

AREA M

Final Report

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Introduction

Area M is a slag heap and adjacent building complex in the southeast of Khirbat en-Nahas. The slag heap was first excavated to a depth of about 1 m. in 2002 with the intention of examining metal production through time in this, one of the site's largest slag heaps. At the same time, the south corner of the building complex was sampled down to below its foundation. The Edom Lowlands Project returned to Area M in 2004 with two main goals: To determine the nature of the structure whose corner was excavated in 2002, and to extend excavations down to the bottom of the slag heap in order to understand the first, as well as the last, phases of metal production in this part of the site. Both of these goals were accomplished. The entire building complex (Structure One) was uncovered and found to be a four-chambered house. At the same time, part of another building (Structure Two) to the north to which Structure One was connected by a thin secondary wall, probably an industrial complex, was excavated. The slag mound was penetrated down to virgin soil – a depth of approximately 5.8 meters. Several installations of unknown use, including one probable cultic installation, were uncovered in this deep sounding. In short, a great deal of data was collected about metalworking and its social context in the Iron Age of Southern Jordan which are presented here in a preliminary summary.

Methods

STRATA DESCRIPTIONS

Five major strata representing periods of utilization can be detected in Area M. Some of these can be further divided into substrata. These units are relatively arbitrary, but are based on building construction, abandonment, and clear changes in site utilization (see Table 1).

<u>Stratum</u>	<u>Description</u>
M1a1	Surface slag

M1a	Post building abandonment, aeolian sediment accumulation, some metal production
M1b	Post building abandonment, wall collapse and aeolian sediment accumulation, metal production
M2a	Last occupation phases of structures, use of plastered outside work area, metal production
M2b	Slag heap leveled and Structures One and Two constructed.
M3	Intensive metal production beneath structures
M4	Intensive metal production, installation construction, followed by possible abandonment layer.
M5a	Decommissioning of earliest installation, construction of new installation.
M5b	Earliest site occupation, founded on virgin soil. Installation construction.

Table 1: Strata of Khirbat en-Nahas Area M.

Stratum 1

The first stratum encountered was that of the abandonment and final stages of use of the site. During this period the buildings which were erected and used during Stratum 2 were abandoned and allowed to fall into decay. Nevertheless, some metal production still occurred at the site.

Stratum 1a1

Stratum 1a1 is an ephemeral layer relating to the very end of metal production in Area M, on the very surface of the area. Huge tap slags littered the surface of the site, and a fine dust of slag granules also sat atop the aeolian yellow-brown sandy silt. This slag overlay the walls of the structures encountered in Stratum 2.

There are two likely interpretations for the state of the surface of the site. It is possible that the tap slags form the final production level of the site, and for reasons to be determined were never fully processed in the way that the crushed slag of earlier strata was processed. The reason they lay atop the aeolian sediment may be because of a geological process by which this very fine sediment worked its way beneath the tap slags, pushing them slowly upward. Alternatively or in addition, an unknown quantity of sediment once overlay these tap slags. As that sediment was eroded, the larger, denser, heavier slags remained as the rest was washed away. The crushed granules of slag, like the yellow-brown sandy silt, could then have been redeposited on the slag mound, blown in from other parts of the site.

One interesting surface find was actually just outside of Area M, in association with a nearby structure. This was the snout of an equine figurine (EDM # 91279). Despite searches, no further fragments of this artifact were discovered.

Stratum 1a

Directly below Stratum 1a1 is Stratum 1a, a stratum of sediment accumulated after abandonment and of some remnants of metal production. The loci of this stratum (i.e., l. 603, 604, 609, 644, 645, 649, 663, 672, 681, 687, 694, 695, 701, 718, 724) consist of aeolian sandy-silt. This material overlies the structures (though some parts of the walls extend above it). It was excavated in arbitrary loci due to the lack of distinguishing characteristics.

