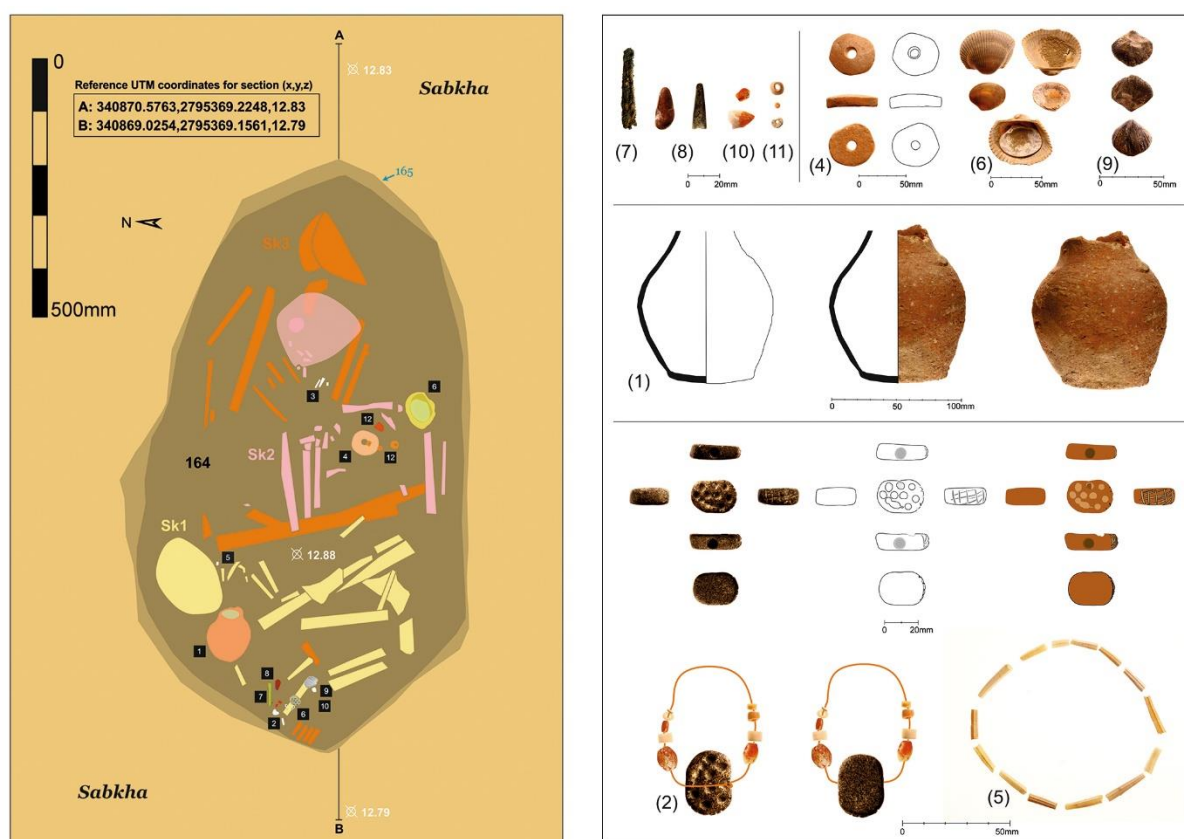
Grave 324 contained three individuals (Figure 9), one of them a child who died at an age of between three and five years. The other two skeletons belonged to two young adults, one of whom died during an age between 20 and 35 years. The age at death of the third individual could not be estimated.

Most of the child's bones were recovered, along with many from one of the adults. Only partial remains of the second adult were retrieved, including the skull, some cervical vertebrae, a few ribs, and both arms.

The three individuals were buried at the same time, and their bone remains were found in direct contact, placed one on top of the other. In addition, they probably wore clothing at the time of the burial. The first one placed on the grave's base was one of the two young adults; the body was oriented east-west, facing south, in left lateral position with flexed limbs. The second corpse deposited was the other adult, of whom the age at death could be estimated between 20 and 35 years old, and who was placed directly on top of the first. Their personal belongings consisted of a necklace worn around the neck, the main motif of which was a circular fragment of reused pottery from a locally produced pot, together with beads of different colors and types (circular stone and elliptical pieces of carnelian). The body of this second adult was also positioned in an east-west orientation and in a supine decubitus position.

