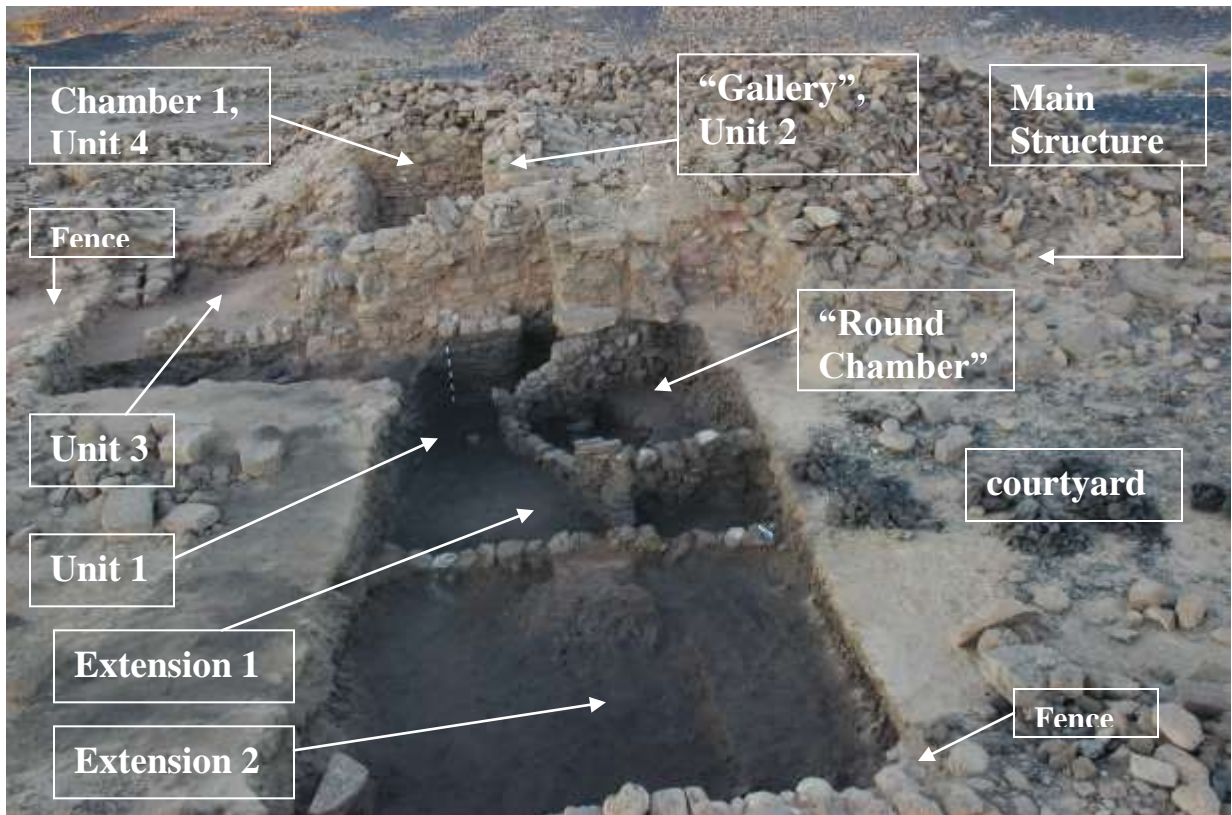


Khirbet El-Nahas Excavations 2006

Final Report,

Area R



(Picture details: 30703_R24_O_K)

Introduction

Area R is situated roughly at the center of the site of Khirbet el-Nahas, ca. 30 m. to the northwest of Area S (a structure for copper related industrial activity excavated during the 2002 season) and the adjoining earlier excavation site of the German Mine Museum. At the center of the area stood the ruins of a large structure, of which certain characteristics attracted attention. The ruin, which typically to the large structures of the site was totally covered by its own debris, was one of the largest at the site and the only one to have been surrounded by a square stone fence perimeter. Its central location at the site also merited notice. In addition, it is situated between the ruins of several seemingly adjoined smaller buildings and chambers. As time constraints prevented a comprehensive exposure of the building during the present season it has been decided to focus the efforts on the sampling of the structure itself through the excavation of part of its frontal inner part and of a single chamber at its southeastern part, and on the investigation of its outer fenced courtyard, by probing a strip between the structure's northeastern limit and the perimeter fence. It was clear from the start that excavation will meet layers of copper industrial waste, as slag could be seen scattered throughout the courtyard prior to excavation. The intention had therefore been to clarify the chronological development of the area and construct a feasible stratigraphy of its functions during the periods in which it had been utilized.

