

IMTO – Italian Mission to Oman

University of Pisa

SUMHURAM

Preliminary Report

October - December 2016 (SUM16B)



PRELIMINARY REPORT (SUM16B)

October – December 2016

The second IMTO's campaign of 2016 (SUM16B), under the direction of prof. A. Avanzini, started on October 1st and ended on December 8th 2016.

Excavation was performed in three areas with different goals.

In Area F, the room A227 and A228 was excavated together with the northern part of the building BF8. A deep sounding was also made in front of the main temple, to check the level of foundation of the building and the stratigraphy of the square A20.

In Area G, a new building was individuated, immediately to the North of the storehouses.

In Area H, in the squares 1/7-8 to make a more easy path for the tourists.

Excavations were conducted on the field by Prof. Yuri Vinogradov, dr. Cleto Carbonara, dr. Carlotta Rizzo, Mr. Said al Mashani, with senior students Roberta Gooni, Martina Leonardi and Giulia Pizzato.

Prof. Vinogradov, dr. Vittoria Buffa, dr. Cleto Carbonara and dr. Carlotta Rizzo were responsible for documentation of pottery finds and objects.

Arch. Alessandro Massa was responsible for the architectural survey, the CAD digitalization and the updating of the plans of the city.

Architect Emiliano Mura was responsible for the restoration activities carried on in the site.

The work of IMTO has been possible thanks to the collaboration of the Office of the Adviser of His Majesty the Sultan for Cultural Affairs in Salalah and in Muscat, in particular Ghanem al Shanfari, Said al Mashani, Ali al Kathiri, Said al Amri, Said al Salmi, Hassan al Jabri. We thank them all, together with all the Museum's team, for their kind helpfulness.

Sumhuram Preliminary Report SUM16B

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Archaeological Report

Excavations at Area F, A227 (trench supervisor Yuri Vinogradov)

One of the main aims of campaign at Area F during SUM16B was the full investigation of the room **A227**, started in SUM16A. The excavations of this room were stopped at the elevation of 25.79 m, when **US850 floor** was studied.



A227 before excavations, view from the west.

The works of the campaign SUM16B were started from this level. The first investigated layer was **US 893**; its thickness is 3 cm only. The layer consists of rather compact brownish loam with stones of small size. Finds: fragments of animal bones, some fragments of pottery and two pieces of lime plaster. Concentration of stones of medium size is fixed in the central part of the room.

Ones removed the US893, we reached the new layer **US895** and begun its study from the level 25.76 m. The structure of this layer is similar with the upper one but with little mixture of ash and inclusions of stones of small and medium size. Finds: fragments of bones, potsherds, small spindle ware, iron nail.

On this level in the southern and eastern parts of the room and especially near the wall M 600 **lenses of ash** were fixed. They have an oval form and different size: 0.45 × 0.26 m, 0.06 m deep; 0.27 × 0.25, 0.05 m deep; 0.41 × 0.26, 0.07 m deep. The longer lenses were concentrated near the wall M600: 0.67 × 0.32, 0.07 m deep; 0.86 × 0.42, 0.13 m deep.



Spots of ash lenses on the surface of US895, view from the west



The ash lens near the entrance to the room A228, view from the north-west

Two very shallow lenses were in the area near the wall M 603: $0.81 \times 0.21-0.32$, 0.04 m deep and 0.58×0.33 , 0.06 m deep. One lens was near the stone slab of the threshold of the door to the room A228: $0.58 \times 0.24-0.30$, 0.08 deep.

It's distinct that ash was strewed in these parts of the room many times. It was a hot ash, because a clay layer on the borders of these lenses is burned. These contexts were studied separately – **US897**. Many fragments of animal bones and some potsherds were found here.

The **floor** of the room (**US895 floor**) was reached at the elevation 25.65 m. Some logjam stones of medium size laid on this surface, all of them were removed.



The logjam stones on US895 floor, view from the west

Two pits were dug from the level of this floor

1. The ash pit **US899** was investigated near the western corner of the wall M600. It has a semicircular form (1.22×0.78 m, 0.11–0.17 m deep). Finds: fragments of bones and potsherds.

2. The ash pit or lens **US900** situated near the middle part of the wall M600. It has an oval form (0.90×0.79 m, 0.09 m deep). There were some small stones on the bottom of the pit. Finds: fragments of bones and a big fragment of seashell.



US895 floor after removal of the logjam stones on US895 floor, view from the west

US895 floor was removed till the altitude 25.61 m. It was rather hard, well trampled brownish clay layer similar with “a crust”. Finds: bones of animals and fishes, marine shells, potsherds, some fragments of the lime plaster.

Under US895 floor the earlier floor was found. It's **US901 floor**.

On the floor stood **five stone bases of columns**. Three of them were near the wall M 603. Two of these bases were put close to the wall ($0.41 \times 0.29 \times 0.08$ m, $0.30 \times 0.29 \times 0.09$ m), the third one was at the distance of 0,25 m from it ($0.38 \times 0.26 \times 0.12$ m). The fourth base ($0.32 \times 0.18 \times 0.12$ m) was near the wall M 600 at the distance of 0,48 m from it, and the fifth base situated in the central part of the room ($0.25 \times 0.13 \times 0.06$ m).

On this surface two pits were fixed:

1. The pit **US902** of oval form (1.58×1.16 m, 0.05 m deep), stretched from the east to the west. It was filled with ash, reddish loam and stones of small size. Finds: bones of animals and big fishes, fragments of pottery.

2. The small pit (0.48×0.40 m, 0.26 m deep) was found near the staircase M768. It was filled with the soft clay of brown colour. Only four stones were found here: two fragments of slabs dressed from one side ($0.26 \times 0.25 \times 0.09$ m, $0.27 \times 0.17 \times 0.09$ m) and two fragments of grindstones ($0.40 \times 0.25 \times 0.10$ m, $0.25 \times 0.21 \times 0.09$ m).



US901 (“the column room”), view from the west



Pit with stone slabs and pit US902, view from the west

This “column room” was connected with the Early Temple and had a special significance in its structure. The staircase in the wall M754a, that was open in UM16A, was put on this level. The stone slab of the threshold of the door to the room A228 ($0,82 \times 0,57 \times 0,10$ m) was put on this level also. The kind of ramp led to the threshold from the north along the wall M603. The size of this ramp is $0,96 \times 0,74$ m, it was built from undressed stones of medium size ($0,26 \times 0,24$; $0,24 \times 0,20$; $0,24 \times 0,16$ m).



The slab of threshold and the rampart near the entrance to the room M228, view from the north-west

In the north-eastern corner of the room, along the wall M 603 **two big jars** (south-arabian *zirs* with a ring bases) were put. Later these jars were taken away, but a lime plaster covered their lower parts good preserved. The first vessel was in the corner, it was covered with plaster only on the southern side (its diameter is 0.73 m). The second vessel was between two bases of columns, it was covered with plaster around all bottom (its diameter is 0.90 m). The thickness of the lime plaster is 3,5 cm. US901 floor was removed till the altitude 25,52 m. This brown loam layer was well trampled and similar with “a crust” also. In the south-eastern corner of the room a lot of stones of small and medium size were fixed. Finds: animal and fish bones, potsherds.



The lime plaster of two zirs, view from the west

Under US901 another layer **US903 floor** was investigated. In the central part of the room, near the wall M 603 a primitive hearth of the oval form (0.51 × 0.48 m, 0,09 m deep) was found. It was filled with ash without any finds. The bottom was covered with small stones.

An unordinary construction made of three stones appeared on this level in the central part of the room A227. No doubts it belongs to the earlier strata.

US 903 floor was removed till the altitude 25,47 m. This loam layer of the brownish colour with rare small stones. It was rather well trampled and similar with “a crust”. A big concentration of the stones of small and medium size is fixed in the south-eastern corner of the room, like in the upper layer. Finds: animal and fish bones, fragments of pottery.

Under US903 floor another layer **US906 floor** was investigated. It was well trampled loam layer of brown or grey colour. Finds: small fragments of bones and potsherds. US906 was removed till the altitude 25,45 m.

Under US906 floor the layer **US907 floor** was studied. It was the well trampled loam layer of brown-grey colour with flecks of charcoal and a big quantity of small stones. Finds: small fragments of bones, two potsherds and bronze coin. The layer US907 floor was removed till the altitude 25,33 m.



US903 floor, view from the west



Primitive hearth on the US903 floor, view from the west

US907 is the early layer. The foundation of the wall M600 partly lies on this level. Finds: animal bones, potsherds and the bronze coin. It seems that some finds of table pottery found in this layer were made in traditions of the Late Hellenistic time.

In the south-western corner of the room A227 on this floor **the ash pit** was found. This pit comes under the walls M 600 and M 783. The size of investigated part – 1.19 × 0,61 m, 0,08 m depth. Some small pieces of animal bones were found in the ash and no one fragment of pottery.

Under US907 floor another layer **US909** was investigated. It was rather well trampled grey loam layer with small flecks of charcoal and stone chips. US909 was removed till the altitude 25,01 m. Finds: animal and fish bones, sea shells, potsherds.

It covered **US909 floor**. This layer consists of grey ash layers with stone chips, and it clearly differed from the brown loam of the surrounding square. The size of the floor is 4,90 × 2,80 m, it's oriented from east to west. The floor belonged to the house more ancient than the Early Temple. The layer comes under the staircase M768.

The construction of three roughly dressed stones (the upper part of this construction was found in the US903 floor) was built on this floor across the room.



US909 floor, view from the west



US909 floor, view from the north-east



The construction from three stones on the US909 floor, view from the north-east

The size of the biggest stone is $0,48 \times 0,41-0,47 \times 0,17$ m. It has a small hollow in the center (diameter – 0,20 m, 2 cm deep). Two stones of smaller size were put here later ($0,29 \times 0,22 \times 0,15$ m, $0,31 \times 0,29-0,31 \times 0,17$ m). The total length of this construction is 1,02 m, the width – 0,29-0,47 m, the height – 0,17 m.



The lime plaster of the zir on the US909 floor, view from the south

The big zir of the south-arabian type with a ring base was placed in the north-eastern part of this house, right under two *zirs* of US901 and under the staircase in the wall M754a. This jar was taken away, but its imprint preserved on the lime plaster which covered the bottom ($1,11 \times 0,74$ m), the diameter of *zir's* bottom is 0,43 m. The thickness of the lime plaster is 3 cm. The right line of the plaster on the northern side demonstrates that this *zir* was put near the wall of the early house. US909 floor covered the bedrock.

As was said above, the US909 floor partly comes under **the staircase M768**. In this campaign two lower steps were opened (fourth and fifth). The height of all construction is 1,02 m. The fourth step is 0,52 m width and 0,17 m height; the fifth – 0,38 m width and 0,15 m height. Only the lowest step was made with lime bonding. The wall of the staircase in this part made in the same height with these two steps.



US909 floor comes under the staircase M768, view from the south-east



The staircase M768, view from the east

The staircase of the Early Temple was built on the archaeological layer of 12–33 cm thick, and so we can distinguish stratas of the period of existence of the Earlier Temple and some earlier stratas:

US893, 895, 895 floor, 901 floor belong to the period of the existence of the temple.

US906 floor can be earlier than the temple.

US907 floor, US 909 are certainly earlier than the Early Temple.

US 909 floor was not investigated.

In conclusion it necessary to note that **the concentration of small fragments of animal bones** is fixed on the stone chips of the bedrock near the south-eastern corner of the US909 floor. The size of this concentration is 0,60 × 0,30 m, the floor covers this layer.

At the altitude of 25.09 and 25.03 we reached **the bedrock**.



Concentration of bones near the south-eastern corner of the US909 floor

Excavations at Area F, A20, deep sounding near the staircase of the Late Temple (trench supervisor Yuri Vinogradov)

The main aim of investigation at this part was connected with future study of the Early Temple and early layers of Sumhuram. The size of the deep sounding is 1,30 × 3,10-3,20 m.



Place of deep sounding before excavations, view from the *east*

Excavations were started on the altitude 26,66 m with **US54 floor**. This layer consists of the solid red loam. Its thickness is 3 cm only. Finds: some fragments of animal bones and one fish bone only. The part of **the modern trench** was excavated at the western part of the site (2 × 1,30 m). It's **US55a** The bottom of the trench is on the altitude 26,38 m. It was filled with the very soft loam layer of brownish colour. Finds: bones of animals and potsherds.

To the east from this trench was the upper part of the cultural layers good preserved (1,30 × 1,10-1,20 m). **US55b** was investigated here till the altitude 26,51 m. It consists of solid grey loam layer with a mixture of lime and ash (?). Finds: animal bones and no one fragment of pottery.

After removing of US55a and US55b we started the investigation of **US918** at the all square of the deep sounding. This layer consists of the solid grey loam with stones of small size. Finds: animal bones and potsherds. US918 was removed till the altitude 26,32 m.

After removing of US918 the investigation of **US924** was started. It was the medium compact brown loam layer with stones of small and medium size. Finds: animal and fish bones, marine shells, potsherds, a flint scraper. It was removed till the altitude 26,21 m.

Under this thin layer was **US924 floor**. It was a compact grey loam strata about 0,20 m thick, divided by the thin layer of brown loam (3 cm thick only) without any finds. But finds in US924 floor were rather numerous: animal bones and potsherds. US 924 floor was removed till the altitude 25,97 m.

From this level a **primitive hearth** was dug (diameter – 0,45 m, 6 cm deep). The bottom of the pit was covered with stones of small size. It was filled with ash. No finds were found here.

When US924 floor was removed, we started investigation of **US925**. It was the solid layer of brown loam with numerous stones of small size. Finds: animal and fish bones, sea shells, fragments of the lime plaster, potsherds. US925 was removed till the altitude 25,85 m.



US924, view from the east



US924, view from the west

Under this layer the new strata **US925 floor** was investigated. The good preserved part of the compact grey loam floor was found in the north-eastern corner of the deep sounding (1,41 × 1,07 m, 7 cm thick). The preservation of the floor in another parts of this square was rather bad. Finds: animal bones and scanty fragments of pottery.

From this level **two primitive hearths** were dug. One of them (0,61 × 0,51 m, 0,07 m deep) was in the central part of the trench. Its bottom was covered with small stones. The pit was filled with ash. Finds: small fragments of animal bones. The second hearth was found in the north-western corner of the deep sounding, it was studied only partly (1,19 × 0,52 m, 0,31 m deep). The bottom of this hearth was covered with stones of small size also. The pit was filled with ash. Finds: fragments of animal bones and no one potsherd. US925 floor was removed till the altitude 25,81 m.



US925 floor in the north-western corner



The primitive hearth on the US925 floor

This layer covered **US927**. It was the layer of the solid brown loam with stones of small size. Finds: animal bones, fragments of pottery. Some fragments of amphorae of the Dressel 2–4 type were found here.

US927 was removed till the altitude 25,75 m.

On this level **the layer of very solid brown loam** was fixed. In all probability, it's a bedrock. Anyway the foundations of walls of the Early and the Late Temples were partly put on this brown loam.



The foundation of the staircase of the Late Temple, view from the east

The grey spot (approximately 1.90 × 1 m) with stone chips, fragments of animal bones and potsherds was noticed in this surface in the north-eastern corner of the trench.



The spot of the pit US932 and the primitive hearth, view from the east



The pit US932 and the primitive hearth, view from the east

It was a pit **US932** dug in this solid brown loam. It comes in northern and eastern directions; the investigated size of the pit is 1,92 × 1,05 m, 0,11-0,15 cm deep. It's about 25 % of the square of the pit. It was filled with soft grey loam with flecks of charcoal, numerous stones of small size and pieces of burned mudbricks. Finds: animal bones and potsherds. This pit, covered with US927, is the earliest complex of this area.

In conclusion of the report necessary to stress, that excavations at deep sounding gave us new information about habitation at this part of the ancient city.

US55 belongs to the period of functioning of the Late Temple.

US918 is a layer of its construction.

US924 is the strata of destruction of the Early Temple.

US924 floor, **US925**, **US925 floor**, **US927** are the layers of functioning of the Early Temple.

US932 is the earliest archaeological complex of the deep sounding. Quite possible that it belongs to the period before the Early Temple. The full investigation of this pit must be one of the main tasks for the next campaign at Sumhuram.



The primitive hearth and the early pit US932, view from the south



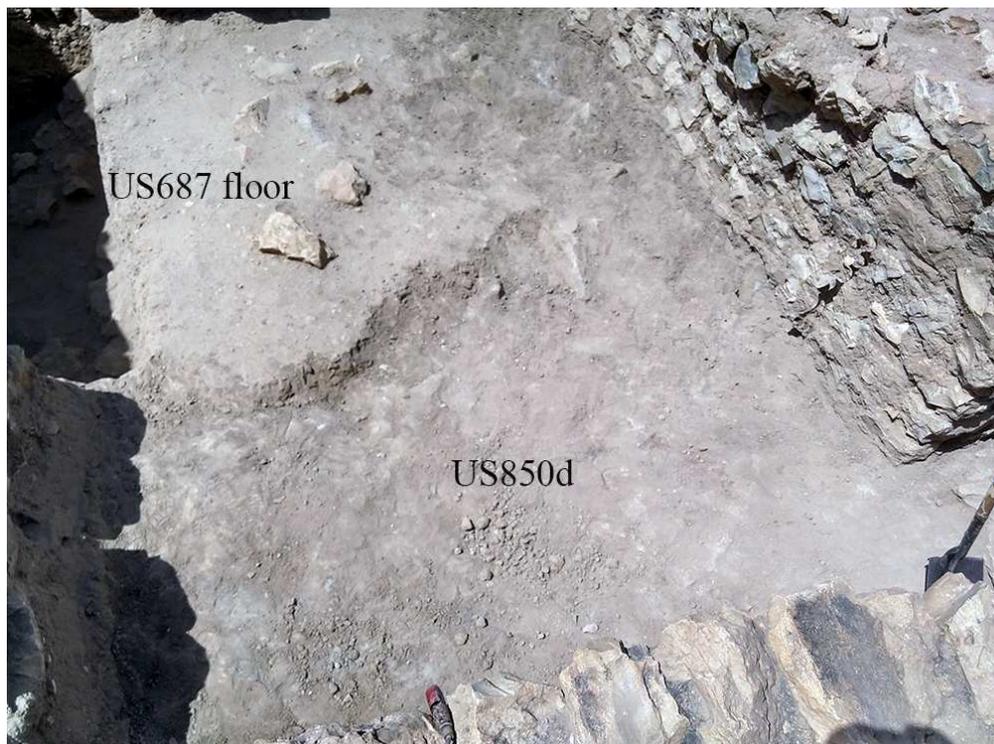
The early pit US932, view from the south-west

Excavation in Area F: Room A228 (supervisor: Carlotta Rizzo with Martina Leonardi).

