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Guillaume Gernez, Mathilde Jean

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# Excavations of an Iron Age Site near Adam in Central Oman

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Guillaume Gernez<sup>1</sup> – Mathilde Jean<sup>2</sup>

**Abstract:** Recent excavations near Adam (Oman) yielded new data about the margins of the desert in Central Oman during the Iron Age. Before our 2015 season, the Iron Age in Adam was essentially unknown. Several graves and reused burials had been identified during surveys and excavations in two graveyards, but it seemed that the area of Adam was not highly occupied during this period, contrary to the situation observed in the major site of Salut, only 40km to the north-west. However, the discovery of an Iron Age site near Adam allows us to reconsider this first impression. The site consists of a group of structures located on the eastern tip of Jabal Mudhmar, near Wadi Halfayn. The main stone building contains unique bronze weapons (life-sized, smaller than life-sized and miniatures) including arrows, bows, quivers and daggers that could be used for ritual purposes. Judging by its geographic location and its unusual content, the site could have had several functions: as a meeting and ritual place linked to social, political or religious activities or a relay on the ancient road between Adam and Sinaw.

**Keywords:** Iron Age; Oman; weaponry; pillared hall buildings; ritual

In the area of Adam (Central Oman), the Iron Age is almost unknown. Some exceptions are provided by graves and reused graves discovered during surveys and excavations. After a period of complete abandonment between about 1800 and 1000 BCE, it seems that contrary to Salut (about 40km to the north-west), one of the most important Iron Age sites in Eastern Arabia,<sup>3</sup> Adam was repopulated, if only partly. These scarce data seem to indicate that Adam remained on the fringe of the main technical and economic developments of the time such as the introduction of the *falaj* system, metallurgical activity and the domestication of the camel.<sup>4</sup> Two main reasons may explain the lack of archaeological sites dated to this period in Adam: either the oasis was small and had little importance during this phase or the main settlements were located on the same grounds as the modern oasis and were destroyed by later constructions a long time ago.

In this general context, the discovery of the site near Jabal Mudhmar was completely unexpected.<sup>5</sup> During the 2009 survey, a group of buildings and structures were found on the eastern tip of Jabal Mudhmar (Fig. 1). Pottery from the surface was characteristic of the Early Iron Age period, but a small copper coin made us think that there could also be a later occupation (Samad period). We observed that the collapsed walls of the main building were made of brown and grey sandstone, squared blocks that might have been brought from the other side of the Wadi Halfayn (this part is called Wadi 'Izz), about a dozen kilometres from the site. This single fact, in addition to the location on the eastern tip of the jabal, suggests an important labour and material investment for the construction of the site. This in turn may have been due to a specific status or role of the site.

The uncovered complex includes four main buildings (Fig. 2): one stone structure/platform located on top of the slope, two rectangular buildings on the foothills, and one small circular structure (tomb, well?) between them. Some evidence of walls has been found on the northern slope. One of the structures was destroyed by a bulldozer during the construction of an electric cable in

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<sup>1</sup> Associate Professor, Université Paris 1 Panthéon-Sorbonne/UMR 7041 ArScAn-VEPMO, France; guillaume.gernez@univ-paris1.fr.

<sup>2</sup> PhD, Université Paris 1 Panthéon-Sorbonne/UMR 7041 ArScAn-VEPMO, France; mathildejean@outlook.fr.

<sup>3</sup> Avanzini – Phillips 2010; Benoist 2010; Avanzini 2013.

<sup>4</sup> Magee 2014.

<sup>5</sup> Gernez et al. 2017.