The last individual placed in the grave was the child, lying on the legs of the second adult. The child's body was oriented north-south facing west, in right lateral decubitus position with flexed limbs. They wore a necklace formed by tubular shell beads. Very close to the head, a pottery jar of small size and locally produced (Benoist & Hassan, 2000, p. 88) was uncovered (Figure 9), very similar to other vessels discovered at Qidfa'1 (Pl.9) (Al Tikriti, 2022, p. 92) or at Shimal (SH102PT38) (Velde 2003, p. 96).

On the peripheral side wall of the grave, near the feet of the skeleton, various objects were unearthed, but none could be directly linked to the buried individuals. The most interesting artifact was an amulet made of softstone, small and rectangular in shape, decorated with a geometric motif made up of eleven circles. The adornment had various pierced orifices so that it could be worn hanging (Figure 9). Similar amulets, albeit with depictions different from those of tomb 324, were discovered in the Tell Abraq grave (Potts 2000, p. 82) and those of Qidfa'1 (Al Tikriti, 2022, p. 70).



**Figure 9.** Plan of Grave 324 containing three individuals (Sk1, Sk2, Sk3) (left) and all the objects recovered (right): (1) pottery vessel, (2) amulet and carnelian beads, (4) pottery pendant, (5) shell-beads from a necklace, (6) shell with pigment, (7) copper nail, (8) wadi stones, (9) fossil shell, (10) carnelian raw material, (11) beads.

Together with the amulet, eight carnelian beads were found. These likely belonged to an anklet and were found alongside unusual items, such as a bivalve marine conch fossil. The latter appears to be included in the Al-Qusais ritual funerary repertoire for the first time. It was also surprising to identify two fragments of carnelian raw material (i.e. in mineral state), together with two small stones of grey and red color, typical of wadi environments. An undetermined copper fragment was also found.

To conclude with the symbolic elements contained in grave 324, two votive shells were found in the immediate vicinity of the heads of the two young adults. The results of the bioapatite dating obtained from a sample of the left humerus of the infant from this grave are consistent with the relative dating of the grave, based on the typology of the personal and votive objects. The burial is dated between 996 and 837 BCE.

The last grave described in this study, grave 326 (Figure 10), contained two adults and one child. All the bones of the two adults were recovered, while only some fragments of the skull and a few teeth were recovered from the child.

It was possible to estimate the age of the three individuals. The oldest would have died between the ages of 35 and 40. The next adult, slightly younger, would have died between the ages of 25 and 30. Finally, the child would have died around four, between the ages of three and five.

The younger adult was the first to be buried and was placed directly on the base of the grave. This individual was positioned in a left lateral decubitus with the limbs flexed and the body oriented east-west, facing south. Halfway up their abdomen and separated from the body, two sea conchs were retrieved. They had placed one next to the other and contained the remains of pigment, similar to other examples documented at Tell Abraq (Thomas & Potts, 1996; Potts, 2000, p. 110; Degli Esposti et al., 2025, p.3) o Sharm (Fujairah) (Masia, 2000; Degli Esposti et al., 2025, p.3).

The next adult was placed in a supine position, oriented east-west. Near the right hand, a bundle of four copper arrowheads was preserved; three of the typological group Al-Jawhari Ar2a and one of group Ar2b (Al-Jawhari et al. 2021, p.29-30). Based on this classification, this grave is relatively dated between 1400 and 1200 BCE.

The child's skeletal remains were found where the arrowheads had been deposited, likely buried between the two adults, with no personal items or grave goods.





**Figure 10.** Grave 326 during excavation.

Finally, it is important to note that a near-surface deposit of decontextualized bones (4.9kg) was identified in an area measuring 20x10m, 50m from the described burials. These were probably sifted remains from previous excavations and included the skeletal remains of a perinatal individual, estimated to have died before the age of one year.

### III. Discussion

Al-Qusais appears to be an outstanding necropolis in the Arabian Gulf region (Taha, 2009), due to the number and peculiarities of its burials, which could yield much data and be a superb opportunity for a demographic study.

