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The discovery of a new Iron Age ritual complex in central Oman: recent excavations near Ādam

GUILLAUME GERNEZ, MATHILDE JEAN & ANNE BENOIST

Summary

Recent excavations near Ādam (Oman) yielded new data about the margins of the desert in central Oman during the early and late Iron Age periods. After nine campaigns of excavations and surveys in the area around Ādam, only a few graves had been identified during the surveys and the excavations of two graveyards (Ādam north and south) but settlement sites were scarce and it seemed that the area was not highly occupied during this period, unlike the situation observed at the major site of Salūt, only 45 km north-west of Ādam.

The discovery of an enigmatic Iron Age site near Ādam, however, leads us to reconsider this first impression. The site consists of a group of structures located on the eastern tip of Jabal Miḏmār (Muḏmār, Mudhmar, Maḏmār), near Wādī Ḥalfayn. The main stone building contains unique copper weapons (actual size, reduced models, and miniatures) including arrows, bows, quivers, and daggers that could have been used for a ritual purpose. One other building was excavated, and the micro-regional topography and survey provided further data on the function of the site. From its geographic location and its unusual content, the site could have several functions: a meeting place linked to social, political, or religious use, and a staging post on the ancient road between Ādam and Sinaw.

Keywords: Oman, Iron Age, copper, bow, quiver

Introduction

In the area around Ādam, the Iron Age is only represented by a few sites — mainly graves — discovered during surveys and excavations. This situation is not easy to understand as the period, especially after 1000 BC, is characterized by the revival of oases in central Oman (Magee 2014: 220–221). This development is due to the introduction of the *falaj* system, to intensive mining and metallurgical activity in several parts of Oman, and to the domestication of the camel, which is important for trade in Arabia (Magee 2015). Salūt, one of the main sites in the region, with its famous fortress ‘Hosn Salut’ (Ḥiṣn Salūt), is located only 45 km north-west of Ādam (Avanzini & Phillips 2010; Benoist 2010).

Two main reasons may explain the paucity of archaeological sites from the Iron Age in Ādam: either the oasis was small and had little importance during this period, or the main settlements were in the same location as the modern oasis (several Iron Age sherds discovered in Ḥiṣn al-Hawāshim could confirm that hypothesis). If so, they were destroyed gradually over time and it is not possible to find archaeological evidence without deep excavations in the modern villages. Moreover, since the inhabitants reused the oldest tombs of the Hafit and Wadi

Suq periods, the actual number of Iron Age burials may remain unknown.

Despite this general context in Ādam, an unexpected group of buildings and smaller structures was discovered during the 2009 surveys on the eastern tip of Jabal Miḏmār (Fig. 1). Iron Age pottery was found on the whole surface of the site. We observed that the collapsed walls of the main building were made of squared russet-coloured sandstone blocks probably brought from the other side of Wādī Ḥalfayn. This single fact, in addition to the location on the eastern tip of the *jabal*, led us to suppose a significant investment in relation to the specific status of the building. Furthermore, several bowls or censers each with one horizontal handle were represented among the surface pottery. This shape is concentrated in a small group of sites such as Ḥiṣn Salūt, i.e. Biṭnah, and Masāfi-3, which have been interpreted as places of strong symbolism (Benoist 2010).

The complex includes four main buildings: one small structure on the crest overhanging the site, two rectangular buildings on the foothills, and one circular structure (perhaps a small well or tomb) between them. The remains of two poorly preserved stone walls were also observed on the northern slope, where a large amount of pottery was found. This location, on the edge