Stratum 1b

Below the loose aeolian dust, one encounters Stratum 1b, which consists of wall collapse mixed with aeolian sandy silt in the buildings, often with tap slags mixed in (l. 607, 613, 614, 623, 626, 633, 645, 648, 649, 664, 679, 682, 683, 688, 693, 698, 699, 705, 706, 723, 724, 725). This stratum is also mostly consistent with a long period of abandonment, and was found in all of the rooms of both structures. The most interesting example of this wall collapse is in locus 649, in the northern part of Room 2, where several courses of wall locus 632 fell as one. Though the wall seems to have fallen together here, such a condition was not replicated anywhere else in Area M.

In and around both Structure One and Structure Two in this stratum, large numbers of groundstones were uncovered. These particularly took the form of dimpled hammerstones, found in great abundance especially outside the buildings.

Stratum 2

THE METALLURGY

In Stratum 2, intense metallurgical activity resulted in the accumulation of great quantities of broken slag and furnace fragments around the buildings. It is difficult to separate this accumulation into substrata, as can be done with the structures themselves. These metallurgical layers were generally excavated in arbitrary units. Two main distinct metallurgical areas from this stratum were excavated. One lay above the floor of Stratum 2b work area locus 717. Dating to Stratum 2a, this was excavated as locus 707. The other is directly south of the structure, in the core of the slag mound. Its substrata are less

clear, and it was excavated as loci 602, 605, 606, 608, 609, 610, 612, 615, 616, 617, 620, 622, 627, and 629. The differences between these loci and between the two work areas will be clearer with more detailed analysis of the finds.

In both the east and the south, there seem to have been attempts to protect the building from the metallurgical process. Both in the south and in the east (l. 708) a thick layer of buff or reddish sediment, relatively free of artifacts, was excavated directly next to the wall. This seems to have been an insulation of sorts, perhaps originally mudbrick, and is not found in the north of the building, where metallurgy was not practiced or was practiced to a much lesser degree. However, the battle seems to have been lost in the south. Both wall loci 618 and 632 in the south were badly heat-damaged, leading to cracking and discoloration of the stones and even causing these walls to lean precipitously. This room may have been abandoned in Stratum 2a, with the construction of installation 634 (see Room 1 description below). After abandonment of the room, metal working took place on top of the ruin this room (l. 619), spilling over the wall and on top of a layer of accumulated sediment (l. 630). Ironically, the activity that damaged these walls then preserved them, as the walls themselves became part of the accumulating slag heap.

Two of four interesting stone installations were uncovered in Stratum 2 (the others being l. 651 and 678 in Stratum 3). These are of unknown purpose but are of similar construction and likely had to do with metal production.

The first is contained within l. 616, likely contemporaneous with Stratum 2a. It consisted of a line of four exposed boulders, each about 20-30 c.m. in diameter. One of these continued into the section, so it is unknown how long the lineation was exactly. The line abutted wall locus 632 at a slight angle (Figure 1). No evidence from around the stones indicated the feature's function, and there seemed to be no difference in activity on either side of the feature.



Figure 1: L. 616 stone lineation (90132_m4_616_c).

The second of these, l. 643 (Figure 2), was about half a meter below the first, in layers probably contemporaneous with Stratum 2b. The stones of this installation were placed together more tightly than in the first, but the placement next to wall l. 632 was almost identical. Loci 640 and 641 were excavated on either side of this feature, but again no easily discernable difference in their deposits was detected.



Figure 2: L. 643 stone lineation (90643_M16_643_C).

THE STRUCTURES

In order to understand the final utilization of the excavated structures and their surroundings, which we have designated Stratum 2a, it is necessary to understand Stratum 2b, which is the original construction of the architecture itself. It therefore behooves us to consider the older Stratum 2b before continuing on to consider Stratum 2a.

Between the two structures, an alleyway, locus 700, was excavated. In the 2a/2b aeolian dust here, a large amount of interesting pottery was uncovered, as were a number of groundstones. A diamond-shaped green bead blank (EDM # 12109) and a brown and black pendant-like bead (EDM # 12108) were also uncovered here (Figure 3).



Figure 3: The bead (EDM # 12108, left) and bead blank (EDM # 12109, right) found in the locus 700 alleyway.

Stratum 2b

At the beginning of Stratum 2b, the accumulated slag mound was leveled off. An accumulation of yellow-brown sand is clearly visible in the east section at the beginning of this stratum. This testifies to what seems to be a period of aeolian sand accumulation during which there was no slag production: we seem to have a short period during which a yard existed here.