Demographic studies have been carried out on remains from other tombs of the coastal Gulf region, namely Galilah Tomb SH 103 (Schutkowski & Hermman, 1987), Hili (Gatto et al., 2003) and Umm an-Nar tombs at Tell Abraq (Baustian & Martin, 2010). Although these remains belong to an earlier period, they allow for a comparison between the number of children and adults buried and enable the analysis of mortality patterns. The three studies concluded that infant mortality was high, with a significant number of children dying before the age of five and mortality declining from this age. This proportion aligns with expectations for a protohistoric society, where mortality was particularly high among children under five and the elderly (Wood et al. 2002). Other results from the analysis of the population structure at sites like Jabal al Yamh (Valente et al., 2022, p.427), Al Sufouh (Benton, 1996, p.51) or Dibbā (Angelici et al. 2023) show how children numbered more than twenty-five percent of deaths among the individuals buried.

However, it is noticeable that the number of children unearthed in the excavated graves of Al-Qusais is significantly lower than that of adults: the seven child inhumations contrast sharply with the 126 burials excavated.

The fact that more children are not recorded in the graves of Al-Qusais does not mean that they were not buried. The remains of younger people are more fragile, subject to change and are more easily lost in archaeological contexts over time (Lewis, 2006, p.23; McFadden, 2021). Archaeological investigations that included the skeletal remains of children are moreover very recent (Lewis, 2006, pp. 8-13). As regards the region, it should be emphasized that the fragmentary nature of bone remains and the lack of attention previously devoted to the analysis of human remains may have led in many cases to an underestimation of the number of people in archaeological contexts, both children and adults (Benton, 1996, pp. 47-50).

On the other hand, the number of graves and individuals buried at Al-Qusais in the period from 1400 BCE to 800 BCE indicates the permanence of sedentary occupation of the community (Taha, 2009). The absence of overlap between individual graves has also been commented upon, suggesting that the population had a precise knowledge of the location of graves already in use, and built new graves in a planned manner. The use of milestones or landmarks to mark their location is also not ruled out.

Many of the features observed in the children of Al-Qusais cannot be compared with those of other necropolises due to the lack of similar precedents. All contemporary burials at Al-Qusais are collective with stone



structures, as at Shimal (Voght & Franke-Vogt, 1987) or the Qidfa'1 tomb (Al Tikriti, 2022). In these burials, children were identified mainly from dental remains, though the skeletal position could not be determined.

In the Al-Qusais necropolis, children and adults shared the same anatomical position, placed in a lateral position with their extremities flexed, regardless of the orientation of the body or the direction in which they were facing. Furthermore, this burial position is identical to that documented at Bronze and Iron Age sites such as Tell Abraq (Potts, 2000), Jebel Buhais (Uerpmann et al., 2006; Jasim, 2012), Hili (Méry et al., 2004) or Dibbā (Genchi et al., 2022).

Except for a single case, children were buried with an adult in the Al-Qusais necropolis. Children buried with adults have also been found at other sites, such as Shimal (Voght & Franke-Vogt, 1987), Tell Abraq (Baustian & Martin, 2010), Qidfa'1 (Al Tikriti, 2022) or Jebel Buhais (Uerpmann et al., 2006; Jasim, 2012).

In terms of grave goods, only two vessels and two copper arrowheads could possibly be related to the Al-Qusais infants. This is a very small quantity compared to the rich variety and quantity of artefacts usually associated with adults accompanying children in burials. The two vessels were found in different graves. In one of them, a pottery vessel was found next to the child's skull. In another, a softstone vessel was placed in a similar way, as it was found in front of the infant's head. Finally, in a third grave, two arrowheads were found together near the child's spine.

#### IV. Conclusions

The Al-Qusais necropolis is a unique testimony of great relevance. While collective burials predominate at other sites, those at Al-Qusais were simple pits with individual inhumations, providing a different perspective on funerary practices. Over a hundred graves were uncovered, seven of which contained the remains of children. Children and adults shared the same burial rites and were usually buried together. Only adults and the case of a single six-year-old child were found buried individually.

As future excavations yield more results, additional information will become available to study the structure and the demographic pattern of this population. For now, it is important to note that burials of children between the ages of two and four were common in Al-Qusais. Skeletal remains of younger children found in ancient sieve deposits suggest that they were buried in a similar manner. Due to their greater fragility and adverse conditions, it is likely that these remains have been lost to the archaeological record. In time, it is expected that the children buried in the necropolis will represent around twenty-five per cent of the total population, as has been observed in other necropolises.

