

MLEIHA GRAVEYARD AREA C (SHARJAH, U.A.E.)

REPORT ON THE 2021-22 BELGIAN EXCAVATIONS

by

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Abstract

The winter 2021-22 excavations by the Belgian team focused on two areas at Mleiha: Area F-North and Area C. The present report discusses the second part of the campaign building on the area C research by the Iraqi (1973) and French teams (1986-89). Several variations on the known corpus of tomb types were documented. The original height of one of the tower tombs is now determined to have been at least 6 meter and the discovery of platforms in the graveyard suggests that some of the “tower tombs” may have had platforms rather than towers as superstructure.

Keywords: Mleiha, graveyard, monumental tombs, Rhodian amphora, Mleiha period, PIR.

Introduction

In the context of our research on the graveyards and specifically the construction and spatial distribution of the funerary monuments, it was decided to follow-up on the work by the Iraqi and French expeditions at Area C.

A characteristic feature of the Mleiha graveyard area are the clusters of so-called “monumental tombs” or graves with square superstructures around which more modest graves are found. Area C is located in the Eastern part of the site, an alluvial gravel plain which is close to the wadi and which remained untouched by modern agriculture. In this part of the site, the tomb clusters stand out as low

mounds. As a rule, the individual monuments in these clusters are directed more or less to the North and many had a small step or platform, supposedly marking an entrance. Dug-in perforated vessels and perforated stones for libations were sometimes found along the North wall of Mleiha funerary monuments (Area FA and grave AH), confirming this side as the facade.

It is self-evident that selecting a location to build an additional monumental tomb in an existing cluster would have to take the availability of free space into account and would also have reflected the social position of the deceased. In general, there are East-West aligned series of monumental tombs. New tombs were apparently built mostly next to each other. Funerary monuments could also be added in front of existing ones, however. In graveyard FA it was obvious that tombs FA-1 and FA-2 were built in front of the existing FA-3 and FA-4 since they covered the original access corridors to the subterranean burial chambers (Mouton 2008: 64, fig. 32; Overlaet, Haerincx et al. 2016: 92, fig. 3). The distance between tombs in the East-West oriented rows could vary from less than half a meter to several meters. Since we do not know whether all the monuments had a similar height (or whether some were platforms rather than towers, see infra), it is difficult to assess the visual impact of such graves clusters.

To gain a better understanding of the spatial organization in these grave clusters, it was decided to revisit Area C where a zone in front of one of the major monumental tombs (P5) had been left untouched since the removal of a collapsed wall by the French excavators in the 1980s. It seemed worthwhile to further investigate. Furthermore, reviewing the surroundings of the excavated wall collapses could help to determine the original height of some of the funerary monuments.

(1) The expedition of the Royal Museums of Art and History, Brussels, works in full collaboration with Dr Sabah Jasim and Eisa Abbas Yousif of Sharjah Archaeology Authority. The campaign started on 16 November 2021 and ended on 30 January 2022. We are deeply indebted to the staff and workmen at Mleiha for their valued contribution to the expedition, as well as to students and researchers who briefly joined the campaign, A. De Cuyper, G. Verhelst and E. Gorris. The Royal Museums of Art and History’s campaign was made possible by the generous support from Sharjah Archaeology Authority and the Fund for Scientific Research – Flanders (stay abroad grants B. Overlaet, grant V421121N; A. Van Ham-Meert, V422321N; P. Monsieur, K200722N). Dr M. Mouton graciously provided us with documents and slides from the 1980s area C excavations which together with the documentation kept by Sharjah Archaeology Authority, were a much-appreciated help in the interpretation of the graveyard.

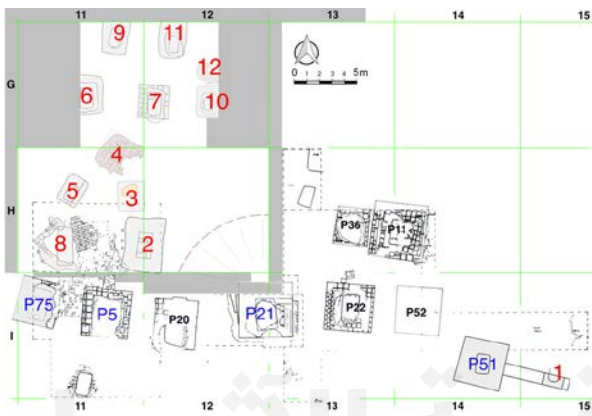


Fig. 1. Plan combining the Iraqi (1973), French (1986-89) and Belgian excavations (2021-22). Blue numbers indicate tombs located by earlier excavations that were reexamined, red numbers are newly revealed features.

Previous field research in Area C

Graveyard C is one of the larger clusters of monumental tombs at Mleiha (Pl. 1, Fig. 1). The Iraqi archaeologist Tariq Madhloom, who was the first to excavate this area, described it as a hillock "... generously covered with metal pieces and pottery and traces of walls..." (Madhloom 1974: 151). He excavated one of the best-preserved monuments and discovered fragments of iron weapons, glass and three stamped Rhodian amphora handles of which 2 can be identified and dated to the first half of the 2nd century BCE (Monsieur et al. 2013: cat. nr 5, 9 and 16). The monument was exceptionally well preserved thanks to its construction with lime bricks rather than with the more widely used, but much less durable, mud bricks. When the French archaeological mission surveyed Mleiha in 1986, they first re-excavated this tomb (from then on identified as P5), and later extended the excavation area to define the size of the graveyard by a series of trenches positioned in a cross-shaped pattern (Pl. 1) (Boucharlat & Mouton 1998; Mouton 1997; 2008: 37-40, fig. 6-9, pl. 5).

Our 2021-22 excavations continued where the 1989 excavations left off and we reused the 10 x 10 m grid system set out by the French team. This grid is oriented to the geographic North and deviates a few degrees from the original 1986 excavation plot in square H11 which followed a magnetic North orientation (see Pl. 5). The NE corner pin of square J9 was used as our 0-meter benchmark. The 1986-89 excavations located 9 large tombs with square plans along the main East-West axis, surrounded

by multiple pits and tombs of various sizes; only a selection of these were fully excavated.

The Belgian excavations first focused on the French excavation plot with the collapsed walls in front of tomb P5 (Fig. 1, square H11). The area was then extended North- and Eastwards to expose the front part of tomb P21. Furthermore, Tombs P75, adjacent to P5, and P51, located at the Eastern end of the East-West aligned series of monumental tombs, were also investigated.

Apart from the monumental tombs registered by the French team (P5, 21, 51 and 75), 12 more features were registered (Fig. 1, Pl. 3). These include another "monumental tomb", some mud brick platforms and graves of various sizes, most of them covered with simple gravel mounds.

Tombs or monuments with a square plan (platforms / towers / rooms)

Although it is established beyond doubt that a number of the major tombs with a square construction plan had a single room or a tower above the grave, we have to be careful not to resort to generalizations and reconstruct all the major tombs with a square plan with such superstructures. It is thanks to the preservation of collapsed walls that it was possible to reconstruct buildings and sometimes even to establish their original height. When only a few rows of mudbrick are preserved in situ, however, it is difficult to exclude the possibility that only a low platform was constructed or that there was merely a (low) wall fencing the burial. The discovery of several platforms in area C completed the data from the 1986-89 excavations and suggests a much more diverse tomb typology than previously thought.

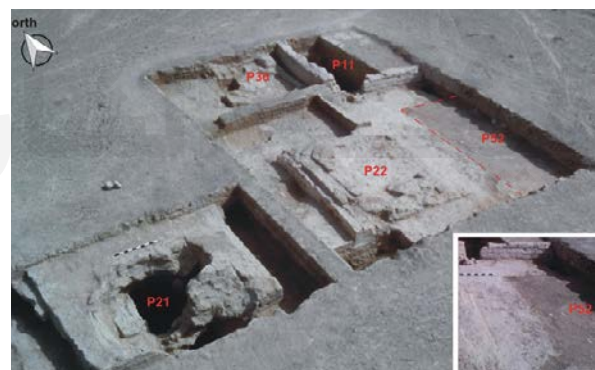


Fig. 2. View of the highest point of mound C during the 1980s French excavations.

One of the larger tombs identified by the French team on the area C mound is P52 (Fig. 1-2). Its size and shape ranks it among the major tombs and its location near to the highest point of the mound strongly suggests that it must be one of the first that was constructed there. It lacks, however, a superstructure and was located only by its gravel outline (Fig. 2). P52 was not excavated; construction details on the subterranean structure are thus not available. Several tombs excavated in the 2021-22 campaign were also identified thanks to such gravel layers, indicating that it was one of the more common ways to mark a grave. It is of course possible that a more elaborate surface construction was intended but for some reason was never built on P52. It is also possible that a more ephemeral barasti type structure was erected on the grave. This could have been done as a temporary measure (awaiting a construction in more durable materials) or as a definitive grave marker. The presence of postholes next to some of the graves could support the idea of ephemeral structures (Pl. 3, Fig. 1 & 3).

Four of the square plan tombs identified in the 1980s have been examined during the 2021-22 campaign (P5, 21, 51 and 75). Furthermore, several more tombs, wall constructions and/or platforms with a square plan were found (Fig. 1: tomb 7 and features 4, 8 and 12).

Tower tomb P5. (Pl. 3 – 7, 13)

The superstructure of tomb P5 was one of the best preserved in area C because it was completely built with large lime bricks (ca. 22 x 45 and 45 x 45 cm, 12 cm thick). In most constructions lime bricks were used only in the lower masonry or for more fragile decorations such as wall crenelations because of the far superior resistance of this material to water and weathering compared to mud brick. With its 3.75 by 3.75 m plan, P5 was not the largest superstructure in area C. The largest is P11 (4.25 m), situated on the highest point of the natural mound (Pl. 1-3).

Tomb P5 has a small podium where the entrance to the tower-shaped structure must have been, made of two brick layers placed on the walking surface. Five small pyramidal lime brick crenelations were found just next to it, buried by the wall debris (Pl. 6). It looks as if they had been collected and

placed together in this corner, but is not clear what they originally decorated (a door frame? a canopy?) and whether they even belong to construction P5.

The burial chamber of P5 was first excavated by Tariq Madhloom and later re-excavated by the French team. It had a 1.25 by 0.50 m trench in the floor for burial goods and vessels (Pl. 4). Madhloom reported that the tomb robbers had left fragments of swords, iron spearheads and sherds of glazed vessels; in the floor trench he specifically mentions a “finely shaped copper cup, a glass cup and some spearheads” (Madhloom 1974: 151, pl. 8, 13, 16). All these finds are now stored in the Al Ain-museum. Moreover, three stamped handles of Rhodian amphorae were discovered, of which two can be accurately dated (Jason I: 180/178 - 161+ BCE and Antigonos: 187 - 185+ BCE; Monsieur et al. 2013: cat. 5, 9, 16). However, Madhloom’s report leaves some ambiguity whether the amphora stamps were actually found inside tomb 5 or more generally in the graveyard area (Madhloom 1974: 151: The finds ... in these buildings were... Amongst them are three handles...).