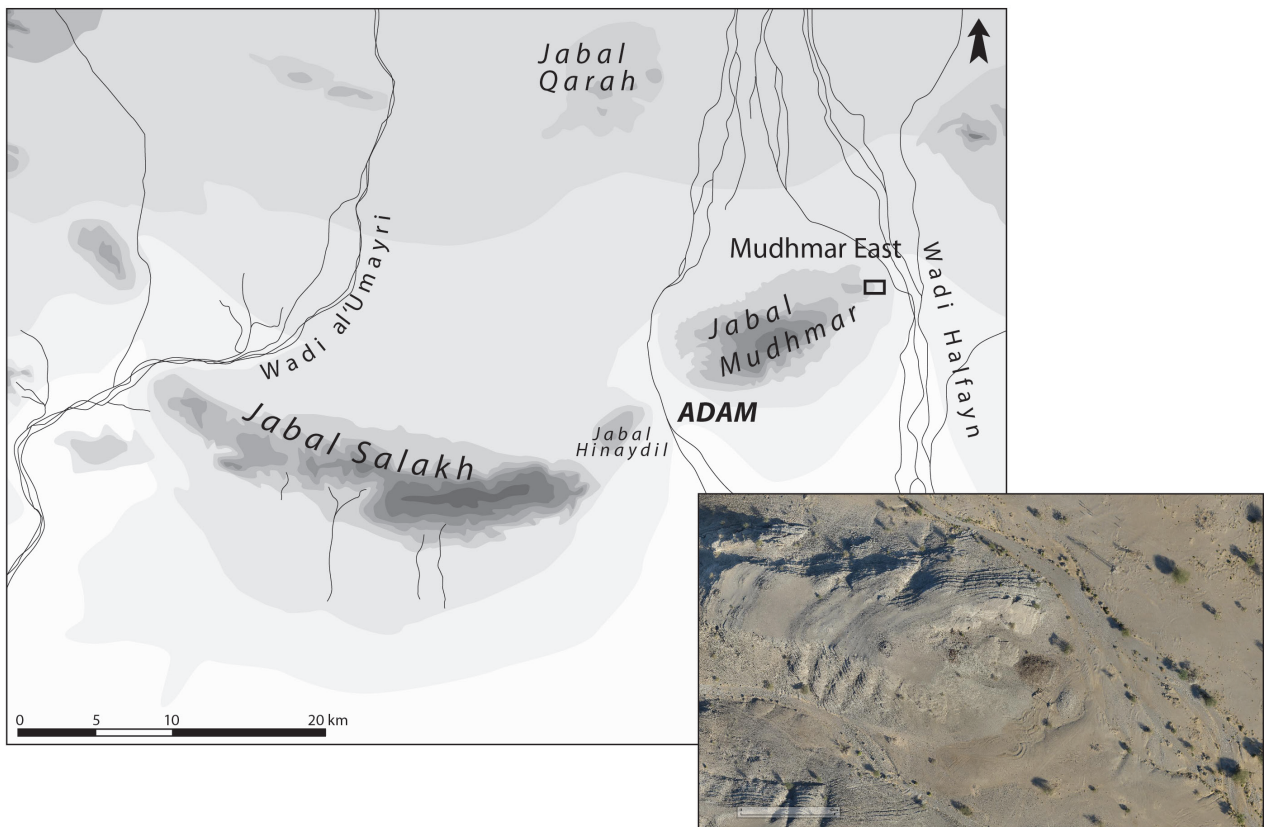


FIGURE 1. *The location of the Miḍmār East site, near Ādam (Guillaume Gernez/French Archaeological Mission in central Oman).*

of the mountain, offers a broad view over the desert and a strategic position on the passageway of Wādī Ḥalfayn. Moreover, the site is visible from a distance. It seems highly probable that ‘Building 1’ and its surrounding complex had a ritual function, as indicated both by the unique copper objects found there and by discoveries in ‘Building 2’, which include copper snake figurines, censers/lamps, and burnt animal bones (see below).

The following sections of this paper present the Early Iron Age layers of the excavated buildings.

Building 1: a columned hall ritual building?

Building 1 is the biggest building of the Miḍmār East complex. It measures 15 x 8 m or 120 m², and is oriented east–west. The plan includes seven distinct spaces, including at least five rooms clearly separated by walls.

The original plan is quite simple (Fig. 2). Two rooms, located on the eastern side (one of them a probable courtyard), form the entrance of the building. Three steps

lead to a short corridor that is bordered, on each side, by almost square rooms. A stone threshold and a stone socket (that may correspond to a wooden door) open into the main room. The main room (3007) is the largest in the building and includes pillar bases on the floor, which may indicate a meeting function comparable to that of the columned halls from house G in Rumeilah (Rumaylah), Bint Sa‘ud house in Bidā bint Sa‘ud, Masāfi-1, and building I in Muwayliḥ (Magee 2003; Benoist 2010).

The excavation data from Rooms 3036 (‘room of the bows’, see below) and 3007 (pillared room), along with ¹⁴C dating, enabled us to propose a chronological phase of occupation in Building 1. This sequence is based on the ceramic and metallic remains and typological features, supported by radiocarbon dates:¹

¹ Four ¹⁴C samples (two from Room 3016 and two from main Room 3007) were sent to Beta Analytics Inc. The results (2-sigma calibration) are as follows: Beta-435509: Cal BC 900 to 800 (Cal BP 2850 to 2750); Beta-435508: Cal BC 1010 to 890 (Cal BP 2960 to 2840) and Cal BC 875 to 845 (Cal BP 2825 to 2795); Beta-435507: Cal BC 795 to 745

