# Report on the Excavation Cluster 23.

In August 2024 we excavated at different locations at a cluster of features in the Gurvanzagal sum, Dornod province. These excavations are part of a joint Mongolian-Israeli archaeological research project. The site we labeled Cluster 23 is located around these coordinates: 49°05.42460′ 115°10.16200′. It was previously named *Kheremtiyn* (Kradin 2019: 129-130 and Figs 56-58) and *Khermiin rashaan* by Baasan (2006: 23) is located south of the wall line that we have been researching since 2018 (Shelach-Lavi et al., 2020a and 2020b). This is a continuation of the work done at the same site in 2022 which included excavations as well as geophysical survey (Hanks et al. Forthcoming).

The cluster is made up of three main features: A small rectangular enclosure; a larger rectangular enclosure; and a large circular enclosure. Each of the enclosures is surrounded by earthen wall that is between 1-2m high (Figure 1). The earthen walls of the two rectangular enclosures are preserved to some 2m high while the wall of the circular enclosure is currently around 1m high. Another possible feature is a very faintly visible circle located east of the large rectangular enclosure (see discussion of area K).

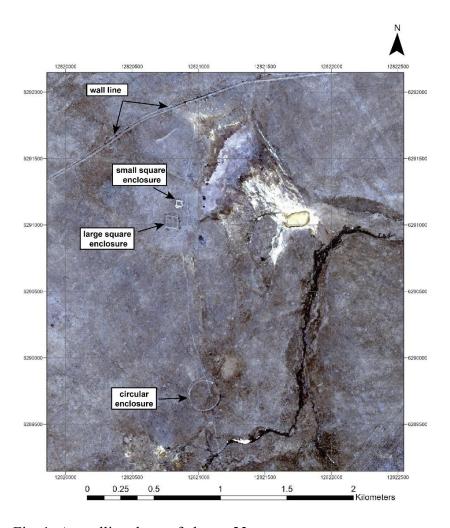


Fig. 1: A satellite photo of cluster 23.

During the 2022 season we mostly excavated the walls and gates of the different enclosures in order to understand their structure and function. This season we focused mainly on the interior of those enclosures aiming at uncovering evidence for buildings that existed in those spaces and activities that took place there. One exception was a trench dug on the parameter of the 'faintly visible circle' (area K) where we attempted to explore the structure of this feature (Figs. 2 & 3). All the excavated sediments were sieved (5 mm mash) in order to maximize our ability to find artifacts. We took samples for radiocarbon dating as well as soil samples to check for issues such as the construction methods of the different structure and for possible residue left by the activity carried out inside the structures. Flotation samples were taken from strata that we though could contain evidence for human and animal activity. We used RTK measuring equipment to mark the outlines of each area, the level of different strata and the location of different features and places from which samples or important artifacts were taken were taken.



Fig. 2: The location of areas excavated in and near the small and large rectangular enclosures. Areas excavated in 2022 marked in Yellow and areas excavated in 2024 marked in Red.



Fig. 3: The location of areas excavated in the circular enclosure. Areas excavated in 2022 marked in Yellow and areas excavated in 2024 marked in Red.

### The Small Rectangular Enclosure: Area G

Area G is located in the western side of the small rectangular enclosure in cluster 23. The size of the enclosure is 32x32m and its four elevated corners indicate that it used to have four corner towers. In 2022, excavation of the eastern wall of the enclosure revealed 4.4m wide walls and a gate structure incorporating rammed earth and wood constructions (area D). In general, the 2022 field season focused on the walls and exterior trenches and features of the enclosures. Our survey of the site revealed a large amount of modern metals and trash as the small enclosure was probably used in modern times for different activities and to throw garbage. Due to the large quantity of metal artefacts on the surface it was impossible to conduct geophysical survey of the small rectangular enclosure. Following our project's revelations of the internal architectural features of the enclosures along the Mongolian Arc during the 2023 field season, we have returned to cluster 23 in order to enhance our understanding of the activities and constructions taking place behind the enclosure's walls.

Our working hypothesis was that the most probable location for architectural remains should be in close proximity to the western wall of the enclosure, on the opposite side from the entrance gate. This hypothesis builds on our excavation of MA03, which revealed permanent dwelling structures distal to the entrance, in the innermost part of the enclosure. As we were not sure if permanent structures were ever built inside the enclosure, it was important for us to try to identify the living surface of the enclosure and associated artefacts and sediments. All together 53 units were opened and a total

area of 66.6 sqm was excavated, which is approximately 8% of the enclosure's internal area (Fig. 4)



Figure 4: Drone photo of the small enclosure and excavation trenches of Area G

Our excavation uncovered a large rectangular pillared structure, measured 10x4m, built of wooden posts (well-arranged post holes) and rammed earth walls. A second, smaller constructed feature made of stones was found in the NW corner. Other dug features include a large pit, 1.4x1.4m, in addition to at least two more rock filled pits. North of the big pit, abutting the southern wall of the rectangular building, was a heap of sediment rich in artefacts. At least one hearth was found as well. Most of the finds came from the living surface within the rectangular building and the nearby large pit.

### **Stratigraphy**

*Topsoil.* The topsoil units were 701, 706, 709, 713, 716, 718, 733, 736, 740 and 741. The topsoil layer is dark brown in colour and its depth and width vary throughout the excavation area. Its maximal width is 50cm, which was observed in unit 716 in the SW corner (top: 762.18; bottom: 761.68) (Fig 5). Overall, the accumulation of topsoil seems to be more substantial near the enclosure walls where erosion form those walls accumulated. Relatively thin layer (c. 15cm) was observed mainly in the units closer to the center of the enclosure.

**Debris Layers**. Two similar debris layers were identified during the excavation, usually separated from the top-soil layer by a thin layer (5-10cm) of light brown sediment that gradually becomes denser and whiter (units 702, 707, 710, 719, 743). In areas where rammed earth walls were found, it was difficult to determine whether the accumulated layer of mixed soil and fine white grains – had its white component originating in the collapse of nearby structures or rather in the degradation of the wall itself (Units 737, 739, 742, 744). This transition layer is usually the one in which the most extensive animal burrowing was spotted.

The debris layers include layers found within the perimeter of the rectangular building, and those found to its north. Both types of debris consist of white-gray dense sediment with gravel, as well as some medium sized stones. Similar layers of debris were not found in the trench opened in the southeasternmost section, under units 713-715. Horizons of white debris were also absent in the entire eastern section of the excavation, as well as in the southern sections of unit 712, what led us to the conclusion that the main sources for that sediment were the constructed features within the enclosure or the enclosure's walls. This suggest that the main vector of degradation spreading the debris across the site is from the northwest to the southeast. This phenomenon is also supported by the substantial accumulation of debris in the northern and western trenches.

Debris originating from the rectangular structure were found in units 703, 704, 708, 711, 735, 738, 745, 747, 750, 751 and the southern part of unit 717 (Fig. 5). Its maximal deapth of 22cm was observed in the SW corner unit 745 (top: 761.61; bottom: 761.39). There is a gradual decrease in width towards the southeast. It seems that the debris are found mainly in the internal parts of the building, perhaps due to the collapse of superstructure and the walls. No finds that could be associated with the collapsed roof of the building were identified.

The largest number of finds, and the most varied, including animal bones, pottery, flint, bark and wood, were usually located at the very bottom of the debris layers. Some of the bones were burnt, and when pottery sherds were found they seemed to have been originated from the same vessel. The same white, hard debris sediment also filled most of the post holes found within the structure.