Pl. 4 shows the tomb at the start of the French excavations with a massive amount of lime brick wall collapse at the North and West side. Four to five rows of lime bricks are still standing; only the South side is completely gone, probably demolished by the tomb robbers. The base of the East wall was cleared by the Iraqi team who also made a trench at the NE corner, which left the pit in which shrubs were growing when the French team arrived a decade later (Pl. 4). The debris of the collapsed lime brick walls is noticeable in front of the monument and covers also the small podium on the North side (Pl. 4 - 6). This debris extends about 3 to 4 meter around the base of the wall which inspired the excavators to suggest a minimum height for the superstructure of 3 to 3.50 m (Boucharlat 1989: 115-116; 1998: 19). Mouton later suggested the height of the monuments in area C equaled at least their width, resulting in heights of minimum up to 4.50 m (Mouton 2008: 38; 2010: 197). Part of a wall with its lime bricks still in the original bond was preserved slightly further to the NW (Pl. 3 & 7). The excavators mentioned that this was carefully removed to check for decorations and indicated the position on the excavation plan (Pl. 3, 5 & 7); the area was, however, not excavated any further. One

of the goals of the 2021-22 excavations was to establish whether this well-preserved wall part could still belong to tomb P5, in which case the monument would have been considerably higher than suggested. If not, the base of another major construction had to be nearby.

Clearing the area in front of P5 revealed several more tombs, pits and remains of mud brick walls or platforms, as well as a series of post-holes. Some of these post-holes are well aligned and seem to mark a passage to tomb P5, in-between feature 8 and tomb 2 (Pl. 3 & 25). It is impossible to ascertain their function but they do predate the collapse of the lime brick wall. They may have supported a kind of canopy creating a shaded corridor towards tomb P5's entrance. Alternatively, they may be related to feature 8 or grave 2, possibly supporting canopies or palm-leaf screens. Similar sized post holes are visible on a photograph by the French team of the zone in-between tombs P20 and 21 (Fig. 3). They border what seems to be a small semi-circular channel that is also visible in a profile of the 2022 excavations (Pl. 9). Post holes could also be from scaffolding, something which could be needed e.g. to plaster and maintain the outside of tomb towers.

None of the features discovered in square H11, which included mud brick platforms and several graves, could be the origin of the well-preserved lime brick wall on the plan of the French excavators. Its position and the orientation of the bricks ascertains that it was indeed part of tomb P5's superstructure (Pl. 7). The wall debris thus extends ca. 6 meter from P5 and its position reflects a collapse that is characteristic for tower-shaped constructions of which the base failed, causing the fall of the wall in a single episode. This is something that can be observed in the demolition of modern brick chimneys. The rotational movement of a falling chimney (or in this case a square tower) typically results in a breakage at 1/3rd or half of its height due to mechanical stress (Varieschi & Kamiya 2002), hence the somewhat disconnected upper part of the wall. When this collapse is virtually "repositioned" on the remaining base and the original walking surface around P5 is set at the base of the platform, the height of the tower shaped monument at the moment of its collapse calculates to about 6 meters. We cannot associate any of the various types of crenelations reported from area C (Pl. 6, 27, 38) with tomb P5 but

given the evidence that some of these crenelations were freestanding (Mouton 2010: 197-198; for a detailed composition documented at area AV-P, see Overlaet 2015: 261, Fig. 6), a decorative crenelated top may have to be added. This would bring the total height of tower P5 to a minimum of 6 to 7 meter. If lime brick debris in tomb 5 would also belong to tower 5 (which is credible given its location, see *infra*), then another meter should be added. A single crenelation was found fallen into the looters' pit of tomb T2 and could eventually also have belonged to P5. Its irregularities reveal that it was made in the same mold as the one found in the 1980s (Pl. 6 & 27).

The original walking surface in the reconstruction on Pl. 7 is set at the base of the small platform since it appears the soil was raised against the walls. This would have created the impression that the tower stood on a small mound and at the same time, it would have diverted rainwater away from its walls. This phenomenon is also documented at tomb P21 (Pl. 9) and is noticeable in the profile at the West side of P5 as recorded by the French excavators (Pl. 13). Contrary to the idea that the occasional platforms on the North side of funerary monuments could represent a later phase or addition (Mouton 2008: 39), they would thus have to be considered as part of the original design.

Tomb P21 and its gravel mound. (Pl. 8 - 10)

Tomb P21 is located to the East of P5, near the highest point of the area C-mound and it lies in the main East-West trench excavated by the French team (Pl. 1). Although the tomb itself was excavated, its North side had been left untouched. When the area in front of P20 and P21 was excavated, sections of a gravel mound that was once raised against the tomb were revealed (Fig. 2, Pl. 3, 9-10). Ca. 1.40 meter of the East-West profile was moved back some 40 cm to uncover the front top part of the tomb's construction.

The actual burial room was excavated by the French team and reported to have been dug out in the virgin marl layer. According to the 1980s' N-S section drawing, it was closed just above the marl layer with beams set in lime mortar and then covered with mudbrick layers, an interpretation that was based, however, on the much-disturbed

and collapsed looted part of the tomb. The well-preserved front section of the tomb provided additional info.



Fig. 3. Top: Post holes and ditch between monumental tombs P20 and 21 in the walking surface before the gravel mound was raised against P21 (photo Mission archéologique Française à Sharjah 1986-89).

Whereas the lower part of the burial room was hewn in the virgin marl layer, its upper part was constructed with lime bricks. For this, a large construction pit was dug to the top of the marl layer. A first layer of lime bricks and lime plaster leveled the construction pit's bottom. Three more rows with a slightly offset axis were then neatly laid on top (Pl. 10). The space that remained around these neatly laid rows of bricks was back-filled with gravel and building debris, including lime brick blocks and fragments. The remainder of the dug-out gravel was later used to create the mound around the tomb. The outline of this construction pit is visible in the profile (Pl. 9 - 10) as well as on the original walking surface that was covered by the gravel mound (Fig. 3).

Pl. 9 shows a ca. 20 cm thick gravel package on top of the lime bricks. It seems likely that this corresponds to the burial chamber's roof, made of wood beams set in lime mortar. This would agree with the construction of the other major graves at area C, particularly with Tomb 7. The gravel layer levelled the surface and provided the base for the construction of the superstructure of which several layers of mud bricks remain. The axis of these mud brick layers is, once again, slightly offset (Pl. 10).

A gravel mound with a lime surface was raised against the mud brick top, covering ca. 40 cm of it and extending ca. 5 meter to the north and west of the monument. The mound ends at the West near tomb 2 and is covered in front of P20 with another

ca. 12 cm thick gravel package. This may be part of a similar gravel mound raised against P20, in which case, it would indicate that P20 postdates P21. Several trenches through the gravel mound and to the North of it ascertained that the zone in front of P21 was apparently void of any other constructions or burials.

Platform Tomb P75. (Pl. 11 – 14)

Tomb P75 is located immediately to the West of P5 (Fig. 1) and part of its superstructure was excavated and registered on the French team's plan. They noted a large sandy patch at the center, an indication that the tomb had been looted and the burial pit was left unexcavated. At the end of the 2022 campaign, the front part was reexamined and a trench in the looter's pit was made to investigate the burial chamber. The superstructure of the tomb has one to two preserved rows of mudbrick but these are much damaged and the monument's exact shape remains debatable. The length is ca. 2.75m, the width remains uncertain. It may have been a rectangular construction as originally marked on the French plans based on the trench that first exposed its southern part (Pl. 1) but it seems reasonable to assume it was originally square as was suggested in some of the later plans. Although the burial chamber is of a similar design as that of the neighboring tower tomb P5, it seems impossible that there was ever more than a platform of two layers of mud brick since the collapse of the P5 lime brick wall covered its NE corner (Pl. 3 & 11). Moreover, the front of the platform rises towards this corner, something which cannot be explained by ground subsidence and must have been the case from the start. It indicates that the NE-corner of the platform was built on top of the low mound that was raised against P5 (Fig. 4) and its construction thus postdates that tomb.

Since much of the central part of the mud brick platform had been destroyed by the looters, a rectangular trench was excavated to locate the burial pit. Several lime brick fragments, in all probability from the tomb P5 wall collapse, are visible in the fill of the robbers' hole (Pl. 12). A bundle of 13 iron arrowheads corroded together and fragments of a 6.1 cm high beehive shaped calcite vessel (Pl. 14) were present in the fill. The

actual burial chamber measured 2.50 by 1.38 m and must have been ca. 1.20 m high inside. The upper 45 cm of the tomb chamber consists of three layers of mud brick set in mortar above a 26 to 30 cm thick hard and compacted natural gravel layer and a 45 cm deep pit carved out in the marl. On top of this compacted gravel layer is another virgin but permeable gravel layer with a very loose consistency, which explains the necessity to use bricks at this level. The burial chamber was closed with transversal wooden beams set in a lime mortar. Merely traces of this upper part of the construction remained but it is a common and well-documented building method at the site. Two trenches of ca. 1 m long ending in round pits of ca. 30 to 40 cm diameter were dug out in the tomb's floor. These pits are stands for storage vessels and are a familiar element of most of the larger tombs (Pl. 3) and also occur near habitations at Mleiha (see 2021-22 report on area F-North). The shape of the pit does not necessarily tell us something about the shape of the vessels deposited in them, however. A square pit could e.g. contain a round and pointed vessel like an amphora (Area AV, see Overlaet et al. 2019: fig. 3) and excavations of Tylos burials on Bahrain showed that also various objects and small vessels could be placed in such tomb trenches (Salman & Andersen 2009: fig. 253, 323). In tomb P75, part of a Rhodian amphora handle was the only find left in these floor cavities.

The conclusion that tombs could be covered or marked by a low platform raises questions concerning the superstructures of many other tombs, including tomb P21. Comparable (stone build) platforms have also been reported from ed-Dur although these date from the ed-Dur phase (PIR C), markedly later than the mid 2nd century BCE date suggested for the area C graveyard (or at least for its main phase) by the presence of Rhodian amphora. Two platforms and one square room-shaped structure inside a rectangular enclosure were considered to be funerary constructions although they were not fully excavated. The excavator did point out however, that they had been targeted by looters and human bone remains were scattered in the enclosure (ed-Dur area T, see Potts 1989: 23-24, Fig. R).



Fig. 4. Top: tombs P5 and P75. The red horizontal line indicates the level of what must have been the walking surface once a mound was raised against P5; the NE corner of the P75 platform rested on top of this mound. Bottom left: Structure of tomb P75. Bottom right: tomb P75 and P5 at the end of the 2022 excavations.