The main reason for the leveling was to create a place for the building of at least two structures. Structure One is a building with three rooms surrounding a central courtyard which was first partially excavated during the 2002 season, and which was completely excavated this season. A wall extending to the southeast of the structure, however, suggests it is part of a larger building complex the nature of which is unknown. Structure One is believed to be domestic in function. Beneath one of the walls of Structure One, a small, mostly intact dipper jug (EDM #90869) was uncovered, which likely was a foundation deposit during the construction phase. Structure Two is not as well known because only a corner of it was excavated this season; however, it is clearly a more substantially built structure. It is believed to be industrial in function.

Structure One

Structure One consists of a courtyard (Room 3) with rooms opening to the south (Room 1), west (Room 2), and east (Room 4). Unfortunately, logistics required the removal of Room 1 early in the dig in order to allow for the excavation of the deposits beneath it (Figure 4).



Figure 4: The three remaining rooms of Structure One after excavation, from the north (91821_M39_711_G). From the right (west), Room 2, Room 3, and Room 4. The place once occupied by Room 1 is now part of the deep sounding. The southwest wall of Structure Two is in the far left of the photo.

The central room of Structure One is a courtyard, **Room 3** (l. 711). Room 3 was the most public space of the structure, being the room which one entered to access any other room of the structure. A 1.3 m wall in the northwest of the structure (l. 697, part of l. 690, the north wall of Room 2), partitioned this courtyard from the rest of the world, but a doorway, also 1.3 m wide, welcomed the world in the northeast. No evidence of a door was found here, but no evidence of doors was found in any of the other doorways either. A large red granite stone (l. 703), measuring 0.25 x 0.40 x 1.15 m, was found in the south center of the room. This is most likely a column which supported a roof of perishable material. The south wall of the courtyard (l. 637) measured 2.80 m. within Room 3 and continued east and west to form the southern walls of Room 2 and Room 4. The total length of the room's east side (l. 668, 669) is 5.80 m., while the combined length of the walls and doorway in its west side is 5.70 m. (see Table 2).

Room 1	North wall (637) Length: 3.85 Width: 0.40 Height: 0.90 Courses: 1 x 7	East wall (631) Length: 1.75 Width: 0.30 Height: 0.70 Courses: 1 x 7		South wall (618) Length: 3.70 Width: 0.35 Height: 2.10 Courses: 1 x 12	West wall (632) Length: 2.00 Width: 0.35 Height: 1.95 Courses: 1 x 14	
Room 2	North wall (690) Length: 1.55 Width: 0.30 Height: 0.45 Courses: 2 x 2	East wall (N) (669) Length: 3.80 Width: 0.30 Height: 0.60 Courses: 1 x 5	East wall (S) (668) Length: 1.20 Width: 0.30 Height: 0.60 Courses: 1 x 5	South wall (637) Length: 1.75 Width: 0.40 Height: 0.65 Courses: 1 x 2	West wall (661) Length: 4.30 Width: 0.40 Height: 0.90 Courses: 1-2 x 8	
Room 3	North wall (690) Length: 1.30 Width: 0.30 Height: 0.45 Courses: 2 x 2	East wall (N) (691) Length: 2.10 Width: 0.25 Height: 0.40 Courses: 1 x 3	East wall (S) (625) Length 2.70 Width: 0.50 Height: 1.15 Courses 1 x 6	South wall (637) Length: 2.80 Width: 0.40 Height: 1.00 Courses: 1 x 7	West wall (N) (669) Length: 3.80 Width: 0.30 Height: 0.60 Courses: 1 x 5	West wall (S) (668) Length: 1.20 Width: 0.30 Height: 0.60 Courses: 1 x 5
Room 4	North wall (692) Length: 1.85 Width: 0.40 Height: 0.60 Courses: 1 x 5	East walls (684, 714) Length: 5.65 Width: 0.40 Height: 1.10 Courses: 1-2 x 9		South walls (737, 714) Length: 1.70 Width: 0.30 Height: 1.00 Courses: 1 x 6	West wall (N) (691) Length: 2.10 Width: 0.25 Height: 0.40 Courses: 1 x 6	West wall (S) (625) Length: 2.70 Width: 0.50 Height: 1.15 Courses: 1 x 6

TABLE 2: Interior wall measurements in meters of Structure One.