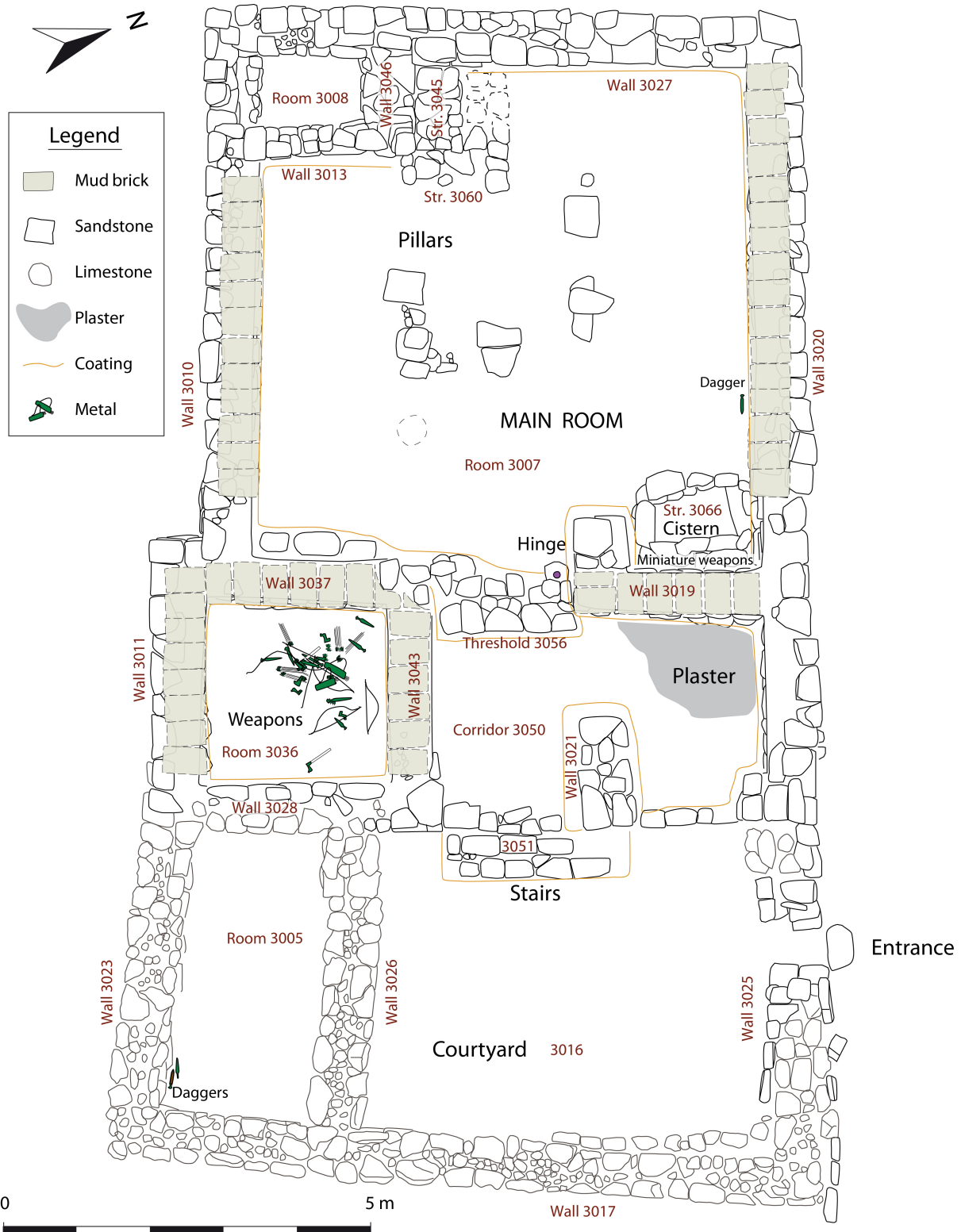


FIGURE 2. Miḍmār East: plan of Building 1 (Guillaume Gernez/FAMCO).

- Phase 1: Iron Age II (1000–800 BC). Construction and first occupation, then destruction by fire; first copper weapons deposits in Room 3036.
- Phase 2a: Iron Age II (800–760 BC). Cleaning, renovation and reuse; main deposits in Room 3036 (copper bows and other weapons).
- Phase 2b: Iron Age II (760–600 BC). Continuity of occupation; quivers deposit in Room 3036.
- Collapse/abandonment.
- Phase 3a: first reuse, Samad period (300 BC–AD 300). Pits and one hearth.
- Phase 3b: main reuse, Samad period. One platform and several pits, partial reconstruction.
- Most recent abandonment and collapse.

Architecture

In Building 1, the walls are composite: the foundation of local limestone is buried in the ground, while the elevation is of russet-coloured sandstone (from 12–15 km east of the site) (Fig. 3). The stairs, threshold, and hinge stone, the inner side of the walls, some of the pillars, and the soil of Room 3007 were covered in a silty, very compact coating, white-yellowish in colour and containing vegetal inclusions. Its thickness varies from 3 to 12 cm depending on the location and successive renovations. The soil of Room 3042 was covered in a white coating.

Stratigraphy of the Iron Age II layers

In all the rooms, the excavation stopped on the natural substratum, that is, the limestone bedrock in Room 3008 and, in the other rooms, the colluvial deposits of beige silt and angular limestone pebbles. In Room 3007 excavation ceased on the first original burnt soil.

The first occupation of the building, during Iron Age II (1000–600 BC), is marked by fire. Room 3007 suffered most extensively from the fire: the first coating layer on the walls and on the floor was burnt, along with the inner face of the mud-brick walls (in particular Wall 3010). Burnt soil was also observed in Corridor 3050, and a burnt stratum in Room 3036.

Subsequently, all the burnt surfaces in Room 3007 were recoated, indicating a complete renovation of the building after the fire. It therefore appears that the building was cleaned and reused immediately, with the

same plan and the same function. According to materials discovered in the building, this second phase also dates to Iron Age II and occurred after the fire and without any disruption in occupation.

After the Iron Age II occupation, the building was abandoned. A first thin stratum of natural filling was observed, before the collapse of the roof and mud-brick walls. After the collapse, the filling continues naturally, made of beds of silty aeolian deposits. The last occupation occurred during the Samad period. Finally, natural filling continued along with the collapse of some stone walls, leading to the state in which the building was discovered during the Ādam survey.

Description of architectural features and other elements inside Building 1

The main entrance is located on the western part of Wall 3025. It was partly filled in by stones to make the entrance smaller, probably during or at the end of Iron Age II. The door between Rooms 3016 and 3005 was situated on the western part of Wall 3026, in front of the main entrance. It was completely and deliberately obstructed by stones, which are also likely to have been placed there at the end of the Iron Age II occupation. Walls of Rooms 3016 and 3005 are made of large blocks of local limestone with small limestone pebbles used as filler between them; if there was an elevation on these walls, it has not been preserved. Room 3016 was likely to have been a courtyard.