For the first three weeks of the SUM16B campaign, we investigated the room A228 situated northern the Monumental Building 2's northern wall, partially excavated in SUM14A campaign. It is delimited one the West by M601, on the North by M600 and on the East by M603. On its southern limit, there is the remaining portion of the mud brick's platform. The goal of this first task was to continue and finish the investigation of the room.

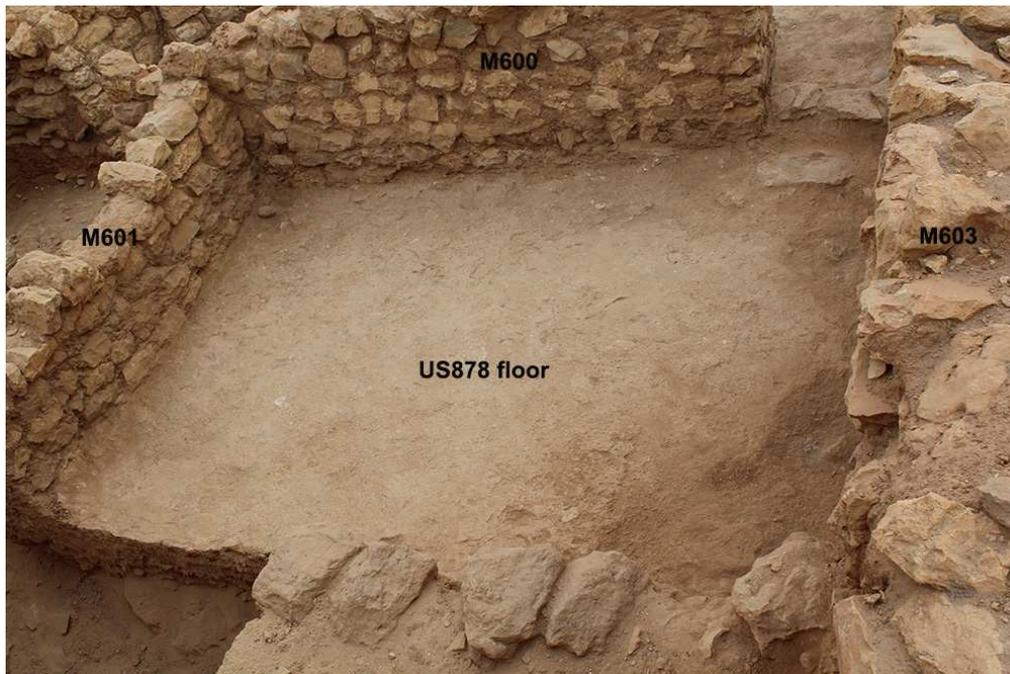


A228 before excavation



Room A228 before the excavation. Photo from South-East.

The investigation started at a level of 26.02m with the removal of **US687** “which may represents a sort of floor” (see report SUM14A, pag.50) after the **US850d** was investigated. It was composed by greyish, medium compact loam scattered with some charcoals, some animal bones and few fragments of pottery. The layer **US850d** was thicker westward with a concentration of big stones, in the central portion of the layer. At the beginning, these stones were left *in situ* since they were stuck deep into the soil. Regarding to the materials collected the pottery consisted of 11 storage (4 amphorae), 6 table (1 glazed), 2 kitchen fragmentary vessels. The objects were one stone vessel (S2882), one stone tool (S2883), two *tutufa bardeyi* (Sh804, Sh805) and two shell beads (Sh806, Sh810). Below **US850d** a new layer was found near the entrance of the room A228 named **US878**. It consisted in an accumulation and related floor. The accumulation was a medium compact and brownish-grey layer of loam, scattered with several fragments of gypsum, animal bones, seashells and crumbled mud bricks (sample23). Instead the floor (25.64m N-O, 25.87m S-E) was composed by light gray loam, medium compact in consistence with several white inclusions and few charcoals inside. Traces of soot related to an irregular fireplace were found below M601. The pottery’s shards coming from this layer were : 8 storage vessels (6 amphorae), 4 table vessels and 1 kitchen vessel. The following objects were collected : 1 hand stone (S2884), 1 stone tool (S2889), 1 shell bead (Sh808), 2 softstone pendant with incised ASA letters (S2890, S2891), 2 coins (Co1062, Co1063).



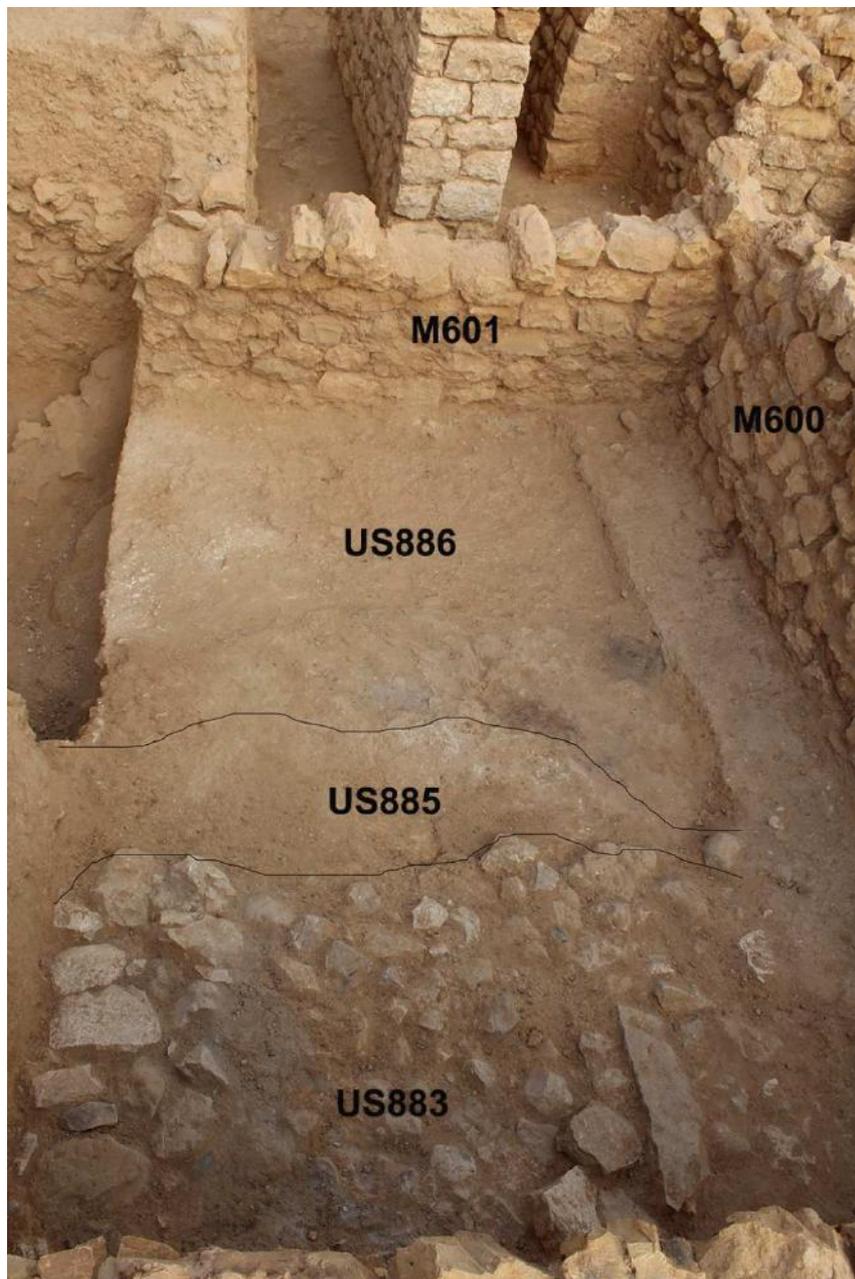
US878 floor from South-East

Below US878 we found **US883** but only in the eastern part of the room A228, below M603. The layer consisted of a reddish-brown loose soil with several silicates mixed with sand. It covered a sort of a floor found at an elevation of 25.73m and made by roughly medium and small stones (limestones and sandstones), without mortar. In the corner between M603 and the platform of mud bricks we recognized traces of soot. This sort of floor had the following dimensions : 1.50 x 2.50m. Only three fragments of pottery were found within US883: 1 storage vessel, 1 table glazed vessel, 1 kitchen vessel. 1 stone object (S2892), 1 grinding stone (S2894), 1 sandstone container (S2986), 1 stone mortar (S2900), 1 bone bead (B109), 2 coins (Co1064, Co1065), 2 iron nails (MI289, MI290) were found.

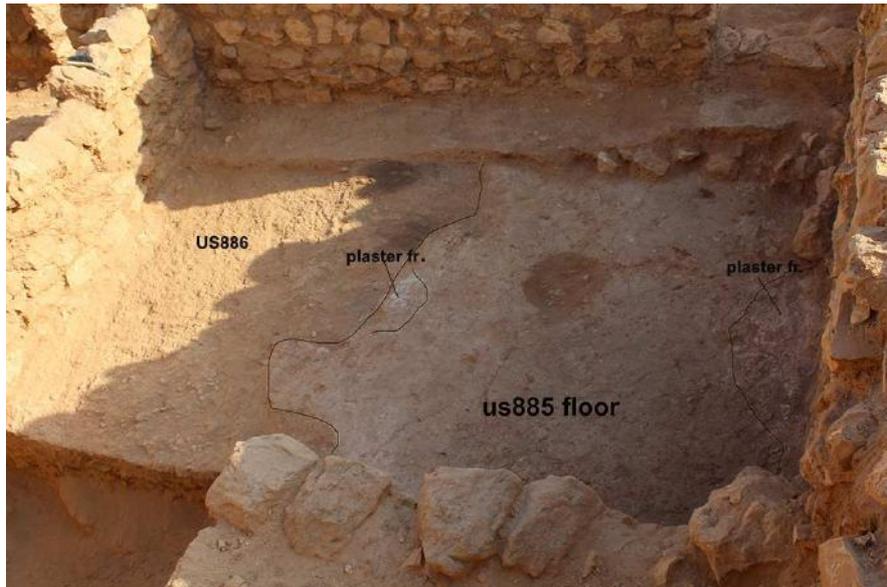


Fragment of limestone mortar from US883, left in situ

Once removed US883, we found at the elevation of 25.68 **US885** which was a well made compact floor made by greyish loam mixed with crumbled plaster and few charcoals. It was preserved only below the roughly stones (US883) and no materials were found. Immediately below US885 and US878, a new layer was investigated : **US886**. It was an accumulation found at an elevation of 25.59 made of reddish-brown soil, crumbled and medium compact in consistence with loam, fragments of green mud bricks, charcoals, small stones and different kind of samples : iron slags (39, 40, 42), gypsum (41) and vitrified clay (43). The related floor was reddish, medium compact and very badly preserved (only below M603) found at the elevation of 25.53m. The objects collected were 1 stone bead (S2895), 4 coins (Co1067, Co1068, Co1069, Co1066), 1 iron object (MI291), 5 iron nails (MI293, MI296, MI297, MI299), 2 iron rods (MI294, MI295). We didn't find any pottery's fragments.

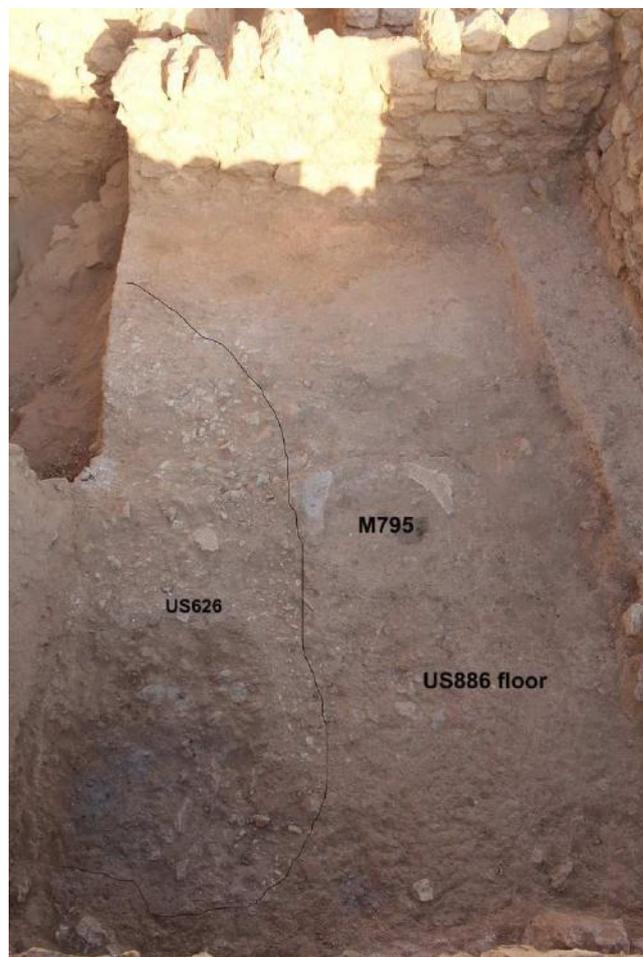


US883, US885, US886



US885floor

During the removal of US886, we noticed that **US626** (investigated by C. Condoluci in SUM13C) emerged in the southern part of the room at the elevation of 25.55m. It was a medium compact and whitish-brown layer of limestone chips, mixed with scattered medium size stones and very few charcoals, without any kind of findings.



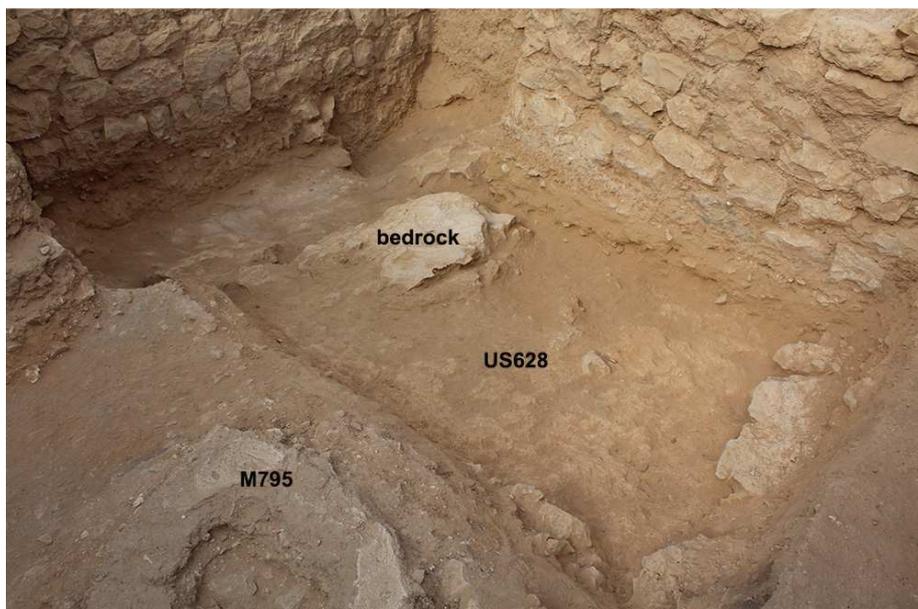
US886floor

After removing the layer US886 floor, at an elevation of 25.61m we found plaster fragments related to a small, almost circular structure named **M795** whose dimensions are : height : 0.14m, length : 0.79m, width : 0.80m max with a shallow cavity of width : 0.53m. As you can see from the picture, the “structure” was made of brownish mud bricks, some of them partially covered by plaster. Its external limits had a concave shape and its internal limits had a flat surface. This « structure » was filled by **US889**, a crumbling medium compact loam layer, grayish in colour, mixed with few charcoals and some medium small size stones. It hadn't any materials inside, but we collected a sample of mortar (sample48). The absence of findings prevents us to understand the real function of the structure.



M795 after excavation

Because of the presence of M795, we decided to investigate only the western part of A228. Below US626, in concordance with SUM13C report, we found **US628** at the level of 25.55m. According to C. Condoluci, the layer was a very soft loam and yellowish in colour. It covers the emerging bedrock at the elevation of 25.32m. We stopped the excavation at level of 25.19m that corresponds to a sort of floor.



Room A228 after the excavation.

Excavation in Area F, g/6, Square A20; BF8 (trench supervisor: Carlotta Rizzo with Martina Leonardi)

The purpose of SUM16B campaign was to continue and to complete the excavation of BF8. For this reason, we decided to enlarge the trench left in BF8 incorporating A217 and A224, which was already investigated in SUM14A and SUM14B. A217 is a street between M382 and M647, in which is located a water channel that had to be completely exposed. A224 is the northern room of BF8, in which a deep sounding was made in SUM14B without finding its northern wall.



The area before excavation. Picture from North-East

The trench we decided to make has the following dimensions 4.25x 4.50 m and it's located in square A20.

The works started at an elevation of 27.82 with the removal of **US54 floor** that sloped from South to North with a thin thickness. Once removed US54 floor a not uniform situation was brought to light.

We can divided the area in two parts following the position of the northern rooms of BF8: A217 (east) and 224(west).

In the western part of the trench, in correspondence of the space A224, at an elevation of 27.70 m we found a layer of mud-bricks, **US912**. It had a squared shape (1.60x1.75 m) and was preserved for a height of about 70-50 cm. Maybe the mud bricks of US912 could be related to a platform probably razed. No materials were found.



US912 (mud-bricks) during excavation

In the eastern part of the trench, in correspondence of street A217, we found **US659**.