The Stratum 2b floor level (l. 756, 754, 631) of Room 3 held very interesting finds. Only the northern half of the room was excavated to this level. Here, large pot base (EDM # 91906) was found, and sitting next to it a round pestle in the form of a dual-faced dimpled hammerstone (EDM# 90452) and a round mortar (EDM# 90451). Less than a meter away was a large grindingslab, perhaps a sharpener (EDM # 91885) (Figure 5). A figurine pendant was found at this level near these objects (Figure 6, EDM

#90464).



Figure 5: The probable second floor level of Room 3, Stratum 2a. Note the large stones of IN I. 634, the large pot base, and the grinding slab. The granite pillar lies at a higher level.



Figure 6: The figurine pendant from Room 3, l. 635 (EDM # 90464).

To the south of this courtyard, **Room 1** (Figure 7) was apparently entered through a doorway blocked by a Stratum 2a installation (l. 634, Figure 5). As a result, the doorway's boundaries were never clear. The large stones of Installation l. 634 extend into this level, suggest that the doorway to Room One, was blocked by these stones at the end of Stratum 2b and the beginning of Stratum 2a. This was likely done because of the encroachment of the ever-growing slag mound to the south and the fact that the southern walls (l. 632 and 618) had become dangerous because of heat damage related to metalworking. A thick layer of reddish silt directly next to these walls was likely a plaster applied in an attempt to protect the walls from the metallurgical production process, possibly from the building's very foundation. However, the 2002 excavations found collapse from these walls in metallurgical production layers, suggesting this room may have been abandoned due to the encroachment of the metal production activities which would come to encase it in slag. Room 1 was the first room encountered in the excavations in 2002 (during which it was called **Room 5**), and had the highest preserved walls (see table) due to the protection of the surrounding slag mound. No evidence of any connecting walls was uncovered south of this room, so it is known to have been the southern exterior limit of the building.

Room 1 possessed a beaten earth floor in Stratum 2b (l. 635, 657). The floor of this room was hard packed, and buried within it was discovered a white spindle whorl (EDM # 90881). Many date seeds were also collected here, though there were few other artifacts above the slag levels below the floor. There were no installations uncovered, and there is little other evidence as to the function of this room. The floor of this room was founded upon the leveled-off slag of Stratum 3.



Figure 7: Room 1 before its removal, facing north (90837_M19_T). Note the pot in partially-excavated Room 3 (Stratum 2b).

To the east of courtyard Room 3 lies **Room 2** (l. 712), accessed through a 0.80 m wide doorway in the southwest wall of Room 3. The south wall of this room (l. 637) measured 1.75 m. in length, and continued to form the south walls of Rooms 3 and 4. Its north wall (l. 690) measured 1.55 m. The interior of its west wall (l. 661) measured 4.3 m in length, and continued to the southeast to form the southwest wall of Room 1. The walls and doorway of its east side (l. 668, 669) measured a total of 5.8 m. in length. The placement of the doorway almost in the southernmost part of Room 2 may have been for privacy, as such a placement makes it impossible for an observer standing outside of the structure to see into Room 2 even if the courtyard were doorless. Two installations made of flat cobbles were observed, one about in the center of the room (l. 748) and one at the room's northern edge (l. 747); these are likely the remains of pavements. The northern installation had a particularly large flat stone abutting the wall.

To the west of Room 3 is **Room 4** (l. 710), which is accessed through a 0.90 m. wide doorway in the approximate middle of Room 3's western wall. Its north wall (l.

692) measures 1.85 m. long in the interior. Its southern wall (l. 637, 714) has a curious bend in it, likely associated with the unexcavated structure to the south. The total length of the room's southern side is 1.70 m., but there is a 0.50 m long intrusion in the eastern corner of a 0.35 m thick wall at a right angle to the main wall (l. 714; see plan). Most of the southern side is enclosed by the same wall which extends into Rooms 3 and 2. The total length of the eastern side of the room, including this wall intrusion, is 5.85 m.