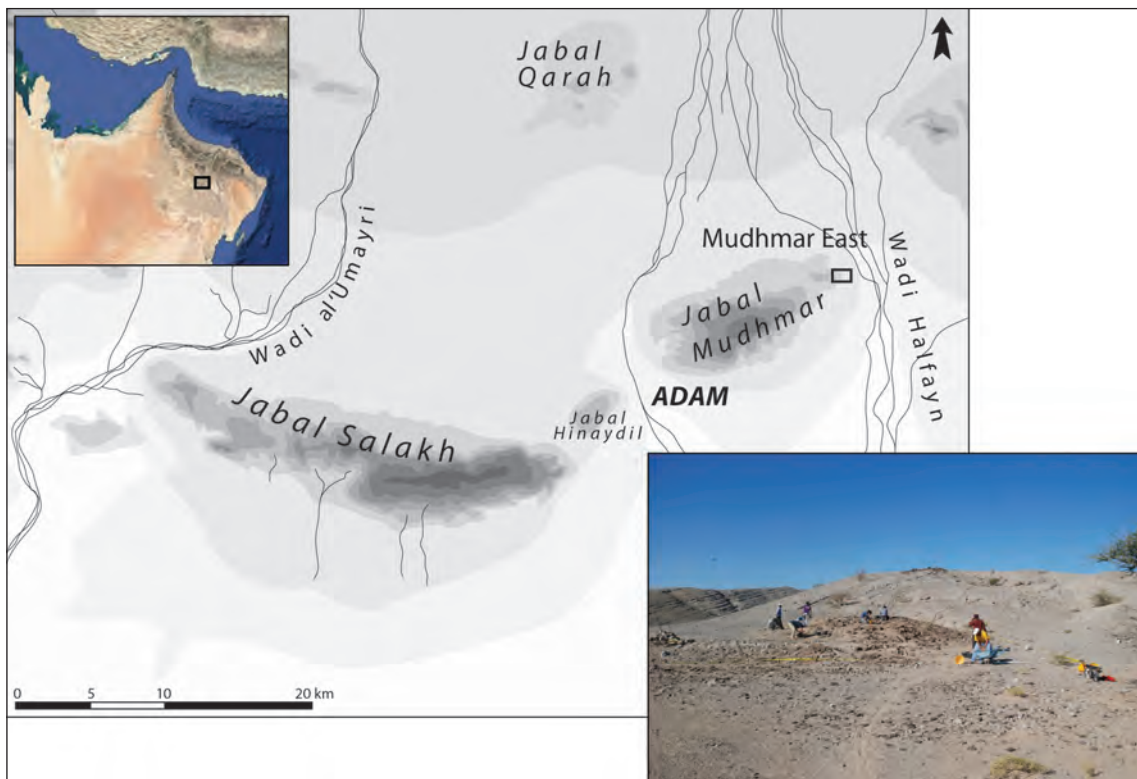


Fig. 1 Location of Mudhmar East site, near Adam  
(G. Gernez/French Archaeological Mission in Central Oman)



Fig. 2 Mudhmar East: a. tomb; b. platform(?) on the top of the slope; c. Trench 1; d. Building 1 with columned room;  
e. Building 2 offering platform (R. Hautefort)

2010, but, fortunately, the two main buildings remained intact. The fieldwork started in January 2015 with the excavations of the main building (Building 1, survey number E 1193). During the second campaign, it was possible to continue the excavations of Building 1, while two other operations were initiated: the second rectangular structure (Building 2, survey number E 1194) was cleaned and a small sounding was dug on the northern slope (Trench 1).

## **Building 1: Ritual Building or Building for Gatherings with Columned Hall**

### Architectural Features and Stratigraphy of the Iron Age Levels

Building 1 is the largest construction of the site (Fig. 3). It is rectangular ( $15 \times 8\text{m}$ , i.e.  $120\text{m}^2$ ) and is oriented east–west. The walls are composite: the wall base is made of local limestone; the lower part of the elevation is built in brown or grey sandstone, squared blocks. The upper part of the elevation is made of rectangular mudbricks ( $45 \times 30\text{cm}$ ). Regarding the peripheral walls, the external facade of the building is made exclusively of stones, while the internal facade is made of mudbricks. A thick yellow coating covers all walls and pillars. The floors are also covered with the same coating, at least in the Iron Age layer.