Tomb P51. (Pl. 15-16)

Tomb P51 is the most easterly located large tomb in the East-West trench excavated in the 1980s but only its front Northern part had been exposed. Its mud brick superstructure measures ca. 3.70 by 3.70 m and had a ca. 1 cm thick exterior plaster coating. The 12 cm thick bricks vary in size from 30/33 to 33/35 cm ; half bricks are ca. 17 by 36 cm. A large looters' pit destroyed the center of the tomb and a patch of decayed mud brick is visible along the East and South side on Pl. 15 (possibly the remains of the bricks removed from the center of the tomb). A long 1-meter-wide trench through the Eastern side of the construction was extended 6 meter to investigate this decayed mud brick patch and the adjacent area. It revealed the presence of another smaller grave (T1).

The construction of P51 is nearly identical to that of the previously discussed tombs. The 2 by 1.40-meter burial pit was carved out through a compacted gravel layer into the virgin marl. At least 7 rows of mudbrick were laid on top. The burial pit would have been roofed with beams and lime plaster but the large looters' pit destroyed any traces of these.

Very few finds remained. Some sherds, a peg and two stamped handles (ML22/C/c84-85) of Rhodian amphoras were found in the fill, as was as the rim fragment of a large SE-Arabian coarse ware storage vessel (ML/C/c75). One of the amphora handles

had been reused as a polissoir and only the edge of a circular stamp could still be distinguished. The reuse of handles to this effect is well attested at Mleiha, as well as at other sites. The second stamped handle is unfortunately also damaged and merely the final letter A is distinguishable.

Tomb T7. (Pl. 17 - 18)

Tomb T7 is located in squares G11-12. Like at most of the major tombs (P5, P21...), the looters had accessed the burial chamber from the South side, causing the collapse of the central and south part of the upper construction. What remains of the surface monument is a mud brick platform of 3.04 by 2.85 meter, constructed with up to 4 layers of square (35 x 35 x 10 cm) and occasional half sized mud bricks (20 x 35 x 10 cm). The lower part of the 2.30 by 1.25 meter large burial pit is dug through the compacted gravel layer into the virgin marl. In its NW corner is a shallow, rectangular depression of 66 by 40 cm. Three more rows of bricks raised the height of the burial chamber some 40 cm, holding back the natural loose gravel layer. The lowest one is laid with lime bricks, in all probability to stop water infiltration into the burial chamber. The upper two layers are common mud brick. These brick rows were overhanging, creating a stepped roof (see Pl. 18). The apex of the chamber was closed with transversal wooden beams set in mortar, laid across the full width of the burial chamber. Their remains can be seen on Pl. 18. Four parallel beams with diameters of 10 to 13 cm and separated by gravel could be distinguished. It seems gravel was once again used to level the top of the burial chamber on which the mud brick platform was constructed. This shows a striking similarity with the construction methods used in the above discussed tomb P21. Its section drawing also suggests its burial chamber had a stepped roof (Pl. 8).

The tomb had been thoroughly robbed and only a corroded bundle of 9 iron arrowheads (L. 7.6 cm; inv. ML22/f12) and some 20 sherds of Rhodian amphoras (ML22/c70) were found.

Features 4, 8 and 12: Graveyard Platforms. (Pl. 3, 19 - 22)

Two, possibly three, square mud brick platforms with their corners oriented to the cardinal points were registered. This orientation is markedly different from that of the area C tombs and they

also share an apparent preference for the use of half sized mudbricks. Their function remains a mystery. Although we cannot rule out that they covered simple pit burials in the upper loose gravel layer (without a delineated and constructed burial room), they may have been simply platforms related to one or more of the nearby graves and used for social or ritual gatherings. Like the ed-Dur platforms mentioned above, they had unfortunately been disturbed by looters.

Feature 4 in squares G & H4 was a large platform, made of 2 layers of mud bricks. Looters' pits had destroyed the center and SE part (Pl 29: the outline of the pit continues below the platform). The neck fragment of a Rhodian amphora was found in one of the pits but they contained no other ceramics or finds. An irregular gravel patch underneath the platform prompted the excavation of a N-S and an E-W test trench to look for possible burial traces. The trenches were dug well into the compact gravel and marl but revealed no indications of burials. If the platform ever covered a burial, it must have been in the top loose gravel layer, just underneath the platform. Given the evidence from feature 3 discussed infra, this is not impossible but at present, there is no convincing evidence.

Feature 12 in square G12 is a small platform made of 2 layers of mud brick just to the North of grave T10 (Pl. 21). The 11 cm thick bricks are square (ca. 33 x 33 cm) or half sized (ca. 35 x 13 cm). Some displaced bricks can be seen around the remaining platform and around a circular looters' pit. The pit was emptied but did not go beyond the loose gravel layer. It did show that the platform was constructed on top of the sand layer above the loose gravel. Due to time constraints, the platform itself was not further excavated.

Feature 8 in square H11 is more difficult to interpret (Pl. 22). It may have been a platform since it shares the same orientation as features 4 and 8 and is also made of 2 layers of mud brick but it is severely damaged. Only parts of the SW and NW sides were well preserved, the eastern and central part was completely destroyed, only patches of decayed mud brick remained. Lime brick debris from the collapse of the P5 facade was present in the central area and in a looters' pit in the North part. If reconstructed to a square shape, the platform would have been ca. 2.5 by 2.5

meter. Although this appears plausible, too little remains to exclude the possibility that these could be the remains of wall constructions rather than a platform. Two large postholes with a diameter of about 16 cm are visible in a patch of decayed mud brick along the SE side.

Once the debris and platform fragments were removed, a more or less rectangular patch of ca. 1.20 x 2.70 m with loose gravel stood out from the loamy surface. A trench was excavated and the top of the natural layer of compact gravel was reached after 40 to 45 cm without any indications of a burial. To register the subsoil layers, part of this trench was dug another 60 cm, through the virgin compacted gravel and marl layers.

At present, there are no indications that these platforms were constructed on top of burials but this possibility cannot be excluded. Feature 3 suggests that burials in the top loose gravel layer are a possibility (see *infra*) and looting could account for the absence of finds or human remains. The alternative orientation of the platforms distinguishes them from the tombs, however, and may suggest another function.

Tombs with a rectangular plan

At all the main clusters of tombs with square superstructures, be it towers, rooms or simply platforms, there are more modest tombs attested in the immediate surroundings and occasionally also in-between the major tombs. How these were marked on the surface remains usually unknown but it seems that at least in area C, most of them were covered with a simple gravel mound. This is not surprising as excavated gravel was left over when a burial chamber was made. The size of the tomb chambers of these “minor” graves vary in area C between ca. 150 x 90 (T10) and ca. 220 x 130 m (T2). In fact, the tomb chamber of T2 is larger than those of some of the “monumental tombs”. Although it is rectangular, this ties it to e.g. tomb P52 discussed above, a major square shaped tomb that is also covered with gravel and lacks a superstructure. One grave (T3) stands out because it lacks a constructed burial chamber and it seems the deceased may simply have been buried in the loose gravel layer.

Tomb T1. (Pl. 23)

The trench on the East side of the monumental tomb P51 cut through another grave, unfortunately also looted. Its construction is similar to that of the other smaller graves and since it was void of any finds or sherds, it was not further excavated. The profile shows the looters’ pit filled with sand in the center of the broad, 1.95 m wide construction pit that had been backfilled with gravel. The actual 0.51 m deep burial chamber was dug in the lower compacted gravel layer and into the top of the marl of which merely 10 to 12 cm was dug out. The burial chamber had been closed with long but relatively thin wooden beams. Wood remains are still visible on Pl. 23 (next to the scale) as well as a plaster covered beam with a diameter of 5 cm. The beams were embedded in a thick plaster border around the burial pit. On the south edge of the pit were also some lime brick stone fragments that must have topped the layer of beams. The lime plaster layer would have prevented possible water infiltration. This part of the graveyard immediately borders the wadi and is prone to regular flooding and contrary to the lower compacted gravel layer, the loose gravel layer is very water permeable.

Tomb T2. (Pl. 24-28)

Tomb T2 is located in squares H11 and 12 and most of the top layer of gravel had already been removed during the 1980s excavations. Cleaning the surface revealed a more or less rectangular gravel patch of 4.20 x 3.15 meter that was neatly cut out from a lime coated surface layer. A series of postholes is visible along its Western limit (Pl. 25). As far as can be deduced, this surface layer corresponds to the level on which tomb P5’s tower was originally erected and which was subsequently covered by the gravel mound of P5. The profiles with the limit of the gravel fill on Pl 24 (top) and 26 (bottom) prove that the construction pit for the tomb was dug from an already much higher level than the lime coated surface which would indicate that the tomb postdates P5.

The tomb had been thoroughly plundered and a large sand patch is visible in the center of the gravel fill (Pl. 24 top). The rectangular burial pit of 2.20 by 1.30 meter was originally covered with transversal beams that seem to have been first weighed down along the edges with a few

irregularly positioned mud bricks (31/32 x 36 cm) and then covered with gravel. Traces of the wooden beams were still discernable. The tomb chamber had roughly the same construction as P75 discussed above but was slightly higher inside, ca. 1.50 meter measured from the floor to the level of the transversal roofing beams. The lower part was dug out in the compacted gravel and marl layers and was topped by three rows of large lime bricks (ca. 37/39 x 35 x 9/11 cm). Unusual was however, the construction of the South wall. It was not built on top of the compacted gravel layer like the other walls, but raised inside the tomb against the southern limit of the dug-out pit. The lower part fills the full width of the pit while the three top rows bind with the side walls' bricks, proving that they were all laid at the same time. There is no obvious reason why this was done; the excavation of the exterior showed that the compacted gravel layer behind the wall was undisturbed. The floor of the tomb chamber had two ca. 40 cm deep rectangular ditches of 98 by 40 and 95 by 30 cm (Pl. 27).

Very few finds remained in the fill of the tomb (Pl. 28). A few sherds, among them a Rhodian amphora handle with double repair holes and the rim of a coarse ware vessel, some shells, fragments of two small calcite vessels and a fragment of an double-edged iron sword blade can be mentioned. Several lime brick fragments were found in the fill. In one of the trenches in the burial chamber's floor was a crenelation that once crowned a building, possibly the adjacent P5 tower. Its slightly irregular shape indicates that it was produced in the same mold as one of the crenelations that was found by the French archaeologists (compare Pl. 6 and 27).

Feature 3. (Pl. 29)

Feature 3 consists of a rectangular gravel patch that was distinguished at the same level as that of the neighboring tomb 5 but it was slightly smaller. A sandy patch in its NW corner suggested that it was a tomb that had been looted. Along the edges of the patch and partly embedded into the gravel were disarticulated human remains. Some bones could be retrieved individually, the skull and other parts of the skeleton were removed in one block to be studied later. The sandy patch turned out to be very shallow and did not reach into the compacted gravel or marl layers in which

the tombs are commonly dug out. No sherds or finds were discovered. Possibly, this was a very shallow pit grave without any burial chamber construction. Although it cannot be excluded that the human remains came from another grave and were disposed of in a random (looters' ?) pit, the rectangular gravel patch does have the characteristic surface shape of other tombs in the vicinity.