A stairway (Structure 3051) leads from the courtyard to the Corridor (3050). The three steps are 10 cm high, made of sandstone, and coated. The corridor opens, on the right side, to one small room, the soil of which is partly covered in a white coating, probably lime or plaster. The soil of the corridor was partly burnt during a fire and evidence of two small post-holes (or at least the burnt print of the wooden posts on the soil) was found between Rooms 3050 and 3042. Most importantly, this small Corridor 3050 leads to the main Room 3007 (see Fig. 2), access to which is indicated by a coated threshold of sandstone blocks that may have been associated with a wooden door, as indicated by a stone socket in the floor. In the centre of Room 3007 are three to four stone pillar bases. These are made of large flat blocks set into the floor of the room. Upon the bases were concentrations of collapsed blocks that suggest that the pillars were entirely made of stone rather than wood. Along the northern face of Wall 3019, a series of miniature weapons was found, and a dagger was also found near the Wall 3020.

(Cal BP 2745 to 2695) and Cal BC 685 to 665 (Cal BP 2635 to 2615) and Cal BC 645 to 550 (Cal BP 2595 to 2500); Beta-435506: Cal BC 785 to 535 (Cal BP 2735 to 2485) and Cal BC 525 to 520 (Cal BP 2475 to 2470).



FIGURE 3. *Miḍmār East, Building 1: view from the east (Guillaume Gernez/FAMCO).*

One undefined structure (3060) is located in the western part of Room 3007, against Wall 3013. The stones that form the structure are coated and were burnt during a fire, indicating that the structure also dates from the first phase of construction, during Iron Age II. It was later recoated during the renovation of the building and painted green. This is the only case of a painted coating observed on the site.

A specific structure (3066) that we called a ‘cistern’ was identified in the north-eastern corner of Room 3007 (Fig. 4). It first appeared as a circular non-burnt area on the burnt soil of the first phase. The excavation revealed, below a pit, a rectangular structure made of stone, measuring about 1 x 2 m and 1 m high, enclosed by cantilevering. This structure includes three walls; the northern wall is absent but may have collapsed into the structure, as indicated by collapsed stones discovered in the filling of the structure. At the bottom of the western wall is an opening. Outside the walls and between the stones was brown silty and compact sediment, resembling brick material (but not in brick form). Some charcoal was observed on the internal side of the walls and included between the stones of the walls. Because of its position beneath the floor of the room, its enclosure, and the opening at the bottom of the western wall, Structure 3066 may be linked to water storage: a cistern or tank for

water storage, and/or a source capture system. The exact function of this structure is still being debated.

Finally, a very small Room (3008) was found in the south-western corner of the building. It was almost completely filled in by collapsed stones and hard sediment. This room has no identified entrance. Its purpose remains unknown, but it may constitute the architectural reinforcement of a weak part of the building near the slope of the *jabal*. Some arrowheads were found on the floor of the room. Small rooms are often present in the corner of columned buildings (Building G in Rumaylah, Building II in Muwaylah, Bidā bint Sa‘ud, and Masāfi-1) (Benoist 2010: 125). They might have had a similar function in Building 1, forming a more or less standard element in the architecture of these meeting places — an element that is still to be defined.

Room 3036 ‘Room of the bows’

Room 3036, located south of Corridor 3050, is a square room with stone and mud-brick walls but without an identified entrance. Deposits of copper/bronze² weapons were discovered in this small room.

² Analyses are in progress, and from the very first results no tin alloy has yet been identified. We will therefore mostly use the term ‘copper’ in this paper.



FIGURE 4. *Miḏmār East, Building 1, Structure 3066 'Cistern': a. before excavation; b. preserved roof; c. after roof removal; d. west wall; e. east wall (points indicating charcoal)* (Mathilde Jean and Lyne al-Toki/FAMCO).

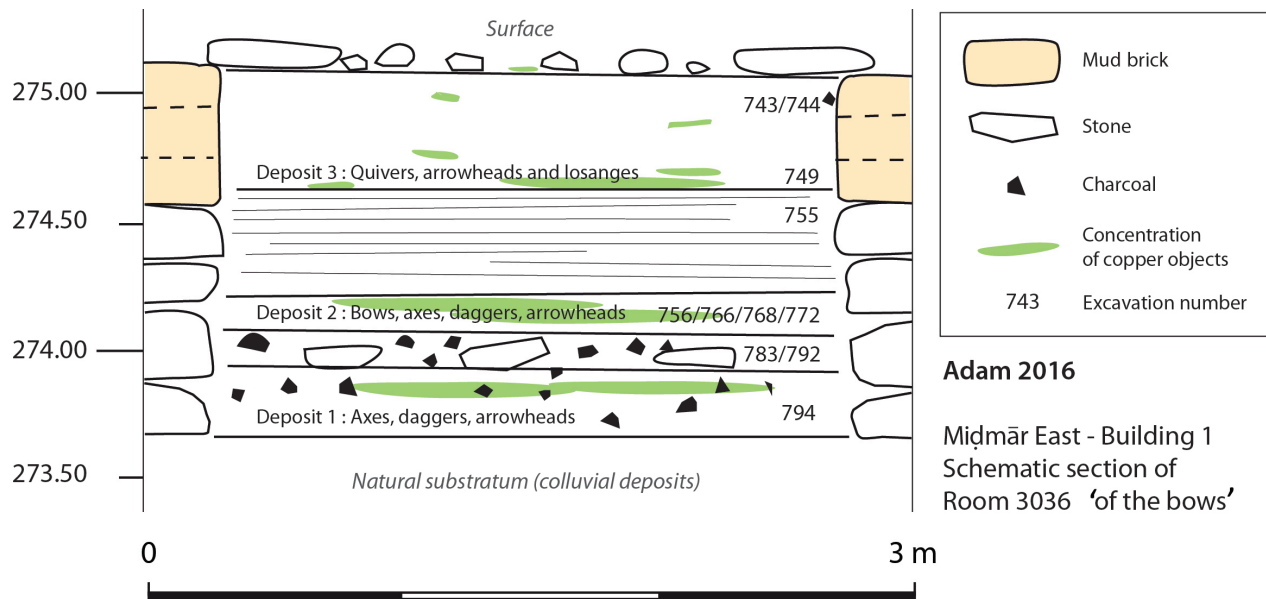


FIGURE 5. Miḍmār East, Building 1: schematic section of Room 3036 'Room of the bows' (Guillaume Gernez/FAMCO).