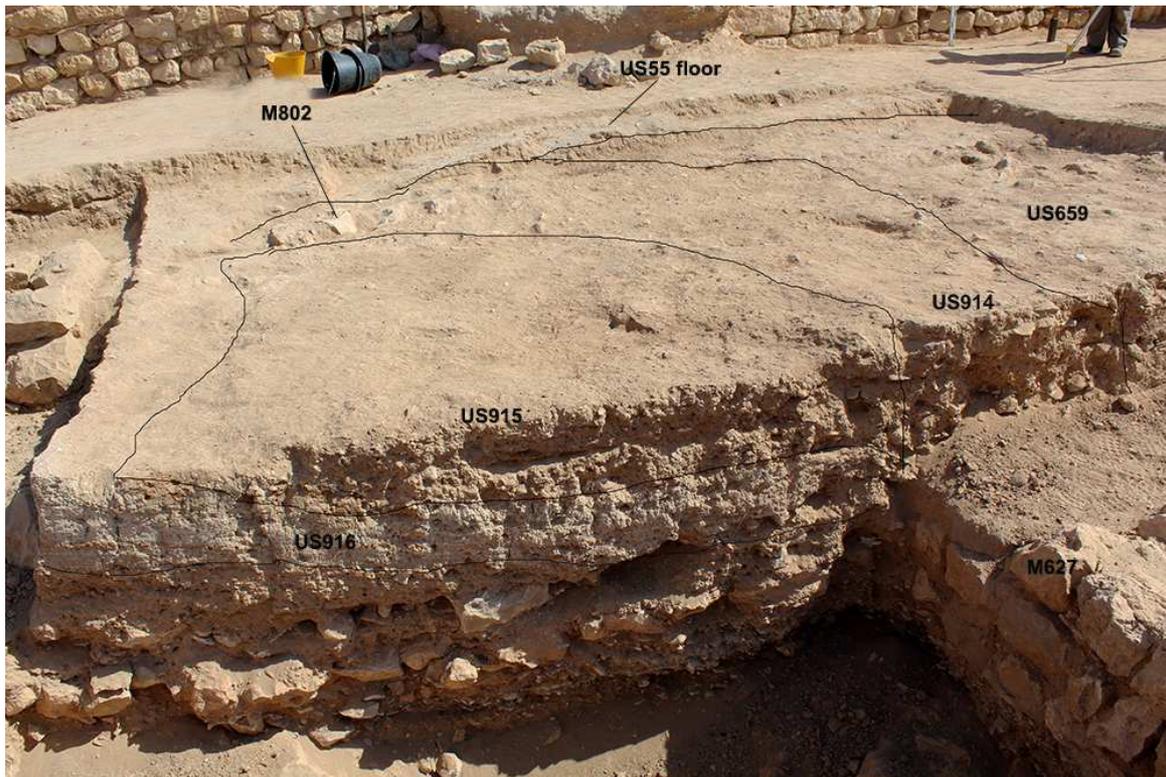
In the middle of the trench, it was found **US914**. This was a deposit created after razing the walls **M802** (inf. 26.64 m) and especially **M627** (inf. 26.03 m), the northern and the eastern walls of room A224, that we found after exposing US914. Once removed the accumulation US914 we brought to light the walls **M627** (inf. 26.03 m) and **M802** (26.64 m)

We could interpret US914 as M627 and M802 demolition works' layers.

These walls have been probably destroyed or razed in order to create the square A20.

US914 was made by a brownish, medium compact soil with some stones of medium and small size, animal bones and marine shells, bronze fragments and iron slags. An interesting finding was a fragment of flint collected as a sample (n.85). Regarding to the pottery, we found 50 storage fragments of which 13 *amphorae*, 10 table, 2 glazed and one wheeler type. The objects were: three stone vessels' fragments (S2922, S2923, S2924), some shell beads (Sh824), one iron object (MI304), one incense-burner (S2925), one stone tool (S2937) and a fragment of bended chert tool (S2943).

Northern the wall M802, the stratigraphy follows that of the square A20 and below US54 floor it was found **US55**. This layer consisted in a compact accumulation made of brownish-red in colour soil. Three heavily packed floors made of greyish and brownish-yellow in colour loam have been individuated, corresponding to the previously named US55 floor, to be interpreted as walking layers in square A20 with an irregular slope (accumulation: 26.82-26.75 m; floor: sup.el. 26.80 m inf.el. 26.70 m). In this layer we collected one shell bead (Sh822), one bone bead (B111), one bone object (B112) and a fragment of soft-stone vessel (S2931). The pottery we found consists of 33 storage vessels' fragments of which 4 *amphorae*, 2 table and 13 kitchen vessels. The US was dug until we reached the same level left by Vinogradov during SUM16A campaign; it needs further investigations until the elevation of 26.57 m.



The area during excavation

A224

Directly below US912 we found a kind of floor named **US913** (sup. el. 26.63). It followed the shape of the mud-bricks. This had a flat surface and it was light brown in colour with sandy matrix and with few grits. No materials were collected. US913 floor was cut by a primitive hearth named **US894** (sup. el. 26.64 m; inf. el. 26.54 m). During the removal of the filling of US894 we found some carbonized seeds of dates and probably mile (sample n. 114).

After the removal of US913 floor, a new layer was brought to light, **US915** (sup. el. 26.56 m). It was a deposit of soft brown loam with some charcoals and several fragments of animal bones. Different samples were collected such as iron slags, crucible fragments, plaster and fragments of soft-stones vessels. Regarding to the pottery assemblage: 94 fragments (16 *amphorae* 1 TS). The following objects were catalogued: stone vessel (S2922, S2923, S2924), beads (Sh924), incense burner (S2925); iron object (MI304); stone tool (2937); 1 bended chert tool (S2943).

Below US915 we found **US916**. This was a laminated layer that we recognized as a single action. US916 sloped from west toward east where it became thinner (sup. el. 26.50-26.32 m). It was made of several overlapped lime layers brown and gray in colour and very soft in consistence (sample n. 86) with iron slags and some bones within. It was impossible to divide each level because they were heavily packed.

The first layer reached was composed by soft brown loam that started at an elevation of 26.46 at West and at 26.25 m at East. The second layer, found at an elevation of 26.24 m, was made by gray medium compact loam with white and smearing inclusions, which were interpreted as carbonate residuals (chalk). The characteristic of this layer is that it had a sulphuric smell.

It could be suggested that this was a working area or for wasters products, because it's probable that the carbonate was used in order to prepare plaster. An interesting fact is that beyond the Gallery down east from the hill of the city of Sumhuram there is a geological formation made of carbonate of calcium (as Dr. Yamandù Hilbert suggests).

Regarding to the pottery, different shards belonging to different categories were collected such as: 22 storage vessels (5 amphorae); 5 table vessel (1 Wheeler type); 4 kitchen vessels.

Only 3 objects were catalogued, 1 shell bead (Sh826); 1 iron nail (MI305) and 1 stone object (S2938).

During the removal of US916, at an elevation of 26.28 m, we found a post-hole (15x12 cm; depth 16 cm) filled by **US904**. This filling was made by loose gray loam with gypsum inclusions and fragments of wood, animal bones and some charcoals (filling post-hole sample n.109).

During the removal of US916, at an elevation of 26.24 m there was a primitive hearth (diam. 30 cm) filled by ashes and charcoals and few animal bones, **US905**.



Post-hole(US904) in US916, A224



Fireplace (US905) in US916; A224

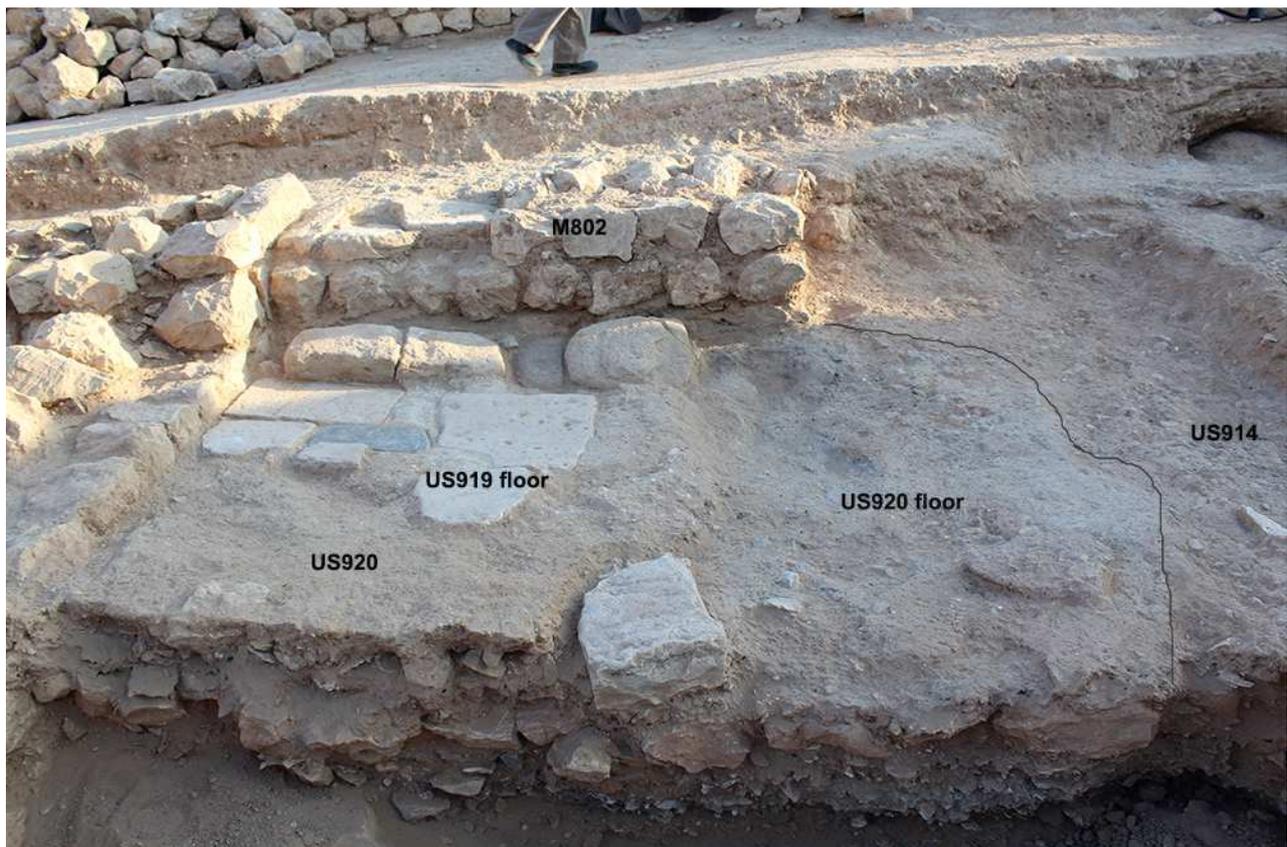
Once completed the excavation of US916, **US919** was unearthed (sup. el. 26.20). It was made by brownish gray medium compact layer with some medium and big stones. It was interpreted as a sort of deposit of a well made floor. **US919 floor** (sup. el. 26.11) is made of 9 well dressed slabs, stands directly below the sandstone step of the entrance in A224. Five of these slabs are in white limestone, one is in femic rock, two are in sandstone and they are joined together with mud-bricks and compact greyish loam.

Very few fragments of pottery and some objects were collected two coins (Co1087, Co1088); one bead (Sh827); one pestle (S2926); one fragment of incense burner (S2936).

US919 floor lies directly on another floor, called **US920** and left *in situ*.

US920 consisted in an accumulation made of brownish loam, medium compact in consistence and a light gray and compact floor which sloped eastern from western (26.10-26.01 m). We collected few objects: one coin (Co1090), one fragment of crucible (G249), three stone tools (S2933, S2934, S2935), one whet stone (S2932). Regarding to the pottery, we found: 10 storage vessels (3 *amphorae*), 3 table and 2 kitchen.

US920 floor is cut by a pit (diam. Max 17 cm; h. 16 cm) named **US922**. It is probably related to a post-hole filled by a greasy and gray soil with few charcoals.



Ambient A224 during excavation. Picture from South.



Post-hole in US920 floor. Picture from South

A217, street

In the northern-east part of the trench we find traces of US55 floor below US54 floor but it was disturbed by the presence of medium and small sized stones and it should be noted that the space of investigation was very small, so it is better to waiting for new data coming from the next excavation to check the stratigraphy. It was difficult to recognize the limits of the layers US55 floor and **US659**, preserved in the remaining space. Therefore this part of the area showed traces of a continue re-walking, especially at an elevation of 26.66 m.

US659, already investigated in SUM14A consisted in an accumulation of a brownish gray soil and in the related floor found at an elevation of 26.54 m made of gray loam with white inclusions and charcoals. The layer was badly preserved because of the presence of medium and small sized stones, especially in the north-eastern corner of the trench. Several fragments of pottery were found: 120 storage vessels (53 *amphorae*) 14 table vessels (3 glazed, 1 wavy rim and 1 Hellenistic) and 30 kitchen. Regarding to the objects assemblage we found: two stone vessels fragment (S2907, S2906), one whet stone (S2927), one soft stone fragment (S2928), one mill stone (S2929), one mortar fragment (S2930), one plaque's fragment (MB987), one iron object (MI302), two shell beads (Sh814, Sh828), one *tutufa bardeyi* (Sh816), one oil lamp (Sh815), two coins (Co1074, Co1075) and two clay objects (C179, C180). US659 floor in its eastern side was cut by **US917**. This was a layer composed by brownish loose soil; it was probably related to the deposit formed after the removal of M647 but it was impossible to investigate it completely because the layer continues beyond our trench's eastern limit. Inside US917 we found only one coin (Co1089), 23 storage vessels (9 *amphorae*), 4 table (one Wheeler type), 5 kitchen (one *lid cum bowl*). A fragment of flint was collected as sample (n.100). US917 covered a new (sup. el. 26.77 m) wall that goes beyond the section and that wasn't numbered.

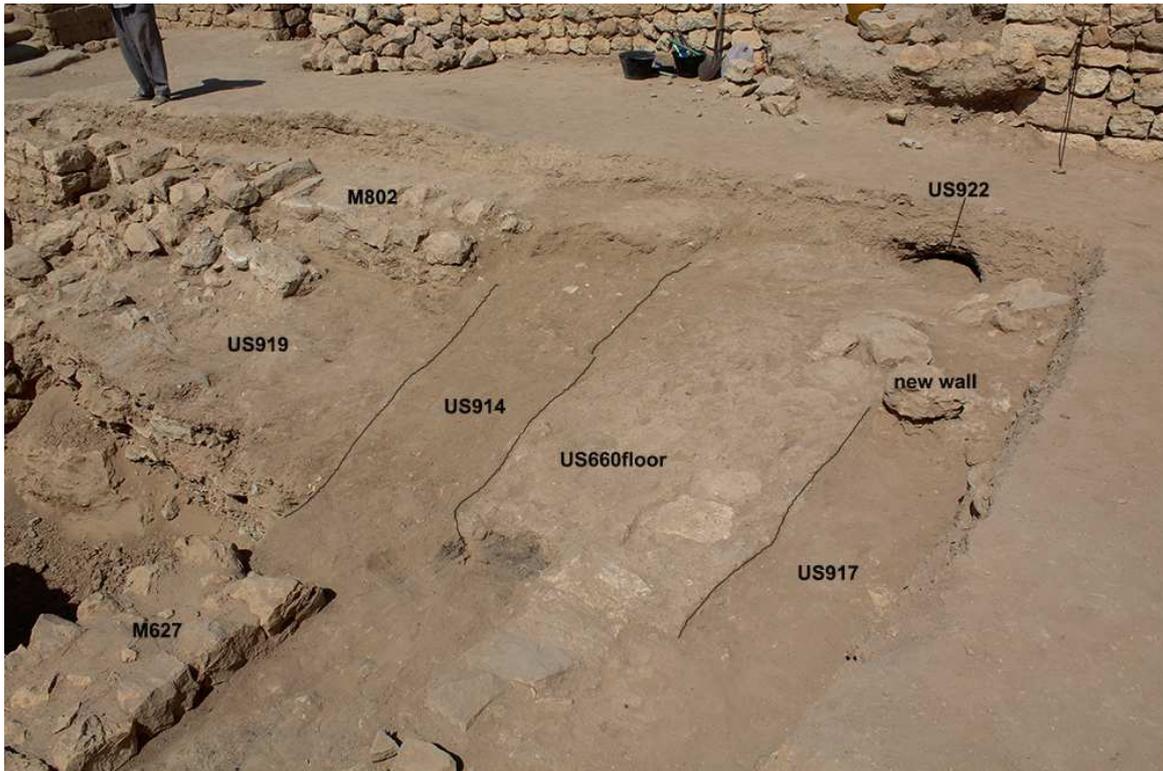


The area during excavation. View from Sout-East



The area during excavation. US659 floor after cleaning. View from South-East.

Below US659 at an elevation of 26.47 m we found **US660** which was already investigated in SUM14A campaign. It was composed by a brownish loam with some small stones. We recognized three packed floors belonging to US660. Its last floor was removed in order to completely show the water channel. The water channel has a different high from south (26.63 m) to north (26.50) with a central depression (26.41). US 660 floor is contemporary to water's channel.



The area during excavation. Picture from South.



Particular of US922 during excavation. Picture from South.

Below US660, at an elevation of 26.32 m, we found **US923** made of brownish-gray loam with several chips; it could be the foundation of the water channel. The chips are only alongside of the western side of the water channel and the remaining space consisted of a medium compact and brownish loam layer left *in situ*. The layer US923 was dug to see the eastern side of M627.

US923 was cut by two fireplaces, one in its southern limit **US910** and the other one in its northern, **US911**.

US910 was made using the small stones of US923 and it consisted by brownish soil mixed with ashes, several charcoals with bronze scraps. Inside US910 we found two storage vessels (one *amphora* and one ASA heavily baked). Only one fragment of crucible (G247) was found. Regarding the samples we collected bronze scraps (95), charcoals (96), arsenic sulphide (97) and clay lumps (98). The findings related to US910 allow us to hypnotize that in this area were usually worked metals.



US910 fireplace during excavation. Picture from West

US911 in the northern part of A217 was a well made circular fireplace, made with the stones of US923 (sup. el. 26.39 m, inf. el. 26.29 m). Inside US911 we found a fragment of Indian cooking pot and it was collected a sample of charcoals and ashes (n.124).

In the north-eastern section we noted a semicircular opening (see the picture below) probably related to a wooden covering of the last part of the water-channel (Hypotesis of Vinogradov). The deposit investigated was named **US921** and it consisted of crumbled greyish loam and some sand. Inside this layer we found some bones and shells and some samples: one iron slag (n. 132) and few fragments of grey clay with probably traces of wood (n.119).