#### References

- [1]. Al Tikriti, W.Y. (2022). Qidfa'1: Excavation of a Late Prehistoric Tomb, Fujairah Emirate, United Arab Emirates. Oxford: Archaeopress.
- [2]. Al-Jahwari, N. S., Yule, P. A., Douglas, K. A., Pracejus, B., Al-Belushi, M. A., & Elmahi, A. T. (2021). The Early Iron Age metal hoard from the Al Khawd area (Sultan Qaboos University) Sultanate of Oman. Muscat: Ministry of Heritage and Culture of the Sultanate of Oman. <https://doi.org/10.2307/j.ctv26bgx0n>
- [3]. Angelici, F., Coppa, A. & Genchi, F. (2023). The collective tombs of Daba (LCG1 and LCG2) (Musandam, Sultanate of Oman) from the Bronze Age to the Iron Age: skeletal population analysis. *Proceedings of the Seminar for Arabian Studies*, 53.
- [4]. Barker, D. (2001). Stone, paste, shell and metal beads from Sharm. *Arabian Archaeology and Epigraphy*, 12(2), 202-222. <https://doi.org/10.1034/j.1600-0471.2001.d01-6.x>
- [5]. Baustian, K. & Martin, D.L. (2010). Patterns of Mortality in a Bronze Age Tomb from Tell Abraq, in L. Weeks (ed.) *Death and burial in Arabia and beyond. Multidisciplinary perspectives* (pp. 55-9). Archaeopress.
- [6]. Benoist, A., & Hassan, S. A. (2010). An inventory of the objects in a collective burial at Dadna (Emirate of Fujairah). In L. Weeks (Ed.), *Death and burial in Arabia and beyond: Multidisciplinary perspectives* (pp. 85-99). Archaeopress.
- [7]. Benton, J.N. (1996). Excavations at Al Sufouh: a third millennium site in the emirate of Dubai. *Brepols* (Abiel, 1).
- [8]. Cherkinsky, A. (2009). Can We Get a Good Radiocarbon Age from "Bad Bone"? Determining the Reliability of Radiocarbon Age from Bioapatite. *Radiocarbon*, 51(2), 647-655. doi:10.1017/S0033822200055995
- [9]. Corboud, P., Castella, A. C., Hapka, R., & Im-Obersteg, P. (1996). The protohistoric tombs of Bithnah: Fujairah, United Arab Emirates. Mainz: von Zabern.
- [10]. Degli Esposti, M., Lotti, P., Crippa, G., Diego Gatta, G. and Zerboni, A. (2025). A First Glance at Pre-Islamic Pigments in Shells From Salūt (Sultanate of Oman). *Arabian Archaeology and Epigraphy*. <https://doi.org/10.1111/aae.12268>
- [11]. Del Cerro, C. (1999). Las poblaciones costeras de la Edad del Hierro en la Península de Omán. *ISIMU*, 2, 335-49. <https://doi.org/10.15366/isimu1999.2.025>
- [12]. Del Cerro, C., Fernández, C., Gómez, P., Alonso, A., & González, A. (2024). The Al Khudairah Necropolis (Sharjah, UAE): Reflections from the 2023 Field Season. *Études Et Travaux*, (36), 39-56. <https://doi.org/10.12775/EtudTrav.36.002>
- [13]. Donaldson, P. (1984). Prehistoric Tombs of Ras al-Khaimah, *Oriens Antiquus*. *Journal of the Center for Near Eastern Antiquities and Art History* 23, 191-312.
- [14]. Döpper, S. 2023. The Reuse of Tombs in Southeastern Arabia. *Arabia Orientalis* 7. Archaeopress.
- [15]. Evans, G., Kirkham, A. & Carter, R.A. (2002). Quaternary Development of the United Arab Emirates Coast: New Evidence from Marawah Island, Abu Dhabi. *GeoArabia*, 7(3), 441-458. <https://doi.org/10.2113/geoarabia0703441>
- [16]. Evans, G., Schmidt, V., Bush, P. & Nelson, H. 1969. Stratigraphy and Geologic History of the Sabkha, Abu Dhabi, Persian Gulf. *Sedimentology*, 12, 145-159. <https://doi.org/10.1111/j.1365-3091.1969.tb00167.x>