After ca. 5 weeks of excavation 5 separate phases may be distinguished in the stratigraphic sequence of Area R, as designated in the following Table:

<u>Stratum</u>	<u>Description</u>	<u>Approximate Period</u>
R1a-b	Post-abandonment destruction of main structure	?
R2a	Additional installations related to main structure	Middle to late 9 th century BCE

R2b	Main structure, probably residence of high local official	Early to middle of 9 th century BCE
R3a	Copper related industrial waste accumulation	Late 10 th century BCE
R3b	Architectural complex	10 th century BCE

Table 1: Stratigraphic division of Area R

Later and more meticulous analysis will probably refine the chronological division, expose new sub-strata and sharpen the division of periods. Still, as the stratigraphic distinction of the various phases are clearly defined in the field no serious compromise can be expected to be affect the basic divisions in the table above. The following report follows the sequence from latest to earliest.

Stratum R1a

Stratum R1a consists of the upper layer of debris accumulated over the main structure (See unexcavated parts of the structure at the photograph on the opening page of the report) in distinction from the deeper debris, defined as Stratum R1b. The division is technical, aimed at isolating the lower layers from the possibly contaminated debris that remained exposed to the elements over the years. Similar layers of debris appear over most of the structures at the site, in particular the large structures, including the main gate structure (See report of Area A). The destruction probably resulted of earthquakes over the generations but was not the direct cause of the abandonment of the site.

The main distinction of Stratum A1a is in the lack of sediment between the debris. The stratum consists entirely of accumulated large stones fallen from the upper courses of the building, which may have had more than one floor (see stratum R2b). Among the stones were a relatively large number of grinding slabs and parts of mortars, either left in the building and buried in the ruins or fallen in after being incorporated in the walls. Other than very few shards and some hammerstones, these were the only finds in the stratum. The lack of soil between the stones can be explained in the gradual washing down of sediment into the lower debris during rainfall, and by its blowing over by wind. The Stones in the debris comprise the wide variety of geological types present in the local and regional environment: dolomite, monzo and other granites, sandstone, and conglomerate. Basalt and flint are much rarer and appear mainly in the form of small stones for consolidation between courses in the case of the latter, and as grinders in secondary use regarding the former. Almost no finds were retrieved from Stratum R1a loci, other than grinding stones that were either left behind on the later collapsed floors or were incorporated in the walls and came down at their collapsed.

A roughly circular installation made of rocks from the upper layer of debris stood over the debris of the SE chamber (Figures 1,2). The installation was excavated and removed during the preliminary excavation of the chamber (L1811, L1813) but as no finds were retrieved its date and function remain unknown.



Figures 1,2: Installation over debris of SE Chamber. Top: general location. Bottom: detail of installation. (30070_R3_1800_C, 30103_R4_1811_F)

It should be noted that two similar installations were also found over the debris of the gate structure in Area A, but remain unexcavated. These structures may be related to the activities involving the rough chambers built outside the western perimeter wall of the fortified compound but owing to the lack of finds any association is speculative at best.

Locus	Description
1811	Post-destruction installation, wall
1813	Post-destruction installation, inner fill

Table 2: Locus list of Stratum R1a

Stratum R1b

Large buildings excavated so far at the site showed a pattern of debris, following which after the removal of a crust of debris that is practically free of sediment, layers of lower accumulations of collapsed materials are exposed, with stones immersed in no noticeable order within sediment. The same pattern also appeared in Area R. Debris accumulations containing rocks within sediment were found both inside the building (Figure 3) and at its outer limits, where the debris spilled from the ruined walls onto the courtyard.