Room 4, like Room 2, apparently had a cobbled floor during Stratum 2b. All that remains from this, however, are a series of installations (l. 736 and 737 in the south, l. 740 in the north) which were covered over by the Stratum 2a beaten earth floor.

The layout of the building and the nature of the walls testify to the fact that the builders were following a set well-planned design dimensions used throughout the Levant in the Iron Age, but also suggest a certain organic application of that design. Structure I differs from the typical Iron Age four-chambered domestic structure only in that it has one short back room and two long side rooms instead of one long back room and two shorter side rooms. The presence of such a building is especially interesting because of the presence of Khirbat en-Nahas' four-chambered gate. Both of these structures have been long been considered Israelite building types, but their presence here east of the Jordan raises the question of whether these may be indications of the presence of a foreign group, whether they are further evidence of the kinship between Edom and Israel, or whether such structures should simply be considered general regional building types.

The nature of the walls suggests a great deal of work went into their execution, but not necessarily much centralized planning. None of the rooms are built very evenly, sometimes with great differences in length between the northern and southern sides and eastern and western sides, creating trapezoidal rather than rectangular rooms. Room 2, for example, has a 1.55 m. interior north wall, a 1.75 m southern wall, a 4.30 m. eastern wall, and a 5.80 m. western side – a difference of only 0.20 m from north to south, but a full 1.5 m. difference from east to west. The stones used in the walls are often very large, sometimes requiring two people to lift. However, they are uncut, tending to be broken along the natural bedding or cleavage planes of the dolomite, limestone, and shale which

make up the main building materials. Holes between larger stones are then plugged with chunks of slag or smaller stones.

Structure Two

Structure Two is a much larger and more substantially built structure to the north of Structure One. It was also founded on metallurgical layers but at a slightly lower elevation than Structure One, being north of the majority of the slag accumulation of Stratum 3. Two walls were partially excavated here, one running NW-SE (l. 696), of which 4.80 m. were exposed, and an intersecting wall running SW-NE (l. 715), of which 3.8 m. were exposed (see Table 3). This structure was oriented in about the same direction as Structure One, and part of wall locus 696 of this structure ran roughly parallel to wall locus 684 of Structure One. Both of these walls were two stones and roughly 0.60-0.65 m. thick. No intersecting walls were discovered. Both of these walls have buckled considerably due to time (see plan).

Because of the contents Structure 2 is believed to be an industrial complex. It is also likely that the walls are perimeter walls of a work area rather than an actual building, since no clear floor levels were uncovered. That such perimeter walls exist at Khirbat en-Nahas is evidenced by the perimeter wall in Area R. More investigation would be required to understand the true nature of Structure Two.

The locus associated with the Stratum 2b use of the structure, 732, is notable mainly for the variety of its groundstones. Among the groundstones discovered in this locus were hammerstones, dimpled hammerstones (including one on a reused rubber), a small chalk mortar (EDM # 91765), and a large, dense, deeply cut red grinding slab with a lozenge-shaped cavity (EDM # 91745). Some evidence of metallurgical activity, such as furnace fragments and a ball of sulfurous sandstone, was also uncovered. Structure Two was, however, notable mainly for its absence of artifacts.

Structure 2 Exposed Dimensions	West wall	East wall
	Length: 4.80 Width: 0.60 Height: 1.60 Courses: 2 x 8	Length: 3.80 Width: 0.65 Height: 1.50 Courses: 2 x 8

Table 3: Exposed dimensions in meters of the walls of Structure Two.