The stratigraphical sequence of Room 3036 includes three weapons deposit phases (Fig. 5).

- First deposit layer: four axes, two daggers, and three groups of four arrowheads.
- Burnt stratum: burnt sediment, hard and red to brown, some collapsed stones, charcoal.
- Second deposit layer: five bows, five daggers, five axes, and five groups of eleven or twelve arrowheads.
- Filling stratum: no archaeological material.
- Third deposit layer: two complete quivers, arrowheads, and numerous copper flat lozenges in the filling above.

The excavation of Building 1 was completed during the 2016 campaign. The building and the artefacts discovered in it are exceptional — the weapons constitute a unique assemblage in the archaeology of the Arabian Peninsula. Because of the presence of the pillared room and the votive weapons deposits, Building 1 in Miḍmār East may have been a meeting place with a very high symbolic value.

Building 2: an Iron Age ritual platform?

Building 2 (Fig. 6), also discovered during the survey of the Ādam region, is very close to Building 1 but smaller. To make sense of the site of Miḍmār East, excavation of

Building 2 started in 2016. The building is rectangular, of north-east/south-west orientation and measuring 6 x 8 m or 48 m². The external walls are well identified, but the internal structure is not yet understood. It seems that the main part of the building was destroyed, and only one row of limestone foundation is preserved. Inside the walls are large blocks of limestone, around 40 to 80 cm. This stratum of large blocks appears *in situ* but includes significant gaps, especially in the western part of the building where the stones may have been removed and/or reused. Some evidence of postholes was observed, and further excavations could establish their layout more precisely.

Ceramics, animal bones, and copper objects were discovered in Building 2, but none of them was in a distinguishable structure or *in situ*. It seems that the whole material assemblage was dispersed during the infilling of the building, which was made of loose buff silts and limestone pebbles. An area of concentration of bones was identified in the south-eastern quarter of the building. Most of these bones were burnt and broken and have been identified as the leg bones of sheep and cattle.³

Among the copper/bronze objects were some votive snake figurines (Fig. 7). These figurines constitute a link with a series of Iron Age II symbolic places

³ An archaeozoological study is in progress and will provide further details about this material.



FIGURE 6. *Miḍmār East: Building 2 (foreground) and Building 1 (background), aerial view (Raphaël Hautefort/FAMCO).*



FIGURE 7. *Miḍmār East, Building 2: copper snake (Guillaume Gernez/FAMCO).*

scattered in south-eastern Arabia (Mouton, Benoist & Cordoba 2012). In this respect, Building 2 may be an offering platform or shrine, as supported by the presence of censers/lamps that are usually associated with ritual practices. The presence of burnt animal bones, which suggests the existence of animal sacrifices, encourages this hypothesis. A better understanding of Building 2 may necessitate further excavations in the building and its surroundings. The open space between Buildings 1 and 2 still needs to be investigated, along with other installations at the site.

FIGURE 8. *Miḏmār East, Building 1: 'Room of the bows', second deposit layer showing copper bows, daggers, axes, and arrows (Guillaume Gernez/FAMCO).*



Copper weapons from Building 1

Deposits from Room 3036 'Room of the bows'

Several sets of metallic weapons have been discovered in the building, the most outstanding being in Room 3036. According to their various locations, most objects could have fallen from shelves that supported them. Weapons from this room can be divided into three main groups.

The first group was found in the lower stratum of Room 3036 and constituted the first deposit. It includes four shaft-hole axes, two daggers, and two groups of four arrowheads. The weapons are of the same types as those from the second group, with a long triangular blade and a crescentic pommel. The axes appear unfinished, as they have not been deburred, but at least one had a handle (probably wooden). Several similar axes were found in al-Safah, a copper production site in northern Oman.

A burnt stratum corresponding to the fire covers the first deposit. The second group includes five sets of weapons that, considering their size and unfinished aspect, were not usable.

Each set includes one unfinished shaft-hole axe (Fig. 8), one dagger with a crescentic pommel, about eleven arrowheads forming a group (originally with wooden shafts and possibly clustered in a perishable quiver), and one bow with a flat curved branch and a copper rope. The dimensions of the bows (about 70 cm) and the use of copper indicate that they are imitations of real bows rather than practical ones. So far, no complete metal bow is known in Arabia or in the Middle East, although some Assyrian and Urartian texts mention them as offerings to gods (Zutterman 2003: 136). In Märlik (northern Iran), the shaft of a small bronze bow without a string was found in a grave that was dated to the Early Iron Age (Negahban 1995: pl. 13). Also mentioned are 'bronze and wooden bows' (Zutterman 2003: 138; Yablonsky 1995: 235) from a Sakka kurgan (Scythian grave) in Tamdinskii (Wakhan Corridor, north-eastern Afghanistan) but they are, surprisingly, not illustrated and might be made of wood with some bronze.