The Iron Age II plan includes seven spaces. Two rooms (including one courtyard) located on the eastern part seem to have been the entrance to the building. It is possible that these rooms were added after the first construction phase according to the light shift in orientation of the southern wall. Three steps lead to a corridor. On each side is a small rectangular room. Then a stone threshold and a wooden door (only attested by a stone hinge) leads to the main room that includes a series of stone pillars and could have been a meeting room. A very small room full of stones is located in the south-western corner. Its purpose is unknown, but it may have possibly been installed to reinforce a weak part of the building near the slope of the *jabal* or to serve as foundations for a small tower.

On the basis of its form, size and organisation, the building should not be interpreted as a house. The main pillared room could be a meeting place, as in some buildings known in the United Arab Emirates (UAE) at Muwailah, Rumeilah, Masafi and Bida bint Sa'ud, for instance.<sup>6</sup> It is highly probable that the site has a ritual/cultic function, especially because of the unique bronze objects found in Building 1 and the discoveries from Building 2 that include copper snakes, censers/lamps and burnt animal bones.

### *Stratigraphy of Building 1*

The occupation of Building 1 started during the Iron Age II (1000–600 BCE). This phase seemingly ended because of a fire that was identified in room 3007. The first floor is burnt, powdery, dark red to brown. The internal facade of the mudbrick walls was also burnt (especially on wall 3010), exhibiting darker colours and harder texture than the mudbricks of other walls in the building. So the fire was probably more intense in the main room 3007, even though evidence for it also appears in other rooms of the building. For instance, remains of burnt posts and floor were observed in room 3050 and a stratum of collapsed stones and burnt earthy elements was identified in room 3036 (although no real floor could be identified in this space).

In room 3007, the burnt floor and walls were then covered by a yellowish, silty and compact coating, which reaches a thickness of 12cm on some parts of the walls. The absence of any artefact on the burnt floor and its recoating indicates the cleaning, restoration and reuse of the building directly after the fire. The artefacts from this second phase also date back to the Iron Age II.

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<sup>6</sup> Boucharlat – Lombard 2001; al-Tikriti 2002; Magee 2003; Benoist 2010.





Fig. 3 Mudhmar East. Aerial orthophotography of Building 1 (R. Hautefort)

The building was abandoned after the Iron Age II. The stratigraphy shows the collapse of the walls and the silty aeolian filling. The last occupation of the building occurred during the Samad period and then the collapse and aeolian filling continued until the modern discovery of the site during the surveys.

*Description of the Internal Components and Structures (Fig. 3)*

The original entrance of the building was probably sealed at the end of the Iron Age occupation. It was located on wall 3025, facing the north. Today, the entrance measures 50cm and is only marked by a flat stone on the floor, forming a small threshold, but originally (before the abandonment at the end of the Iron Age II) it may have been about 2m wide. Likewise, the passage between the rooms 3016 and 3005 was situated on wall 3026, in front of the main entrance, but it was also sealed at the end of the Iron Age occupation.

In room 3016, a stairway of three steps opens onto the corridor 3050, bordered by the two rectangular rooms 3036 to the south, and 3042 to the north. Finally, the corridor leads to the main room of the building, the pillared room 3007 whose entrance is marked by a stone threshold and a hinge. In the centre of the room, some big flat blocks (more than 50cm wide) are integrated into the floor and may correspond to pillar bases. The quantity of collapsed stone blocks found upon them suggests that the pillars themselves were possibly made of stones. Two other structures (3060 and 3070) were identified in this room, also made of flat blocks inserted into the floor. These two structures were installed prior to the fire that burnt the plaster. Finally, a stone bench was unearthed in room 3008, against the southern wall.



Fig. 4 'Cistern' 3066: a. view from the west; b. detail of the east wall (M. Jean/FAMCO)

One specific structure in room 3007 drew our attention. This structure 3066 is a rectangular construction of sandstone blocks, measuring about  $1 \times 2$  m and 1 m high. It is situated in the north-eastern corner of room 3007. The structure was built below the floor of the room, although its top reached the first burnt floor, and it was closed by cantilevering. Three walls remain, but the northern one is absent: either it collapsed into the structure, as suggested by stone blocks found in the filling, or it was never built. The eastern wall includes an opening at the bottom (Fig. 4). This structure is probably linked to water collection and/or use. It possibly worked as a tank for water storage and/or a water catchment system, but its exact functioning remains to be understood on the basis of further analyses and with the help of geomorphologists and hydrologists. It is, however, an important and original discovery which contributes to make Building 1 so interesting.