Figure 5: Excavations in unites 716 and 717 showing the shape of accumulation (left) and the accumulated layers in the north section of unit 717 (right).

Debris originating from the enclosure's walls were found at the western and northern sides of the rectangular enclosure (units 717, 749) it was difficult to determine whether the source of the debris is the structure's rammed earth walls or rather the large enclosure's fortifications. Furthermore, it is probable that some of the debris found within the structure also came from the enclosure's walls or corner towers, as it is the most dominant construction on the site. The only location where a clear distinction can be made between the enclosure's walls debris and the smaller structure's is the trench of units 716 and 717. The excavation of unit 716 was carried out in a manner that preserved the slope of deteriorated materials from the wall (top: 762.06; bottom: 761.29), and unit 717 cut through the debris, revealing a series of very thin laminae. This lamination was observed only above and to the north of W-01 of the rectangular structure and it actually seals it (Fig. 5). In the western section of unit 717 it is clear that the debris from W-01 are sealed below the enclosure's wall debris, deteriorated both inwards and outwards from the structure. Those stratigraphical relations and the nature of deposition indicates not only that the degradation of the enclosure's wall took place only after the collapse of the rectangular structure, but also that it was a slow and gradual process, mainly affected by aeolian forces and rain. The other white sediments which were observed in the excavation, namely within the big pit and in units 713-714, were thinner and different in nature. It was suggested that the lighter horizons found throughout the excavation area (Figure 7; 761.26-761.15) were the result of the aeolian degradation of the enclosure's walls, which were made of the light-colored rammed earth (Fig. 6).



Figure 6: Light sediment horizon in units 713-715 (761.26-716.15), looking west

Accumulation above living surface. Apart from the piles of debris that are clearly associated with the structure and the enclosure's walls, a particularly interesting context was observed to the north of the large pit in the south of the excavation area, abutting the southern wall (W-03) of the structure from the south. This pile of sediment is clearly seen in the western section of unit 704/712 (Fig. 7), as well as in the northern section of unit 720. The outline of this pile is not very clear, as it was not fully exposed or excavated; however, it is clear it was made after the construction of W-03. It is unclear at what stage this pile was made, however the fact that it rests on top of a thin white layer that covers the living surface might suggest it was made already after the site was deserted. This interpretation is based on the assumption the white-thin coating of the floor is deposition of aeolian processes affecting the remains of the constructed features. The heap clearly displays a reversed stratigraphical sequence, with the brown, topsoil-like sediment rests at the bottom and ashy, gray sediment covers it from the top. It has been suggested that this pile was the result of

an excavation conducted into the fill of the large pit located just to its south, due to the substantially large amount of bones and artefacts found within its matrix.



Figure 7: Excavation of the rich context in unit 748 (left, looking east); The heap in the western section of unit 704/712, south of W-03, looking west

Living Surface. The living surface was identified as the interface between the white, hard sediment and the reddish-brown soil, at an elevation of approximately 761.30 m asl. In the west it is slightly higher, reaching as high as 761.36, whereas in the east it is probably slightly lower than 761.30, due to the natural slope of the terrain. Excluding two pits, almost no finds were found within the matrix of the reddish-brown soil and its elevation seemed to match that of the surround environment. Therefore, we have interpreted it as the paleosol of the enclosure's occupation period. The upper face of the stratum is leveled at the same elevation all throughout our excavation trenches, leading us to the conclusion that as part of the construction of the enclosure the surface was deliberately treated in a manner that created a flat surface. Although some of the excavators suggested this sediment perhaps was intentionally brought into the enclosure, no finds within its matrix supported such scenario. However, soil samples were taken for further analysis in order to clarify the soil's nature.

Most of the animal bones, pottery sherds and wood artefacts found came from the lowermost level of the white debris-sediment, 3-5 cm above the living surface, especially within the rectangular structure. The finds on the floor of units 704 and 750 were the richest in finds out of all the floor contexts within the structure. (Fig. 8). In some cases, the sparse distribution of the artefacts and their condition led us to believe they were not deposited in-situ, but rather were affected and transported by the slow and continuous deterioration process of the walls. Thus, they were ultimately deposited within the lower strata of the debris matrix. This is not true for the pottery found on the floor in unit 750, which seemed to belong to the same vessel.





Fig. 8: Artefacts found on the floor within the structure. Unit 750 (up) and 704 (down), looking west

In unit 704, in which pottery sherds (including a rim), bones, metal artefacts and wood fragments were found. All artefacts were found scattered in close proximity to a wooden post which was placed within a pit dug into the ground. Some of the pottery sherds were sampled for residue analysis. The wooden post seemed to have been cut at the level of the surface – perhaps after the site was already abandoned.

Outside of the rectangular structure it was slightly more difficult to identify the living surface. As mentioned above, the light-brown horizon observed in units 713-714 was probably an accumulation of dust carried away by wind from the degrading walls and deposited on the surface (761.26-761.15; Figure 7). In the large pit feature to the south of the rectangular structure it was also rather, the living surface could be identified along the edge of the pit on its northern side (unit 720; 761.30), on top which a large heap of sediment filled with artefacts was piled (unit 748). West of the northwestern corner of the rectangular structure, a constructed stone feature was using the collapsed wall, with its base resting on the living surface at an elevation of 761.33-761.36 (unit 749). All those features will be further discussed later

In the northern lower part of unit 717, outside of the rectangular structure and below the debris of the enclosure's wall, some artefacts were found, including pottery and birch bark (B.7083). All the pottery sherds from that context seemed to have been part of the same vessel, made of coarse clay and resembled cooking ware (B.7085). This type of ware was different compared to the other pottery sherds found in the site, which is the typical gray Kitan ware. Next to the pottery concentration there seemed

to be a vague line, approx. 30cm in width, crossing the unit along a west-east axis. The nature of this line was not fully explored, but it was suggested that this should have been the location of an internal drainage channel. The nature of this line was not fully explored.

Another feature that was found in association with the living surface is a small hearth located just outside the northeastern corner of the rectangular structure, in unit 738 (Fig.). The hearth was rather shallow, reaching a maximal depth of 5cm (761.28-761.23), filled with ashy sediment which was taken for further analysis (B. 7236). It was irregular in shape, with a diameter of c. 40cm. No charcoal or bones were found in the hearth. It is not clear whether the hearth is contemporaneous with the occupation phase of the building, but its stratigraphic location makes it likely to suggest it might have created around the same period.



Fig. 9: The hearth after excavation, east of W-01 in unit 738. Looking west

Unlike the hearth, two pits were identified cutting through the living surface, although due to the lack of finds and the difficulty of identifying the entire profile of the pits, it is hard to determine their date. The first pit, which is probably later, was reconstructed based on a pile of stones found in unit 703, arranged in two levels in a circle 40cm in diameter (top: 761.32; bottom: 761.18). The other pit's bottom was also lined with stones, arranged slightly to the south in unit 712. It was also deeper compared to the first pit (top: 761.19; bottom: 761.01). It was circular with a diameter of 45cm, although it wasn't fully excavated due to its location inside the bulk. The expansion towards the east with units 713-715 was aimed to investigate whether the pit feature continues. Although no finds were unearthed, soil samples were taken from between the stones (B. 7093). Just above the stones clear animal activity was observed in the form of animal burrows filled with modern trash, making it difficult to assess the pit's stratigraphic relations.

**Paleosol**. As mentioned above, the paleosol of enclosure consists of a reddish-brown sediment. In an attempt to understand the nature of the brown sediment, which was understood as the foundation stratum of the living surface, approximately half of unit 705 was decided to be further excavated under unit 712. We hoped digging deeper will allow us to better understand the nature of the matrix, whether it was natural or introduced into the site during construction. There were only very few finds, all of which are animal bones concentrated in areas of animal activity (burrows) or in pit-fills.