Figure 3: Deep layers of debris as exposed in the section of the southeastern chamber (left) prior to its excavation. (30258_R10_1822_C)

Loci assignment in all cases of Stratum R1b were technical, reflecting either rough divisions of location and level, in the latter cases decided arbitrarily, so to maintain control over possible changes in finds. No significant changes were noted, apart from the lowest levels of debris, where the sediment loses its beige-white uniformity and gains a pale-reddish appearance. Crumbling of monzo granite debris on impact as they fell over the surface and the erosion of this soft stone under pressure are probably at least partly responsible for the changes as well as the mixing with ashy deposits from the occupation layers themselves.

Finds from this stratum are generally poor, as in the site in general. Shards and other finds would have represented artifacts stored on upper shelves in the rooms, in inner stairways or in the upper floors. The lack of such objects implies orderly abandonment leaving few artifacts behind, as does the scene in the occupation levels of

the ground rooms. A single notable exception is a large restorable jug found among the lower debris (L1807) near the corner between the northeastern and southeastern walls of the main structure (L1800, L1819). The outer face of the jug is covered with a white slip upon which various geometric motifs have been painted in black (Figure 4). This type of decoration has been found in several shards in various parts of the site and also in three small cups found within the chamber's occupation level (Stratum R2b).



Figure 4: Detail of the decoration on the restorable painted jug found among debris by the outer walls of the main structure. (30069_R2_1807_R)

A typical depth of a Stratum R1b is ca. 1.50-170m. As in the gate structure (Area A) the debris accumulated directly over the occupation layers of the structure, with no appearance of sand-blown sediment in between. The implication is of a collapse event

that occurred a relatively short time after the building became obsolete, but had not been the direct cause for the abandonment (see Stratum R2b).

Locus	Description
1803	Main structure debris (unit 1)
1804	Main structure debris (unit 2)
1805	Main structure debris (unit 2, 2 nd layer)
1806	Main structure debris (unit 1, outside entrance)
1807	Main structure debris (unit 3)
1808	Main structure debris (unit 2, 3 rd layer)
1816	Main structure debris (unit 4, chamber)
1826	Main structure debris (unit 4, chamber 2 nd layer)

Table 3: Locus list of Stratum R1b

Stratum R2a

This stratum represents a later phase in the occupation of the main structure of Stratum R2b. Two installations and a wall seem to have been added in this stage. One of the installations (L1809) was built against the frontal wall of the structure at the northeast (L1800). It consists of a flat single-course, single row platform of unclear function, ca. 1.50x0.50m in dimension (Figure 5). Inside the platform there was what seems a casual accumulation of stones, implying that the surface was originally of packed earth. The installation may have served as a shelf for artifacts being laid next to the entrance to the building which is at immediate proximity or as a bench, again, in direct context to the entrance.



Figure 5: Installation by the northeaster wall of the main structure.
(300069_R2_1807_M)

A second installation was exposed at the excavation of Unit 3, the area between the southeastern wall of the main structure (L1819) and the parallel perimeter wall of the courtyard (L1812). Part of the installation remains buried within the section to the southwest. The exposed part comprises two parallel lines roughly built of relatively large stones (ca. 0.40x0.50m in average), leaving a space of ca. 40cm in between (Figure 6). At least one of the building stones had been previously used as a large grinding slab. The function of the installation remains unknown. No plastering on the inside precludes the option of a channel and there are no finds to suggest possible use. It should be noted that a similar arrangement of two roughly laid parallel stone lines was also discovered inside the structure at Area T.



Figure 6: L1825, a Stratum R2a installation in Unit 3 (30285_R12_125_A)

The third structure that may be identified with the stratum is a poorly preserved wall (L1818), linking the corner between the northeastern and southeastern walls of the main structure (L1800, L1819) and the southeastern perimeter wall (L1812). A single course of the wall has survived. The connection with L1812 has eroded but as no architectural evidence for an entrance has been exposed it can be assumed that such a connection did exist. The wall separated between the southeastern and northeastern parts of the courtyard, which seem to have been previously connected. The reason for this architectural alteration remains unclear.