#### Metal and Pottery from Building 1

Little pottery was found in Building 1, but the metallic materials are abundant. Most of them, made of copper alloy, are weapons including daggers (of which one was a composite dagger with bronze handle and iron blade), arrowheads and miniatures (bows, arrow, quiver). The major discovery was made in room 3036 and consists of important deposits of weapons.

#### *Discoveries from Room 3036 'Room of the Bows'*

Three successive deposits were found in room 3036, consisting of different types of copper alloy weapons. The first and older deposit includes four axes, two daggers and three groups of arrowheads. This layer is covered by a stratum of burnt sediment and collapsed stones with a lot of charcoal, which probably derives from the burning of the building. The second deposit includes five bows, five daggers with crescent-shaped pommel, five shaft-hole axes and five groups of arrowheads (Fig. 5). They can be considered as five warrior's sets. A stratum of natural and aeolian filling was also observed. Finally, the third and last deposit is constituted of two quivers (Fig. 6), some arrowheads and some small flat copper lozenges that might have been decoration or incrustation elements.

Most of the weapons (especially the bows and quivers) may be reduced-size models of real weapons made in perishable material. The shaft-hole axes (belonging to an Iron Age type known at al-Akhdar and Uqdat al-Bakra<sup>7</sup>) are unfinished, not deburred and therefore unusable, but they

<sup>7</sup> Yule 2014, fig. 17; Yule – Gernez 2018, pl. 3-4.





Fig. 5 Mudhmar East. Building 1: room 3036 – ‘Room of the bows’, second deposit layer. Copper bows, daggers, axes and arrows (G. Gernez/FAMCO)



Fig. 6 Mudhmar East. Building 1: room 3036 – ‘Room of the bows’, third deposit layer. Two copper quivers full of arrows (G. Gernez/FAMCO)



Fig. 7 Mudhmar East. Building 1: Iron Age II bowl (G. Gernez/FAMCO)

were fixed on a wooden handle whose imprint was identified in the sediment. Such objects are extremely rare and the whole content of the room 3036 constitutes a unique discovery in Oman and Eastern Arabia.<sup>8</sup>

These weapons are linked to the increasing metallurgical production observed in Eastern Arabia during the Iron Age and indicate a social complexity already evidenced elsewhere by the proliferation of fortified sites and non-domestic architecture.

As exceptional copper copies of real perishable objects, these weapons deposits are rare testimony of the Iron Age II weaponry and especially archery.<sup>9</sup> They are also very informative about the social and symbolic practices of this period. The copper bows and quivers, like the unfinished axes, are clearly non-utilitarian and, as such, might be offerings in a symbolic or religious framework that remains largely underexplored today.

#### *Pottery from Building 1*

The pottery is very fragmented and diagnostic fragments, mostly rims, are relatively few. Bowls are largely predominant (Fig. 7). Small bowls mostly have a flat rim, sometimes slightly thickened ('nail-headed' rim), but bowls with a thinned, rounded rim are also present. The repertory includes simple convex bowls but also bowls with marked shoulders and undulated, as known in Rumeilah I.<sup>10</sup> Larger bowls or basins have a flat horizontal or oblique rim, rarely a concave rim as in Rumeilah.<sup>11</sup> Jars include large storage jars with thickened rim (as in Lizq)<sup>12</sup> and a small hole-mouth jar, with an overhanging rim as known in Rumeilah.<sup>13</sup> Fragments of bowls with a horizontal handle fixed to the side have been collected, two outside of the building, the latter in the western courtyard. These handled bowls are usually found exclusively in places of religious or cultic purpose such as Salut,<sup>14</sup> Bithnah<sup>15</sup> and Masafi-3.<sup>16</sup> They have been interpreted as possible incense burners or lamps. A complete cauldron with two vertical handles was found in the south-eastern part of room 3007. It is completely burnt and has probably been used for cooking.