Eastern Courtyard

East of Structures One and Two is a partially-excavated courtyard with a plastered floor. A small wall, just 0.50 m. long, and one stone or 0.25 m. wide covered with thick plaster, surviving to a height of 0.75 m. in five courses, was constructed joining walls 715 and 684. These walls and wall 761 – a wall excavated to 1.10 m. which is 0.45 m. or one stone thick and preserved to 1.50 m in 6 courses of the unexcavated structure to the south – formed the boundaries of the courtyard, while to the east our arbitrary unit boundary limited our findings. In the south of the unit, running parallel to wall 684, a well-laid pavement (l. 749) was uncovered with a well-preserved portion of the plaster floor (l. 745) next to it. Further north, chunks of plaster and large stones were discovered close to the section and surrounding a reconstructable vessel with a trefoil spout (EDM # 91833). Plaster also adhered to the vessel, and it seems that a plaster and stone construction held this vessel in place on the plaster floor. Many metalworking items, including tuyere pipes and other furnace fragments and hammer- and groundstones were found here.



Figure 8: The Eastern Courtyard. Note the broken pot (EDM # 91833) and the pavement (l. 649) (91822_M40_717_C).

This locus was also notable for its ornamentation. A bead (EDM # 91762) was found in this locus, and one of the more interesting small finds of the dig, though found on the surface, was probably from this locus. A small metal object (EDM # 91774), probably an earring fragment, was found on the spot where workers were leaving their guffahs to be sieved. It is less than 2 cm. long, with a rounded green stone or copper piece set into its bulbous head (Figure 9).

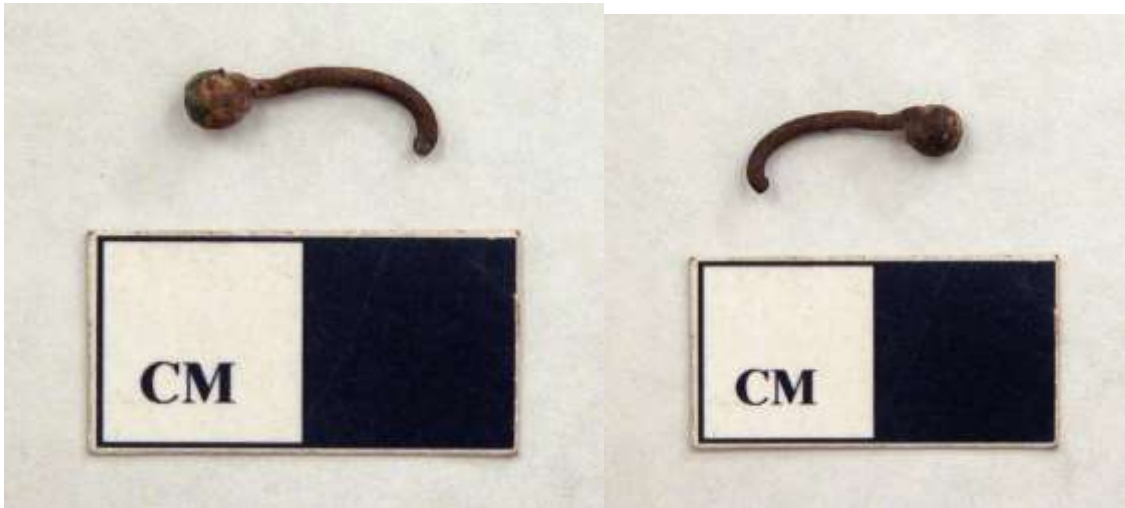


Figure 9: The surface earring likely originally from locus 717 (EDM # 91774).

Stratum 2a

Stratum 2a is that of the last occupation of Structures One and Two, as well as a metallurgical production stratum. The beaten-earth floors and several installations inside Structure One date to this period, as does a wall added to the structure in the west. No clear floor was ever discovered inside Structure Two, but a layer of aeolian sand above a slag layer is believed to be the work area associated with Stratum 2a in that building.

Structure One

Room 3, the courtyard, proved to be the room with the most complicated stratigraphy. The Stratum 2a floor level was excavated in several loci (741, 742, 743, 752, 631). This floor was recognized as such for several reasons. First, in the middle western side, a thick amount of plaster was observed, with some large rocks set into it on edge suggesting a single plastering phase. Secondly, the granite column lay on this surface, and its position suggests that its base rested on this surface. Thirdly, a nicely

preserved hearth and an anvil were uncovered in the northern part of the room on this surface. Relatively few other finds were associated with this floor.