The area after excavation. Picture from North

Preliminary observations

The excavation of BF8 shows us the different actions intervened in A20 square. All of the levels we investigated were deeply disturbed, resulting of an uninterrupted reshuffle of the area; due to this situation, it was often hard to distinguish one layer from another. For example, in the northern part of the trench was difficult to recognize and discern US659 and US55 as if the area, already disturbed for the presence, for example, of stones, has been stepped on continuously. It is probably the result of abandonments and changes in the use of the zone, occurred in time, since most part of BF8's walls have been razed or completely destroyed. Probably it has to be related to the changed appearance of the area due to the formation of the square's layers and it's possible that the stones from BF8's walls have been used in order to build the later temple.

Since we found also production wastes, we are allowed to think that in this area some production activities used to take place here (for examples: metal's production).

The excavation in the area brought to light the whole space of room A224, the western room of BF8. Thi is the biggest room and it should have been the entrance of BF8 itself since we found there a door (width 80cm circa) and a step in *arenaria* (76x 22 cm) followed by a pavement made of slabs. After the walls in A224 were razed, the using of the room changed and it's testified by the grey accumulation layers. In fact its original residential use was abandoned and maybe the room were then used as a working place that seems to be testified by the presence of layers in which the percentage of carbonate of calcium is high. This element could point to the production of mortar for the plaster's covering of the walls and it seems possible that the main resource of it consists in the rock formations surrounding Sumhram, as Dott. Hilbert suggested.

Excavation in Area F; street A43 (trench supervisor: Carlotta Rizzo)

Archaeological investigation in A43 started on the 28th of November until the 5th of December. In order to check the state of preservation of the pottery kiln M771, its wooden cover was removed. The internal side of the mud-brick wall was partially broken, two of the four pillars and the northern side of the central corridor were collapsed. Despite this, we could note the base of another small pillar (see the picture below), probably razed in order to remake the pottery kiln. After cleaning the internal space of M771 we decided to cover it with geo-textile and soil. The fragments of mud-bricks related to the corridor or the side of the kiln were put inside the kiln itself and some of them with an indeterminate shape were collected as samples (n. 151).



M771 pottery kiln after cleaning. Picture from South.

With the aim to unearthed wasters' remains related to the pottery kiln found in SUM15C below M692, it was decided to continue the investigation in street A43.

In SUM15A the works in A43 were stopped at the level of **US635 floor** (inf. el. 26.12 m), in the western part of the area, and **US777** in the eastern part below M685 and M681=M686. In SUM15C was made a trench between the city walls and the Monumental Building 2 and it was brought to light a new wall, named **M761**, not exposed for its totally length.

First, we decided to find the southern side of M761 and **US777**, already noted in SUM15A. This layer was interpreted as the foundation of M685 (the eastern wall of the small tower leaning on the city wall) cutting US635 floor. US777 was made by brownish soil with several stones of medium and big sizes. During the removal of US777, at an elevation of 26.25 m we found a fireplace named **US933**. This fireplace was built using the stones of US777. Its measures were 0.44x0.57m (diam. int.) and inside it, we found charcoals, soot remains and bronze fragments collected as samples. In the eastern part, US933 cut US635 floor.



US933 fireplace after excavation. Picture from South.

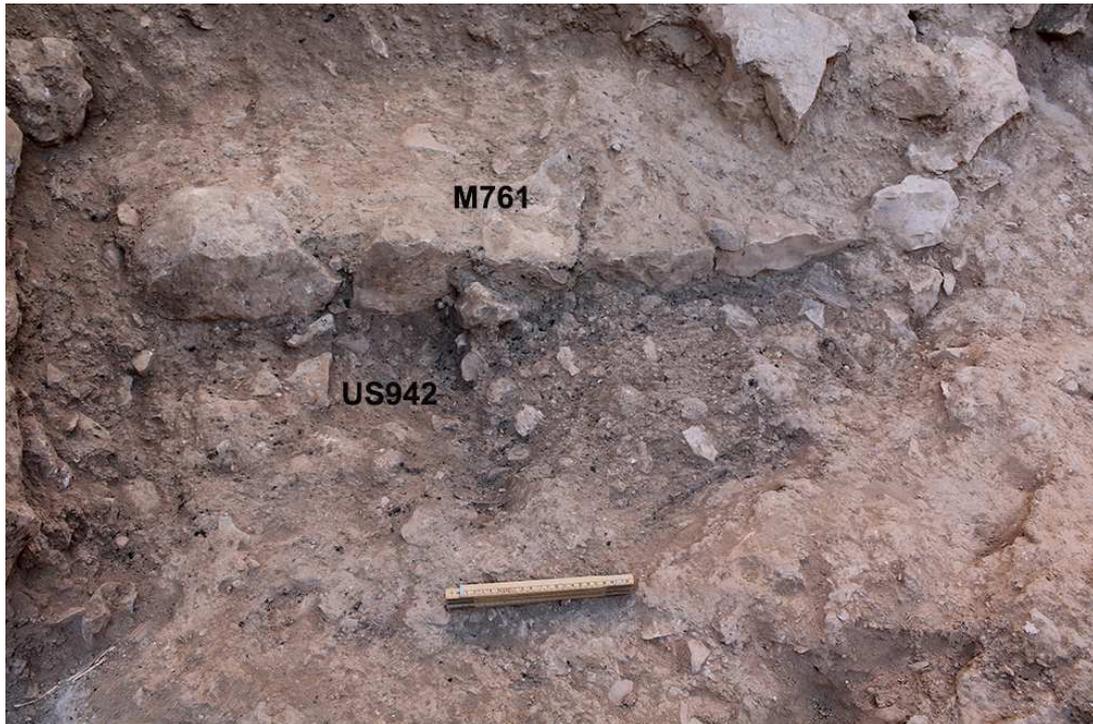
At the same time, it was excavated **US635 floor**, a heavily packed greyish layer with loam matrix. In the northern-east part of the area, US635 floor laid directly on US652 floor without accumulation.

Inside US635, few materials were collected: some bones and shells, one iron slag, 5 pottery shards (3 storage vessels, 2 table vessels).

During the removal of US635 floor, at an elevation of 26.07 m a pit was individuated and named **US937** filled by a greyish medium compact layer with several charcoals. The base of the pit lays directly on US652 accumulation (inf. el. 25.93 m). Inside the pit were found several shards of amphora belonging to three vessels, one almost complete.

At an elevation of 25.94 circa, **US652** was unearthed. This layer consisted of an accumulation reddish brown in colour and crumbled in consistence and a floor made of greyish compact loam. Regarding the pottery shards unearthed: 16 storage fragments (7 amphorae); 4 table fragments; 3 kitchen fragments.

US652 floor had a slope from south (25.90 m) toward north (25.81 m) and it was cut by a semicircular pit below the northern corner of M692 (measures pit: length. 1.60 m; width max. 0.50m; min. 0.30 m). The pit was filled by **US942**, a medium compact layer greyish in colour with several charcoals. From this pit were brought to light several kinds of samples such as iron slags (sample n. 153), clay lumps (sample n. 156) and samples of arsenic sulphide (*realgar* and *orpimento*; samples n.154). Some fragments of pottery shards with traces of vitrification and incrustation in the internal surface were found too (samples n. 166, 167). One of these shards probably shows traces of metal incrustations (see the following picture); it needs further analysis. Regarding to the objects collected: 4 iron objects (MI311, MI312, MI313, MI314, MI315) one stone object (S1947). The pottery's assemblage collected: 5 storage vessels (4 amphorae); 2 table vessels; 1 kitchen vessel.



US942 pit during excavation. Picture from East



Sample n. 152; on the left, fragments of realgar

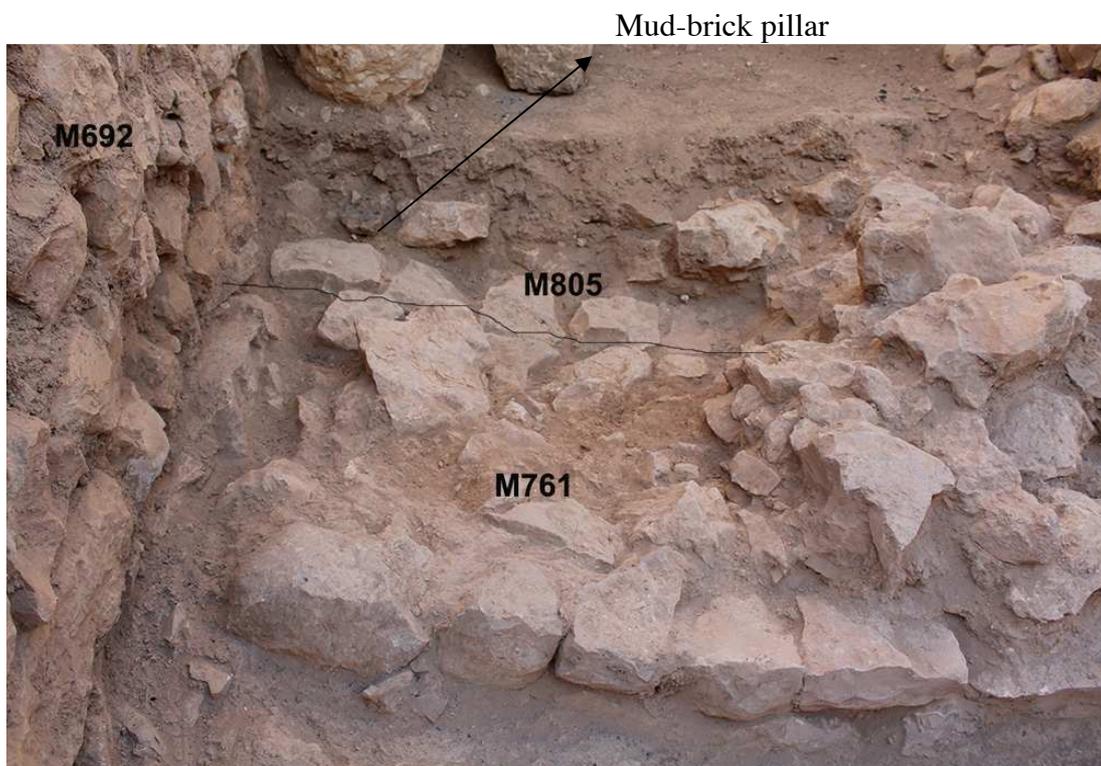


Sample n. 166, fragment of pottery with incrustation.

During the removal of the filling of US942 in the western side it was found five regular stones, one beside the other, on which the layer of the pit laid on. Given the short time left, it was decided to verify the length and the thickness of the wall that was the continuation of M761. First of all, it was investigated the space between M681=M686 and M692. The difference of layer in this area was already noted SUM14C and SUM15A (from an elevation of 26.20 m circa). Instead of US652 floor a new layer was found at an elevation of 26.10 and named **US944**; it was made of brownish gray medium compact/soft loam with several charcoals and ashes. Regarding to the pottery collected: 6 fragments of storage vessels, 2 amphorae; 2 fragments of table vessels; 4 fragments of kitchen

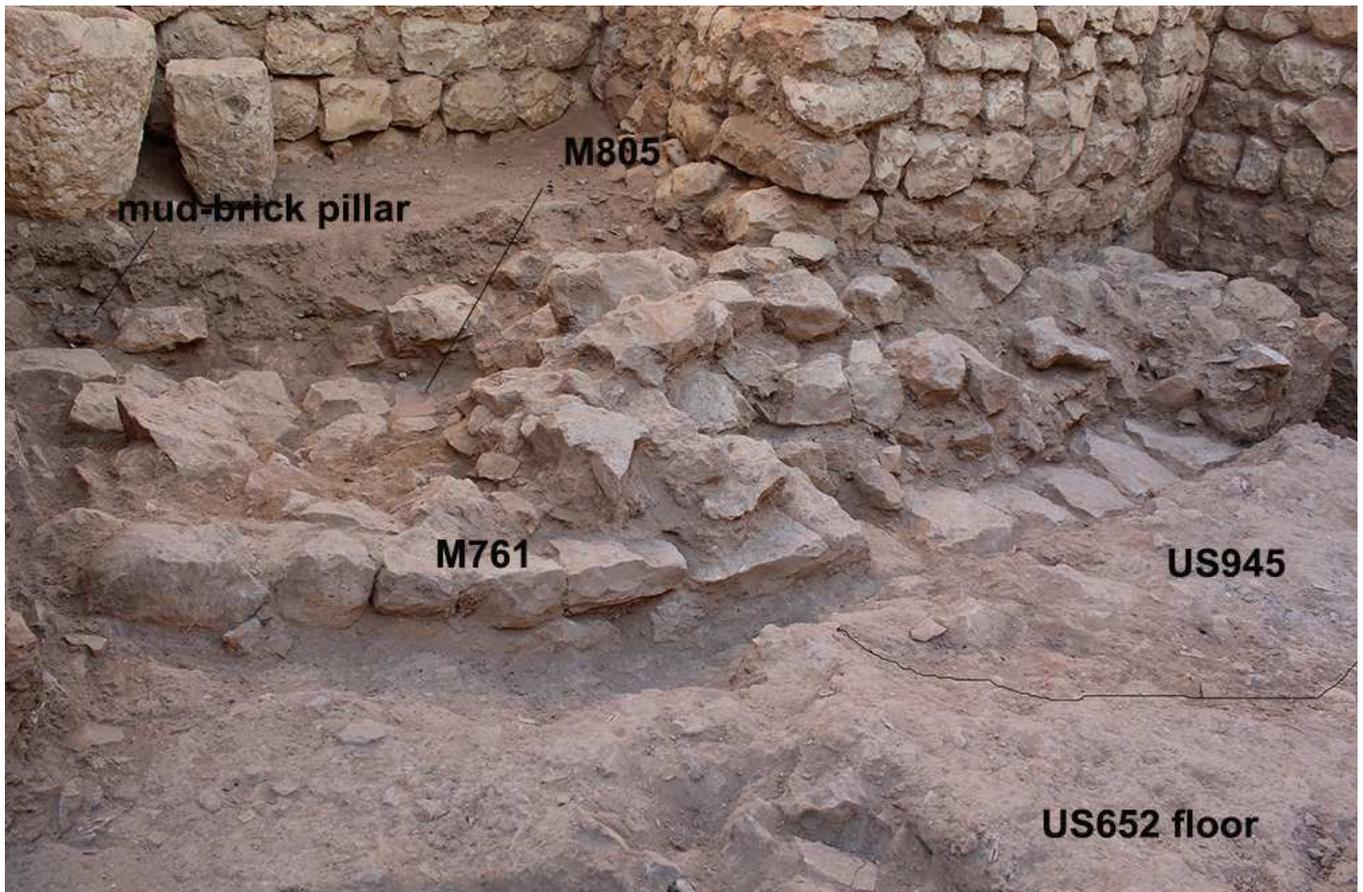
vessels. Only two objects were catalogued: one iron nail (MI316) and one fragment of stone container (S2948).

With the removal of US944 in the southern-east part of the area, it was brought to light the entire length and thickness of M761 (3.23x1.00 m), while in the southern-west part it was exposed the eastern side of a new wall, named M805. The wall M805 wasn't completely investigated in its thickness but it seems that it is the previous wall on which M685 (the wall of the small tower) was placed and it is parallel to M761. These walls are parallel to the city walls and divided the area of the street in two parts. Thus, it is possible to suppose a previous use and shape of the space of the street. The situation of the area will be clarified with new data coming from next excavation. During the removal of the deposit on these walls, US944, it was found one small mud-brick pillar below the corner between M692 and M640 (city wall). Another fragment of pillar was inside the same layer and collected as sample (n. 162).



Particular of M805 and M761 after excavation; picture from East

In its northern side, M761 was covered by a different layer found below US777 and named **US945** (sup. el. 25.82 m). It was a brownish gray layer soft in consistence with several stones of small sizes. This layer probably goes under US652 floor but there wasn't enough time to investigate it and it was preferred to bring to light the entire length of the wall. Four iron objects were catalogued (MI307, MI308, MI309, MI310), probably blades. Regarding to the pottery collected: 11 fragments of storage vessels (6 amphorae); 4 fragments of table vessels; 1 fragments of kitchen vessel.



A43 street after excavation; picture from East

Preliminary observations

It was already noted that the space between the Monumental Building 2 and the city walls, called A43, was a working area as demonstrated by finding the pottery kiln in SUM15C, by fragments of mud-brick pillar during this year and of course by the presence of wasters' remains and traces of working processes (charcoals, iron slags, bronze scraps). The complex stratigraphy with several pits and layers so different from side to side shows the presence of different actions and could confirm the hypothesis of a continue reworking in the area.

The interesting findings related to US942 pit could give us information about the processed materials. Red realgar and yellow orpiment are mineral of arsenic sulphide (Prof. V. Palleschi) and usually they were found together. The name realgar comes from the Arabic *rahj al ghar*, mine's powder (fields: China, Macedonia, Japan, Romania, Iran)¹, while the name orpiment comes from Latin, *auri pigmentum*, and it means gold dye (fields: Kurdistan, Macedonia, Romania).² In antiquity, both these minerals were used like pigment. However, from the mineral of realgar, if reduced to powder and projected on burning coals, it could be extracted arsenic that was used in the pharmacopeia. It was heated and sublimed in closed vessels, so it is possible to suppose that the pottery 'shards related to pit's contest were used for this process.

¹ <http://www.minerali.it/scheda-scientifica/af4d0bdb-edf3-4064-9e17-ef26ab6b80d8/REALGAR.aspx>

² <http://www.minerali.it/scheda-scientifica/Off4e43f-53f2-43bb-a225-8a01d3d8554f/ORPIMENTO.aspx>

With the discovery in A43 (see SUM15A, SUM15C) of other fragments of pottery with incrustation and traces of vitrification we can suppose that the pottery kiln was used for different actions and processes, probably it was a multifunctional kiln. Nevertheless, it needs further analysis on the fragments of pottery to verify this hypothesis.

Excavation in Area F: street A43; A270 (trench supervisor Carlotta Rizzo with Martina Leonardi)

The street A43 had been subject of previous archaeological investigations during the campaigns SUM14A, SUM14C, SUM15A, SUM15C.