<sup>8</sup> Gernez et al. 2017.

<sup>9</sup> See Zutterman 2003 for a complete review.

<sup>10</sup> Benoist 1998, fig. 3B.12–15.

<sup>11</sup> Benoist 2000, figs. 45.7–8, 54.

<sup>12</sup> Kroll 1998, 51.

<sup>13</sup> Benoist 1998, fig. 2.19–21.

<sup>14</sup> Avanzini 2013, 122, 178.

<sup>15</sup> Benoist 2013, fig. 113.

<sup>16</sup> Benoist et al. 2012, fig. 14.



Two parallels are known at Rumeilah ('cooking wares' from the 3<sup>rd</sup> century BCE)<sup>17</sup> or without handles in Izki and Nizwa,<sup>18</sup> from the Late Iron Age (300 BCE – 400 CE).

As a whole, the pottery assemblage clearly belongs to the early Iron Age cultural horizon, between 1300 and 300 BCE. The pottery does not include any of the categories appearing in south-eastern Arabia between 600 and 300 BCE, as known in Salut (Fine Burnished Ware, Fine Orange Ware): Building 1 was possibly not occupied at that time.

All of the material from this building together with the latter's architectural features indicate the non-domestic and probably highly symbolic or ritual value of the structure for the ancient inhabitants of the Adam area. The excavation of the other structures of the site, which has not yet been completed, already supports this hypothesis.

### Building 2: Collapsed Building or Offering Platform?

Building 2 is very close to Building 1 but is smaller, of north-east/south-west orientation and measuring 6 × 8m, i.e. 48m<sup>2</sup>. Although the external walls of the building are easily identifiable, its internal structure is not yet clearly understood. The building has seemingly been partly destroyed and only one row of limestone blocks is preserved. The inside is made of large limestone blocks of about 40 to 80cm which look in situ, but important holes (especially in the western part of the building) suggest that the stones have been removed or reused, or destroyed by erosion.

The materials unearthed in Building 2 are ceramics, fragmentary animal bones and bronze objects, but none of them were in an identifiable structure or in situ. It seems that the materials were loose in the building's filling, which was made of loose buff silts and limestone pebbles. One concentration of animal bones was identified in the south-eastern quarter of the building but again without any structure and mixed with the filling. The bones are fragmentary and most of them were burnt. Among the pottery (only 180 sherds), the bowls represent more than half of the total assemblage from Building 2 and solely consisted of common ware. Some handled bowls were found that could be censers or lamps (Fig. 8.1) and which characterise ritual places. The metallic artefacts include small snake figurines (Fig. 8.2) which link the site to the well-known cult of snakes of the Iron Age in south-eastern Arabia.<sup>19</sup> This indication of a ritual purpose suggests that Building 2 might have been an offering platform or shrine, at least during its last phase of use. The presence of censers/lamps and of burnt animal bones, which may indicate animal sacrifice or banqueting, support this hypothesis. However, the level underneath could be different and remains to be excavated. An excavation of

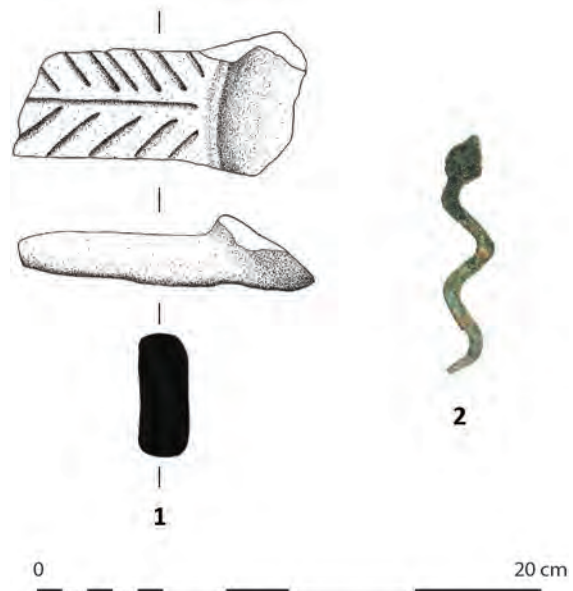


Fig. 8 Mudhmar East. Building 2: 1. Decorated handle of a censer/lamp; 2. copper snake (M. Jean, G. Gernez/FAMCO)