The depth of the paleosol layer stretches down as deep as 760.85m asl. This can be observed in three different units; Unit 728, which was excavated to extract the wooden post found in unit 704, revealed hard, rocky yellow sediment just below the brown soil (760.81;); Unit 715, exposed a yellow sterile-looking geological stratum (B. 7068 – soil sample taken, 760.90;); and Unit 727 and 729, whose excavation aimed to determine the geological nature of the stratum into which the big pit was excavated. The soil in unit 727 was compact, brown with some gravel (top: 761.13; bottom: 760.90). Only a few animal bones were found in the western part, very close to the pit's fill. The sediment in unit 729 was rocky, mainly yellow in colour but included also a few black spots, from which samples were taken (top: 760.95; bottom; 760.70; B. 7170;). Interestingly, the transition between the paleosol and the bedrock, between 760.90 and 760.85, is the depth to which the post holes of the rectangular structure were dug.

#### **Architectural Features**

# The Rectangular Structure



Fig. 10: Drone photo of the rectangular structure (looking west)

The rectangular structure measures 10x4m, oriented in parallel to the outer walls of the enclosure along a north-south axis. Its construction involved rammed earth constructions and wooden posts. A total of nine post-holes were excavated during our excavation, with an estimated twelve posts assumed to have been part of the original structure. The posts are organized in three rows running from north to south, with three aisles along the east-west axis, making a total of nine bays inside the covered area. There is a 2m gap between each row, with 2.6m separating the posts. Due to the fact we have not managed to excavate the third row of posts, assuming the plan was symmetrical, the central nave was reconstructed as being wider than the northern and southern nave, with a total width of 3.8m.

It is unclear what was the roofing method of the structure, as no remains of any tiles or substantial wooden superstructure were found. It was suggested that perhaps some sort of organic material was used for that purpose, either straw, grass or fabric. Microanalysis of the sediments of the debris layer perhaps could shed more light on that issue.

Apart from some sherds, wood and metal fragments found on the floor in units 704, 708 and 750, no complete vessels were found. Generally speaking, the relatively small amount of finds from within the structure perhaps could indicate an organized abandonment rather than a quick destruction. The cutting signs on the post from unit 728 and the robbing of some of the other poles indicate that most of the wood was taken when the building went out of use. In light of the stratigraphical relationship observed in unit 717, it is probable that the building collapsed before the outer walls of the enclosure did.

Wooden Posts and Post holes. Nine post-holes were identified within the structure. Most of the post holes were excavated as separate unites, except two cases in which the post-hole remained untouched (northwestern and northeastern corners). The relevant units are as follows (from south to north, east to west): 728, 753, 752, 726, 723, 746, 735, 724, 751. Seven of the wooden posts seemed to have been embedded within the rammed earth walls (Figs. 10 and 11).



Fig. 11: Remains of wooden posts

Wooden post remains in unit 728 were the first to be found and are the best-preserved wooden post within the structure (Figure ??; B. 7165). The post is 16-17cm in diameter, 40cm long and its bottom rest at an elevation of 760.85. A foundation trench can be seen in the section (was more noticeable only after a few days), its fill's matrix very similar to the rest of the soil. Apart from a few small bones there were no finds in the foundation trench. Some concentration of ashy soil was sampled from the foundation trench (B. 7166). The excavation of the post was carried out from the side, first revealing the entire length of the post. Following that, the post was removed and sealed tight in plastic wrap.

Most of the post-holes in which the wood was not preserved and most likely robbed, were oval and conical in shape. Their diameter was typically around 50cm wide at the

top, narrowing down towards an oval bottom of 15-17cm in diameter. We understand this type of conical shape as a widening caused by the robbing activity, during which most of the wooden posts were pulled out and taken away. Those post holes were probably left open and got filled with the white debris sediment that covered the entire internal area of the structure. The excavation of those filled post-holes was often carried out in two phases. In the first stage, only half of the pit was excavated, allowing us to examine the accumulation within the pit. The second half was later excavated in a more controlled manner. Soil samples and flotation samples were taken from those fills (B. 7145, 7146 (723), 7151 (724), 7169 (726)).

In the post-holes of unit 728, 735 and 751 it was clear that although the upper part of the post was cut off and taken away, the lower part has remained in-situ. None of the remains, however, was left above the floor's surface, giving the impression that perhaps the people taking the posts decided it would be easier to take only the part of the pole that was visible above ground. However, given the fact that some of the posts seem to be incorporated into the constructed walls, it raises questions as to the amount of effort put into the extraction process of the posts and the state of the walls. It is unclear whether extracting the poles involved partial destruction of the walls, as it is hard to determine how tall was the superstructure during occupation phase.

| Woode<br>n post<br>no. | Location                                       | Unit | Associate<br>d Wall | Wood<br>remains   | Depth of post hole (cm)            | Bottom<br>excavate<br>d<br>elevatio<br>n (m asl) | Diamete<br>r (cm)               |
|------------------------|--|------|---------------------|---|------------------------------------|--|---------------------------------|
| 1                      | Eastern row, south, (Southeastern corner)      | 728  | W-03 /<br>W-04?     | B. 7165–<br>Post was cut<br>at the floor<br>level, lower<br>part<br>preserved<br>(40cm) | 45                                 | 760.85   | 16-17                           |
| 2                      | Middle row, south.                             | 753  | W-03                | No wood was found   | 20<br>(partially<br>excavate<br>d) | 761.10   | c. 20                           |
| 3                      | Western row, south<br>(Southwestern<br>corner) | 752  | W-03 /<br>W-02      | No wood was found   | 63                                 | 760.86   | c. 20                           |
| 4                      | Eastern row, middle                            | 726  | - / W-04?           | No wood was found   | 45                                 | 760.85   | 50                              |
| 5                      | Middle row, middle                             | 723  | -                   | B. 7149,<br>7173<br>Large animal<br>bone was  | 45                                 | 760.90   | 44<br>(wide),<br>39<br>(narrow) |

|   |  |             |                 | found as well.   |                               |   |                                 |
|---|--|-------------|-----------------|--|-------------------------------|---|---------------------------------|
| 6 | Western row,<br>middle                         | 746         | W-02            | B. 7264 –<br>Bottom of<br>post still in-<br>situ, upper<br>part probably<br>taken          | 16<br>(partially<br>excavate) | 761.19  | 17                              |
| 7 | Eastern row, north (northeastern corner)       | 735         | W-01 /<br>W-04? | B. 7210,<br>7293<br>- Still in situ  | Not excavate d                | Not excavate d  | 15-17                           |
| 8 | Middle row, north                              | 724         | W-01            | B. 7161,<br>7172<br>Some bones<br>were found<br>as well<br>(7159, 7162)                    | 28                            | 760.95<br>(but<br>probably<br>goes 5-<br>10 cm<br>deeper) | 55<br>(wide),<br>40<br>(narrow) |
| 9 | Western row, north<br>(northwestern<br>corner) | 751,<br>747 | W-01            | B. 7265,<br>7292 -<br>Bottom of<br>post still in-<br>situ, upper<br>part probably<br>taken | Not excavate d                | Not excavate d  | 17-20                           |

Table 1: Wooden post-holes found in area G

Rammed Earth Walls (Figs. 10 and 12). The perimeter of the rectangular structure was constructed of rammed earth walls. The walls were poorly preserved, and it was difficult to separate them from the debris layers. Therefore, when excavating units 703 and 717 – despite cutting through W-03 and W-01 – the presence of the walls was overlooked. It was only after closely examining the eastern section of unit 717 that we have realized there were constructed features we have missed. Following that realization, the excavation expanded first towards the east and west of unit 717 (units 733-738 to the south, 731 and 738 to the north), tracing down the outline of W-01. All the walls were made of compact white sediment which was distinctly lighter and harder compared to its surroundings.