The third group, located 20 cm above the second deposit, consists of two small quivers each containing six arrows and made of copper/bronze. This discovery seems to be unique: the two quivers (Fig. 9) are too small to be useful



FIGURE 9. *Miḍmār East, Building 1: Room 3036 ‘Room of the bows’, third deposit layer showing two copper quivers full of arrows (Guillaume Gernez/FAMCO).*

and could be a votive offering, or they may have been used for prestige purposes. The thong and the six arrows in each are also made of copper/bronze, including the fletching and shaft. It is possible that they were originally hanging on one wall of the room and fell off when the wall collapsed. Their dimensions (35 cm) might indicate that they are reduced-size models imitating actual usable weapons in perishable materials. Such objects are extremely rare.

Other copper weapons

Miniatures

A peculiar deposit of copper objects was found in Room 3007, west of Wall 3019. It included thirteen arrowheads, one ring, one snake, and miniature weapons (spear, quiver, and two bows) lying on the soil (Unit 754; Fig. 10). These miniatures are unique and a reminder of the discoveries from Room 3036. The high-quality manufacture is impressive — the small quiver and bow are realistic and were made using very thin copper elements.

Daggers

Three more daggers were discovered in the building: one close to Wall 3020, and two in the south-eastern corner of Room 3005.



FIGURE 10. *Miḍmār East, Building 1, Room 3007: miniature copper bow and quiver (Guillaume Gernez/FAMCO).*

A copper/bronze dagger from Room 3007 has a crescentic pommel (5.5 cm wide). A ‘dot-in-circle’ pattern in relief is located at the base of the elongated triangular blade. The point is missing. This type, similar to daggers found in Room 3036, ‘Room of the bows’, is well known in the Oman peninsula, in Dabah, Ibrī/Selme, and Jabal al-Buhais (Jabal al-Buḥayṣ) graves BHS 27 and 30 (Jasim 2012: figs 127 and 350); some foreign parallels are known in northern Iran (Mārlīk).

The second dagger is of a rare type; the blade is made of iron and the copper/bronze handle is cast on it. The pommel is crescentic and the handle is decorated with rounded knobs. This type is known during the Iron Age, in Rumaylah, Hili H20 (Yule & Weisgerber 2015: 108, pl. 52), and Dabah (Genchi, personal communication). The use of iron is not unique for this period — in Muwaylah for example (Magee 1998; 2003: 189) — but it appears to be very rare except in Sarūq al-Ḥadīd (Nashef 2010), and may indicate a high-value dagger.

Finally, the third dagger has an elongated triangular blade and a rectangular tang. Only small traces of the handle are preserved. Daggers of the same type are known in Ibrī/Selme (Yule & Weisgerber 2001: pl. 1/3–5).

Arrowheads

A total of 120 complete arrowheads (and numerous fragments) have been found in the central part of the building, especially in Rooms 3036 and 3008 and to the west of Wall 3019. Five small spearheads from the

surface can be added to this corpus. All of them were made in two parts: the head itself (triangular, biconvex, or with parallel edges) and the rectangular tang that is generally short and thin.

Three groups can be defined, according to their size: elongated arrowheads (more than 8 cm in length), short arrowheads (between 3 and 8 cm), and miniature arrowheads (less than 3 cm, same shape but smaller). They all belong to well-known types from the Iron Age: Salūt (Avanzini & Phillips 2010: fig. 21); Jebel al-Buhais (Jabal al-Buḥays) tomb BHS 30 (Jasim 2012: 103, fig. 128).

To sum up, the weapons discovered in Building 1 constitute a unique assemblage that offers a new insight on the weaponry of the Iron Age II in eastern Arabia, especially archery, and into the social and symbolic practices of that time. The non-utilitarian aspect of these weapons may indicate that they were designed to be offered to a warrior deity, with a religious significance. It is also possible that some of these weapons were carried by wooden statues. They may also be key elements of specific social practices, which remain completely unknown today.

Pottery from Building 1: preliminary study

A total of 651 potsherds were collected during the excavations, including rim fragments. The pottery from Miḍmār East is fairly homogeneous, most of the pottery being Iron Age common wares.

Common ware: pastes

The pastes are light buff, orange to light red, sometimes exhibiting a grey core, and are tempered with mineral inclusions. The pots are mostly handmade and, in a few cases, finished on a slow rotating device (as shown by tiny regular horizontal lines on the surface). The surfaces are matt, often covered in a red or black slip. Several fabrics are represented, including coarse fabrics, with 0.5 to 4 mm-thick inclusions, medium fabrics with inclusions reaching 2 mm, and fine fabrics with occasional inclusions less than 0.5 mm thick. It has not yet been determined whether they correspond to several productions of different origins, or to several examples of a single production.

Common ware: shapes

The whole pottery assemblage is highly fragmented and the identifiable shapes are few (mainly rims).

Open shapes: bowls (Fig. 11/1–9)

Bowls are largely predominant (thirty-six rim fragments). Small bowls mostly have a flat rim, sometimes slightly thickened ('nail-headed' rim) but bowls with a thinned or rounded rim are also present. They include simple convex bowls, bowls with marked shoulder, and undulated bowls that are common on early Iron Age and Iron Age II sites such as Rumaylah I (Benoist 1998: fig. 3B/12–15). Some of them have an open spout, or may present a perforated lug on the rim. This shape is known at Hili-17 (Benoist 2000: fig. 103a).

Three bowls with an elongated unperforated lug under the outside rim are similar to another from Izkī, dated from the early Iron Age (Schreiber 2007: pl. 20/6).