Tomb 5. (Pl. 30-33)

The orientation of tomb 5 differs from the other tombs and is closer to that of the adjacent platform 4 with its corners directed to the cardinal points. The ca. 2.75 by 2.10 m large gravel rectangle had two circular sandy patches in the center, obviously looters' pits. These pits were filled with sand and lime brick debris, including two long complete bricks near the floor (Pl. 31).

A trench through the gravel patch left three of the sides unexcavated but included the ca. 0.80 m deep burial chamber whilst providing complete sections of the upper gravel fill of the tomb. The ca. 1.50 x 0.85 m burial chamber, which was excavated in the compact gravel and marl layers, was located to one side of the construction pit and closed with wooden beams set in lime plaster. The black colored remains of the wood clearly stand out in the side profiles on Pl. 33.

A few sherds, including some fragments of a green glazed table amphora and a Rhodian amphora were found in the burial chamber, as well as 4 cowrie shells with a cut of dorsum and remains of iron weapons. These include at least 16 arrowheads, as well as small fragments of a heavy forwards curved single edged blade and of a double-edged sword, a familiar combination from Mleiha tombs. These fragments left by the looters were intermingled and buried beneath the lime brick debris. Given the location of the tomb (Fig. 1, Pl. 3), it is quite possible that this lime brick debris is still collapse material of the P5 tower that fell into the robbers' pits.

Tombs 6, 9, 10 and 11. (Pl. 34 - 36)

These four tombs in squares G11 and 12 are all of an identical construction and size. They were visible as rectangular gravel patches with large sandy spots in the center (Pl. 34), indicating the

looters activities (compare tomb 5, Pl. 30). All four tombs had been thoroughly looted. Tomb 6 still contained a small bronze ring and few green glazed sherds from a table amphora (Pl. 35); tomb 9 a few fragments from a Rhodian amphora (Pl. 34). Due to time restrictions, only the construction of tombs 6 and 10 could be studied in more detail.

| Tomb | Burial chamber (L x W ; Depth) | Construction (Floor to top) |
|------|--------------------------------|---|
| 6 | ca. 155 x 92 ; 89 cm | marl / compacted gravel / 2 rows mud brick / beams & lime plaster/ gravel |
| 9 | ca. 150 x 98 ; 83 cm | marl / compacted gravel / 1 row lime brick / beams & lime plaster/ gravel |
| 10 | ca. 150 x 90 ; 88 cm | marl / compacted gravel / 1 row lime brick / beams & lime plaster/ gravel |
| 11 | ca. 150 x 95 ; 80 cm | marl / compacted gravel / 1 row lime brick / beams & lime plaster/ gravel |

The burial chambers were dug-out in the virgin marl and compacted gravel layers and then their height was raised by one to two rows of bricks. Lime bricks were preferred as they hold back water infiltration. Mud brick was only used in tomb 6 but in this case a lime plaster coated the walls. Wooden beams set in lime plaster closed off the burial chamber. Pl. 36 shows the imprints of the round wooden beams that were laid across the tomb chamber, centered approximately every 14 cm. A single mud brick was left above the level of the beams along the East side of tomb 10, which suggests that bricks were occasionally used to weigh down the ends of the beams (compare tomb 2, Pl. 24-25).

Concluding remarks

The 2021/22 excavations in Area C built on the Iraqi and French excavations and allowed us to reveal new information that adds to our understanding of the graveyard's lay-out, the construction methods and its chronology. The height of the lime brick tower on top of tomb P5

can now be estimated to have been at least 6.5 to 7 meter. Furthermore, a low mound was raised against its base, apparently a common feature as it was also attested around P21. Nearby postholes suggest that ephemeral constructions may have been present in the graveyard, as well as square platforms. Possibly, these are linked to social gatherings or ritual activities that must have taken place in the graveyard.

The evidence also suggests that not all the larger tombs may have had brick rooms or towers on top, some may have had merely brick platforms or even ephemeral structures. Noteworthy is the absence of any brick construction on the large square tomb P52; it was only topped with gravel. The raising of a simple gravel mound on top of a grave appears to have been the most common practice at the graveyard, particularly for the smaller sized graves.

The burial chambers were dug out in the virgin marl and compacted gravel layers and then bricks were added to raise the walls. The location of area C at the edge of the wadi was prone to occasional floodings which not only explains the choice to build the largest and oldest (?) tombs on the low natural mound but also the care that was taken in the choice of materials. Lime brick was preferred above mudbrick in the underground constructions and when it was not available, lime plaster coatings were used on the chamber's walls. The roof beams were set in a thick package of lime plaster, which again, would prevent water infiltration into the burial chamber. Lime bricks were undoubtedly more labor intensive to produce and are altogether sparsely used, mostly only for foundations, the base of walls, large slabs with funerary inscriptions and the decorative borders with crenelations used at the top of buildings. The use of lime bricks for complete walls or buildings is exceptional and up to now only with certainty attested at area C (tomb P5) and at Mleiha 5. The exceptional preservation of complete collapsed walls at these two locations – which allowed the reconstruction of the monuments' heights – demonstrates the quality of the material.

All the tombs had been plundered and they held very few finds or diagnostic sherds. However, together with diagnostic surface sherds (Pl. 37-38), they all confirm the Early Mleiha phase (PIR

A/B) date for graveyard C. The notable presence of Rhodian amphora and the find of yet another amphora stamp from the first half of the 2nd century BCE suggest that the 2nd century BC may have been the principal period of use.

List of Plates

Pl. 1. Mleiha Area C. Top left: plan of the 1986-89 French excavations (Mouton 2008: fig. 6). Top right and bottom: aerial views of Area C, December 2014.

Pl. 2. Mleiha Area C. Top: the 2021-22 excavations in progress. Bottom: Area C at the end of the campaign, 30 January 2022.

Pl. 3. Mleiha Area C. Plan combining the Iraqi (1973), French (1986-89) and Belgian excavations (2021-22). Blue numbers indicate tombs located by earlier excavations that were reexamined, red numbers are newly revealed features.

Pl. 4. Mleiha Area C: Monumental tomb P5. Top: photo and drawing of the tomb by the 1973 Iraqi expedition. Center: View from the West of the 1989 French excavations. Bottom: Tomb P5 at the start of the French excavations in 1986. (Top: Madhloom 1974, plan 4 & Pl 8A; center & bottom: Mission archéologique Française à Sharjah 1986-89).

Pl. 5. Mleiha Area C: Monumental tomb P5. Top: view of the 1989 excavations. Bottom: plan and sections produced by the French team. (photo & plan: Mission archéologique Française à Sharjah 1986-89)

Pl. 6. Mleiha Area C: Monumental tomb P5. Top: Front of the tomb and detail of the lime plaster crenelations found next to the platform (photo Mission archéologique Française à Sharjah 1986-89). Center: lime plaster crenelations discovered in 1986-89 (after Mouton 2008: fig. 8). Bottom: view on the collapsed lime brick wall in front of tomb P5 (photo Mission archéologique Française à Sharjah).

Pl. 7. Mleiha Area C: Monumental tomb P5. Top left: Plan of tomb P5 and the position of the wall collapse; the alignment with the NW-corner of the remaining base is indicated in red (plan: Mission archéologique Française à Sharjah 1986-89). Top right: Falling brick chimney illustrating

the rotational movement causing a breakage at 1/3rd to half of its height due to mechanical stress (credit: Nobles TCL). Bottom: Repositioning of the collapse (left) and tentative reconstruction of the monument (right).

Pl. 8. Mleiha Area C, tomb P21. Top: situation at the end of the 1986-89 excavations. Center: Location of P21 in the East-West trench. Bottom: Sections of Tomb P21. (Illustrations Mission archéologique Française à Sharjah 1986-89)

Pl. 9. Mleiha Area C, tomb P21. Exposed part of the tomb's foundation and section of the mound raised against the tomb.

Pl. 10. Mleiha Area C, tomb P21. Exposed part of the tomb's foundation.

Pl. 11. Mleiha Area C, tombs P75 and P5. Top: situation at the start of the 1986-89 excavations. Center: location of P75 underneath the wall collapse of P5. Bottom: Plan of tombs P5 and P75 and the collapse of the P5 lime brick wall. (Illustrations Mission archéologique Française à Sharjah 1986-89)

Pl. 12. Mleiha Area C, tomb P75. Top: excavation of the looters' pit in the center of P75, note the lime brick fragments present in the fill. Bottom: tomb P75 after excavation with the two trenches and pits dug out in the floor.

Pl. 13. Mleiha Area C, tombs P75 and P5. Top: frontal view on the tomb P75 mud brick platform. Center: Indication of the mound raised against P5, overbuilt by the P75 platform. Bottom: section of the mound raised against the West side of P5 (drawing and photo: Mission archéologique Française à Sharjah 1986-89).

Pl. 14. Mleiha Area C, tomb P75. Top: Floor of the tomb, a pair of trenches with 4 hollowed out cavities, probably stands for storage vessels. Bottom right: bundle of iron arrowheads found in the fill of tomb P75 (ML22/C/F1). Bottom left: fragmentary beehive shaped vessel, calcite (ML22/C/F2).

Pl. 15. Mleiha Area C, tomb P51. View after the removal of the topsoil. Note the large patch of decayed mud brick along the East and South side, probably from the demolition of the center of the construction. The large oval looters' pit is clearly visible.

Pl. 16. Mleiha Area C, tomb 51. View during (top) and at the end (bottom) of the excavations. A Rhodian amphora handle and the rim of a large coarse ware storage jar were among the finds in the fill of the looters' pit.

Pl. 17. Mleiha Area C, tomb 7. Side and top view of the tomb at the end of the excavation.

Pl. 18. Mleiha Area C, tomb 7. View of the excavated tomb and identification of the various materials. The blue line indicates the stepped roof outline.

Pl. 19. Mleiha Area C, platform 4. Top and bottom left: square H11. Bottom right: square G11.

Pl. 20. Mleiha Area C, platform 4. Top and center: West - East section through platform 4. Bottom: trench through platform 4.

Pl. 21. Mleiha Area C, platform 12.

Pl. 22. Feature 8, platform or wall base (?). Top: Mud brick remains with two postholes and lime brick debris. Center: View of feature 8 and tombs P75 and P5 with indication of the mound around P5. Bottom: trench into the virgin compact gravel and marl layers.

Pl. 23. Mleiha Area C, tomb 1. Trench in square I15 cuts through a looted tomb.

Pl. 24. Mleiha Area C, tomb 2.

Pl. 25. Mleiha Area C, tomb 2. Top half of the tomb excavated and an alignment of postholes.