Other than the fact that two out of these three elements abut the main structure there are two additional factors that support their allocation to a later sub-phase. First, all three were founded over the surface of the courtyard , while the lower two main

structures of the area, the large building and the perimeter stone fence penetrate into the surface and each into the superimposed slag layers of Stratum 3a. Second, all three elements are built directly over a bedding of rough slag spread above the crushed slag layers upon which the main building and the fence were laid. At the same time, the installation seem to almost certainly have been built as practical additions to the main complex while it was in operation and not as makeshift installation erected after is abandonment. As evidence, all three were exposed beneath the outer debris of the main complex.

1809	Installation abutting wall L1800
1818	Wall between main structure and perimeter wall L1812
1925	Double row installation

Table 4: Locus list of Stratum R2a

Stratum 2b

The stratum represents the main phase of construction in the area, to which both the main structure and the fenced perimeter belong. As mentioned above, this is the only case at the site of a stone perimeter closing in a single structure. When taking this into consideration along with the central position of the structure at the site as a whole, the circumstantial identification of the main structure as the residence of a high ranking local official, possibly even the person in charge of the industrial operations, would not be far-fetched. The excavations conducted in the building and in its courtyard added substance to this option.

While only the southeastern chamber of the structure was fully excavated (4.20x4.60m, ca. 12-15 courses per wall) along with the southeastern half of the narrow gallery at the building's frontal part, an analysis of what has been exposed along with

observations of the general formation and the volume of debris in the unexcavated parts allow a tentative reconstruction of the building as a whole. The reconstruction is aided by the exposed plans of the gate structure at Area A and the building at Area T. It is now safe to assume that the building at Area R had four chambers arranged on both sides of a central and probably open space, with a wide entrance on the northeastern side and a closing wall on the opposite southwestern end. This reconstruction corresponds to the general setup of the building in Area T, situated ca. 70m to the southeast on the bank of a small drainage. It also fits the plan of the gate structure at Area A, more so with the blocking of the inner access between what was originally a central passageway and the walled inner compound. Presumably, the blocking was done when the gate structure was transformed into a civilian building, probably a residence (Stratum A2b). The gate architectural adjustments may have become the prototype of fortified residences of local officials elsewhere at the site, including the structure of Area R.

The fortified element is also emphasized by the second floor which the frontal two chambers seem to have had, judging by the noticeably higher accumulation of debris over these chambers in comparison to the two chambers at the back. Partial confirmation for a second floor was given by the staircase discovered to the right of the main entrance of the structure at Area T. Such arrangement may also be found as the space to the right of the entrance of the main structure at Area R is exposed. The entrance itself remains blocked by debris but its existence at the center of the northeastern wall (L1800) was clearly defined during excavations both inside and outside the building, with the exposure of the doorframes (Figure 7).



Figure 7: Inside view of the southeastern doorframe of the main structure. Note the seam between the frontal wall (L1800) and the debris blocking the entrance to the left. (30705_R26_CHAMBER)

The entrance itself was fitted into two parallel short structural additions jutting out ca. 0.80m from L1800 in a 90 degree angle (L1802), another irregular architectural characteristic of this building which may attest to its prominence. A large rock placed by the gate southeastern doorframe may have served as a seat for a guard. All the walls of the structure were built upon layers of crushed slag of Stratum R3a. While the rock by the gate was situated directly above a wall of the earlier architectural complex of Stratum R3b (L1835), the builders of the much more massive main structure took care to avoid irregularities in the foundation bed of that building and narrowly but clearly avoided the earlier ruins, intentionally basing the walls upon the uniform foundation bed of layers of crushed slag (Figure 8).