After W-01 was fully exposed (Fig. 9), W-03 was identified in the western section of unit 704. Units 740, 741, 742, 743, 744, 745, 748, 749 and 750 aimed to identify the rest of the walls. The head of W-02 was identified in unit 742 (761.55), and the head of W-03 revealed itself in unit 744. Excavation then proceeded along the face of the walls, while distinguishing between the accumulation inside the structure and outside of it.





Fig. 12: Identification of W-01 in the eastern and western sections of U. 717 (0.6m wide)

W-01 it the northern wall of the structure. It is 0.6m wide and its height of preservation is 27cm (U. 735 - top: 761.45; bottom: 761.32; U. 717, East section – top: 761.55; bottom: 761.28, West section – top: 761.56, bottom: 761.31). W-02 is the western wall of the structure. It is 0.63m wide and its height of preservation is 39cm (U. 751 - top: 761.48; bottom: 761.34, U. 742 – top: 761.55 / 761.77 in section; bottom: 761.38, U. 744 – top: 761.57; bottom: 761.39). W-03 is 0.62m wide, and it stretches all the way from the east to the west in unit 744. The rammed earth wall-line was much more compact than the nearby fills, both inside and outside the structure. Its maximal height of preservation is 36cm (U. 744 - top: 761.51 / 761.69 in section; bottom: 761.33, U. 704 section – top: 761.50; bottom: 761.29).

On the east side of the structure, there were vague indications of a fourth wall. The preservation of W-04, if it was indeed a wall, was very poor (Fig. 10). Its maximal height of preservation is 10cm and it is mostly evident in the sections of unit 704 and 708 (704 – top: 761.36; bottom: 761.26, 708 – top, south: 761.36; bottom, south: 761.29; top, north: 761.32; bottom, north: 761.26). The maximal width of W-04 is 60cm, similar to the other walls. However, the low height of preservation and the eastern location facing the center of the enclosure may suggest that on this side the building had its entrance. It was suggested that W-04 was therefore not a wall, but rather an elongated low threshold, stretching along the entire eastern side of the building, leaving it relatively open.

The amount of debris found within the structure suggests that the walls surrounding the structure used to be higher. However, whether the walls were fully or partially constructed, and whether other techniques except rammed earth were involved in the construction remains unclear in this preliminary phase. Other pits and features. Two other features are important to note when discussing the structure. The first is a small, shallow pit found right next to the post-hole of unit 724 (Unit 725; Fig. 13). The depression was initially suspected as a post hole under unit 717. The fill is compact grayish-white sediment, similar to the debris layer. The depression turned out to be rather shallow (6cm deep) with no finds at all. It is 50cm long and 20cm wide, although the entire feature was not excavated (the rest is buried under the bulk in the south). It is 7cm deep (bottom: 761.16). The function of this depression is not clear, but perhaps it was done as part of the robbing phase of the site.

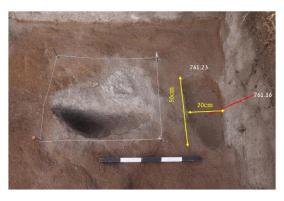


Figure 13: The depression south of posthole 724, after excavation in unit 725. Looking east





Figure 14: Left: The wooden beam inside the depression near W-04. Right: Close-up of the wood before extraction. Looking north

Another important feature was a similar depression, found in unit 708. The depression was located in immediate proximity to W-04, in the northern part of unit 708. The depression was circular in shape and was 8-10cm deep (bottom: 761.22). Inside the depression, a 30cm long wooden beam was found, 17cm long and 7cm thick, with a rectangular cross-section (B. 7174; Fig. 14). The beam was oriented along an east-west axis, perpendicular to W-04, and it is not clear whether it served some sort of structural purpose. Either way, its location just to the west of W-04 and in close proximity to its center may suggest that it served some part in the eastern entrance to the building. Due to the lack of ash and charcoal, interpreting this depression as a hearth was ruled out. A few small animal bones were also found near the wooden beam.

**Small Stone Feature** (Fig. 15). A small rectangular stone feature was built against the western face of W-02, near the northwest corner of the 10x4m structure. The heads of the stones were first exposed under unit 747 and the fill was excavated under unit 749 all the way down to the living surface (brown sediment). During excavation we separated between soil coming from within the stone feature (B. 7270) and outside of it (B. 7271).

The external measurements of the feature are 0.9x0.65m, while the internal space is 0.6x0.45m, preserved to a stature of 27cm above the floor. The floor level of the stone

feature is 761.35, similar to the elevation at the western side of the big rectangular structure (for example in U. 745). The elevation of the highest point in the feature is 761.62. The southernmost stone of the feature continues into the section, therefore making is plausible that the feature is in fact larger, stretching further to the south.

No artefacts were found inside or outside the stone feature apart from a few small bones (B. 7269, 7270, 7274). Small charcoal fragments were sampled from inside the stone feature, although no substantial burning marks were documented (B. 7273). A total of five stones in different sizes and shapes were used for the construction. One of the



Fig. 15: The stone feature, u. 749. Looking west

stones used for the building of the feature is a *hang-tu* stone (夯锤 *hangchui* or 石夯 头 *shi-hang-tou*; B. 7289), here in secondary use. This *hang-tu* stone is one of two such artefacts found in the excavation of area G, together with a third one found on the site in 2022. The stone's weight is 6.9 kg (Fig. 16).



Fig. 16: Two hang-tu stone (夯锤 hangchui or 石夯头 shi-hang-tou) found in area G.; B. 7289 (left) B 7230 (wright).

It was suggested that due to the improvised nature of the construction and the stratigraphical relationship with the rammed earth walls, it was built during a later occupation phase of the site, after the structure ceased to exist.

Large Pit (Fig. 17). In the southernmost trench of area G a large pit was excavated. The excavated part measures 1.4x1.4m, but it is probably larger as it extends towards the west and the south. The depth of the pit is around 0.7m, with the top elevation at 761.32 (the living surface) and the bottom elevation at 760.62. The fill of this pit was excavated under units 721, 722, 730 and 732. Units 727 and 729 focused on the sediment to the east of the pit and units 718, 719 and 720 are the accumulation covering the pit. During the excavation of unit 721 the fill of the pit was assigned a separate basket number, but once the outline of the pit became clear it was assigned a whole new unit number (unit 722). Units 727 and 729 aimed to expose a full section of the pit in order to assess its depth and the amount of work further required, before

continuing to excavate unit 730. The excavation was carried out using only small tools and all the sediment was sieved.

The largest amount and most varied finds came from this large pit, which was perhaps used as a midden during the construction and maybe even during the occupation phase of the enclosure. The stratigraphic relations between the pit and the nearby structures are unclear.