<sup>17</sup> Benoist 2000, fig. 60.20–21.

<sup>18</sup> Schreiber 2007, pls. 36.3, 71.3.

<sup>19</sup> Mouton et al. 2012; Benoist et al. 2013.

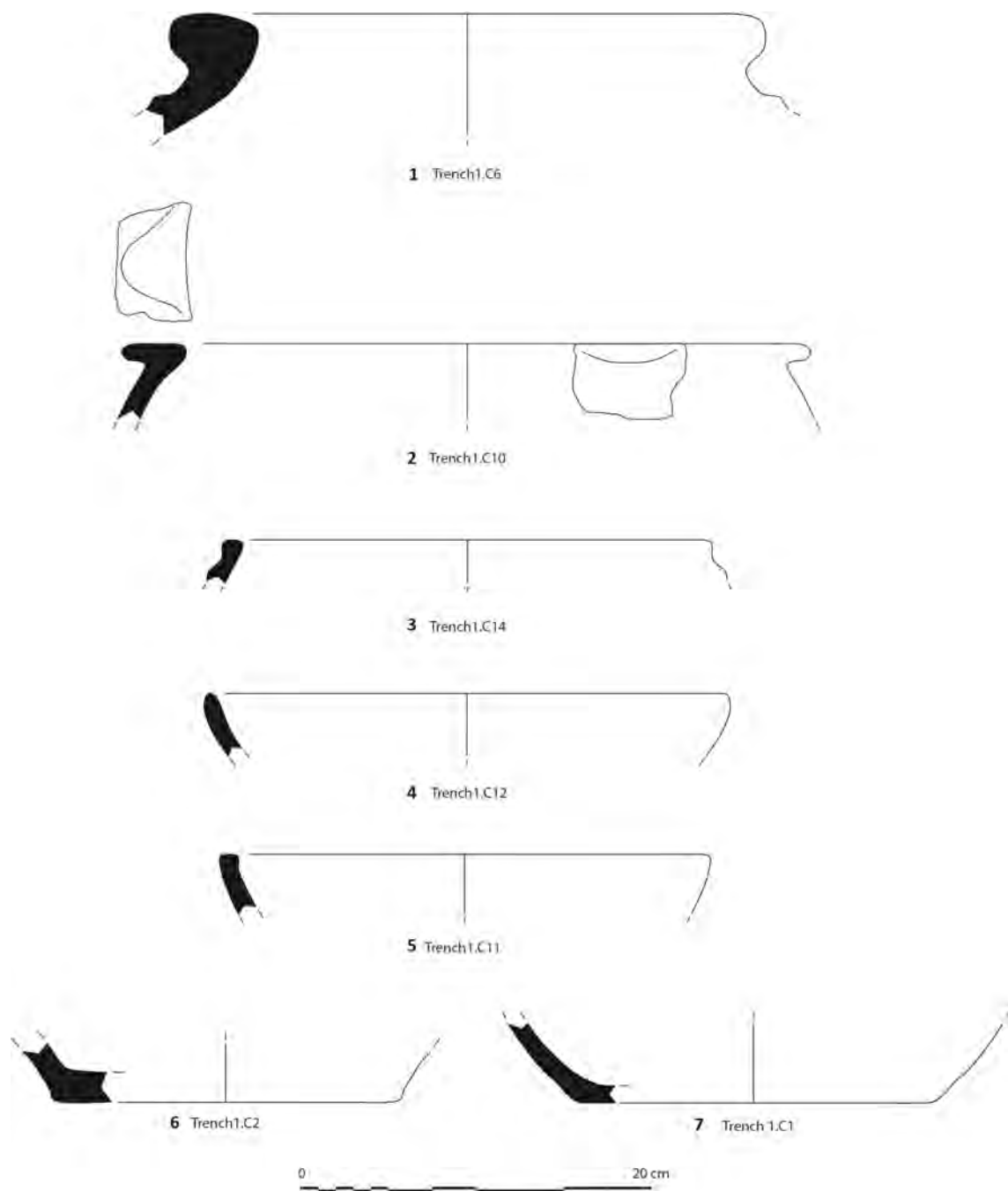


Fig. 9 Mudhmar East. Main types of pottery from Trench 1 (M. Jean/FAMCO)

the original layer of occupation is probably necessary in order to gain a better understanding of Building 2, its surroundings and the other installations of the Mudhmar East site.

### **Trench 1: on the Slope**

Trench 1 is a less than one-metre-square sounding dug on the slope to the north of Building 1. We noticed that the sedimentation there is thicker in the middle of the slope than at the bottom. An anthropogenic installation may have existed there, such as transversal walls crossing the slope, which were partly distinguishable before excavation. They induced an accumulation of natural