Pl. 26. Mleiha Area C, tomb 2.

Pl. 27. Mleiha Area C, tomb 2. View into the tomb chamber with 2 trenches in the floor. The lime brick crenelation (bottom photo) was found in the westerly trench (center photo).

Pl. 28. Mleiha Area C, finds from tomb 2. Top: two fragmentary calcite beehive shaped vessels. Center: shell finds; two of the shells have a removed apex. Bottom: a fragment of a Rhodian amphora handle with repair holes and a rim fragment of a SE-Arabian coarse ware bowl.

Pl. 29. Mleiha Area C, feature 3. Rectangular gravel patch with disarticulated human remains in a sandy pit (looters' pit?), partly removed in block for study.

Pl. 30. Mleiha Area C, tomb 5. Top: rectangular outline of the gravel layer with two sand-filled looters' pits in the center. Center: after removal of the gravel layer with the presence of lime brick fragments in the fill of the looters' pits. Bottom: vertical view of the tomb after excavation of the burial chamber.

Pl. 31. Mleiha Area C, tomb 5. Lime brick debris in the fill of the looters' pits.

Pl. 32. Mleiha Area C, tomb 5. Lime brick debris intermingled with iron weaponry fragments on the floor of the tomb chamber (top) and the fully excavated tomb (bottom).

Pl. 33. Mleiha Area C, tomb 5. Traces of the wooden beams set in lime plaster, used to close the tomb chamber.

Pl. 34. Mleiha Area C, tombs in square G11 and 12. Tombs 11 and 9 before and after excavation and Rhodian amphora fragments from tomb 9 (ML22/C/c71).

Pl. 35. Mleiha Area C, tomb 6. Top and center: Tomb during and after the excavations. Bottom: green glazed shoulder fragment of vase (ML22/C/c68) and bronze ring found on the floor in the NE-corner of the burial chamber (ML22/C/f22).

Pl. 36. Mleiha Area C, tomb 10. Top: tomb 10 after excavation. Center left: the imprint of the roof beams in the lime plaster around the burial chamber. Bottom right: detail of the burial chamber's south-side with from top to bottom, lime plaster, lime brick, compacted gravel (virgin layer) and marl.

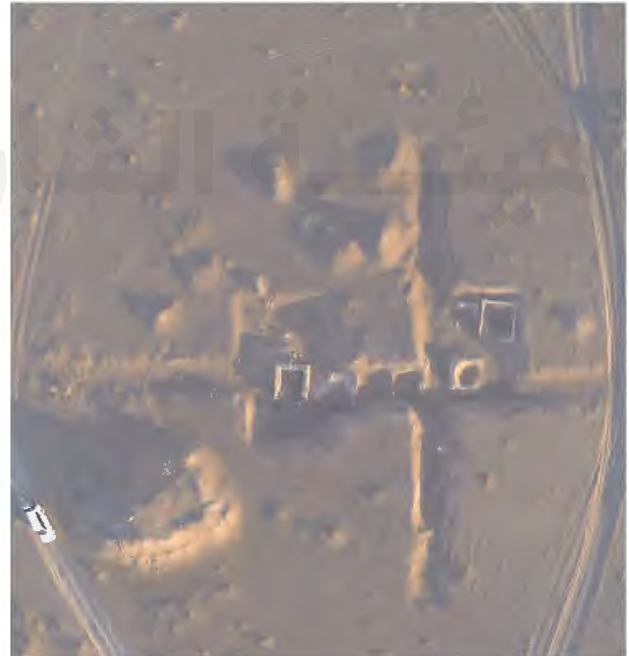
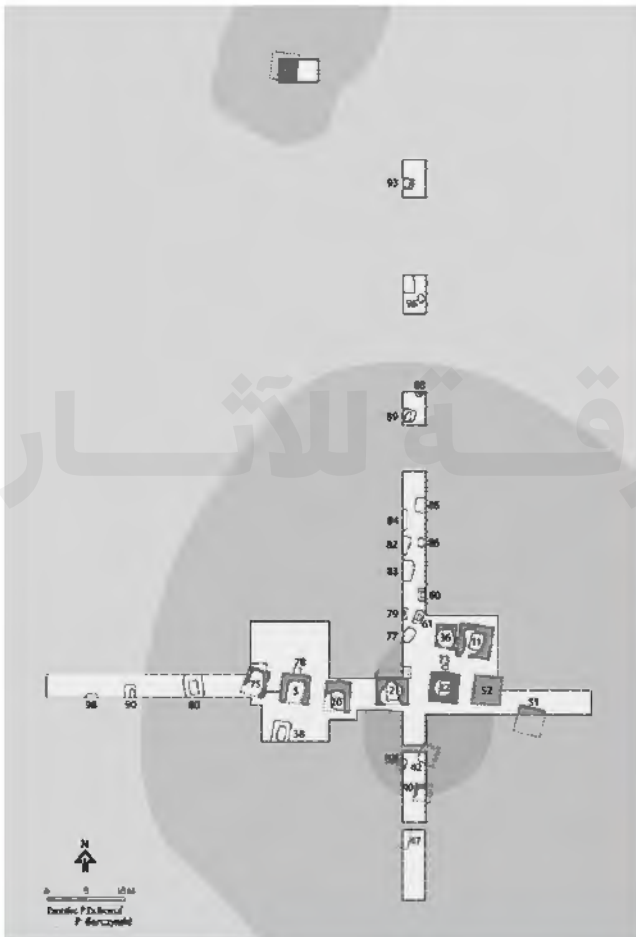
Pl. 37 Mleiha Area C, selection of ceramics from the surface layers. Top left: Rhodian amphora handle stamped with the eponym Symmachos and the month Panamos, 173/171 BCE (ML22/C/c80). Top right: coarse ware sherd of unknown production center with chrysotile mineral fibers as temper (ML22/C/c44). Center: rim sherd of a fine red painted bowl of SE-Iranian origin (ML22/C/c45). Bottom: table amphora sherds of South-Mesopotamian origin (ML22/C/c25, 30 and 51).

Pl. 38. Mleiha Area C, surface finds from the Mleiha graveyard areas. Top left: Rhodian amphora with the fabricant stamp of Kreon, 233-220+ BCE, surface find to the south-east of area C,

near to graves AV-Z. Top right: rim fragment from area C of an East or South-East Arabian coarse ware vessel (ML22/C/c61). Bottom: lime brick corner crenelation, surface find in area C, square J12.