Two small bowls with rounded rims present traces of a painted decoration on the inside: the wavy line painted in black is reminiscent of decoration patterns from Lizq (Kroll 1998: fig. 1/15,16), while the straight vertical line might be part of a triangle decoration.

Larger bowls or basins have a flat horizontal or oblique rim, rarely a concave rim. They may be compared with examples from Rumaylah (Benoist 2000: fig. 45/7,8; fig. 54) and al-Madām (Benoist & Del Cerro Linares 1998: fig. 10). A very large open vessel with a thickened triangular rim, found on the surface, is comparable to potteries from Lizq (Kroll 1998: fig. 8/69,70).

Closed shapes: jars (Fig. 11/10–12)

Large storage jars with thickened rim are comparable to examples from Lizq (Kroll 1998: 51), while a small hole-mouth jar with overhanging rim finds parallels in Rumaylah (Benoist 1998: fig. 2/19–21). Two fragments of small necked jars were also collected: one has a concave neck and flat rim, while the other has a rounded rim with a flat handle on it and could belong to a spouted jug.

Fragments of spouts might be part of bridge-spouted vessels or simpler U-shaped spouted vessels, known at several Iron Age settlements (Lizq: Kroll 1998: fig. 3/27–33; Rumeilah I [Rumaylah]: Benoist 2000: fig. 74) and in some collective buildings such as Salūt (Phillips 2010: fig. 5), Muwailiḥ II (Magee 2003: 184), or Masāfi-1 (Benoist 2010: 136). One spout from Miḍmār East exhibits traces of a painted decoration of oblique lines on the side (Fig. 11/10), reminiscent of examples from Lizq (Kroll 1998: 27).

Bowls with handles: censers or lamps? (Fig. 11/13–15)

Three fragments of bowls with a horizontal handle on one side have been collected. The bowls with handles

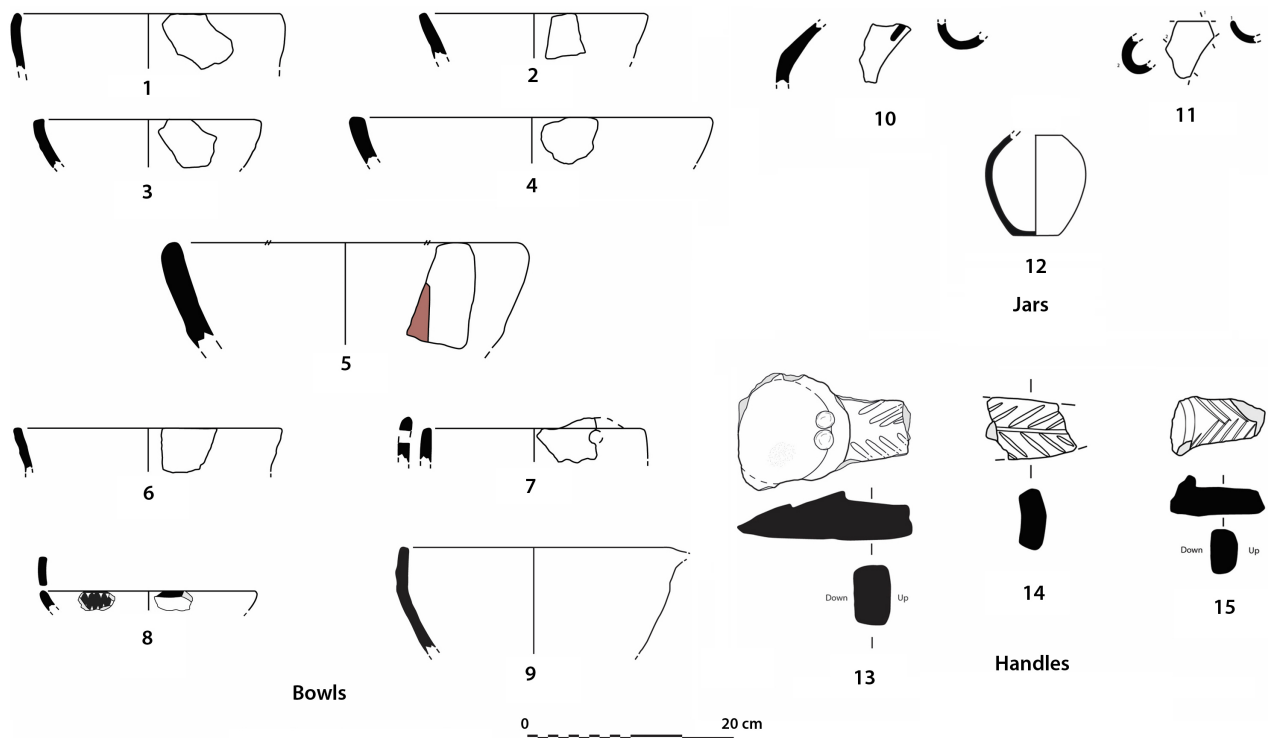


FIGURE 11. *Miḍmār East, Building I: main Iron Age pottery types (Anne Benoist, Mathilde Jean and Guillaume Gernez/FAMCO).*

could be incense burners or lamps. They are only found on sites used for ritual purposes such as Salūt (Avanzini 2013: 122, 159), Biṭṭnah (Benoist 2013: fig. 113), and Masāfi-3 (Benoist et al. 2011: fig. 14), but they are also mentioned in Nizwā (Schreiber 2007: pl. 67) and in al-Jabal al-Akhḍar (2007: pl. 79/9,10), where Iron Age cultic places might be represented. In the Ādam region, some of these vessels are known in graves (Ādam north, grave 1004: Gernez & Giraud 2015: fig. 84). Some form of ancestor worship associated with specific rituals possibly existed. The bowls with handles from Miḍmār East are exclusively decorated with incisions constituting a kind of vegetal pattern, a motif that is also found in Salūt and Nizwā.