Fig. 17: Model of the pit mid-excavation, showing the stratigraphic sequence of the pit

Stratigraphic sequence of the pit. Two different types of sediment fill the large pit. The upper fill, evident in units 721 and 722 was gray in colour and soft and ashy in texture. It contained some bones – including a horse mandible (B. 7109) and a perforated astragalus bone (B. 7124; Fig. 18) - and wood fragments (B. 7134). On the northern edge of the pit, a metal nail was found in association with this type of sediment (B. 7115; Fig. 20). This fill is much shallower in the north, near the edge of the pit, than in the south, where its accumulation is 25cm deep (761.06). The clear laminae seen in this accumulation, as well as the powdery uniform nature of the matrix and its horizontal upper layers, suggest this fill was gradual and spread over time and under the influence of natural forces.



Fig. 18: A perforated astragalus bone, B 7124

The lower type of fill is much more heterogenous in nature. It reaches all the way to the very bottom of the pit, with its upper layers sloping down from the north towards the south (north: 761. 35, south: 761.06). The matrix is a mixture of gray and brown compact sediment with gravel, as well as many ashy spots, animal bones and other kinds of artefacts. The excavation was done while separating into two different loci: Outside of the pit (in the north; B. 7176, 7188) and inside the pit (B. 7177, 7178, 7184-7187, 7193-7195, 7200-7202, 7204-7205, 7209, 7211, 7212, 7214, 7215, 7217, 7219-7221, 7224, 7226-7235, 7237-7243, 7245, 7246, 7248). When realizing there weren't a lot of finds in the soil outside the pit, and for the purpose of finishing excavating the fill of the pit, the focus shifted to the fill which was excavated with small tools.

During the excavation of unit 730, a circular white feature was identified inside the pit, carrying some similarity to the other post holes found in the area. It was excavated separately, under unit 732. The sediment that filled this pit was compact and contained some gravel, as well as many charcoal, bones and wood fragments. Furthermore, it was located just to the north of a large stone. However, it turned out to be rather shallow – 10cm deep (top: 760.98, bottom: 760.88), and therefore the posthole interpretation was ruled out. It was later suggested that it was a hearth. Soil samples were taken from that context (7192).

There were many artefacts and stones at the bottom of the pit in unit 730 (between 760.90 and 760.78). Those finds include pottery (7178, 7214, 7227), animal bones – some of which were burnt (7177, 7184, 7193, 7202, 7211, 7226), charcoal (7187, 7194, 7201, 7212, 7224, 7240), flint (7209), metal (7185, 7217, 7228, 7229, 7238, 7242), wood (7186, 7195, 7200, 7215, 7232), stones (7230, 7231, 7233-7235, 7241) and birch bark (7237, 7248). A lot of the soil was sampled for flotation and further analysis (7204, 7219-7221, 7239, 7243, 7245, 7246, 7248).

The pottery found within the pit shared similar traits to the pottery found on the living surface within the enclosure and in other areas in Site 23 (Figs. 20). The metal artefacts were mainly points and nails, with some unidentified fragments too (Fig. 20). Birch bark fragments were found during the excavation as well as in the flotation samples. Similar material was found in unit 717 (B. 7083) and in area E during the 2022 season. Several stones were found too, some of which had incisions and perhaps

were worked. Amongst those stones there was a hang-tu stone (hang chui or shi-hang-tou), at an elevation of 760.83. The weight of the stone was 7.1kg, slightly heavier than the other hang-tu stone found in unit 749 (Fig. 16). In the southwest corner, a deeper depression was found adjacent to a few stones. This circular pit was some 18cm deeper than the rest of the pit (760.62) and was filled with very fine gray ashy sediment. This circular pit continued into the section in the west.







Fig. 19: Examples of potshards found in area G.





Fig. 20: Metal artifacts found in area G.

The uneven surface of the bottom of the pit and the heterogenous nature of the sediment suggested that this pit was used as a midden that got filled fairly quickly with a variety of stuff. The presence of ash lenses or hearths inside the pit also suggests that some sort of small-scale pyrotechnic activity took place within the pit. It was suggested, also in light of the *shi-hang-tou* found inside the pit, that it was dug and used during the construction period of the enclosure (Fig. 16). Other suggestion was this feature did not serve as a pit at all, but rather as a foundation for a more elaborate superstructure, perhaps a tower. This suggestion was made in light of similarities to the practice of burying the construction tools and artefacts below the entrance gate to the enclosure (area D).

It is also important to note that the uneven accumulation of the fill inside the pit also gave rise to the suggested scenario according to which the pit's fill was excavated in antiquity, perhaps as part of the robbing activity at the site. According to such interpretation, the pit was not backfilled and the pile of excavated material is evident to the north of the pit, in unit 748.

# Augering

Five augering points were taken inside the enclosure. Two were closer to the northwestern corner (Augering 23-S-A1, Augering 23-S-A2), two were closer to the southwestern corner (Augering 23-S-A3, Augering 23-S-A4) and the last one was taken near the northeast corner (Augering 23-S-A5). All Augering tests yielded no clear indications for cultural layers. However, it has shown that on the southwest and northeast corners the accumulated sediments were quite similar. In both augering pits, the dark-brown soil accumulated for more than a meter (114cm, 111cm). However,

generally speaking, the soil in the northeast was much lighter in colour and was replaced by a much more dominant yellowish and sandy sediment.

| Augering No.     | Depth (cm) | Number of spits |
|------------------|------------|-----------------|
| Augering 23-S-A1 | [Tiki]     | [Tiki]          |
| Augering 23-S-A2 | [Tiki]     | [Tiki]          |
| Augering 23-S-A3 | 157        | 12              |
| Augering 23-S-A4 | 60         | 5               |
| Augering 23-S-A5 | 159        | 12              |

Table 2: Augering conducted in area G

The purpose of the augering tests was to try and located another potential excavation location, where possible structure could have been built or possible trenches and pits could have been dug. Unfortunately, these were not found through our augering.

### Sampling

Except the soil samples taken of different sediments and contexts throughout the excavation, on the last two days at the field we have systematically took block samples (Fig. 21) and bulk samples for further analysis. The idea behind those samples was to identify microscopic remains that may shed light on the type of activities and site formation processes that took place on the site. Furthermore, analysis of the microstratigraphy of the block samples may help determine whether certain features are constructed (such as the rammed earth walls).



Fig. 21: Yuval Derfner taking a block sample of W-03, unit 704. Looking west

### The list of samples:

#### - Bulk samples:

- o Basket 7288: Unit 715, accumulation within the 713-715 sequence
- o Basket 7290: Unit 717, accumulation around W-01 in the eastern section
- o Basket 7291: Unit 730, accumulation inside the big pit
- Basket 7295: Unit 712, sample of the low rammed-earth threshold (W-04)
- o Basket 7297: Unit 704, heap in western section

#### - Block samples:

- o Basket 7284: Unit 704, W-03 in the western section (fell apart)
- o Basket 7285, 7286: Unit 730, accumulation within the big pit.
- Basket 7287: Unit 750, accumulation within the structure above and including the living surface
- o Basket 7294: Unit 717, gray-laminar accumulation in west section
- o Basket 7296: Unit 717, block sample of W-01, western section

#### General Remarks

The excavation in area G unearthed a lot of new information regarding the internal design of the fortified enclosures along the northern line of the MWS, as well as provided with new insights regarding the site-formation processes.

The excavated data represents at least three chronological phases: 1) Construction phase – with which can be associated the foundation trenches of some of the wooden posts, as well as the construction material inside the built walls of the structures. The large pit could potentially be also linked to this phase. 2) Occupation phase – with which the living surface and hearths, both within and outside of the structure can be associated. 3) Deserting phase - which is represented in the robbing activity seen in the post-holes. To this phase the later stone feature could potentially also be dated, as well as at least some of the pits on the site. The different degradation paces are evident in the accumulation of debris and sediment within the building, near the enclosure's wall and within the later pits.