Figure 8: The front wall from the outside. The entrance is marked by the line at the extreme right, obscured by debris. The arrow marks the outer jutting of the southeastern door frame. To its feet the large rocks that may have been served as a bench. Note the layers of crushed slag below the building's foundations and the course Stratum 3b wall emerging beneath the foundation layer of the main structure. (30256_R8_1810_P)

Excavations both within the structure and at the courtyard yielded a significant collection of ceramic finds associated with the domestic scene in a residence of some prominence. A few yards away from the corner between the southeastern and northeastern walls of the main structure a broken figurine of a lavishly dressed and adorned female was found, of which the torso, arms and part of the hip survive. Next to it the remains of a fenestrated stand were also detected (L1815, B.16096, B.16097). Apart from the decorated jug mentioned above, several loci outside the structure (L114, L1815, L1827, L1832) all produced painted shards originating in ceramic vessels that significantly exceed in quality and aesthetics the average assemblages from the site.

A similar impression of what must have been a relatively comfortable quality of life in this remote and intense industrial site emerges from finds from inside the building itself. Surfaces with partially preserved stone pavements were found in both the frontal gallery and the southeastern chamber (Units 2 and 4 respectively). Slightly better preservation of the pavement could be seen at the northwestern part of the frontal gallery (Figure 9).



Figure 9: Remains of stone pavement at the frontal gallery (30705_R26_CHAMBER)

A low stone blocking (L1824) separates the part of the gallery where the pavement partly survived, which is also the part adjacent to the entrance, and the southeastern part where no remains of pavement were found. It may be that the latter part was never paved and the surface there consisted of packed earth only. At the inner southeastern corner of the gallery the neck of a jug with a cup-shaped spout was found. This characteristic Iron Age II vessel was probably used for the allocation of some precious liquid, most likely a type of wine or oil.

The surface of the chamber itself was covered with light ash into which some debris was embedded (Figure 10).



Figure 10: Occupation level of the southeastern chamber (30468_R16_1834_C)

While no signs of destruction or intentional burning were found nor a corresponding rich layer of domestic finds in situ, the general volume of pottery in this level confirms the identification as an occupation layer (L1834). Among the finds were also a cash of three small cups, one of them intact and the other two restorable, and nine fragments of what seems to be a single Cypro-Phoenician juglet (Figures 11-13).



(0477_R14_1834_G)



(30477_R14_1834_P)



(30519_R18_1834_F)

Figures 11-13: Top and middle: Location of cups discovery in the chamber (seen next to arrow) and detail. Below: bottom of the Cypro-Phoenician juglet.

The surface of the chamber (L1839) seems to have been of packed earth, possibly with occasional embedded stone slabs. The slabs were found mainly by the northwestern wall (L1821) and may have been part of a low shelf or installation. No plaster has been detected on the inner walls but the quality of construction is good, with clay effectively used for consolidation (Figure 14).



Figure 14: The northwestern wall of the chamber (L1821)
(30704_R25_CHAMBER)

Finally it should be noted that the structure at Area R, in distinction from the structures of Areas A and T no trace has been yet found of industrial activity within the structure's walls, neither in production or in waste accumulation. The slag scattered around the building probably belonged to opportunistic production taking place after the cessation of organized and systematic operation of the site. All other remains of intensive copper related industry predate the Stratum R2b complex; its engineers knew about the

massive levels of industrial waste below the grounds of the planned building and probably used them intentionally as foundation beds for structures otherwise lacking any significant foundations. Yet this waste had its origins clearly before the erection of the main complex. The structure of Area R thus may have been occupied for as long as intensive copper production at the site was being conducted.

Locus	Description
1800	Wall, main structure
1802	Wall, main structure
1812	Perimeter courtyard wall
1814	Fill over slag layer, courtyard
1815	Fill over slag layer, courtyard
1817	Occupation, inside main structure, unit 2
1819	Wall
1820	Wall
1821	Wall
1824	Inner partition, main structure, unit 2
1827	Ashy fill over tap slag layer, unit 1, courtyard
1831	Ashy fill over occupation
1832	Ashy fill over crushed slag
1834	Occupation layer, unit 4, chamber
1838	Ashy fill over slag layer, courtyard
1839	Surface layer, unit 4, chamber
1840	Ashy fill over slag Layer
1841	Ashy fill over slag Layer
1843	Ashy fill over slag Layer
1854	Perimeter courtyard wall