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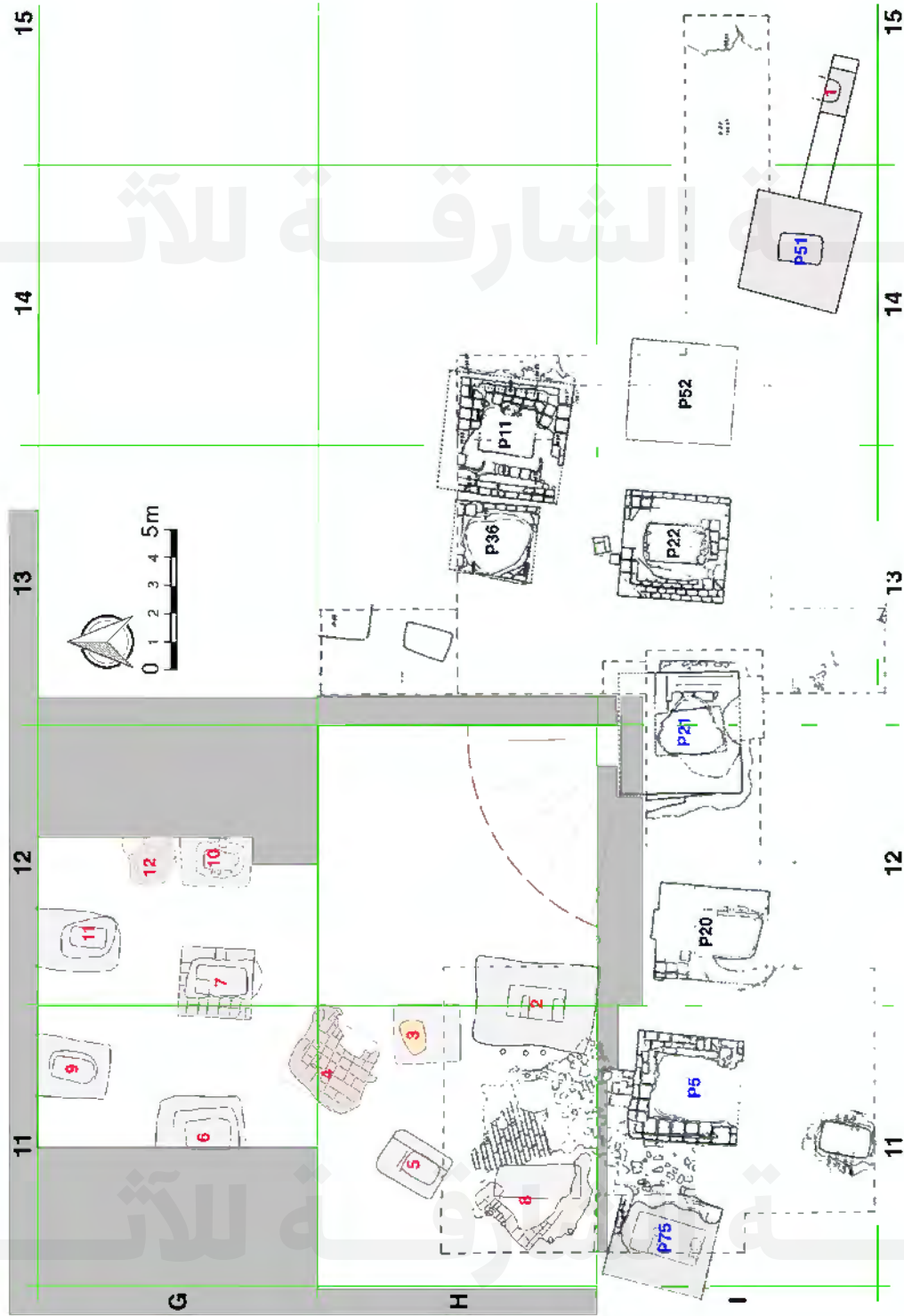
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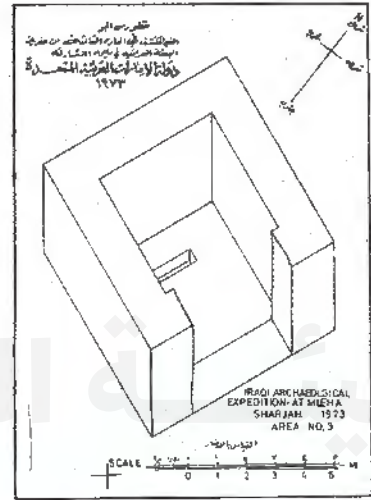
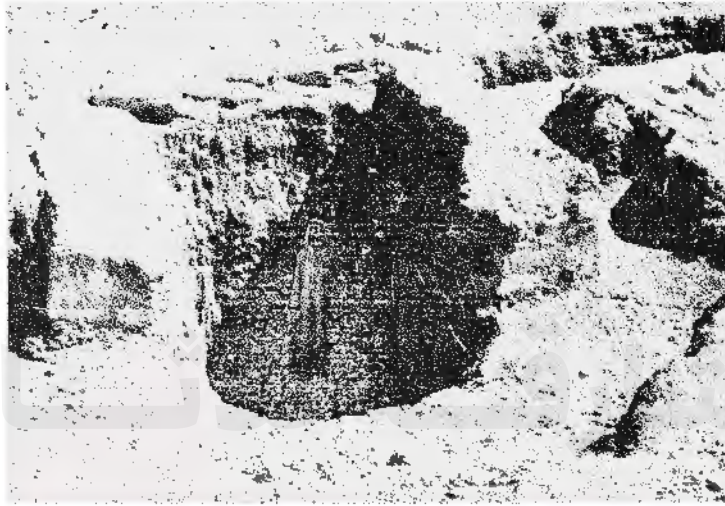
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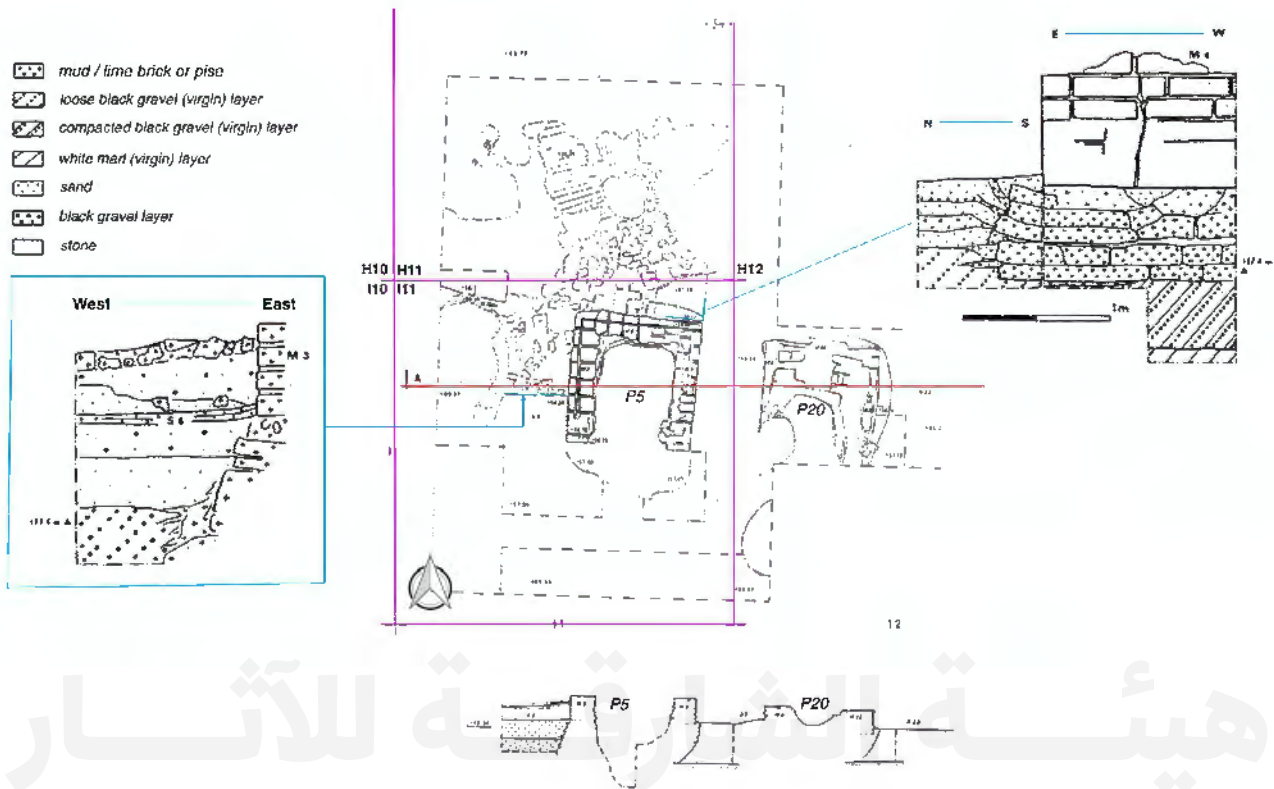
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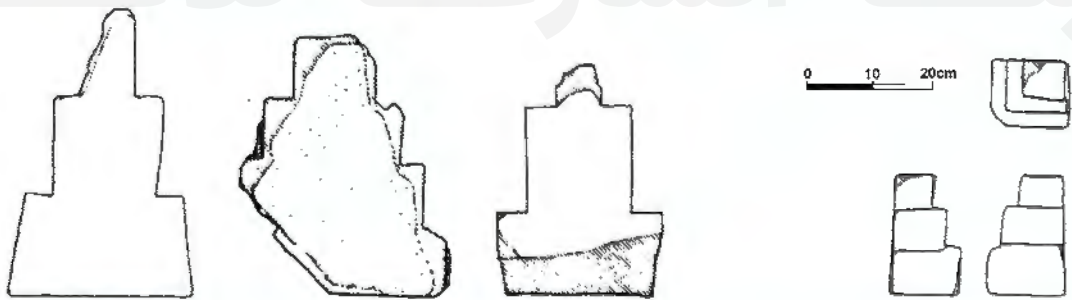
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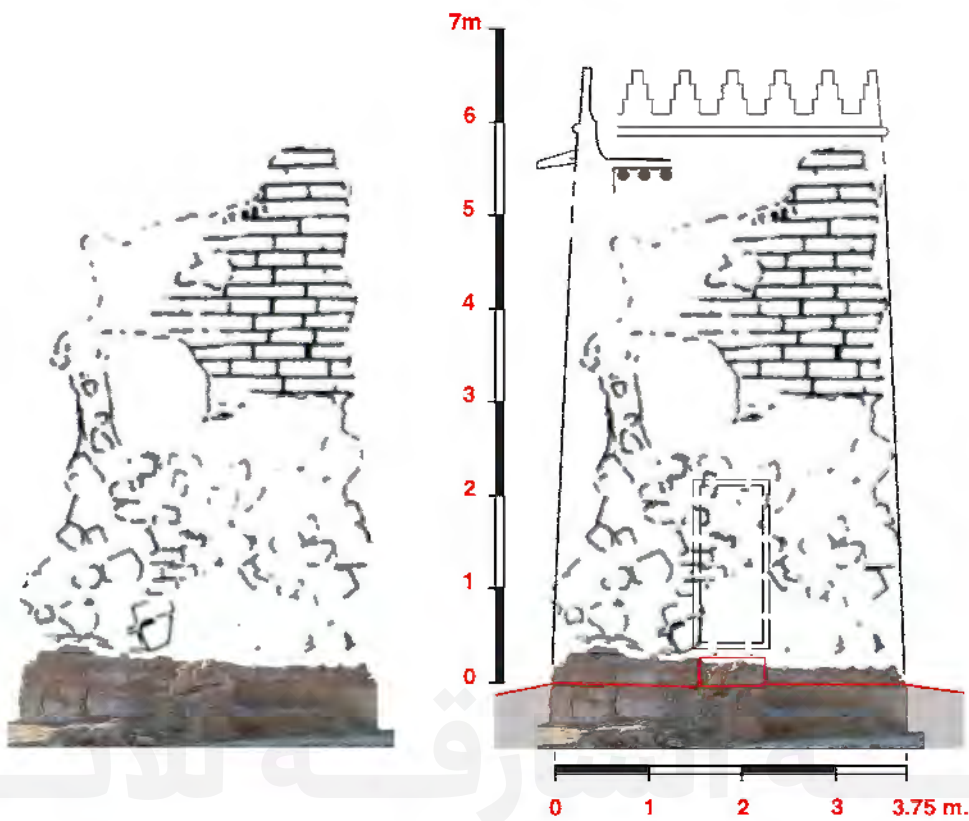
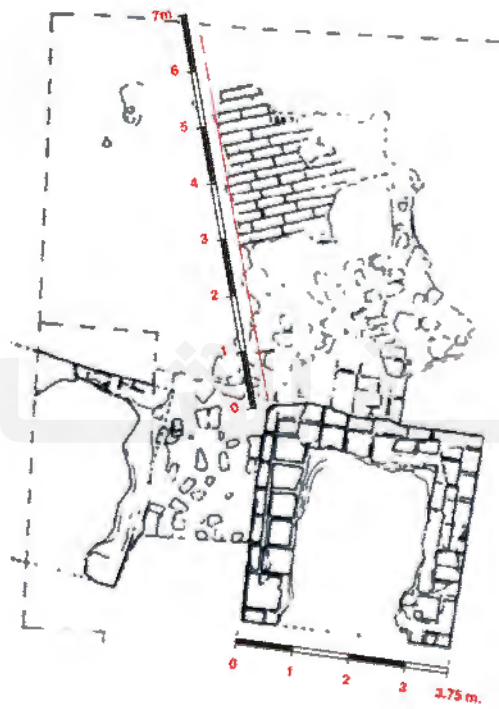
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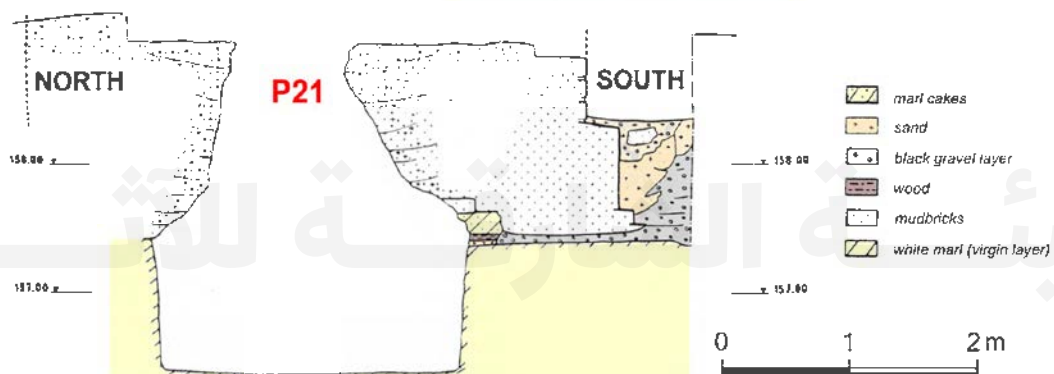
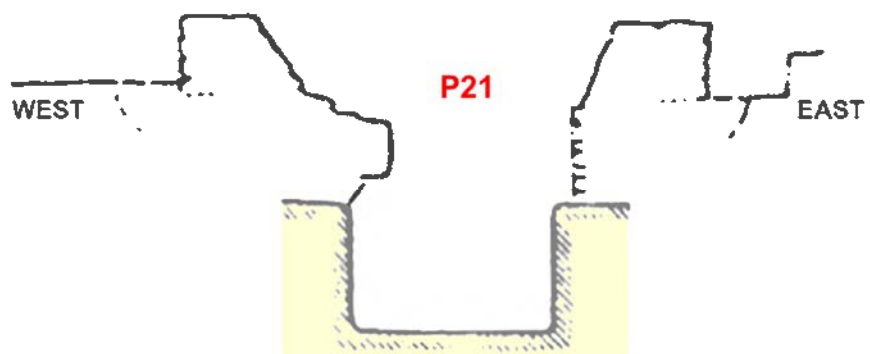
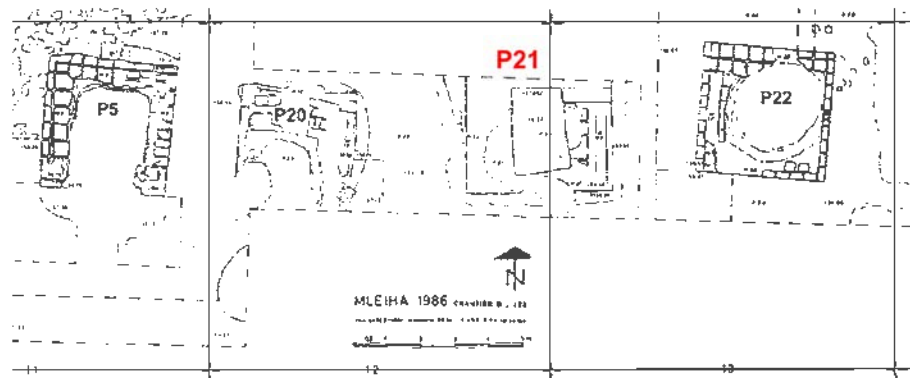
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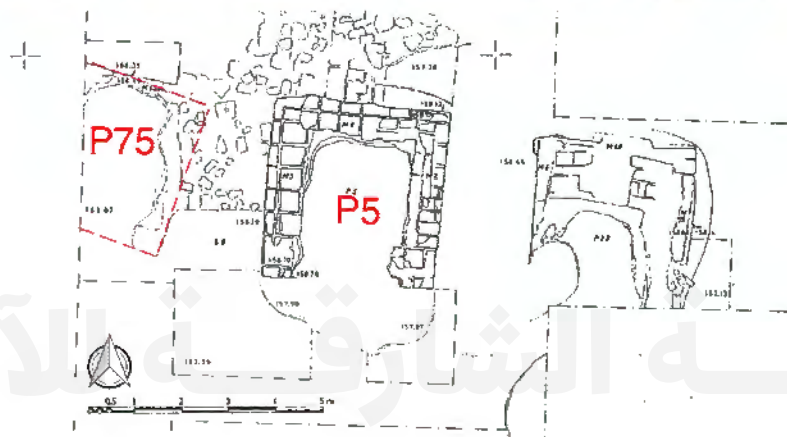
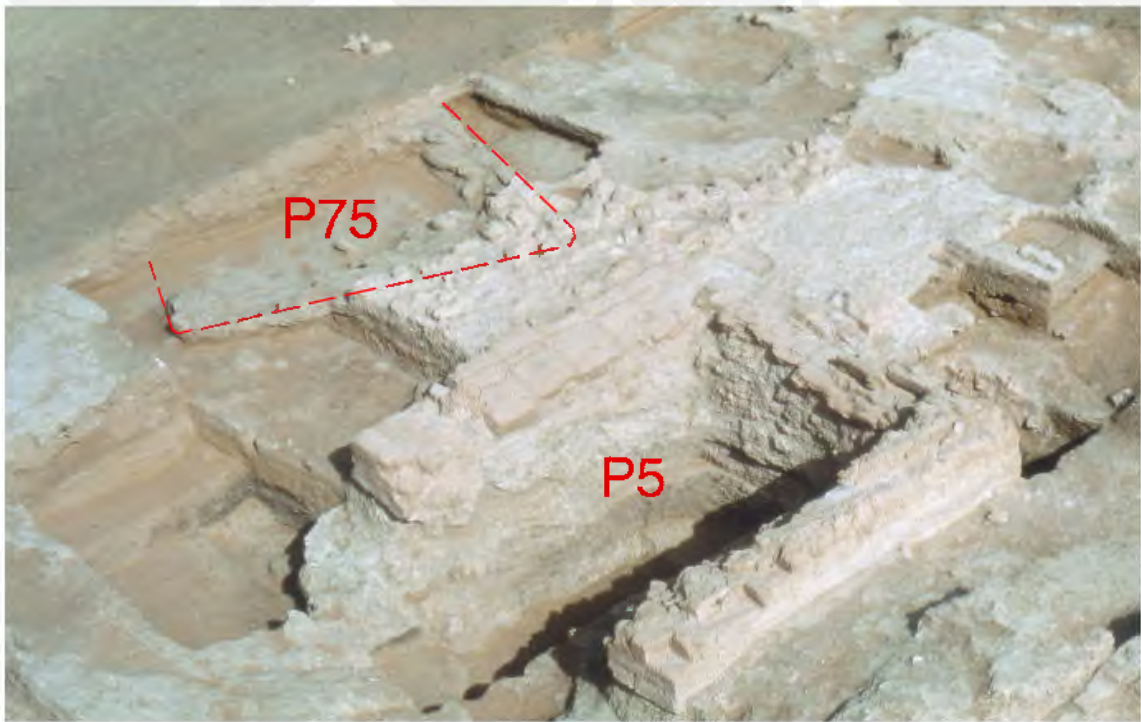
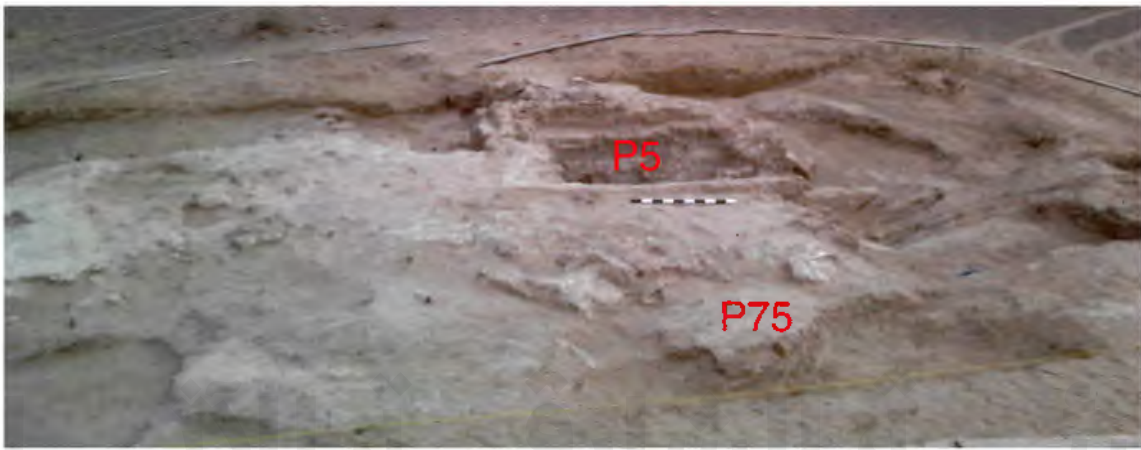
Pl. 8. Mleiha Area C, tomb P21. Top: situation at the end of the 1986-89 excavations. Center: Location of P21 in the East-West trench. Bottom: Sections of Tomb P21. (Illustrations Mission archéologique Française à Sharjah 1986-89)