A270

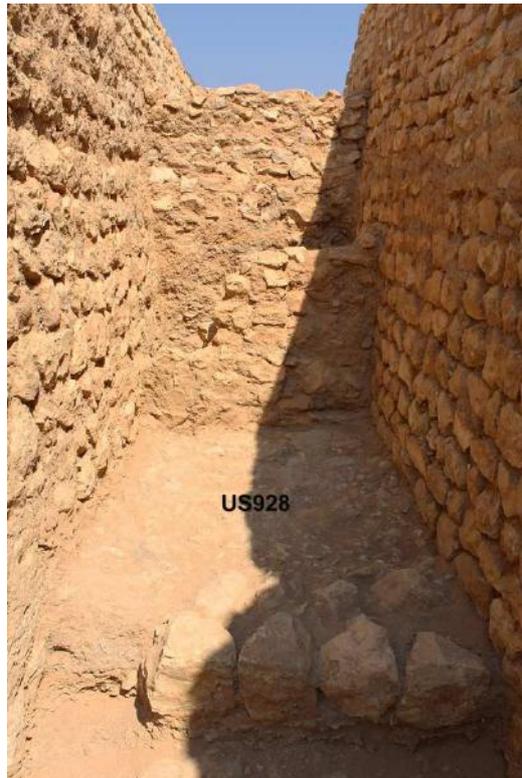
During SUM16B campaign, it was decided to investigate the area between the Monumental Building 2 (below M92) and the *intra-muros* temple (below M86). The investigated area is defined by M680, M765, M642, M92. Given the presence of these walls, the space was called **A270**.



The area before excavation, view from south

After the removal of an aeolian deposit we found **US839** accumulation, already recognized in SUM15C and below it instead of its floor we found the other face of M765 and a new layer, named **US928** (sup.el 25,67 m). It was a loam layer reddish-gray in colour, medium compact in consistence with several stones of small in size. The following materials were collected: a coin (Co1092), a bronze object (Mb990) and four fragments of pottery (1 storage vessel, 2 table vessels, 1 kitchen vessel).

US928 was very similar to US837 found in SUM15C. During the removal of this layer we found a threshold related to the door visible in M680.



A270 from south: US928 during excavation

Below US928, **US929** was found. It was a thin layer reddish gray in colour and compact in consistence with white inclusions (sup. el. 25,59 m; th. 0.3 cm); it was found only in the northern part of the room. Five coins were collected: Co1093; Co1094; Co1095; Co1096; Co1097 and only Six fragments of pottery were unearthed: 4 storage, 2 amphorae, 1 table; 1 kitchen. This layer was cut by a pit, **US931** (sup. el. 25.60 m; inf. el. 25.50 m), that lay along the wall of the *intra-muros* temple, M642. The filling of this pit was greyish in colour and soft in consistence with white inclusions and charcoals. Some pottery shards and animal bones where collected. To be noted a fragment of wavy rim bowl.

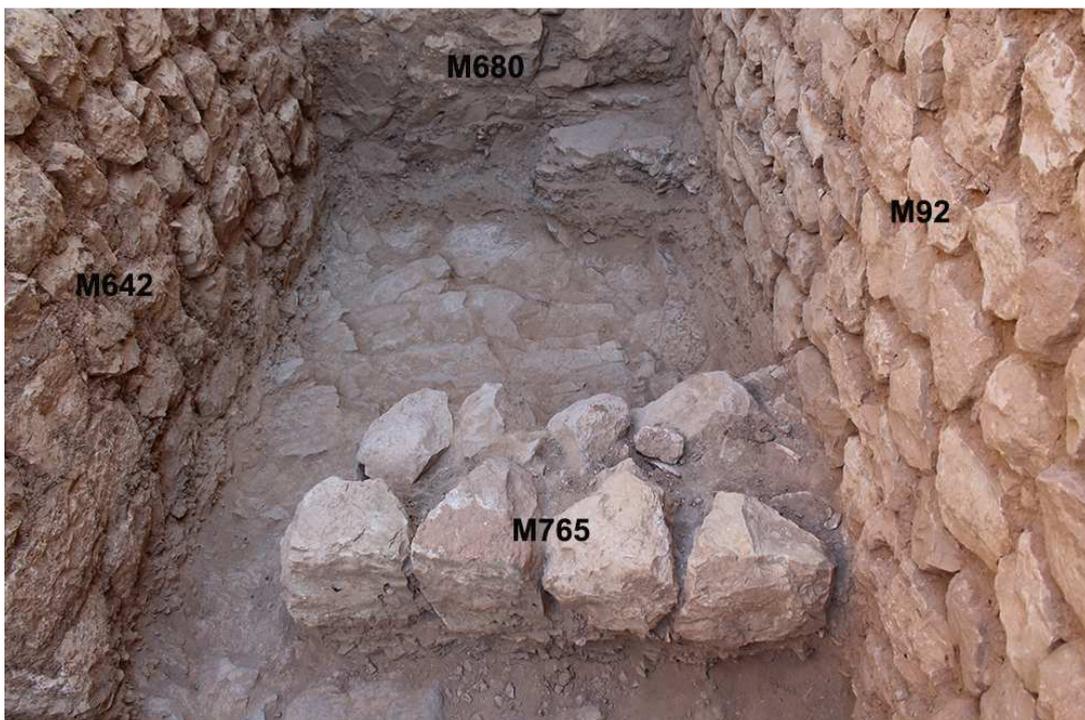


A270 from south: US929 and US931 during excavation



A270, from south: US930 and US931 during excavation

Immediately below US929 a new layer was unearthed, **US930** (sup. el.25.56 m). It consisted of a brownish red crumbled accumulation without materials. After the removal of US930 was found the foundation filling made of a yellowish brown loam with several limestone chips and without materials (sup. el. 25.44 m). In the northern-west corner of the area, the loam was light gray in colour. This foundation filling was the same of that one unearthed in the deep sounding dag in SUM15C and for this reason it was called **US842**. Once removed US842, we reach the bedrock at an elevation of 25.23-25.26 m.



A270 after excavation, view from south

Excavation in Area F; m/l 5 (trench supervisor: Carlotta Rizzo)

During the archaeological works of SUM16B, was noted an emerging wall leaning on the southern-west part of the city wall, in the corner between M498, M497.

With the goal of verify the thickness of this wall, named **M804**, it was decided to make a trench in this area. The works started at an elevation of 28-78-28.91 m with the removal of a collapse made of stones, different in sizes (not numbered). Once the eastern side of the wall was brought to light, it was decide to unearth its western side with the removal of **US700** made of brownish soil with several lenses of ash. No material was found, only few fragments of animal bones. The works stopped at an elevation of 28.39 m.

The wall M804 has a length of 3.65 m and a thickness of 0.50 m.



M804 before excavation, view from north

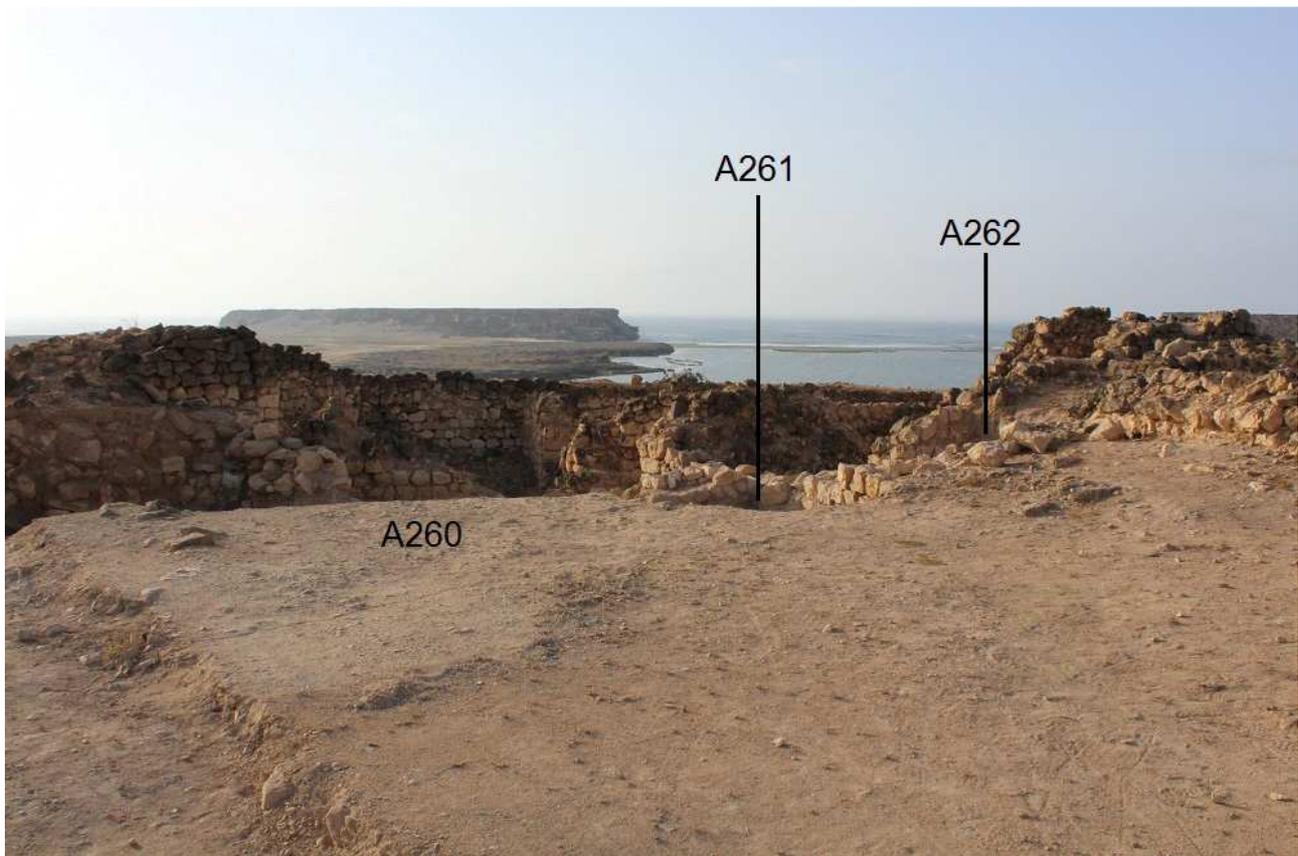


M804 after excavation, view from north-west

Excavation in Area G: squares m/14-15, new building BG1 (trench supervisor: Cleto Carbonara)

The excavation in the Area G started in the 1st October has two main purposes:

- To understand the real extension of the open space named A260 westward.
- To understand the function of the two rooms A261 and A262 unearthed and partially excavated during the SUM16A campaign.



Area G before SUM16B excavation (North-West view)

A260

The excavation of the open space A260 started from the elevation of 29.78 m with the removal of the natural surface. This layer consists of loam reddish brown in color and very loose in consistence, mixed with a lot of calcareous stones and shore pebbles small in size. No materials were found during the excavation of this layer that has a thickness of about 0.17 m.

Below it, **US279** was excavated. It was found at an elevation of 29.61 m and it is mainly composed by loam grayish brown in color and loose in consistence. US279 is characterized by the presence of a lot of charcoals, traces of burnt and lenses of ash mainly found in the eastern part of the our trench. Also several limestone blocks small and medium in size were found in it. The traces of burnt are lighter westward. US279 doesn't have a homogeneous thickness. It changes between 0.37 m in its eastern part and 0.12 m in its western part.



Eastern part of US279 (West view)



Western part of US279 (North-West view)

To the East, below US279, **US279 floor** was found. It consists in a whitish-gray floor compact in consistence. It was found at an elevation of 29.24 m and in the north-eastern corner of the our trench, an oval-shaped pit is cut in US279 floor. It is filled by reddish brown loam loose in

consistence and with clay matrix (**US875**). Several limestone blocks, small and medium in size, charcoals and some animal bones were found in the pit. This pit has a depth of 0.13 m and its bottom was found at an elevation of 29.11 m.



US279 floor with the pit US875 before excavation (West view).



US279 floor after the removal of US875 (West view).

In the western part of the our trench, below US279, two layers were found and excavated. The first one is **US868**. It was mainly found in the south-western part of the trench. It consists of a collapse of limestone blocks medium and big in size. Many stones are well worked. The collapse has a thickness of 0.18 m, a slope from South to North and it has a SE-NW orientation. The collapse was also found in the western part of the room A261. The second layer below US279 is **US874**. In the southern part of the trench it was partially covered by the collapse US868. US874 it is an accumulation layer located in the southern part of the square A260 and immediately to the West of the room A261. It is mainly composed by loam medium compact in consistence and light brown in color. Several traces of lime were found mixed with loam. This layer returned few animal bones and marine shells. US874 doesn't have a homogeneous thickness. It changes between 0.06 m in the south-western part of A260, and 0.46 m in the north-western part of A260. US874 rests on a level consisting of an earth packed soil whitish-gray in color interpreted as floor. **US874 floor** has a slope from South to North. Its elevation changes between 29.37 and 29.19 m.



A260 with US868 and US874 before excavation (North-West view)



A260 after the complete cleaning of US868 (North view).



A260 after the removal of the collapse US868 (North view)



A260 with US874 floor (West view).

A266

The excavation in the southern part of A260, with the removal of the collapse US868 and the removal of US874, brought to the light a corner between the two walls M778, oriented E-W, and M788, oriented N-S. It was excavated the area to the west of M788 in order to understand its function and its real dimensions.



A266 before excavation (North-West view).

The first layer excavated in A266 is **US890**. It was found at an elevation of 30.21 m and partially covered the wall M788. It is an accumulation layer mainly composed by loam loose in consistence and brown in color. Several limestone blocks, big and medium in size, were found in it. US890 also returned a good amount of animal bones and marine shells. US890 has a thickness of about 0.10 m. US890 floor is a earth-packed soil grayish in color with a slope from South to North. The elevation of US890 floor changes from 30.32 m to the South and 30.10 m to the North. US890 floor is not preserved in the whole A266, but only in its southern part. A long trench was excavated Southward, to understand the real length of the wall M788. The excavation of the trench southward brought to the light the northern face of the wall M214, closing the complex of the storerooms to the North. The top of this wall was completely cleaned during the SUM16B campaign.



A266 with US890 floor and US874 (North view).



A266 southern enlargement (North view).



Southern part of A266 (West view).

Below US890, US874 was excavated. The layer was not completely removed. But only the area immediately to the West of M788 was excavated. Here, at the elevation of 29.75 m, it was found US874 floor. It has a slope from South to North. Its elevation changes of about 0.15 m. in the northern part of A266, US874 floor was found at an elevation of 29.59 m.



A266 after excavation (North view).

A261

It is a small room located to the South of the open square A260. It was already partially excavated during the SUM16A campaign. A261 is delimited by the walls M776 to the North, M777 to the East and M778 to the South. It is still not clear the western limit of this room.

In the previous campaign it was excavated the eastern part of the room, until the level of US865 floor, found at an elevation of 29.35 m. In the western part of the room, US865 floor is not preserved because it was destroyed by the collapse US868. We started to remove US868 to the west, in order to find the western wall of the room.



A261 before SUM16B excavation (North-West view).



A261: excavation of US868 (West view).

Below US865 floor and US868, **US887** was excavated. US877 is mainly composed by loam yellowish brown in color and medium compact in consistence. It was covered by US865 to the East and US868 to the West. In the western part of the room there are several traces of burnt with ashes and charcoals. From this part of the room also come some animal bones and shells. US877 rests on a not well preserved floor. It consists of an earth packed soil grayish in color to the East, while its western part is compose by mudbricks and clayish loam with traces of lime. **US877 floor** was found at an elevation of 28.97 m. The excavation of US877 inside of A261 and the excavation outside of the room show that the northern wall of the room M776 is not straight. It makes a corner southward and then continues westward.



A261: US877 floor (West view).

US877 covered **US882**. It is composed by clayish loam brown in color and medium compact in consistence. Mixed with loam some small calcareous stones, traces of burnt with ashes and charcoals were found. US882 also returned some crumbled mudbricks and a large amount of animal bones and shells. US882 floor consists in an earth packed soil grayish brown in color with

mudbricks, light traces of charcoals and limestone inclusions. US882 has a light slope from East to West. US882 floor was found at an elevation of 28.77 m.



A261: US882 floor (West view).

A262

It is a long rectangular room, oriented N-S and located to the South of A261. It is delimited by the walls M778 to the North, M779 to the West, M799 to the South, and M780 to the East. The northern part of the room was already excavated in the SUM16A campaign. The level reached in the previous campaign is that one of US870 floor, found at the elevation of 29.30 m. US870 floor is not preserved in all the excavated area, but only along the western and northern wall of the room, M779 and M778.

The excavation of SUM16B in A262 started from an elevation of 30.45 m with the removal of **US867**. It is an accumulation layer mainly composed by loam light brown in color and loose in consistence. A lot of small limestone blocks were found in it. In the southern part of the room, US867 covered a staircase made by eight limestone steps (l. 0.83; w. 0.25; h. 0.22), leaning on M779 to the West and M803 to the East. In the area located between M803 and M780, a collapse of limestone blocks medium and big in size was found. Some of this blocks are well worked and probably coming from the second flight of the staircase. Immediately to the North of M803, a lot of crumbled mudbricks were found. **US867 floor** was found at an elevation of 30.22 m. It consists of an earth-packed soil grayish in color and with some traces of ash on it.



A262: US867 before excavation (North view).



M803 during excavation (West view).



A262: US867 floor (North view).

Below US867 floor, **US870** was excavated. Also US870 was partially excavated in the previous campaign SUM16A. It is an accumulation layer mainly composed by loam with clayish matrix reddish in color and loose in consistence. It is characterized by the presence several traces of burnt, lenses of ashes and charcoals. Also stones small in size and a good amount of bones that belong to animals big in size and marine shells have been found in it. A more compact level, that can be interpreted as **US870 floor**, was found at the elevation of 29.33 m. It consists of brown loam with traces of lime and stones small in size. Two small rounded holes were almost in the centre of the room and could be postholes. The two holes are filled by loose loam grayish brown in color, with traces of ash. US870 floor is not preserved in the southern part of the room.



A262: US870 floor (North view).

A264

A264 is a small squared room located to the west of A262 and to the north-west of A261. It is delimited by the walls M778 to the north, M788 to the west, M801 to the south, and M779 to the east.

The first layer excavated in this room is **US887**, found at an elevation of 30.26 m. It is an accumulation layer composed by loam medium compact in consistence and brown in color. Some limestone blocks big in size were found in the northern part of the room, along its northern wall, M778. Some stones small in size were found in the southern half of A264, mixed with traces of lime. In the northern half the consistence of the loam is more loose. The layer returned a good amount of animal bones and shells. US887 rests on a floor grayish in color (**US887 floor**). It is an earth packed soil and it is better preserved in the southern part of the room. US887 floor has a slope from South to North.