Table 5: Locus list of Stratum R2b

Stratum R3a

All parts of Area R that have been excavated this season contained layers of copper industrial waste. Inside the main structure layers of crushed slag were discovered in probes below the surfaces of the gallery (L1829) and the chamber (L1844). Layers of

crushed or coarse slag have been reached under all the courtyard surface level both to the southeast (Unit 3) and northwest (Unit 1) of the main structure, in addition to the large amounts of tap slag and regular coarse slag scattered on topsoil and under the debris of the main structure's outer walls. A principal aim of this season's excavations had been to investigate the slag concentrations in the area, detect possible distinctions and place them within the stratigraphic sequence of the area. Investigation focused both on the finds during actual excavation and on the analysis of the sections.

No final conclusions could be reached regarding the exact stratigraphic and functional lay of the slag, but several issues have been determined:

1. At one point or more, copper was being processed within the area or in its immediate vicinity.
2. At one point or more, the area was utilized for the disposal of copper industrial waste.
3. Distinctions have been noted in the distribution of waste in various parts of the area.
4. The main phase of copper industry related activity does not correlate with neither of the two architectural phases discovered at the area.

Clear signs of smelting activity in or very near the area emerged from the high frequency of furnace fragments, including very large pieces, throughout the massive fill layers excavated under the courtyard surface. In two different parts masses of furnace material have been met but due to time constraints as the season drew to its end only preliminary exposure of one (L1850) had been possible (Figure 15).



Figure 15: Cross-probe through the southeastern courtyard. Slag layers clearly distinct immediately below surface level. The two spots where mass furnace materials have been preliminarily exposed are marked in circles. (30703_R24_0_Q)

Furnace fragments included many examples imprinted with the fingerprints of the builders, as well as pieces to which slag, carbon and tuyere pipe pieces remained attached. Large quantities of tuyere pipes have also been discovered, among them an unusual number of completely preserved artifacts, often with slag attached to the ends. In one relatively narrow locus (L1847) tuyere pipes, several of them intact or nearly intact, comprised a substantial volume of the overall fill that also contained slag and large pieces of furnace fragments (Figure 16). On the other hand, only one recognizable fragment of a crucible has been identified (L1833, B. 16362), correlating with the overall scarcity of such items at the site in general.



Figure 16: Two of several tuyere pipes discovered within a narrow waste context (L1847) under the surface of the courtyard. (30520_R19_1832_B)

Further excavation should determine whether smelting was conducted within the area itself. A further investigation and exposure of the two masses of furnace material are essential for this question to be answered in the future. At the same time there is clear evidence for the utilization of the area for the disposal of copper industrial waste.

Thick layers of slag of various types dominate the massive fill that covers an architectural complex (Stratum R3b) also discovered below the surface of the Stratum R2b courtyard. Yet the sections in the probes show that the disposal of the slag was not random. Slag fill (L1833, L1845) within the irregular (“round”) chamber of which three walls have been exposed is arranged in diagonal layers ca. 45 degrees declining from the northeast to the southwest (Figure 17).



Figure 17: The slag fill within the “round chamber”. The arrow marks the more distinct diagonal layers of slag deposit. (30703_R24_0_LL)

The distinct diagonal layers disappear outside the perimeter of the chamber, where the slag fill becomes random and mixed. Clear distinction in slag type fills has been noted in the opposite section. There fine layers of crushed slag dominate the area between the frontal wall of the Stratum R2b building (L1800) and wall L1851, which cuts across the probe in the courtyard on a southeast-northwest axis (Figure 18). Beyond that point slag fill becomes again mixed and indistinct.