Directly beside the doorway of this courtyard lie the anvil (EDM # 91886) and the hearth (l. 753). The anvil, a rounded blue diorite wadi boulder, lay right in front of the doorway. The hearth, lined with stones and slag chunks held together by plaster, surviving to about 0.60 m. in diameter, was likely used for domestic cooking. It lies in the corner of wall loci 690 and 669. A soil sample was taken from here for floatation, and charcoal (EDM # 91837) and a date seed (EDM # 91838) were collected for dating this occupation phase.

Room 1, the southern chamber, is believed to have been out of use during this phase. Installation l. 634, which blocks the doorway, was likely constructed at the very beginning of Stratum 2a. This consists of two large stones placed on their sides with smaller stones lying atop them.

Room 2, the western chamber, contains an installation of unknown purpose, and the remnants of a storage installation from this stratum. Some large groundstones were found in the fill above the floor (l. 633), and it is likely that they were once associated with this floor. The floor itself was hard packed earth excavated in three loci (716, 719, 735). A small white bead with a groove running down its center (EDM # 91717) was uncovered here, as was a small red stone bead (EDM # 91774). Also, functional items including a dimpled hammerstone and a hammerstone were found here. Directly next to this northern pavement in the northwest corner was a roundish installation (l. 720) of unknown purpose rising about 0.60 m. above the floor and about 0.60 m. in diameter. It was put together of flat cobbles held together in a bright red clay which bore evidence of insect burrows. This red clay was also used in an installation in the southeastern corner of the room (l. 646). This installation consisted of a square layer 3-5 c.m. thick of thick fine red clay with film of bright yellow clay sealing the corner of walls 668 and 637. It made use of the fact that the bases of these walls consist of very large stones. Small stones along the edge of the installation may be part of it, and although the installation was destroyed with wall collapse, remnants of it were visible on the southern wall climbing bowl-like to at least 40 c.m. above the floor. It proved impossible to trace on the eastern wall. Some of the clay survived extending from the southern wall but

collapsed during excavation. Like l. 720, the clay of this locus bore numerous well-preserved insect burrows.

Room 4, the eastern chamber, was floored with beaten earth (l. 726, 727, 731, 733, 734), lying over the slag and pavement remains of Stratum 2b. A black-and-grey swirled bead was uncovered within this floor (Figure; EDM # 91706). A small plaster basin in the south-center of the room, l. 739, likely dates to Stratum 2a. This basin measured 46 c.m. by 63 c.m., and dipped gently to a depth of 5 c.m. Some charcoal was embedded in the plaster, including a date seed which was collected from its edge.



Figure 10: The swirled bead from Room 4, l. 733 (EDM # 91706).

Structure Two

As mentioned, no floor was discovered within Structure Two, either during excavation or in the section, but fine aeolian dust with only small amounts of wall debris covering what is believed to have been the work surface was uncovered. These loci (728, 732) were sieved through 1/8" screen and were notable for their overall lack of artifacts. A single bead, a white stone disc (EDM # 91647), was uncovered in locus 723 just at the start of Stratum 2a.

Eastern Courtyard

In Stratum 2a, the eastern courtyard was filled with the remains of metalworking. Much pottery and many groundstones were discovered in the metallurgical layers,

suggesting they had become middens for trash. Some decorative items were curiously also uncovered here. A scarab with an apparent horse inscription (Figure 11) was found in locus 707 (EDM # 91464), as were two beads, both small greenish white stone discs (EDM # 91500 and 91475). In the upper part of locus 708, the protective layer between 707 and the wall, another two greenish white stone disc beads (EDM # 12114 and 91459), and one worked shell bead (EDM # 91460) were found.



Figure 11: The scarab (EDM #91464), found in metallurgical deposits (l. 707).

To the west of Structure One, a poorly constructed wall (l. 662) was added, perpendicular to wall 661. Only 1.70 m. of its length was uncovered. It was 0.35 m. wide and excavated to 0.40 m of its height in 3 courses two stones thick.