A264 before excavation (West view)



A264: US887 floor (North-West view).

Below US887, **US892** was excavated. US892 is an accumulation layer, starting from the elevation of 29.96 m. It is composed by loam reddish brown in color and compact in consistence. This layer has a clay matrix. Its consistence changes in the southern part of the room. Here, along the wall M778, is more loose, while in the northern part of the room is more compact. Mixed with the loam, some crumbled mudbricks and charcoals were found. US892 rests on a very compact level interpreted as floor. It is reddish gray in color with traces of plaster and lime, and crumbled mudbricks. US892 floor was found at an elevation of 29.85 m.



A264: US892 floor (North-west view).

A267

A267 is a squared room located to the west of A262 and to the south of A264. It is delimited by the walls M801 to the north, M788 to the west, M800 to the south, and M779 to the east.

The first layer excavated in the room A267 is **US896** and starts from the elevation of 30.85 m. It is a very thick (0.64 m.) accumulation layer. It covers the internal face of the perimetral walls of the room. It consists of a collapse of stones big, medium and small in size. There are both limestone and sandstone blocks. This blocks are mixed with loam medium compact in consistence and brownish in color. Along the northern wall of the room there are two small lenses of burnt loam whit a lot of ash and charcoals. The floor related with US896 is not preserved in the whole room, but only along the southern wall and the central part of it. US896 floor consists of very compact loam grayish in color and it was found at an elevation of 30.21 m.



A267 before excavation (West view).



A267: US896 floor (West view).

A269

A269 is a small squared room located to the west of the room A262 and to the south of the room A267. It is delimited by the walls M800 to the north, M788 to west, M799 to the south, and M779 to the east.

In the room A269, **US908** was excavated. It was found at the elevation of 30.69 m. US908 is an accumulation layer located in the room A269. It covers the internal face of the four perimetral walls of the room. It consists of loam loose in consistence and brown in color, mixed with small calcareous stones. Two lenses of ash were located in the centre of the room. US908 returned few animal bones and marine shells. US908 rests on a floor made of an earth packed soil grayish in color. US908 floor , found at an elevation of 30.38 m, has a thickness of 0.19 m.



A269 before excavation (west view).



A269: US908 floor (West view).

Below US908, **US926** was excavated. It was found at an elevation of 30.19 m. US926 is an accumulation layer composed by clayish loam light reddish brown in color and loose in consistence. Few limestone blocks small in size and few limestone chips were found in it. US926 is also characterized by the presence of a good amount of crumbled mudbricks and traces of charcoals. The layer didn't return many bones and marine shells. US926 was not completely excavated in the SUM16B campaign. The excavation stopped at the level of 29.94 m.



A269 after SUM16B excavation (West view).

Deep-sounding in A260

A deep-sounding was excavated in the southern part of the square A260, in the corner between the two walls M777 and M778. This sounding has two main purposes:

- To find the bedrock in the area and to understand how many phases there are in the square A260.
- To know the level of foundation of the excavated structures.



Deep-sounding in A260 before excavation (North view).

The excavation of the deep-sounding starts from the level of 28.52 m. The first layer to be removed is **US280 floor**. It is an earth-packed soil grayish in color with traces of plaster near the wall M777. US280 floor has a thickness of 0.07 m.

US280 floor covered **US934**. It starts at the elevation of 28.45 m. and it was found only along the wall M777, in the western part of the sounding. US934 is an accumulation layer composed by clayish loam reddish in color and compact in consistence.

Below it, to the elevation of 28.33 m, **US935** was excavated. We found US935 in the whole area of the deep-sounding. It was covered by US280 floor in the eastern part of the sounding, while to the west it was covered by US934. US935 is an accumulation layer made of clayish loam grayish in color and loose in consistence. It also characterized by the presence of many traces of charcoal and some iron slags.

US936, below US935, is an accumulation layer found at the elevation of 28.02 m. It is mainly composed by clayish loam loose in consistence and light brown in color, with traces of lime and charcoal in it. US936 also returned some iron slags. US936 floor is an earth-packed soil reddish-brown in color, with a thickness of 0.04 m. It was found at the elevation of 27.89 m.



US936 floor (North view).



Deep-sounding in A260 (East view).

Below US936, **US938** was excavated. US938 starts from the level of 27.85 m. It consists of an accumulation layer grayish-brown in color and medium compact in consistence with a clay matrix. It is also characterized by the presence of some small limestone blocks and several traces of burnt with charcoals.

At the elevation of 27.54 m, **US939** was found. It was covered by US938, and it is composed by clayish loam reddish-brown in color and medium compact in consistence. Several limestone blocks small and medium in size were found along the wall M778. US939 rests on an earth-packed soil light reddish brown in color, interpreted as floor. US939 floor has a thickness of 0.04 m and was found at an elevation of 27.44 m.



US939 floor (North view).



Deep-sounding in A260 (East view).

Below US939, **US940** was excavated. It was found at the elevation of 27.40 m. US940 is an accumulation layer mainly composed by loam with a clay matrix compact in consistence and reddish-brown in color. It is characterized by the presence of a lot of limestone block very small in size and limestone chips. In the north-western corner of the sounding there is a lens of burnt loam with ashes and charcoals. U940 covers the bedrock which was found at the elevation of 27.20 m.



Fire place in US940 (North view)



Deep-sounding in A260: bedrock (North view).



Deep-sounding in A260 after excavation (East view).



Area G after SUM16B excavation (North-West view).



BG1 after SUM16B excavation (North view).

Conclusions

All the excavated rooms and structures described above are part of the same building, named BG1 during the SUM16B campaign.

BG1 is a great building located in the eastern part of the town, immediately to the north of the storehouses complex. It is almost squared in shape, has a North-South orientation, and covers an area of about 9.70 m².

The internal space of the building is divided in six rooms: a central corridor with a staircase leading to the higher floors at its southern end. Three small squared rooms are along its western side. On the eastern side of the corridor there are two rooms, one longer and rectangular in shape, and one smaller and square-shaped, that were previously excavated by the AFSM. Another small room (A261) was added in a second time to the building. The excavation of the deep-sounding in A260 shows that the northern wall of BG1, M778, set on the bedrock, while M777, the eastern wall of A261, set on US280 floor. Between the two levels there are about 1.30 m.

The construction technique of the masonry of BG1 is slightly different from the other buildings of Sumhuram. The perimetral walls has the exceptional width of about 0.90 m. The limestone blocks used in the masonry are only rough-hewed and not perfectly worked. Often they are set in an oblique way. This type of arrangement is used in particular for the internal walls and for the upper part of the perimetral walls of the building.

Excavation in Area H: squares 1/7-8 with new rooms A263, A265 and A268 (trench supervisors: Giulia Pizzato and Roberta Gooni)

The excavation started day 1st October 2016 in the area H, square 1/7 and 1/8 southern BA13. In the west part of area ten years ago was made a big modern hole which prevent to investigate completely the area.

In this campaign we want to remove the modern deposit of tourist path and highlight the possible structure present under it. The principal aim: understand the planimetry.



Area H, general view from east

We began to remove **US 480**, a brown layers soil of medium compact consistence characterized by the presence of little and medium size stones and modern rest. We recovered fragments of bones, shells and a one shell bead (Sh. 802).

The cleaning highlighted a collapse US 872 (28,07m.) of limestone and sandstone stones of medium and big size which returned a bronze fragment, plaster sample and an iron slag. During the removal of collapse we found cooking pottery, plaster and shell fragments.



Removal US 480 and the collapse US 872 from south

This layer covered a little circular fireplace **US 873** (27,17m.) with fish bones in the northern section of the area. Under this layer we located **US 872 floor** (28.87m. – 27,37m.), a earth-packed soil grayish in color with irregular surface.



US 872 floor from south

In the southern part come to light some big squared and rectangular lime stones which surely assembled a structure **M789** (28,87m. – 27,47m.), maybe a staircase? The layer return bone and shell fragments, a whet stone (S2886), few red slip pottery fragments. There was also another circular fireplace **US 874** (25.37m.) with ash and little pieces of charcoal.



M789 from north-west

In the southern part of excavation's area we didn't found US 872 floor, but a sandy layer beige in color that is identical of **US 860** (see report SUM16A). This US was excavated in the previous mission and it is southern the probably structure M789 (29,27m.); both presented trace of fireplaces so we equalize them US 860 (27,87m. – 25.97m.) We recovered bone and shell fragments, one whet stone (S2888) and plaster sample. We suppose that in the southern area the collapse had destroyed the US 872 floor which was visible only in few tract.



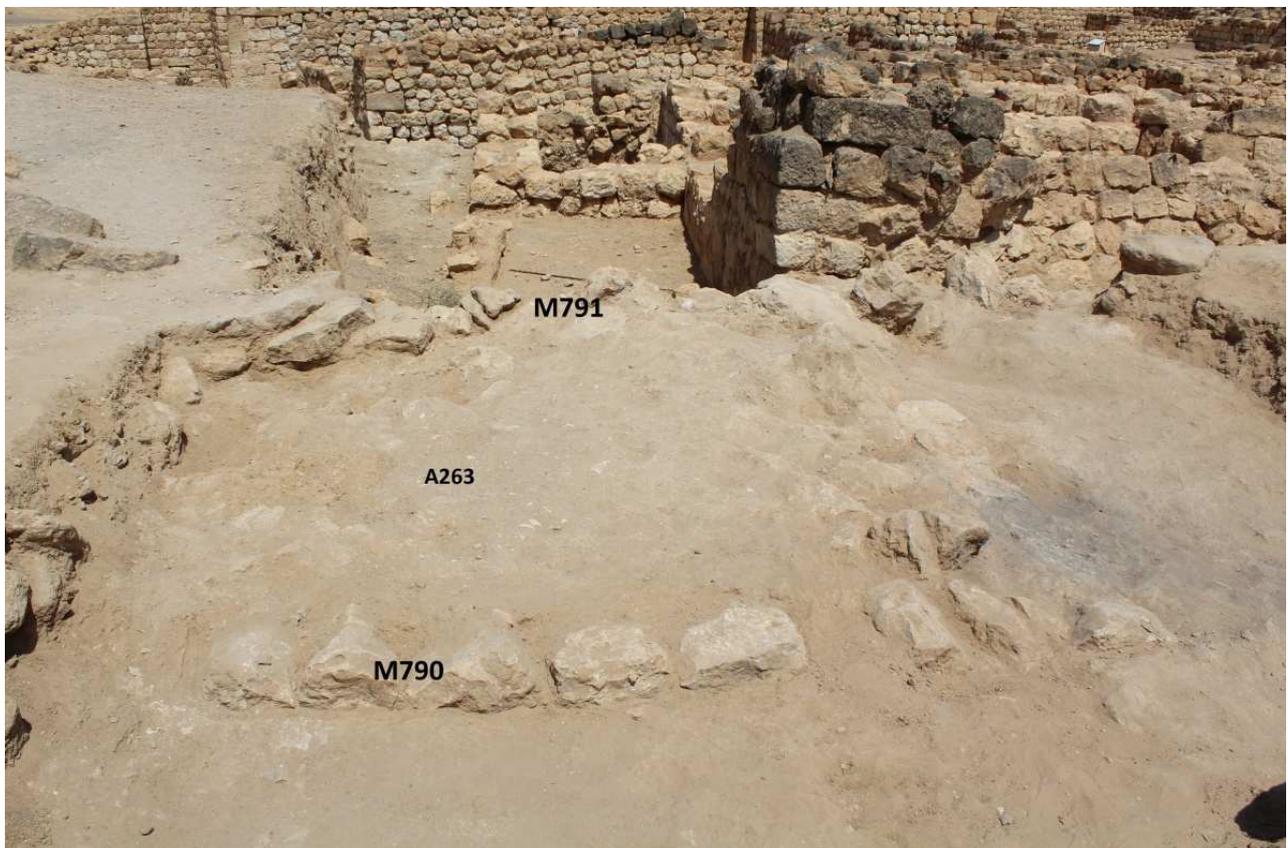
Removing of US 480 from south (second enlargement)

We decided to extend the area of excavation in the eastern part of area H. So we removed **US 480**, the layer returned modern material (plastic and cigarettes), bone and shell fragments. US 480 covered **US 872** and its floor (US 872 floor: 28,07m. – 28,37m. – 28,07m.). This last layer returned some fragments of whale bones, others animal bones and pottery fragments and two shell beads (Sh. 801- Sh. 803). It was preserved only in the northern part of the area and it covered **US 879** (27,77m. - 28,47m. – 27,77m.) This layer was a collapse of medium size stone and it returned some shells, bones fragment and few fragments of pottery, one shell bead (Sh809), iron and bronze fragments and plaster sample. Under US 879 we found **US 879 floor** (25,37m.), a light gray compact layer of soil with a lots of bone fragments and one iron slag and one bronze slag. This layer was present in all northern part of investigated area.



US 879 floor from south

After a general cleaning in the western part of area it came to light two walls: **M790** (27,57m.) and **M796** (27,27m.). They were made by dry masonry: each wall probably had two rows of stones. **M790** is the southern wall of a new ambient, room **A 263**; **M796** is the eastern wall of the same room and **M791** is the northern. This is a perimetral wall 10 meter long.



Ambient A263 from south

A263 is small room, south-west of BA13, its dimensions are 2,10 m. x 1,20 m. It filled by a collapse **US 884** made of big and medium size stones (probably its own stone's walls) and we found shell and bone fragments, one shell bead (Sh811), bronze fragments and plaster sample. Its floor and the internal surface of northern wall are covered by white plaster, now in situ. **US 884 floor** (20,27m. – 20,37m.) has a regular profile. No material recovered.



A263 and US 884 floor from south

South M790 we highlighted another small room **A265** covered by **US 860 floor** (24,67m. – 24,27m.) a gray-brown medium compact layer of soil.

The ambient is made up from four walls of limestones:

M790 north (27,57m.); length: 4,30 m.; width: 0,33 m.

M792 west (24,97m.); length: 1,65 m.; width: 0,30 m.

M793 south (25,47m.); length: 1,36 m.; width: 0,42 m.

M794 east (24,87m.); length: 0,73 m.; width: 0,72 m.

With the purpose to emphasize the walls we removed US 860 floor, and it came to light another heart-packed US 888 (24,57m.), a gray medium compact layer with one net sinker (S2901). A265 will not excavated for now.



A265 and US 888 from south

We opened a new part of area H, south-east of BA13 in 1/8: we removed US 480 made of medium and small stones, modern material, loose gray heart and bone and shell fragments, one bronze coin (Co 1070) and two shell beads (Sh.812 ; Sh.813). **US 840 floor** (29,69m. – 29,67m. – 29,17m.) was an irregular medium compact floor, brown in color and we recovered few storage pottery fragments and one glazed (), lots of whale bones, one stone tool (S2903), one bronze coin (Co 1072), one bronze plate (Mb 985), some iron slags and one alabaster sample.



US 840 floor in 1/8 (third enlargement)

At the eastern boundary of excavation area there is a collapse **US 891** (28,27m. – 26,27m. – 26,57m.) made of big lime and sand stones, some are squared. We decided to not remove that. In the northern part of the area we found again the heart-packet **US 879 floor** (29,77m.) and the wall M790 seems interrupted.

Meanwhile in the southern part we find again **US 860**, a sandy loose layer with few bone and shell fragments, one iron slag, some plaster and pottery fragments and one stone tool (S2893). Under this layer there is US 860 floor (25,57m.)



US 879 floor, US 891 and US 860 from south

We decided to open another part in 1/8 square, removing **US 480** (31,57m.) and highlighting again collapse **US 891** (32.07m.) in all this parte made of big and medium size stones. We found bone and shell fragments, pottery fragments (one glazed), two coins (Co1073; Co1076), an iron slag and lots of plaster sample, some of these present corners, so we suppose that all these stone were an probable ambient with walls and floor covered by plaster.



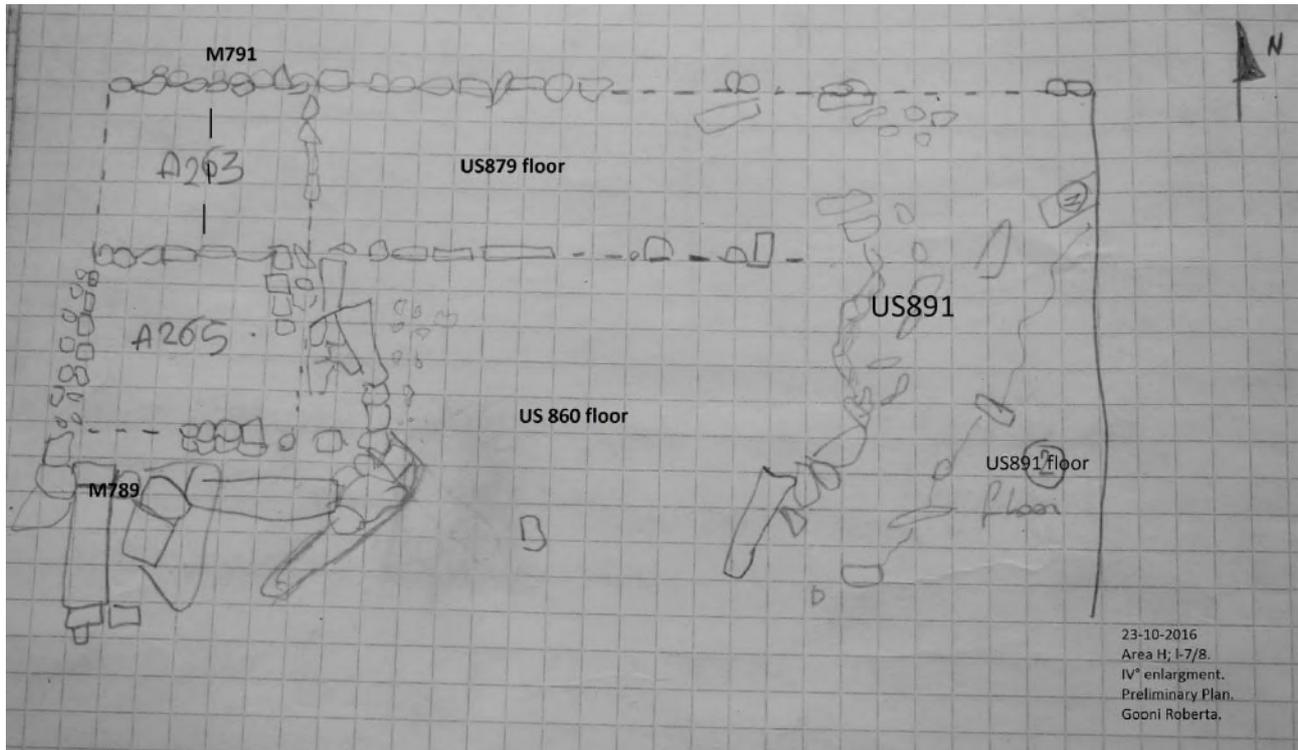
US 891 collapse from south

At 28,07 m. during the removal of US 891 in the south-eastern corner of area was survive a gray and compact earth-packet **US 891 floor** (28,25 m.).