A more detailed analysis of the types of vessels, metal artefacts and animal bones may shed more light on the everyday habits and activities that took place within the small enclosure. Either way it is clear that there were specific areas, such as the rectangular building, that were designated for specific purposes. The relatively large size of the construction raises questions as to whether this building was used for dwelling, or rather was designed to host other kinds of activities.

Another unsolved question regards the roofing of the structure, which had to be supported by at least twelve wooden posts. Perhaps closer analysis of the sediments and debris may help answer that issue. However, due to lack of parallel examples of such structures within military compounds of the Kitan period in Mongolia or northern China, it is hard to reconstruct the building's superstructure.

The level of investment in the construction of walls seem to be of more modest size, compared to the fortifications of the enclosure, however the basic methods and

building materials share great resemblance to the construction of the entrance gate (which also incorporated wooden posts, beams and rammed earth). Other patterns, such as the disposal of the building tools – evident in the burial of the *shi-hang-tu* in pits or below constructed features, also link both construction projects. Dating the excavated organic remains and analyzing the wooden posts may show further similarities between area D and area G.

### The Large Rectangular Enclosure: Areas H, L, & P

During this season the main objective of the excavations inside the Large Rectangular enclosure was to better understand the function of this enclosure. Guided by the results of the geophysical survey conducted in 2022 (Hanks 2024) we tried to locate areas where structures or features exists and to maximize our chances of finding remains of human activities (Fig. 23). We excavated at three different areas (Fig. 22). All together the excavations at the three areas covers  $110\text{m}^2$ . In addition to the excavations, we conducted an extensive survey metal detector (MD) survey of the interior of the enclosure and found metal artifacts in 22 locations (not including the artifacts found in the excavations themselves). Those artifacts include parts of iron caldrons; projectiles, armor scales, and more (Fig. 24).



Fig 22: A drone photo of the different areas inside the Large Rectangular enclosure.

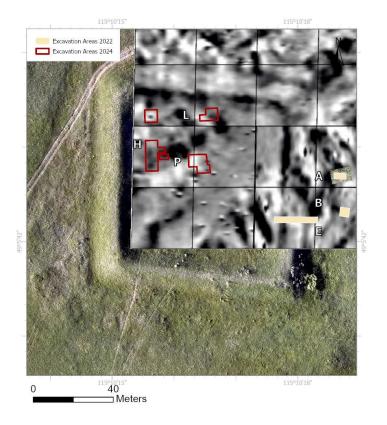


Fig. 23: The location of the excavation unites in relation to the results of the geophysical survey.



Fig. 24: Some of the iron artifacts found by the metal detector survey at the large square

### Area H

Area H was located near the western wall of the enclosure, in an area where the geophysical survey identifies strong positive anomaly. In addition, prior to the excavations we systematically augured in the entire area of the large square enclosure area and a few auguring points in the northwest portion of the large square revealed concentrations of ash, bones and pottery. Those points were located around and on a small mound and this is where we decided to excavate. The results of the excavations suggest that this was a large rectangular structure. We initially opened a test square of 2x2 meters on top of the small mound and quickly reached ashy patches and the top of a wooden post. It seems that the original "floor" or "living floor" was quite close to the topsoil, as most finds were concentrated in the top 20-30 centimeters and the post (and other similar posts found later) was dug down below the floor. Below the softer brown "floor" layer was a very hard-packed, lighter colored layer with very few finds. The post-hole fill surrounding the beam is clearly visible in the section and was dug through the archaeological layer deep into the sterile hard-packed layer below (Fig. 25).



Fig. 25: Wood beam #1. Note how close to topsoil it was discovered; post-hole fill is clearly defined and dug deep into surrounding hard-packed, sterile sediments.

We expanded the excavation area to the south and west and found additional wooden posts. One was found 1.20 m west of post #1 with similar stratigraphic sequance. Areas to the south of the first pole (Units 810-811-812) contained a thin ashy layer with many artifacts, including potshards, metal objects, stoon tools and bones (Figs. 26 and 29) Further to the south additional two wooden poles were found. The four polse together mark a square feature (building) with the ash layers inside it. Wood poles 3 and 4 were discovered inside a hard white matrix, which we were able to identify as the remains of a packed earth wall in which they were embedded. This

wall is about 1 m wide and 2.80 meters long (Figs. 27 and 28). Outside of the structure that may be a closed walled house or and open pavilion, in unites 816, 817 and 818, we excavated a stone feature which we identify a hearth, based on the presence of burnt rocks and ash. Further south of it, in unites 813-815 we found large pieces of burnt pottery, as well as bones, flint flakes. This may have been a trash area.



Fig. 26: Unit 812; Note the thin ashy grey layer visible in all sections of the excavation unit. The ashy patches were rich in pottery, animal bones and charcoal. Wooden poles 1 and 2 are located in the left section.

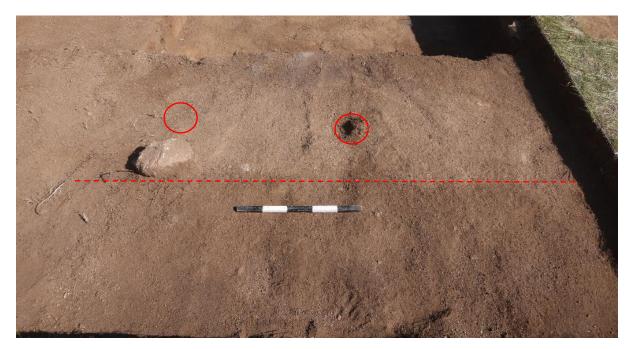


Fig. 27: Remains of packed earth wall with poles 3 (right) and 4 (left) embedded within (pole 4 not yet visible, but location marked).

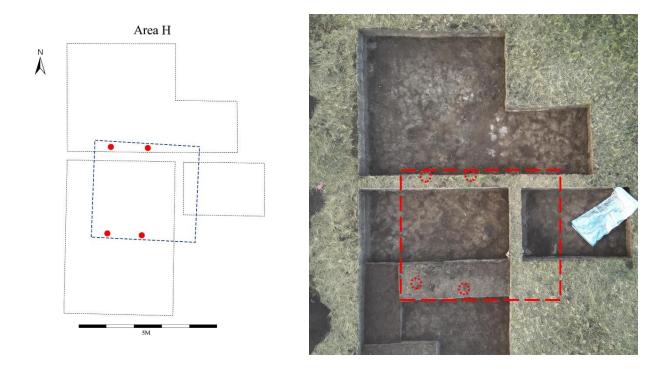


Fig 28: A schematic drawing and photo of the wood poles structure. We were only able to identify one packed earth wall, in the southern section of the structure. The rest is reconstructed from packed earth layers seen in the sections.







2 cm 23H-809-8035

Fig. 29: Artifacts found in unites 810 - 812.

The function of the large square remains a question; we can now state that at least one area of the square contained a square or oblong shaped structure of packed earth and wooden beams. The size of the beams is similar or identical to the ones found in the small square and gate (excavated in 2022) and the structure excavated this year, though preservation of the packed earth walls was much poorer. This may be due to the size of the area and greater erosion in the more exposed large square.

Archaeological deposits and artifacts were found inside the square formed by the four poles, as well as outside of it. The main deposits are only 50cm deep.