A small red-slipped common ware plate found in the courtyard could belong to the same type. Its short vertical wall is comparable to handled bowls from Biṭṭnah (Benoist 2013: fig. 114/2,8). Tiny traces of burning suggest its possible use as a small brazier, but no evidence of a handle is visible on the preserved part of this vessel.

Other shapes

A fragment of a perforated lid is an unusual object to be found in Iron Age private houses. Examples are known in the collective building at Muwayliḥ (Magee 1999: fig. 7) and in the Biṭṭnah sanctuary (Benoist 2013: fig. 111/3).

A cauldron with two vertical handles, found in the main room (3007), is entirely burnt: it was probably used for cooking and may be from the Samad period. Two parallels are represented in Rumaylah, among the so-called ‘cooking wares’ dated from the third century BC (Benoist 2000: fig. 60/20,21). In the United Arab Emirates, cooking vessels of a similar shape are also known in Mleiha (beginning of the late pre-Islamic period). Closer to Jabal Miḍmār, two comparable vases without handles are mentioned in Izkī and Nizwā (Schreiber 2007: tables 36/3, 71/3) and dated from the Late Iron Age (300 BC–AD 400).

Other wares

Some vessels of a different paste might have been brought from other places in south-eastern Arabia. An undulated

bowl of red sandy ware is reminiscent of wares from other Iron Age sites in the UAE. Its origin is not yet precisely defined, but it is possibly from the southern coast of the Persian Gulf, that is, from the north-western Emirates to eastern Saudi Arabia and Bahrain Island. Jar fragments of a light buff-greenish porous ware and other wheel-made potsherds of a red paste with vegetal prints might also be exogenous. Finally, an almost complete small ovoid wheel-made jar of a fine grey paste was collected on the floor of the courtyard and may be an Iranian import (Fig. 11). Iranian grey jars are usually of similar shape but larger in size. They occasionally appear in Iron Age graves such as Biṭnah (Corboud et al. 1996: pl. 10/3–6), and Dadna (Benoist & Hassan 2010: fig. 6/6–8). One example is also known in the collective building in Rumaylah (Benoist 2000: fig. 49/13) and several were recorded at Saruq al Hadeed during the Spanish excavations. The one from Miḍmār East may belong to the same tradition despite its smaller size.

Conclusion of the ceramic preliminary study

The ceramic assemblage clearly belongs to the early Iron Age cultural horizon. The absence of any ceramic category known elsewhere in south-eastern Arabia between 600 and 300 BC is remarkable and indicates a very different situation from Salūt, where fine burnished and fine orange wares are represented: it suggests a possible break in the occupation between 600 and 300 BC.

Finally, the ceramic study supports the hypothesis of Miḍmār East Building 1 being an Early Iron Age collective ritual building, reoccupied during the Late Iron Age (Samad period). The typical vases usually encountered in collective buildings during this period are well represented (spouted jugs, bowls with handles, perforated lids, etc.), although the quantity of collected pottery here appears less abundant than at other sites. One must underline the absence of any representation of snakes on ceramics, as in Bida bint Saʿud. Miḍmār East snakes are only represented in Building 2 as votive copper objects.

Function of Building 1

The discoveries from Building 1 suggest both a collective and ritual function, a place where ancient people regularly gathered and met. Considering the environment and the strategic location of the site — on the edge of Jabal Miḍmār and looking towards Wādī Ḥalfayn — it seems likely that these people were nomadic. They may

have offered votive copper/bronze weapons to a very important figure or divinity. They may also have offered meat and shared banquets, as they did in Biṭnah (Benoist, Pillault & Skorupka 2012). In order fully to reconstruct the function of the building, however, the entire complex of Miḍmār East still has to be excavated and understood.

Furthermore, the weapons found in the building reflect the regional context of increasing metallurgical production in eastern Arabia during the Iron Age. The site also shows evidence of an increasing social complexity, indicated by the proliferation of fortified sites and non-domestic architecture. In this society without writing, however, the political system and social structures remain largely unknown. Finally, the discovery of miniature weapons, sometimes unfinished, re-opens a question already pending for several other Iron Age sites with snake figurines (Masāfi, Biṭnah, Salūt, Saruq al-Ḥadīd): is there a possible link between sites with snake representations and copper production?

Conclusion: Iron Age remains in Ādam

As in central Oman, no evidence of early Iron Age I occupation has yet been found in Ādam. People seemed to settle in the area of Ādam around 1000 BC, perhaps reactivating the oasis with new irrigation techniques such as *aflāj*. Only a few graves from Iron Age II were found, and the demography and the settlements near the oasis remain difficult to understand.

The Miḍmār East ritual complex is thus the major Iron Age site in the whole area. It could have been used as a meeting centre for nomadic and sedentary populations living or travelling in the neighbourhood. The continuation of archaeological research in Ādam and its surrounding region and its integration into the archaeological research at a macro-regional scale will help better to define local Iron Age collective practices. Perhaps it will highlight some differences between Ādam and other regions of south-eastern Arabia, and finally increase our knowledge of the dawn of history in the desert margins of Arabia.

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