Collapse US 891 and US 891 floor from south

At the end of the removal of US 891 and US 891 floor, we found again US 860 floor (25,67 m.) in the southern part, while in the northern one there is US 879 floor (27,1 m.).



The fifth enlargement of two meters long shows the tourist path US 480 (32,23 m.), a compact loam layer gray in color, made of small gravel stones, bones and shell fragments, some pottery fragments, one iron slag, some bronze fragments and two coins (Co1078; Co1079). Under this US was found his floor with regular profile, US 480 floor (28,03 m.) gray in color, medium compact layer of soil and some medium size stones with bones and pottery fragments.

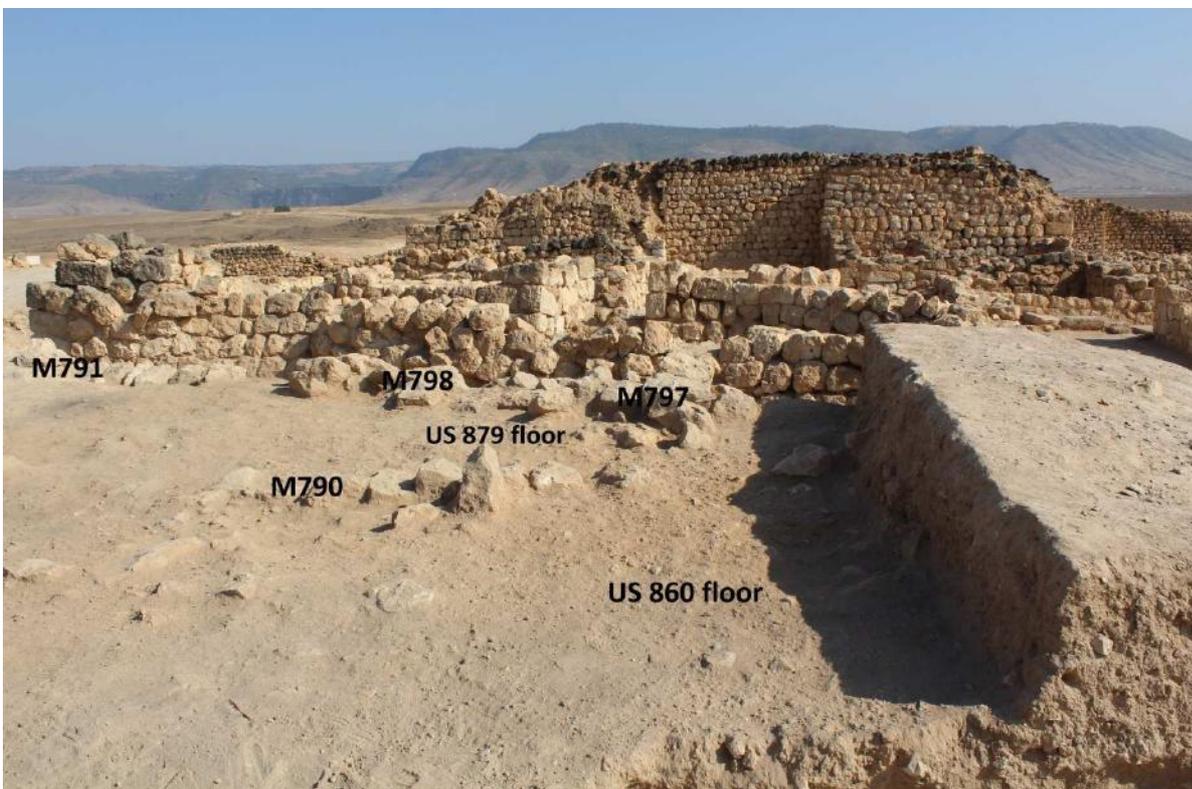
Under we founded **US 898** (26,47m. – 26,07m.) a gray heart-packet medium compact with medium and little stones. It was recovered bone and shell fragments, one plaster sample and three shell beads (Sh819). After his removal in the north part of the area came to light some stones in medium size: the continuation of M790 and **M798** the eastern wall of the ambient **A268**. So M790 is also the southern wall of A268 and it is 9,60 m longer, while the eastern wall is M798, not completely conserved at this level, it is tied at **M797** (3,30 meter longer). This wall is the northern-east wall of A268. It seems the continuation of M791, northern-west wall, but they are separated between us from lots of heart, so we suppose that M798 is later than M791.



M798, M797 and M791 from north

So A268 is formed by the walls M798 to the east, M796 to the west, M790 to the south and M791/M798 to the north.

Inside A268 the collapse destroyed the earth-packet US 879 floor in this enlargement (25,57m.) while outside and in the southern part of the area is present US 860 floor (26,17m. – 24,97m.).



V enlargement from south



excavated area after the fifth enlargement from south

Excavation in Area H, eastern part (trench supervisor Martina Leonardi).

The main goal of this investigation was completing digging the area that was previously excavated during this campaign SUM16B and the preceding one, SUM16A.

The work was divided into two parts. During the first one I dug the “soil platform” left in the previous campaign consisting in **US856**, in order to reach the same level of **US612floor**, which is located southern the area. I followed the western limit left in SUM16A, consisting in **US816floor**. In the second part, I reached the same quote of US816floor after excavating the area immediately westwards the area I dug previously.

First part.



The sloping layer US856; view from West.

I followed the stratigraphy individuated in SUM16A since the areas were related, but I found a different situation. The works began at the elevation of 29.80m where I found **US856**, a layer consisting in accumulation and related floor. A thick and sandy layer, light brownish-greyish in colour, composed the accumulation. Few animal bones, few seashells and few pottery's fragments were within.

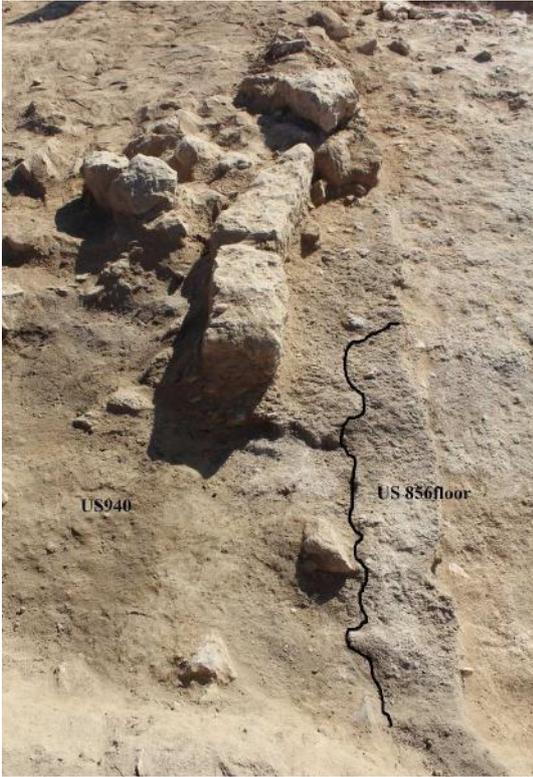
After removing the first cms of the US, at the elevation of 29.64m, I brought to light a building's collapse that has to be related to the one previously found in the area: few big and dressed stones were spread on the soil amongst copious middle and small sized stones.



The collapse layer from South.

This layer did not lie directly on the US856 floor, which was supposed to cover the entire working area, but they lay on a burnt sandy layer named **US940** at the elevation of 29.34m at North and 29.25m at South. It had different colours going from dark brown to reddish with some lenses of greyish soil; within there were some animal bones and seashells with few burnt pottery's fragments, not collected, but no charcoals.

US856 floor was preserved for a very limited extension only at the very southern limit of the excavating area. At the northern one, below to a huge parallelepiped stone, a different floor was found that I'd relate to US612 floor with a different elevation. The floor at the northern limit was left *in situ*. Going eastwards, both US856 floor and US940 are replaced by US856 accumulation and the collapsed stones, left *in situ*.



The area from West.

The excavation stopped at the elevation of 29.09m, as I reached the same level as the **US612 floor**, found during SUM16A.

Second part.



US940 from South.

On the northern limit of this area's surface, only the upper faces of few big stones were visible. Once started to dig, I brought them to light, finding they were collapsed masonry stones related to the same collapse event individuated during the first part of the excavation. These stones were part of US856 accumulation and nearby them, I found many burnt fragmentary mud bricks and some plaster, not collected. Under US856 I found the burnt sandy layer again, US940, instead of US816 floor as it was supposed to be found.

This floor was preserved only under the fallen stones northwards on which I found few fragments of *amphorae* and one of glazed, not collected. The excavation stopped at the elevation of 29.39m.



The area from South-West.



The area from East.

Object Index Card

Registration Nr. SUM16B, US896,2; S2914			
Provenance Area G, A267			
Drawing code Nr.			
Definition Stone vessel Type II.8.c	State of preservation Good	Measures l. 10.1 w. 10.2	Shape Squared
Material Soft-stone	Preserved part Complete	h. 5 th. diam.	Section Trapezoidal
<p>Description SUM16B, US896, 2; S2914 Complete soft-stone bowl small in dimensions. It has a squared shape with rounded corners. External wall is straight and the base is slightly convex. Rim is flattened (th. 1.2). Exterior is well smoothed and shows wide-bladed chisel marks. Interior is roughly smoothed with pointed chisel marks. The bottom is slightly concave. The object has a protruding handle trapezoidal in shape and rectangular in section (l. 2.8; w. 3.1; th. 1.8).</p>			
Responsible C.C.		Date 05/11/16	

Object Index Card

Registration Nr. SUM16B, US896, 3; S2915			
Provenance Area G, A297			
Drawing code Nr.			
Definition Incense burner Type I.2	State of preservation Good	Measures l. w. 11.9 h. 16.2 th. 9.8 diam.	
Material Limestone	Preserved part Almost complete	Shape	
Section			
<p>Description SUM16B, US896, 3; S2915</p> <p>Almost complete composite limestone incense burner. The object doesn't show decorations. It is covered by a brownish patina. It is composed by two elements. A truncated-pyramid base (h. 9.3; w. 10.9; th. 8). An upper cuboid receptacle protruding from the base (h. 6.9; w. 11.9; th. 9.8). Its external wall is straight. The upper recess is rectangular in shape and trapezoidal in section (l. 8.9; w. 6.2; depth. 1.8). Its bottom is flat with some chipping marks. The rim is flattened (th. 1.5). The frontal side is not preserved. The back face of the object is completely flattened maybe to lean the incense burner to a wall.</p>			
Responsible C.C.		Date 05/11/16	

Work in progress (Vittoria Buffa)

1. “*The Administrative Complex in Area A*” (provisional title)

2. *The stratigraphic – chronological sequence of Sumhuram* (provisional title)

1. *The Administrative Complex in Area A*

Index Report 4 –

Forward by *Alessandra Avanzini*

THE ADMINISTRATIVE COMPLEX IN AREA A: BUILDINGS BA6, BA12 AND BA15

Introduction by *Vittoria Buffa*

Excavated structures by *Vittoria Buffa, Giulia Buono and Cleto Carbonara*

The 1st constructional phase The 2nd
constructional phase The 3rd
constructional phase The 4th
constructional phase The 5th
constructional phase

Pottery

Rooms A176 and A177 by *Vittoria Buffa*

Building BA6 by *Vittoria Buffa*

Building BA12 by *Cleto Carbonara*

Building BA15 by *Giulia Buono*

Building BA16 by *Cleto Carbonara*

The Late Hellenistic and Roman pottery by *Roberta Tomber*

Small finds

Building BA6 by *Vittoria Buffa*

Building BA12 by *Cleto Carbonara*

Building BA15 by *Carlotta Rizzo*

Building BA16 by *Cleto Carbonara*

Coins by *Alexander V. Sedov*

Building BA6

Building BA12

Building BA15

Building BA16

The stratigraphic sequence: a summary with reference to the constructional phases already established for Area A and to the sounding in street A75 by *Vittoria Buffa*

BA6, BA12, BA15: an Administrative Complex by *Vittoria*

The volume in preparation comprises the publication of the excavation reports of buildings BA6, BA12, BA15 and BA16, as well as the catalogues of pottery, small finds and coins. Results of the sounding in street A75 will be also included, as they have given important results for the comprehension of stratigraphic sequence.

Building BA16 was the first to be built in this compound. Of this building only uncomplete remains could be excavated because of the presence of later building BA12 constructed on the ruins of the previous building. Also below building BA6 excavation interested a very limited portion of earlier structures.

BA6, BA12, BA15, in the period of the renovation of Area A with the destruction of buildings BA5 and BA1 and the setting, on top of the ruins, of US22 floor, constituted a single compound at the level of the first floors, where a series of staircases connected the three buildings. This unique feature led us to postulate the hypothesis that the compound could have had not only a residential function, but could have been also the headquarters of administrative authorities. The discovery in BA15 of the bronze plaque with the inscription mentioning “the viceroy of the king in Sumhuram” (Avanzini 2014) reinforced our hypothesis.

Due to the fact that not all the buildings were built at the same time, during the SUM16B campaign the way of publication of the excavation reports was confirmed. It was decided that the reports would have to be published following the constructional phases already established in Report 2. Regarding the pottery, the small finds and the coins, these are to be published building by building, maintaining the division in phases within each building. The texts and the plates have been therefore organized following this order.

During the SUM16B campaign all the finds have been finally checked by the authors, making new photos when needed.

2. The stratigraphic – chronological sequence of Sumhuram

The work to establish a complete stratigraphic- chronological sequence combining the sequences in Area A and Area F, is proceeding. This is done combining the division in constructional phases put in relation with the typological development of pottery types. It has been possible to start the work once the typology of the pottery from Sumhuram by Alexia Pavan has been available.

The pottery sequence for Area A is established since a while on the base of the pottery published in Report 2. Now pottery from BA6, BA12, BA15 and BA16 has been added. This on one hand has enlarged the base of the pottery typological sequence, on the other hand has confirmed the hypothesis on the constructional sequence of phases of the buildings in question. As it was to be expected, it has become clear nevertheless that the division in phases on the base of the building activities does not match the division in phases on the base of the changing in the pottery typology. In Area F until recently the earliest layers, and the related pottery, were very scarcely documented with only the small sounding in the square A29, in the corner formed by walls M47 and M39/37 (Sedov, Report 2, p.185). This was clearly visible in the chart prepared for Area F with the material

published in Report 2, where only few types typical of the 1st phase in Area A could be matched in Area F. Now the soundings in Area F of the SUM15C, 16A and 16B campaigns have unearthed deep layers below the walking surface of the square in front of the temple (US54floor). The pottery has been studied and types assigned to the fragments when possible.

The base for comparison of the two areas has been widely enlarged and it is now possible to better compare Area A and Area F with regards to the development of the pottery types.

Restoration report

**RESTORATION WORKS AT SUMHURAM
(ARCHAEOLOGICAL PARK OF KHOR RORI)
(Sultanate of Oman)
CAMPAIGN SUM16B (November-December)**

IMTO

Italian Mission To Oman



Technical Report
12th November – 7th December 2016

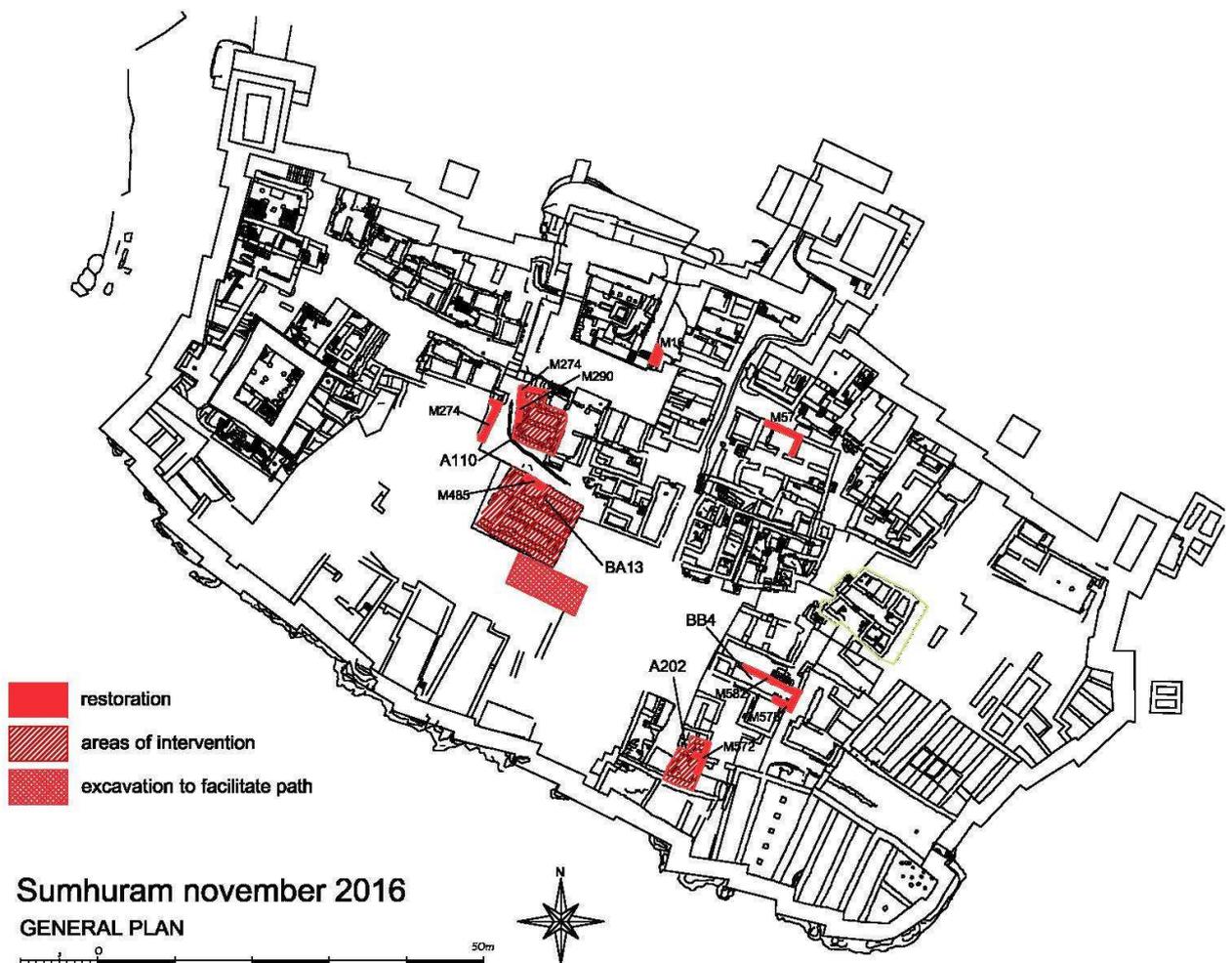
Emiliano Mura

Introduction

During excavations in November- December 2016 the restoration works were carried out within the city:

- Ambient BA13. The restoration of the walls M485.
- Ambient BB4. The restoration of the walls M582.
- Ambient A202. The restoration of the wall M572.
- Ambient A110. The restoration of the wall M290.
- Ambient A152. The restoration of the walls M274.
- Ambient MB1. The restoration of the wall M16.
- Ambient A59. The restoration of the wall M57

The following map shows all the locations:



Worker Teams

Two teams of workers have engaged to work out all the eighteen operations to complete the reconstruction of the above-mentioned areas. One team of five people was engaged to prepare the mortar and the second one of ten people has engaged for the restoration of the walls.