- [17]. Fernández-Sánchez, A., Contreras, F., Alonso, A., Ali, B. A., Karim, M., Zein, H. & Masfari, M.A.A (2025). The Implementation of a Geographic Information System (GIS) to the Palaeoenvironmental Reconstruction of the Prehistoric Al Qusais Necropolis (Dubai, U.A.E.). *International Journal of Archaeology*, 13(1), 21-36. <https://doi.org/10.11648/j.ija.20251301.13>
- [18]. Gatto, E., Basset, G., Méry, S. & Mcsweeney, K. (2003). Étude paléodémographique et utilisation du feu à Hili N, une sépulture collective en fosse de la fin de l'âge du Bronze ancien aux Émirats Arabes Unis. *Bulletins et mémoires de la Société d'Anthropologie de Paris*, 15(1-2), 25-47. <https://doi.org/10.4000/bmsap.554>
- [19]. Genchi, F., & Tursi, G. 2022. The softstone vessels assemblage from the Long Collective Grave 1 (LCG-1) at Dibbā al-Bayah (Sultanate of Oman): A preliminary assessment. *Arabian Archaeology and Epigraphy*, 33, 108–51. <https://doi.org/10.1111/aae.12209>
- [20]. Genchi, F., Ramazzotti, M., & Larosa, N. (2022). The organization of funerary space and arrangement of burials within the corridor-shaped Tomb LCG-2 at Dibbā al-Bayah, Musandam, Sultanate of Oman. *VICINO ORIENTE*, XXVI, 99-121. <https://www.vicino-orient-journal.it/index.php/vicinoorient/article/view/289>
- [21]. Grupe, G. & Schutkowski, H. (1989). Dietary shift during the 2nd millennium BC in Prehistoric Shimal, Oman Peninsula. *Paléorient*, 15 (2), 77-84.
- [22]. Jasim, S.A. (2012). The Necropolis of Jebel al-Buhais. *Prehistoric Discoveries in the Emirate of Sharjah, United Arab Emirates. Department of Culture & Information, Government of Sharjah.*
- [23]. Lewis, M.E. (2006). Fragile bones and shallow graves, in M.E. Lewis (ed.) *The Bioarchaeology of Children: Perspectives from Biological and Forensic Anthropology*: 20–37. Cambridge University Press.
- [24]. Lovejoy, C.O. (1985). Dental wear in the Libben population: its functional pattern and role in the determination of adult skeletal age at death. *American Journal of Physical Anthropology*, 68, 47-56.
- [25]. Magee, P. (1998). The chronology and regional context of late prehistoric incised arrowheads in southeastern Arabia. *Arabian Archaeology and Epigraphy*, 9: 1-12. <https://doi.org/10.1111/j.1600-0471.1998.tb00108.x>
- [26]. Magee, P. (2014). The Bronze Age in Western Arabia, in P. Magee (ed.) *The Archaeology of Prehistoric Arabia: Adaptation and Social Formation from the Neolithic to the Iron Age*: 126–151 Cambridge University Press.
- [27]. Masia, K. (2000). Pigment shells from Sharm. *Arabian Archaeology and Epigraphy*, 11(1), 22-23.
- [28]. McFadden, C. (2021). The past, present and future of skeletal analysis in palaeodemography. *Philosophical Transactions of the Royal Society B: Biological Sciences*, 376 (1816), 0190709. <https://doi.org/10.1098/rstb.2019.0709>
- [29]. Mery, S., Mcsweeney, K., Van Der Leeuw S. &, Al Tikriti W. Y. (2004). New Approaches to a collective grave from the Umm n-Nar Period at Hili (UAE). *Paléorient*, 2004, 30 (1), 163-178. <https://doi.org/10.3406/paleo.2004.4777>
- [30]. Phillips, C. S. (1997). The pattern of settlement in the Wadi al-Qawr. *Proceedings of the Seminar for Arabian Studies*, 27, 205–218. <http://www.jstor.org/stable/41223600>
- [31]. Potts, D.T. (2000). *Ancient Magan: The Secrets of Tell Abraq*. Trident Press Ltd.