To further explore the area near the western walls of the large rectangular enclosure we open another 4x4m square north of the location of the wooden-poles structure (Fig. 30). A negative anomaly was identified in this area by the geophysical survey. The northern part of this unite was covered by the slope or eroded earth from the enclosure's northern wall. Weathered pottery and bones were found in the "topsoil"unit 824. Below it, unit 825 contained a large amount of flint/stone flakes, cores and debitage (B. 8097 and 8100; depth 762.57-762.49) (Figs. 31 and 32), as well as some potshards (B. 8095; Fig. 33). We did not identify any order to the stone assemblage or floor they are associated with. Those artifacts could represent an earlier (Neolithic?) occupation in this location, which may have been disturbed by the Kitan activity, or they may have been part of the materials from which the enclosure walls were made. Below this stratum we reduced the site of the excavated square to 3X4m and then 3X2m (unites 826-827). The soil was very hard and we reached a pile of some stones situated in a matrix of brown hard soil, directly on bedrock (very gravelly with white patches) (Fig. 34). The stones are irregular. It is possible that they fill of a small trench that was associated with the earlier occupation of this area. The stone pile begins around 762.29 and ends on the bedrock layer 762.05.



Fig.30: Location of the new square in area H.



Fig. 31: Collection 8097 - flint artifacts from the northern part of area H



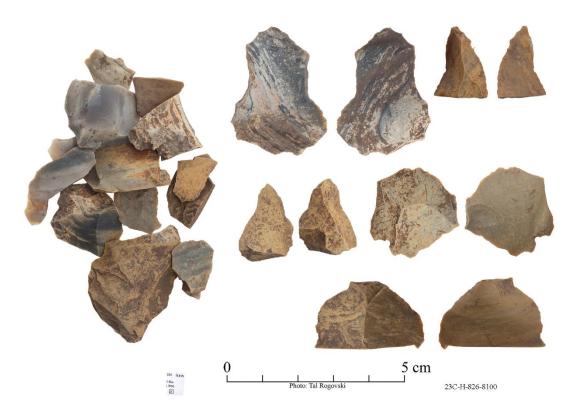


Fig. 32: Selection of flint artifacts from the northern part of area H (from collections 8097 and 8100)



Fig. 33: B8095 – Pottery from the northern square of area H



Fig 34: Unit 828 is the middle part of the square, with white bedrock revealed. The stone pile sits in a looser brown matrix on the bedrock. Red circle indicates spot where the flint assemblage was found and white circle mark the location of the stone pile.

### Area L

After the discoveries in area H, area L and P were opened to further explore the interior of the Large Rectangular enclosure. Area L was open near the center of the northern wall of the enclosure in an area where the geophysical survey, done in 2022, showed strong positive and negative anomalies (Fig. 22). We started by clearing up a rectangular area of 4x4m. The area was sloping from the direction of the enclosure's wall (north), suggesting that some of it is an erosion that went down from the wall. We went down in a brown soil that contain few finds (unite 190). After leveling abut 30cm below surface we continue to excavate only in the 2X4m southern part of the area and continue to go down inside a soft brown soil with a lot of animal bones and artifacts, including pottery, relatively large amount of flint artifacts (Fig. 35) and some metal artifacts. There were stones and burnt materials as well. Some 20cm below the upper surface of this unite the soil become lighter in color and layers of white material may represent the original flor level. The floor level here is at c. 762.25m asl. Expending the excavations some 2m to the east we discover the same stratigraphic sequence with some large stone resting on the original floor level (Fig. 36). A concertation of stones near the southern limit of the excavation area turned out to be part of an ashpit that was dug into the floor contain a lot of animal bones,

including fish bones. Comparing this to the results of the geophysical survey (fig. 23) it seems that what we uncovered is a small northern part of a much larger ashpit.





Fig. 35: Flint artifacts from the southern part of area L (B 1915 and 1923).

All in all, it seems that there was no building in this area and that it was used (formally or informally) to dump trash. Some of it was inside a relatively well defined ashpit (maybe used for cooking) but the rest seem to be scattered around it. Outstanding finds include iron artifacts including parts of a iron wheel (B. 1924) and an armor (B. 1916) (Fig. 37). Samples for dating and soil for flotation were taken from the ashpit area.





Fig. 36: The northern section (above) and northeastern corner of the excavated area. The level of the original floor is clearly seen.





Fig. 37: Metal artifacts found in area L

### Area P

Excavation area P was opened to check the central area of the Large Rectangular enclosure. Specifically, we choose this location because the ground there was slightly elevated above the surface and we suspected that it may represent the location of a structure. The geophysical survey shows a highly positive (white) anomaly in this area (Fig. 23), which strengthen our hypothesis for the existence of some sort of stone foundation. The results of our excavations did not confirm this hypothesis and the excavations did not result in any significant finding that reflect on its use by the occupants of the enclosure.

We started by opening a 4x4m excavation unite (unites 490 and 491). The soil was soft at the beginning but then become very hard with a lot of stones. After 25cm it became clear that we are in natural (sterile soil). A few artifacts, including an iron arrowhead (Fig. 40) and a few potshards, stone tools and bones were found at the topsoil but none was found below it. A very dense concentration of stones was found in the Southwestern corner of the excavation square (Figs. 38 and 39). To check this stone pile, we expanded the excavation area to the south and slightly to the west. The area (unite 492) contained a dense concentration of stones, none of them worked, and no artifacts. It seems to be either a natural concentration of stone or, perhaps, natural stones that were moved there during the construction of the site. The positive anomaly seen in the geophysical survey of this area probably represent this stone pile. In conclusion, this seem to be an open area during the life-span of the site.





Fig. 38: Area P unites 490-491. Concentration of stones found in the Southwestern part of the unties (enlargement of this area in the lower picture).



Fig. 39: Extension of area P to the Southwest (unite 492), continuation of the stone pile.



23C-P-490-4901

Fig. 40: An Iron arrowhead found at the topsoil of area P

# The Circular Enclosure: Area M

During the 2022 season our exploration of the large circular enclosure included an extensive trench through the encircling wall and tranche (area C) and a small test pit inside the walls (area F). To further explore the inside of this enclosure we opened two additional test pits, collectively marked area M (Figs. 3 and 43). The location of those two test pits was determined based on the geophysical survey of 2022 but in particularly based on an extensive metal detector (MD) survey we conducted this year. This systematic MD survey that systematically covered the entire survey area, recovered metal artifacts at 69 locations (Fig. 41). The density of metal object here seems to be higher than that of metal artifacts found using similar method at the large rectangular enclosure. The artifacts found include a lot of nails, broken iron pieces but also many complete artifacts including parts of iron caldrons; parts of wheels, projectiles, armor scales, different types of ornaments and more (Fig. 42).

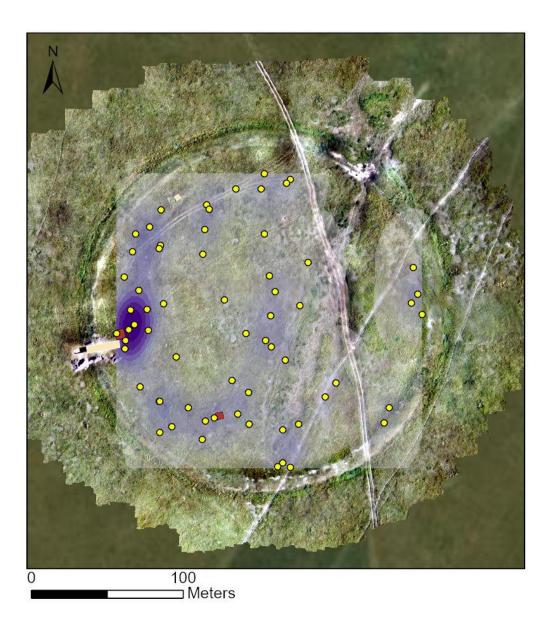


Fig. 41: The location of the two excavated squares of area M (red), location where metals were found (yellow dots) and the density of metal artifacts (blew shadow).