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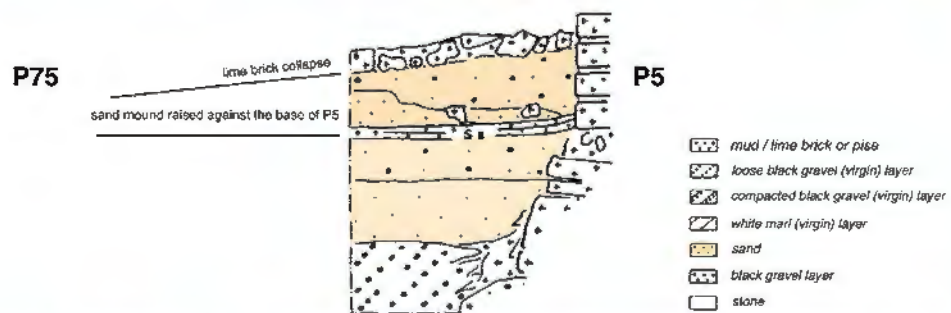
Pl. 10. Mleiha Area C, tomb P21. Exposed part of the tomb's foundation.



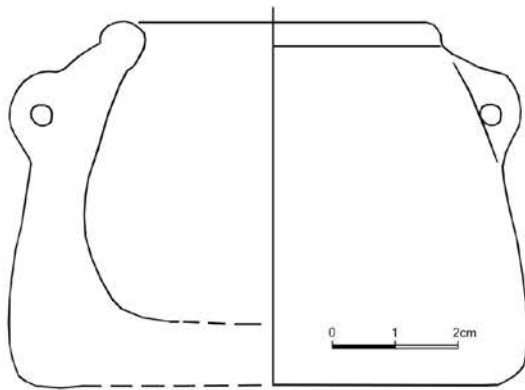
Pl. 11. Mleiha Area C, tombs P75 and P5. Top: situation at the start of the 1986-89 excavations. Center: location of P75 underneath the wall collapse of P5. Bottom: Plan of tombs P5 and P75 and the collapse of the P5 lime brick wall. (Illustrations Mission archéologique Française à Sharjah 1986-89)