Stratum 3

Beneath Structure One and the leveling of the land behind that building we encountered Stratum 3 (l. 647, 651, 658, 659, 660, 665, 666). This is almost entirely a series of metallurgical layers, with a few installations probably associated with metallurgical activity. During the period represented by Stratum 3, it is clear that the center of slag accumulation was south of its Stratum 2 focus, somewhere in the area leveled off to construct the building. Stratum 3 also represents a clear break with the past, as it is founded upon the thick yellow-brown dust and ash of locus 667.

One of the more interesting features of Stratum 3 was locus 651, another stone lineation which probably had to do with the metallurgical process (Figure 12). This

consisted of a line of three exposed boulders, each about 30-40 c.m. in diameter, with one visible in the section. It was impossible to distinguish any difference in the activities on either side of this lineation, however, and its purpose, like that of the others, remains unknown.



Figure 12: Stone lineation, locus 651 (90776_M18_651_F).

Embedded in the wall of the north section, locus 678 was a small stone installation which seems similar to these stone lineations. It consists of a wall-like pile of flat stones – four stones high, more like the one-to-two-stone pile of locus 643 than the lines of boulders of loci 616 and 651 (Figure 13).



Figure 13: The l. 678 installation in the section wall (91243_M29_678_B).

Stratum 4

Stratum 4 is capped by locus 667, a thick level of ashy sandy aeolian silt without much charcoal or artifactual content. Below this rests locus 670, which started with some Aeolian dust but quickly became very hard sediment derived from mud, clay, and furnace fragments, with some crushed slag mixed into it. Locus 671, the lowest of Stratum 4, is very similar in structure, but began with a dense amount of crushed slag, particularly in the east. Here there are spots of sandy brick or sandstone in the fill. Beneath this level, we begin to see the first levels of occupation at the site, largely below the metalworking layers.

Stratum 5

Stratum 5 predates most of the metalworking at the site, and extends down to virgin wadi sand.



Figure 14: The relationship of 5a installation locus 673, right, and 5b installation locus 676, left.

Stratum 5a

Stratum 5a is marked by the appearance of installation locus 673. This is apparently a hearth feature, made of a circle of local limestones. Bone and ash, but no slag, were found within it. Only part of it was excavated, the rest extending into the section. About four courses of stones were laid upon each other to construct the feature. Built up at its feet was locus 674, a thick layer of soft earth, mostly grey in color and with only small amounts of slag. In places, there are red spots derived from decomposed clay bricks. The installation itself was built upon locus 675, a layer of grayish-black fill with many stones mixed into it covering Stratum 5b.

Stratum 5b

The lowest levels excavated were designated Stratum 5b. These rested on red virgin wadi sand. Locus 677 contained some yet very little charcoal in its upper levels and then extended down into virgin sand. Founded upon this locus was an installation designated locus 676. Locus 676 is a rectangular installation of flat local limestones laid as a nice pavement and then covered with a layer of brown plaster about 2 c.m. thick.

The plaster spreads upwards, as though to act as a basin, forming upraised edges to about four or five cm height. On the southern side, a small, thin wall was preserved. It consists of some flat stones and one rounded stone plastered to the corner that protrudes upward like a horn (EDM # 91905). The form of the feature suggests that it is an altar. One worked stone (EDM # 91245) and one hammerstone (EDM # 91246) were associated with this installation. Covering it, in Stratum 5a locus 675, was a pile of stones, apparently deliberately piled over the feature.



Figure 15: Installation 677 (91249_m30_677_ag). Not the Stratum 5a level of stones capping the installation.

Conclusions

The 2006 excavations in Area M of Khirbat en-Nahas collected data which can be used to trace the social and industrial development of the site. Five independent strata were observed, and the development of metalworking at the site was traced, with clear reorganizations in the site, the causes of which deserve more scrutiny, being observed at each stratum's change. Although the exposure was small, the earliest occupations in this

part of the site were uncovered in Stratum 5, founded upon wadi sand and, interestingly, not metallurgical in nature. In Stratum 4, limited metallurgy was observed at the site, while in Stratum 3 intensive metalworking took place. In Stratum 2, the metalworking area was leveled and structures were built atop the debris. These were occupied for some time – long enough for two identifiable floor layers to develop – before they were abandoned at the beginning of Stratum 1, which marked the last metallurgy and final abandonment of the site.