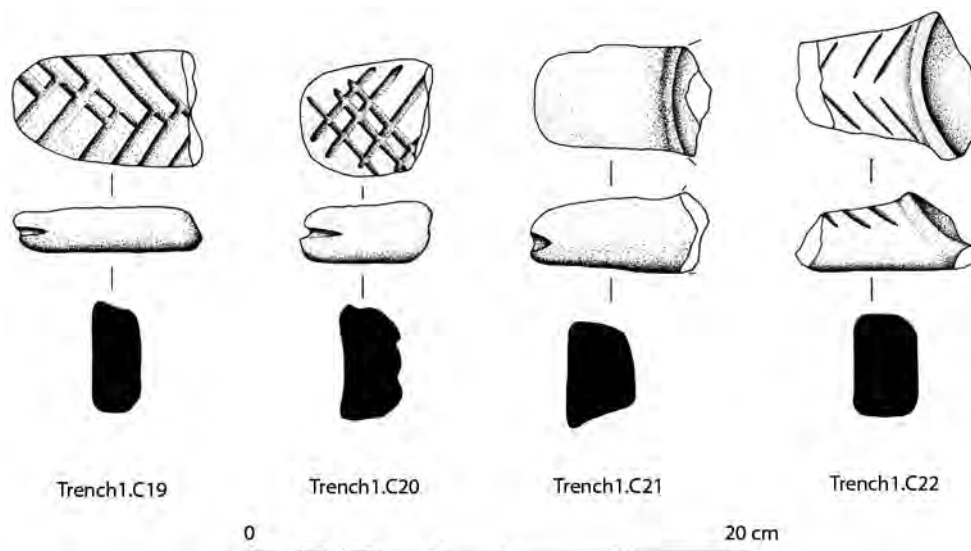


Fig. 10 Mudhmar East. Decorated handles of censers/lamps from Trench 1 (M. Jean/FAMCO)

sediments and archaeological materials. In this 30cm-deep small trench, 454 potsherds have been unearthed, indicating a very high density of pottery (more than those found in the two buildings altogether from the 2016 campaign, i.e. 208 potsherds). The open shapes include several types of bowls (Fig. 9, 4–5), medium-sized (15–25cm wide) or larger. The closed shapes are divided between two main types: lug-handle pots and storage jars (Fig. 9, 1–3). Five decorated handles of censers/lamps have also been discovered (Fig. 10).