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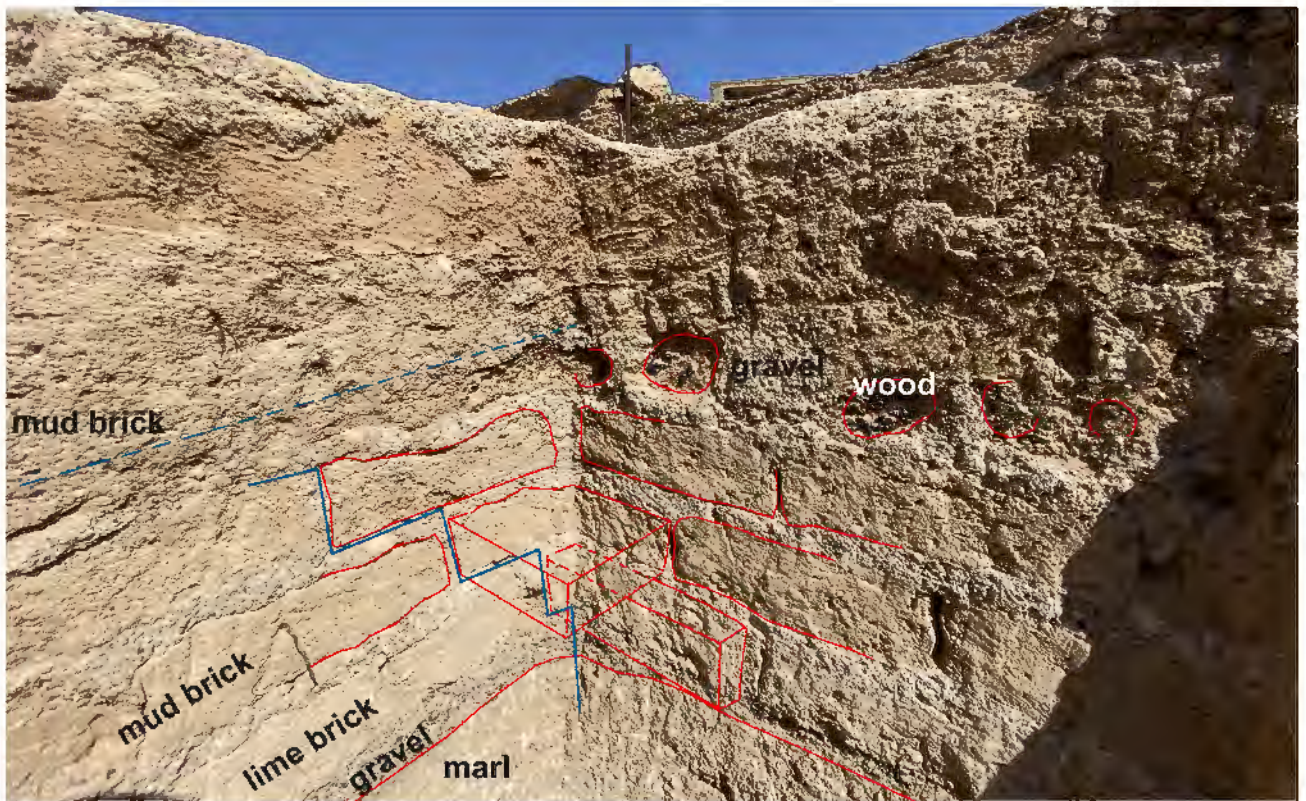
Pl. 15. Mleiha Area C, tomb P51. View after the removal of the topsoil. Note the large patch of decayed mud brick along the East and South side, probably from the demolition of the center of the construction. The large oval looters' pit is clearly visible.



Pl. 16. Mleiha Area C, tomb 51. View during (top) and at the end (bottom) of the excavations. A Rhodian amphora handle and the rim of a large coarse ware storage jar were among the finds in the fill of the looters' pit.



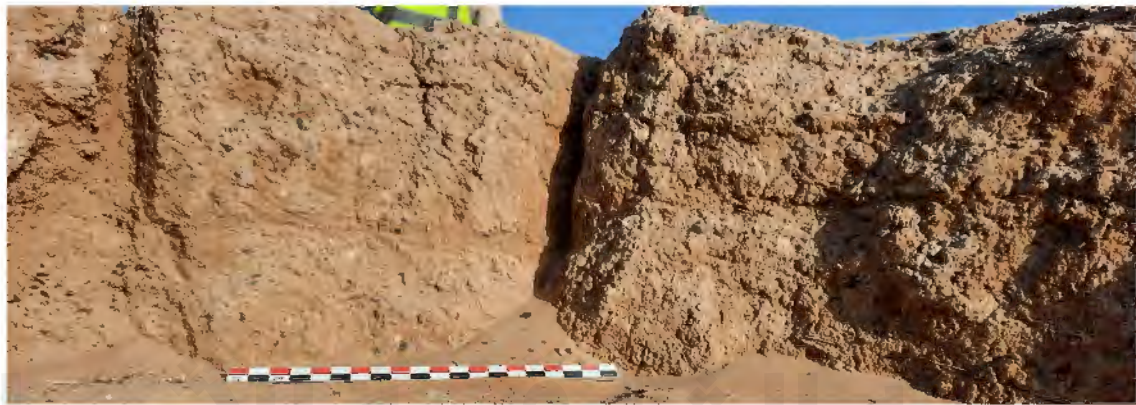
Pl. 17. Mleiha Area C, tomb 7. Side and top view of the tomb at the end of the excavation.



Pl. 18. Mleiha Area C, tomb 7. View of the excavated tomb and identification of the various materials. The blue line indicates the stepped roof outline.



Pl. 19. Mleiha Area C, platform 4. Top and bottom left: square H11. Bottom right: square G11.



Pl. 20. Mleiha Area C, platform 4. Top and center: West - East section through platform 4. Bottom: trench through platform 4.



Pl. 21. Mleiha Area C, platform 12.



Pl. 22. Feature 8, platform or wall base (?). Top: Mud brick remains with two postholes and lime brick debris. Center: View of feature 8 and tombs P75 and P5 with indication of the mound around P5. Bottom: trench into the virgin compact gravel and marl layers.



Pl. 23. Mleiha Area C, tomb 1. Trench in square I15 cuts through a looted tomb.



Pl. 24. Mleiha Area C, tomb 2.



Pl. 25. Mleiha Area C, tomb 2. Top half of the tomb excavated and an alignment of postholes.



Pl. 26. Mleiha Area C, tomb 2.



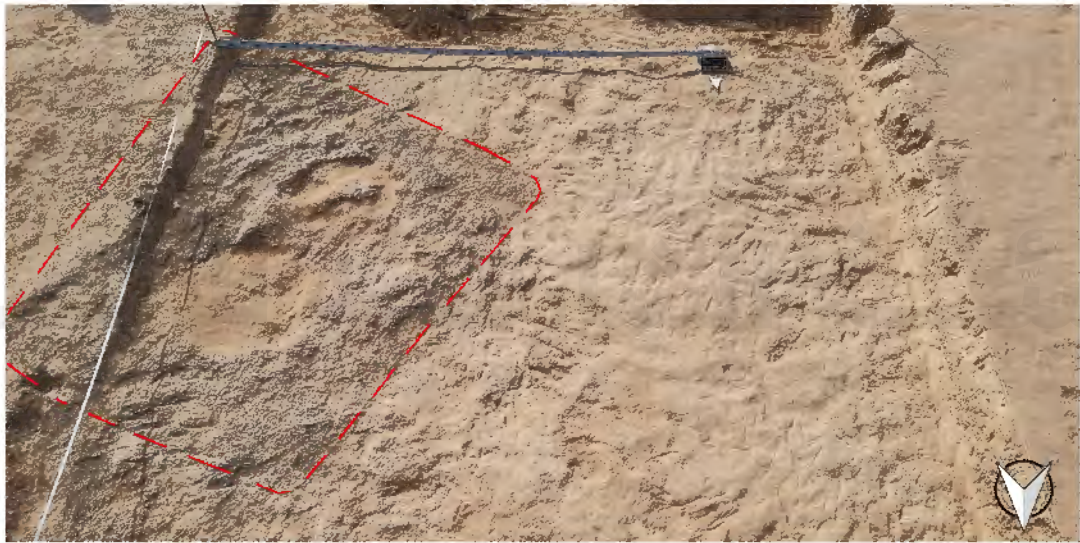
Pl. 27. Mleiha Area C, tomb 2. View into the tomb chamber with 2 trenches in the floor. The lime brick crenelation (bottom photo) was found in the westerly trench (center photo).



Pl. 28. Mleiha Area C, finds from tomb 2. Top: two fragmentary calcite beehive shaped vessels. Center: shell finds; two of the shells have a removed apex. Bottom: fragment of a Rhodian amphora handle with repair holes and a rim fragment of a SE-Arabian coarse ware bowl).



Pl. 29. Mleiha Area C, feature 3. Rectangular gravel patch with disarticulated human remains in a sandy pit (looters' pit?), partly removed in block for study.



Pl. 30. Mleiha Area C, tomb 5. Top: rectangular outline of the gravel layer with two sand-filled looters' pits in the center. Center: after removal of the gravel layer with the presence of lime brick fragments in the fill of the looters' pits. Bottom: vertical view of the tomb after excavation of the burial chamber.



Pl. 31. Mleiha Area C, tomb 5. Lime brick debris in the fill of the looters' pits.



Pl. 32. Mleiha Area C, tomb 5. Lime brick debris intermingled with iron weaponry fragments on the floor of the tomb chamber (top) and the fully excavated tomb (bottom).



Pl. 33. Mleiha Area C, tomb 5. Traces of the wooden beams set in lime plaster, used to close the tomb chamber.



Pl. 34. Mleiha Area C, tombs in square G11 and 12. Tombs 11 and 9 before and after



Pl. 35. Mleiha Area C, tomb 6. Top and center: Tomb during and after the excavations. Bottom: green glazed shoulder fragment of vase (ML22/C/c68) and bronze ring found on the floor in the NE-corner of the burial chamber (ML22/C/f22).



Pl. 36. Mleiha Area C, tomb 10. Top: tomb 10 after excavation. Center left: the imprint of the roof beams in the lime plaster around the burial chamber. Bottom right: detail of the burial chamber's south-side with from top to bottom, lime plaster, lime brick, compacted gravel (virgin layer) and marl.



Pl. 37 Mleiha Area C, selection of ceramics from the surface layers. Top left: Rhodian amphora handle stamped with the eponym Symmachos and the month Panamos, 173/171 BCE (ML22/C/c80). Top right: coarse ware sherd of unknown production center with chrysotile mineral fibers as temper (ML22/C/c44). Center: rim sherd of a fine red painted bowl of SE-Iranian origin (ML22/C/c45). Bottom: table amphora sherds of South-Mesopotamian origin (ML22/C/c25, 30 and 51).



Pl. 38. Mleiha Area C, surface finds from the Mleiha graveyard areas. Top left: Rhodian amphora with the fabricant stamp of Kreon, 233-220+ BCE, surface find to the south-east of area C, near to graves AV-Z. Top right: rim fragment from area C of an East or South-East Arabian coarse ware vessel (ML22/C/c61). Bottom: lime brick corner crenelation, surface find in area C, square J12.

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INDEX

| | |
|---|-----|
| Imported and local Cylinder Seals in the Oman Peninsula | 8 |
| Report on the 2020 Austrian Archaeological Expedition at Kalba (K4) Peninsula | 23 |
| Report on the 2022 Austrian-German Archaeological Expedition at Kalba (K4) | 33 |
| Excavations of Dibba Al Hisn Fort 22-2020 seasons: Sharjah | 44 |
| Mleiha graveyard Area C (Sharjah, U.A.E.) | 151 |
| Ground-truthing the Area F-North GPR survey | 202 |
| Report on the 2023 season of the German Archaeological Mission | 208 |



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