Working progress status

In order to check the advancement of the works, we daily took a significant number of pictures of the areas. The number of the pictures and the point of viewing from which they are taken from, are those considered necessary for a good comprehension about the working progress status.

Mortar preparation

The mortar we used for the connection between the stones is the same used during the previous campaigns:

- **80** grams of brown colour with **200** grams of yellow colour.

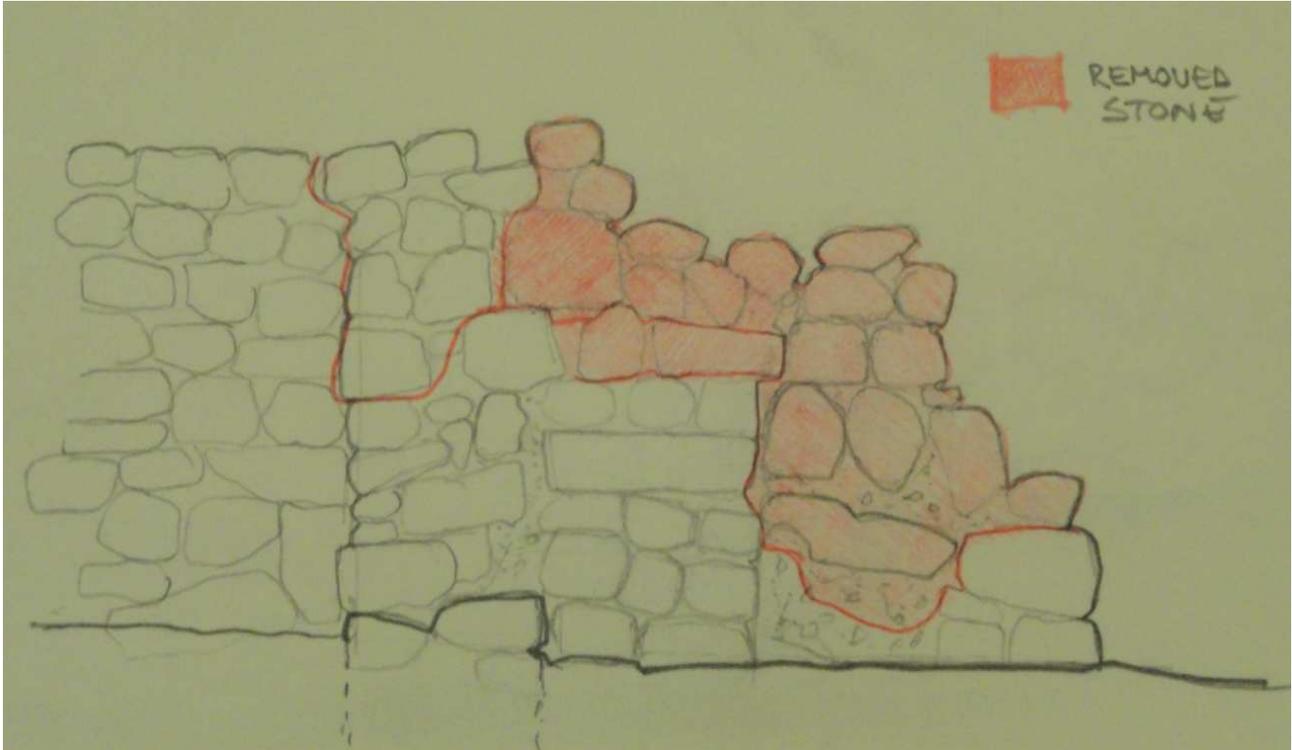
The oxide colours, mentioned above, plus 4 buckets of sand composes the mix of the mortar with eight scoops (**600grams**) of lime powder.

The percentage of lime on sand is 1:6, and then we have two different kinds of mortar:

- **Stone mortar**, used for the external leaves of stones, obtained by the mix of sieved sand, hydrated lime, brown and yellow oxides for the chromatic tone.
- **Filling mortar**, used for the back filling of the structure, made with the same components, except the use of raw sand instead of sieved sand without any brown and yellow oxides.

RESTORATION OF THE WALL M572 (A202)

The work is proceeded with the disassembly of some parts of the masonry, the cleaning and the replacement with the same stones as not to alter the original shape. The wall had vertical fractures that could result in the collapse.



Sketch of the wall M572. Stones to remove highlighted with hatch



M572, East front wall, before the restoration.



M572, East front wall, after the restoration.

RESTORATION OF THE WALL M582 (BB4)

The work is proceeded with the disassembly of some parts of the masonry, the cleaning and the replacement with the same stones as not to alter the original shape. Restoration has affected only the south facade of the wall.



M582, South front wall, before the restoration.



M582, South front wall, during the cleaning work .



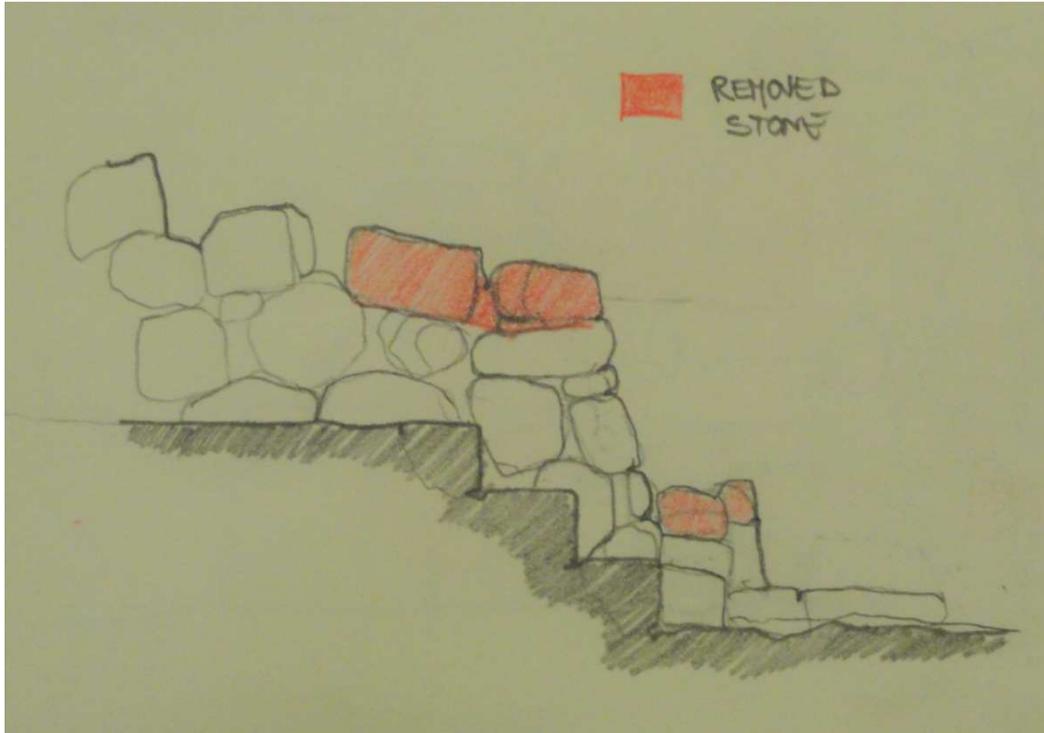
M582, South front wall, during the restoration work.



M582, South front wall, after the restoration.

RESTORATION OF THE WALL M16 (MB1)

The stones in the upper part of the wall had collapsed, the work is proceeded with the disassembly of some parts of the masonry, the cleaning and the replacement with the same stones as not to alter the original shape.



Sketch of the wall M16. Stones to remove highlighted with hatch



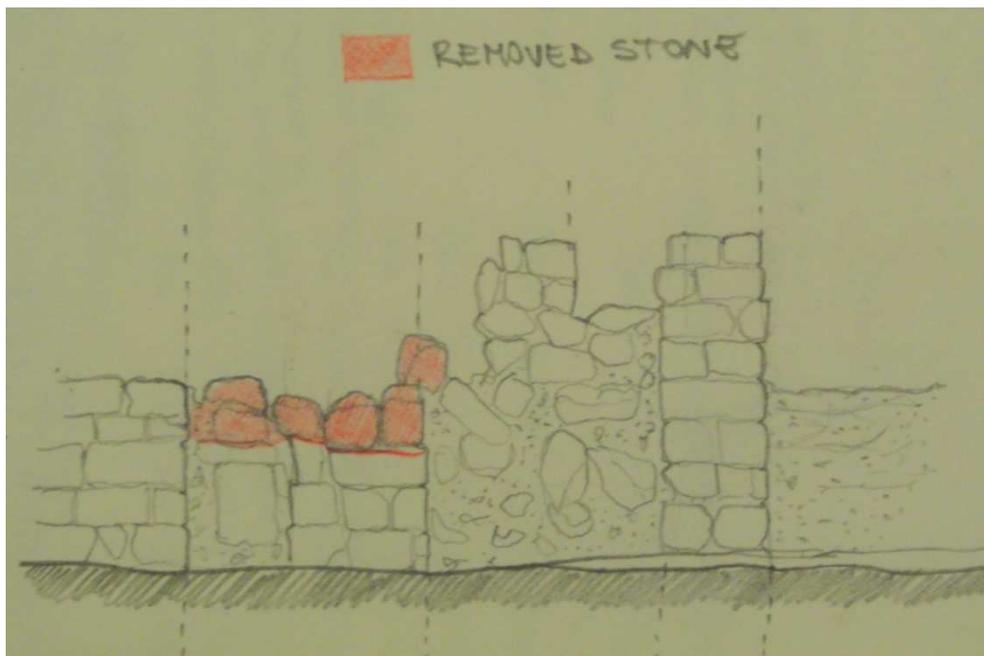
M16, West front wall, before the restoration.



M16, West front wall, after the restoration.

RESTORATION OF THE WALL M485 (BA13)

The work is proceeded with the disassembly of some parts of the masonry, the cleaning and the replacement with the same stones as not to alter the original shape. Restoration has affected only the north facade of the wall.



Sketch of the wall M485. Stones to remove highlighted with hatch



M485, North front wall, before the restoration.



M485, North front wall, during the cleaning work.



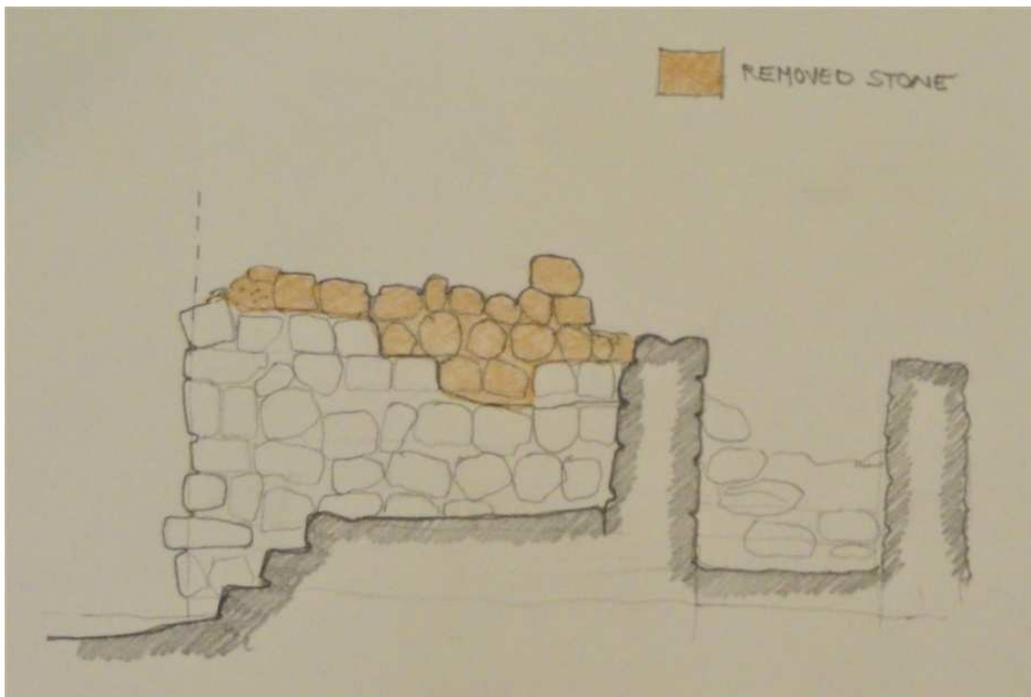
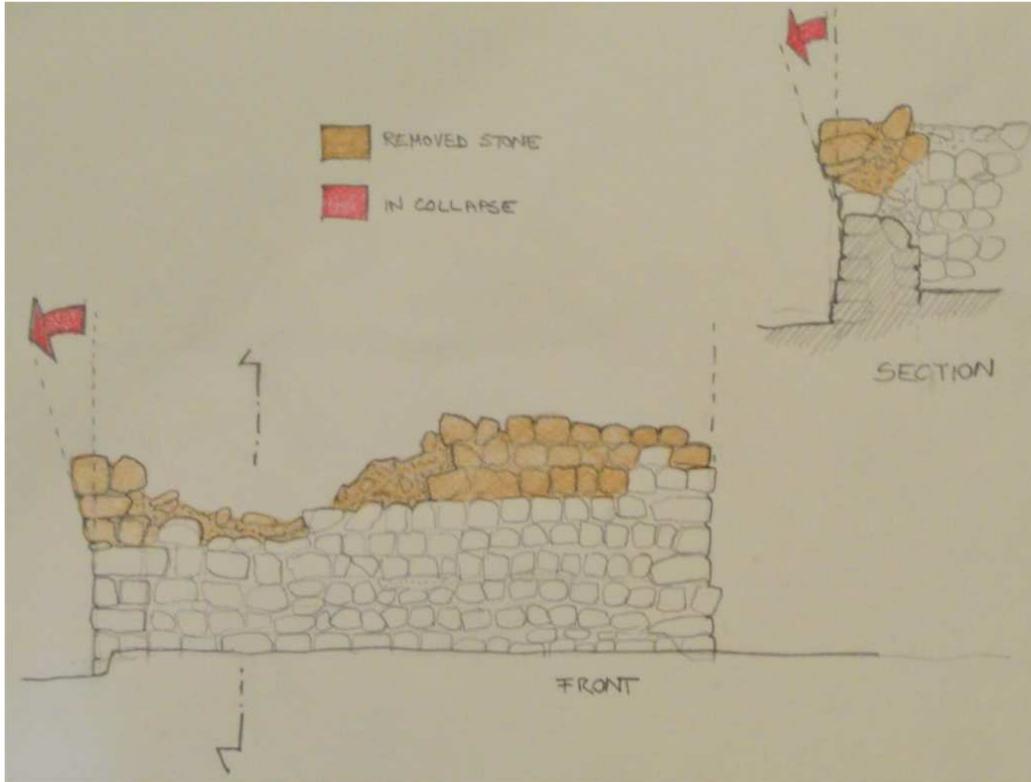
M485, North front wall, during the restoration work.



M485, North front wall, after the restoration.

RESTORATION OF THE WALL M290-274

The wall is one of the main tourist routes in the direction of the temple, the upper part was in grave state of near collapse. The work is proceeded with the disassembly of some parts of the masonry, the cleaning and the replacement with the same stones as not to alter the original shape.



Sketch of the wall M290-274. Stones to remove highlighted with hatch



M290-274, West front wall, before the restoration.



M290-274, West front wall, during the restoration work.



M290-274, West front wall, after the restoration.

RESTORATION OF THE WALL M464

The wall is one of the main tourist routes in the direction of the temple, the upper part was in grave state of near collapse. The work is proceeded with the disassembly of some parts of the masonry, the cleaning and the replacement with the same stones as not to alter the original shape



M464, East front wall, before the restoration.



M464, East front wall, during the work.



M464, East front wall, after the restoration.

RESTORATION OF THE UPPER PART OF THE WALLS

Endeavored the methodology for the restoration of this wall is different from other interventions, having no particular problems of stability, we carried out the filling of the mortar joints on the top of the wall. This method could be a method to be employed on all the walls that have the same degradation.



M578, before and after the restoration.



M400, before and after the restoration.



M290, before and after the restoration.

RESTORATION OF PLASTER

During the restoration of the walls we have personally run the consolidation of the plaster wall of an environment dug in October 2016, it is probably a basin. Execution phases: cleaning with brushes and water, laying of a new mortar in the edges.



South wall, façade. before the restoration



South wall, façade. after the restoration

Work stages



Dust removal



Cleaning



Laying of new plaster



Setting of new plaster

Arch. Emiliano Mura