- [32]. Potts, D.T. (2001). Before the Emirates: An Archaeological and Historical Account of Developments in the Region c. 5000 BC to 676 AD, in (ed.) I.A. Abed & P. Hellyer *United Arab Emirates: A New Perspective* (pp. 28-69). London: Trident Press
- [33]. Ridley, A.P. & Seeley, M.W. (1979). Evidence for recent coastal uplift near Al Jubail, Saudi Arabia. *Tectonophysics*, 52(1), 319–327. [https://doi.org/10.1016/0040-1951\(79\)90239-7](https://doi.org/10.1016/0040-1951(79)90239-7)
- [34]. Righetti, S. (2015). Les cultures du Wadi Suq et de Shimal dans la péninsule omanaise au deuxième millénaire avant notre ère: évolution des sociétés du Bronze Moyen et du Bronze récent. [Published PhD dissertation]. University of Paris.
- [35]. Schutkowski, H. & Herрман, B. (1987). Anthropological Report on Human Remains from the Cemetery at Shimal, in B. Voght & U. Franke-Vogt (ed.) *Shimal 1985/1986: excavations of the German Archaeological Mission in Ras al-Khaimah, U.A.E.: a preliminary report* (pp. 55–63). Berlin: Reimer.
- [36]. Taha, M.Y. (2009). The discovery of the Iron Age in the United Arab Emirates (1. ed.). Ministry of Culture, Youth and Community Development, Abu Dhabi.
- [37]. Thomas, R. & Potts, D.T. (1996). Atacamite pigment at Tell Abraq in the early Iron Age. *Arabian Archaeology and Epigraphy*, 7: 13-16. <https://doi.org/10.1111/j.1600-0471.1996.tb00083.x>
- [38]. Ubelaker, D.H. (1989). *Human Skeletal Remains: Excavation, Analysis, Interpretation*. Taraxacum. Washington, D.C.
- [39]. Uerpmann, A., Schmitt, J., Nicklisch, N. & Binder, M. (2006). Post-Neolithic Human Remains from the Jebel al-Buhais Area, in H.P. Uerpmann, M. Uerpmann, & S.A. Jasim (ed.) *The Archaeology of Jebel Al-Buhais, Sharjah, United Arab Emirates. Volume 1: Funerary Monuments and Human Remains from Jebel al-Buhais* (pp. 69-99). Ministry of Culture and Information, Government of Sharjah.
- [40]. Valente, T. et al. (2022). The Jabal al Yamh tombs (Hatta, Dubai, UAE): The architecture, spatial distribution, and reuse of prehistoric tombs in south-east Arabia. *Proceedings of the Seminar for Arabian Studies*, 51, 413–31. <https://archaeopresspublishing.com/ojs/index.php/PSAS/article/view/636>
- [41]. Valente, T., Contreras, F., Vila, B., Fernández, A., Al Ali, B., Radwan Karim, M. B., & Zein, H. M. (2023). The necropolis of Al Qusais (Dubai, UAE): preliminary results on the 2020 excavation and data reassessment from the 70s and 90s excavations. *Proceedings of the Seminar for Arabian Studies*, 52, 355–372. <https://archaeopresspublishing.com/ojs/index.php/PSAS/article/view/1565>
- [42]. Velde, C. (2003). Wadi Suq and Late Bronze Age in the Oman peninsula. *Proceedings of the First International Conference on the Archaeology of the UAE*. 102-113.
- [43]. Voght, B. & Franke-Vogt, U. (1987). *Shimal 1985/1986: excavations of the German Archaeological Mission in Ras al-Khaimah, U.A.E.: a preliminary report*. Berlin: Reimer.
- [44]. Weeks L. (2000). Metal artefacts from the Sharm tomb (1). *Arabian archaeology and epigraphy*, 11(2), 180-198. <https://doi.org/10.1111/j.1600-0471.2000.aae110203.x>
- [45]. Wood, J.W., Holman, D.J., O'Connor, K.A. & Ferrel, R.J. (2002). Mortality models for paleodemography, in R.D. Hoppa & J.W. Vaupel (ed.) *Paleodemography: Age distributions from skeletal samples* (pp. 129-168). Cambridge University Press.
- [46]. Wood, W.W. et al. (2012). Rapid late Pleistocene/Holocene uplift and coastal evolution of the southern Arabian (Persian) Gulf. *Quaternary Research*, 77(2), 215–20. <https://doi.org/10.1016/j.yqres.2011.10.008>