Trench 1 yielded two main elements of information about the site of Mudhmar East: first, pottery is very abundant in this location, totalling more than what was found in Building 1 (only 28 sherds for the whole 2016 campaign); and second, its unnatural accumulation in the middle of the slope may reveal an anthropogenic installation there. The ceramics from Trench 1 form a homogeneous assemblage from the Early Iron Age. It is mostly domestic: storage jars and smaller vessels (bowls, pots) for transfer or short-time storage. Five handled bowls, usually called incense burners, and one spindle whorl were also unearthed. This could mean that the platform located on the crest had several functions, including the storage of vessels and food that could be linked to feasts and/or rituals on the site. Further investigations have to be carried out in order to confirm and specify the link between this area and the main buildings.<sup>20</sup>

### Later Reoccupation of Building 1: Samad Period

As previously mentioned, the upper stratum of Building 1 is largely eroded. Postholes, pits and one altar made of flat sandstone blocks are the main structures. They seem to belong to the Samad period. No clear internal organisation could be observed precisely and it is not certain if the building was still inhabited or if a lighter construction made of wood and perishable materials had been installed on the ruins of the Early Iron Age building. The pottery fragments from this occupation are scarce: two sherds are reminiscent of the Fine Orange Painted Ware that might come from south-eastern Iran and seemingly circulated in the region (at Khor Rori,

<sup>20</sup> Jean et al. 2018.





Fig. 11 Mudhmar East (Late Iron Age/Samad period reuse). Silver tetradrachm (G. Gernez/FAMCO)

in southern Oman,<sup>21</sup> at Mleiha and ed-Dur in the UAE<sup>22</sup>). But the two potsherds from Mudhmar East do not show any trace of painted decoration and this possible identification still has to be confirmed.

One coin from the Samad period was discovered. It is a tetradrachm, of Abi'el type,<sup>23</sup> measuring 2.5cm in diameter (Fig. 11). The obverse shows a head of (probably) Herakles while the reverse bears a figure sitting on a throne, with crossed legs and one arm stretched forward. A bird stands on the arm, looking at the face, and near the legs is a stylised tree or plant. After restoration, it appears that the Abi'el tetradrachm is made of silver with a quite high percentage of copper (which explains the green corrosion). Another small copper coin (1.3cm in diameter), probably an obol, was found on the surface during the survey and will be restored.

Only one other coin dating to this period is known in Oman, so the discovery of the two coins in Building 1 is significant and may indicate that the site of Mudhmar East is located near one or two commercial roads. The first one, east–west, links the southern oases (Adam, Sinaw/Barzaman, Samad and Ja'alan) and the major northern sites (Mleiha, ed-Dur). The second one might go further south, to Duqm, along the Wadi Halfayn. The sites discovered in 2014 near al-Juba<sup>24</sup> seem to be good evidence of occupation of this area and of contact with central Oman from at least the Wadi Suq period. The widespread use of the domesticated camel should have strengthened and facilitated the links between all these regions. To sum up, the coins (and especially the Abi'el one) indicate the first establishment of a monetary economy and the circulation of wealth in central Oman and could be much more than a simple echo of contacts between ancient Eastern Arabia and the Hellenistic (and later) world.

### Conclusion

The small columned hall is not only the first discovered in Oman but also the southernmost attestation of this architectural feature (only known until now in the UAE, for instance in Muwailah). Moreover, the copper weapons deposits are unique. For the first time, copper bows and quivers were discovered in Arabia. The building may have been a gathering place with a very high symbolic value, where ancient people went regularly. Regarding its environment and strategic position, it seems

<sup>21</sup> Mouton 2010.

<sup>22</sup> Mouton 2012.

<sup>23</sup> Van Alfen 2010.

<sup>24</sup> Yule – Pariselle 2016.

likely that these people were nomadic. The weapons could have been offered to a deity or may have been linked to ritual and social activities/meetings.

Building 2, although badly preserved, yielded handled bowls (censers or lamps), small snake figurines and fragmented and burnt animal bones. During its last phase, before destruction or abandonment, it could have been used as a platform for offerings, something that completely supports the social, ritual and/or religious interpretation of the purpose of the site. Finally, the preliminary (but promising) results from the small Trench 1 demonstrate that the site of Mudhmar East still has a lot to add to our knowledge about the Iron Age in Oman and Eastern Arabia.

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