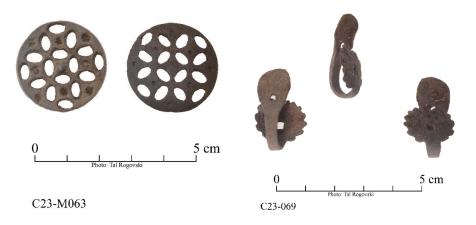


Fig. 42: Some of the metal artifacts found by the metal detector survey



Fig. 43: The two excavated squares of area M. In Yellow the number of the excavation unites of each square.

The two test squares that together make up area M were located in areas where our MD survey located many metal artifacts. In particularly the more northeaster square was located at the most pronounced hot-spot of artifacts concentration, and very close (north of) area C. This was a 4x4 meters square. The ground level here was between 763.08 and 762.95 masl. Unit 290 began with grass removal, upon which we immediately discovered many small pieces of iron and small burnt rocks with a melted appearance. Unit 291, below the grass, consisted of extremely hard-packed brown soil. More iron pieces and the melted material was found. A small vessel that

seemed extremely burnt (B 2905; 762.94) was removed for further analysis (Fig. 44). We were able to dig 18 cm at the deepest point of the trench, in the SW corner before reaching extremely hard, sterile soil. The amount of iron fragments found in this area as well as what seem to be remains of burning and possible smelting suggest an area devoted to metal processes, maybe the reuse and recast of old iron pieces (Park et al., 2024). This hypothesis will be further examined through scientific analysis of the soil samples and samples of artifacts taken from this area.



Fig. 44: A close up on the small vessel (B 2905) that could have been a crucible.

The second, 3x3m excavation square was opened in the southern part of the enclosure, in an area that also yielded a lot of metal artifacts (although not as dense as in the area of the first square). Few more metal artifacts were found at the top soil during excavations (Fig. 45). The stratigraphic situation here was very similar to that of the first square: a thin upper layer with a lot of metal fragments and below it a very hard layer with fewer artifacts that ended, some 20cm below surface, with what seem to be a sterile soil. Although we did find metal fragments, as well as some pottery and bones, this seem less likely to have been an area of metal production, maybe some of the metal production debris were dumped here.



Fig. 45: Metal artifacts found in unite 390 (B. 3903)

## The Faintly Visible Circle: Area K

### Area K:

The aim of the excavations conducted in this area was to check a faintly visible circle located east of the large rectangular enclosure. While the parameter of this feature is not surrounded by walls, it was identified by our different visits to the site since 2019. At first, we thought it may simply represent marks of a car that drove here in a circle but the fact that it continues to be visible for at least 5 years suggest that it represent a feature originally associated with the construction of cluster 23 (Fig. 46). While the feature is not seen very clearly using our regular drone camera (RGB colors), for some reasons its outline is much clearer when documented with a thermic camera (of our MAVIC 3 ENTERPRISE M3T drone). It can be clearly seen in this image that the feature is a closed circle, and that it's shape was not a perfectly symmetrical circle but rather slightly elliptic with a few locations of unsmoothed angles. It seems this parameter is some 7m wide, with its outer and lower sides more pronounced than its core (Fig. 47).



Fig. 46a: Drone photo of the circle, August 2019



Fig. 46b: Drone photo of the circle, August 2022

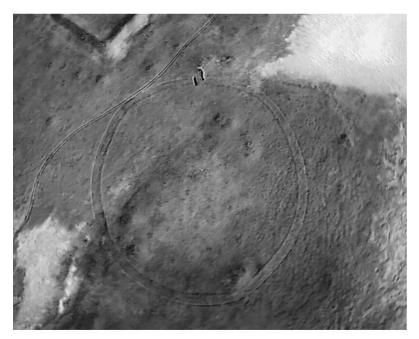


Fig. 46c: Drone photo of the circle, August 2024



Fig. 47: A thermic image of the circle, August 2024. The walls of the Large and Small rectangular features are seen in the background.

In order to better understand the structure of this feature we located a 2mx7.5 trench that cut through the parameter of the feature. The trench was located at the northeastern side of the feature, and area which is relatively close to the large rectangular feature and which seem to be relatively well preserved. The trench extended so it cuts from one side to the other side of the feature's parameters (Figs. 48 and 49).





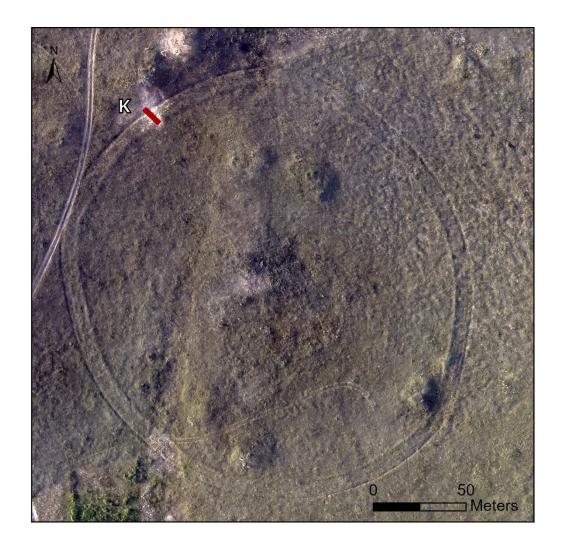


Fig. 48: The location of area K. Left a thermal image of the entire circle, right, an enlargement of the area of the trench.



Fig. 49: A drone image of area K (looking to the northwest).

In spite of carefully excavating the trench we did not find any clear evidence for human made constructions. The surface of this area slopes slightly from the northeast down to the southwest. The upper level of it was a relatively soft brown colored earth which seems like the accumulation of soil. This layer is about 35cm thick. Below it was a light whitish colored heard soil which seem to be the natural rock/soil of this area (Fig. 50). We went down some 30 cm into this layer but did not find any marks for ancient construction or trenching and no artifacts were recovered.

Although no direct evidence for the construction and nature of this feature were recovered by our excavations, we still think that this is an artificial rather than natural feature. We speculate that this was an original preparation for the construction of a circular feature but that it was abandoned, for some reasons, and the actual feature was finally constructed further to the south, where the current circular feature stands.

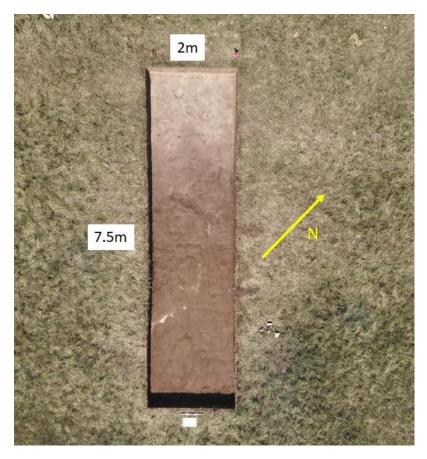


Fig. 50: A drone image of area K (looking to the northeast). The whitish natural soil of this area exposed at the top (northeastern) part.

לצטט בהקשר של פיסות המתכת שמצאנו בעיגול את:

Park, Jang-Sik, William Gardner, Jargalan Burentogtokh, Aspen Greaves, William Honeychurch, 2024. Recycled metal fragments and small-scale bronze acquisition in northern hinterland communities of the Mongol Empire, Archaeological Research in Asia, Volume 40, 100566

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