Figure 18: Crushed slag layers in the fill beneath the courtyard. To the left can wall L1851 be seen. The wall marks the limit of expansion of this type of fill. (30707_R28_SECTION)

There is obviously some connection between the distinctions in slag fill typology and the obsolete ruins of the earlier phase architecture. In the introduction of the fill consideration was given to the spaces created by the older walls. On the other hand, there is no evidence that the walls were originally built in order to accommodate distinct types of fill. It is difficult to see what purpose would this serve, no other example of careful allocation of slag is known from any other part of the site and the opening in the bottom of the southeastern wall of the round structure (see below, L1836) cannot be explained within the context of casual rough waste disposal. Possible evidence for the immediate source of the crushed slag has been discovered immediately to the southeast of that layer, where a large concentration of tap slag had been exposed ca. 50 cm below the surface level of the courtyard (Figure 19). This was apparently a concentration of raw material to be crushed for copper, the waste being distributed in the adjacent opposite spot.



Figure 19: Tap slag layer under the courtyard surface level. (30706_R27_1827_F)

Finds from this layer were overall poor, consisting mainly of copper related artifacts such as the waste material directly related to production and already mentioned, and affiliated objects such as hammerstones (dimpled and plain), grinding slabs and mortars. Pottery was relatively scarce and consisted of shards of rough container vessels, many of them locally made as indicated by the slag inclusions. The fine wear examples discovered in the superimposing surface of the Stratum R2b courtyard totally disappear.

Locus	Description
1810	Ashy fill with slag
1823	Ashy fill with slag
1828	Crushed slag layer
1829	Crushed slag layer
1830	Ashy fill with slag
1833	Slag layer inside round room
1842	Tap slag and crushed slag layer, courtyard

1844	Probe into slag layer in chamber
1845	Slag layer inside round room, probe
1846	Ashy fill with slag
1847	Copper industrial waste accumulation
1848	Ashy fill with slag
1849	Slag layer
1850	Furnace material concentration
1853	Compact ash lens

Table 6: Locus list of Stratum R3a

Stratum R3b

An architectural complex that clearly predates the main structure was partly exposed during the excavations at the courtyard (Unit 1) between the frontal wall of the structure (L1800) and the northeastern perimeter wall. Of the complex are presently known 5 walls (Figure 20). Three walls (L1835, L1836, L1837, 7-10 courses) surround from the southwest, southeast and northeast an irregularly shaped chamber (the “round chamber”), whose northwestern part is still obscured by the excavation’s section. The chamber’s excavated part measures ca. 3.20m to each direction. Wall L1851 is built across the probe’s extension southeast to northwest (4.70m in length). It is connected to the round chamber by a short wall (L1852). All walls consist of a single row of stone, yet all are relatively solid, with what seems to be rough clay consolidation between mainly dolomite building stones. The general impression is not of a domestic unit although too little is exposed for anything to be certain.

No surfaces related to this stratum have been discovered so far with the exception of a narrow patch of hard packed soil found at the northeastern end of the round chamber. The possible surface is at level with the lowest course of the chamber’s wall L1836. The

surface disappears with no clear reason towards the center of the chamber, replaced by the same accumulations of copper industrial waste that are met above its level.



Figure 20: The early architectural complex. The “round chamber” is seen at the center. Wall L1851 at the front, with short wall L1852 connecting. Note the layers of slag at the section, representing the thick slag fill within which the walls were exposed. Main structure at the background, with the courtyard surface on both edges of the probe. (30703_R24_0_D)

As can be clearly seen in figures 20 and 21, the architectural complex of Stratum R3b as a whole was covered and surrounded by a massive fill consisting of slag of various types, as well as hundreds of furnace fragments and tuyere pipes, several of them intact. In the fill were also tools related to copper production, mainly hammerstones and grinding slabs. All of these elements seem unrelated to the structures and were most

probably introduced here either as a simple operation of waste disposal or as storage connected to production.



Figure 21: The round structure during excavation and slag fill surrounding the structure. (30538_R20_1832_D)

Only one element found within the bottom courses of the central part of wall L1836 of the round chamber may be an indication to function. The element is a vertical rectangular space ca. 60cm tall formed of three courses of building stones on each side and a flat stone serving as lintel. The resulting space is ca. 40cm wide. Nothing within the chamber connected to this element, as any installation or connecting architecture that may have existed would have been destroyed during the introduction of the slag fill. Several fallen stones from adjoining wall L1835 may have been knocked down during that process. The outer outlet of this opening has not yet been exposed. No surfaces or installation are related to either walls L1851 or L1852, which connects the long wall with

the round structure (Figure 22). They too were completely covered with slag on both faces, though at least the longer wall seem to have served the transporters of the slag in secondary use as different types appear at each side (see Stratum R3a)



Figure 22: Wall L1852, connecting the long wall across the probe (L1851) to the round structure. (30707_R28_SECTION)

As already mentioned, the introduction of the slag into the spaces within and between Stratum R3b architecture destroyed any occupation layers that may have survived until then over the surfaces. No finds related to this stratum could be identified during the present season, as what was found within the fill must be related to the fill phase rather to the building in which it was found.

Finally, a layer of crushed slag was discovered below the walls of the round structure. The layer either predates the building and represents an earlier phase of copper

production or is contemporaneous with the building and was brought over as foundation bed for the buildings.

Locus	Description
1835	Wall, round structure
1836	Wall, round structure
1837	Wall, round structure
	Wall, under courtyard level
1852	Wall, under courtyard level, connecting L1837-1851

Table 7: Locus list of Stratum R3b

Conclusions

Although this year's excavations at Area R should be considered only a preliminary probe, several conclusions can be reached on a preliminary basis. The earlier evidence of activity in the area consists of crushed slag layers below the foundation courses of the walls of Stratum R2b. These layers may also represent activity that took place while the buildings were in operation. The earliest structures at the area are the chamber and walls of Stratum R3b. As almost no surfaces were found and due to the lack of artifacts no function or definite date can be associated with the stratum.

As the walls of the early structures were not very sturdy their preservation to up to ten courses implies their filling in with the copper industry related materials a relatively short time after the abandonment of their original function. The still standing walls served at that phase (Stratum R2a) as distinctions between different types of materials, from coarse slag in random deposit to specific enclosures housing clean crushed slag, concentrations of tap slag or piles of rough slag poured in systematic action. At least

some of this material, namely the crushed slag, seems to have been used as foundations bed for the large development that took place in the area during phase R2b.

This development focused on the construction of what seems to have been a large structure containing four chambers around a central space protected by a back wall and accessible through a wide entrance. The front two chambers or spaces were probably a ground floor level to a second floor that has since completely collapsed. The single room excavated this season is in fact a relatively open space, perhaps a storage facility. The shards of fine ceramic ware found inside may have slid in from the second floor, though the three small cups were probably found where they were placed original, since they would not have survived the fall intact and in a single group. The lack of pavement strengthens the possibility of a store facility to a residence whose living quarters would have been upstairs. The building served as a residence till its final abandonment and unlike the similar structures at areas T and A was not used later for the production of copper. There is no way to tell the identity of the resident but the fine ware that was found inside, the sturdy nature of the building and the stone fence around the courtyard that was arranged around it indicate a senior official. Both the building and the courtyard were built over layers of slag fill, with the earlier phase of structures buried within it and serving no function at all during this phase.

Other than a few simple walls and installations there was no later phase of utilization at the area until its final abandonment that predated, probably not by many years, its complete destruction by what seems likely to have been an earthquake or several events of that nature. Other than the rough installation found over the ruins of the

southeastern chamber there is no indication for any later occupation or activity at the area.

In future seasons it may be beneficial to excavate the central passageway, the chamber to the right of the gate, where a staircase might be found, and at least one of the two chambers at the back. Outside, the masses of in situ furnace material should be cleared and excavated, and the early complex expanded, in hope of discoveries which may shed light on the time and function of these buildings, and maybe also on the copper production phase that sealed it.

Addendum:

During the course of the season one of the local Bedouin workers employed in Area R stumbled upon an intact jug embedded in a slag mound ca. 80 m to the northwest of the area. The jug was collected and recorded by Area R staff and given Area R identification number. The two figures in the next page show the general location of the discovery and the artifact in its original spot.

Yoav Arbel

December 2006



Addendum 1: The slag mound within which the jug was discovered. Exact point marked by the arrow. (30469_R17_0_B)



Addendum 2: Jug in original position (30469_R17_0_D)

