

Report on work done in Ömnögovi Province, Mongolia, June 8-23, 2024

As part of The Wall project, a collaboration between the Hebrew University, National University of Mongolia and Yale University, we conducted a field work in Ömnögovi Province. The work was focused on a line of wall located parallel to the Mongolia-China border and on structures of different kinds located along this line and in its vicinity (Fig. 1). The wall-line is stretching, in an arc shape, from point 42.17358, 102.41393 in the west to point 41.986, 105.87545 in the east. This wall line was already identified by Baasan (2008: 73). An extensive survey of this wall line and associated structures was carried out, between 2005 to 2012, by Erdenebaatar Diimaajav and Alexey Kovalev and by the Joint Mongolian – Japanese team (Kovalev and Erdenebaatar 2021; Moriya et al., 2014). In the east this wall line continues into China where it was extensively surveyed by Chinese archaeologists (Wei 2010; Zhang 2023).

The date of this wall line and the associated structures is disputed. While most Chinese archaeologists argue that the entire line (the parts that are located in China as well as those located in Mongolia) should be dated to the Han period (second century BCE to Second century CE) (Wei 2010; Xing 2020)¹. Others, such as Kovalev and Erdenebaatar (2021), disagree and attribute the construction and use of this line to the Xixia dynasty (西夏 1038 to 1227 CE). One aim of our field work was to resolve this debate through systematic collection and analysis of C14 samples. Another goal was to better map and document this line and associated structure through systematic pedestrian surveys, drone photography, RTK mapping, as well as understand the structure of the wall line and associated structures through survey and targeted excavations. We hope that such research will also allow us to better understand the reasons for the construction of this wall-line, its geographical logic and the way it functioned.

Below we describe the work done according to the main types of work: 1. Survey and documentation; 2. Excavations.

Survey and documentation

Before departing to the field, we used satellite images and topographic maps to draw the entire wall line and identify features that are located in its vicinities. All together we identified 15 structures as garrisons (or potential garrisons) associated with the wall line; as well as 5 irregular enclosures (Kovalev and Erdenebaatar (2021) identify those as refuge fortress), 3 hilltop forts and a few other sites that may have ancient remains (Tables 1 and 2). It is impossible, using only remote sensing resources, to understand the exact nature of each of the features or to determine if all of them are associated with the wall line or may be dated to different periods. On-the-ground verification is crucial. While it was impossible for us to visit all of those sites we attempted to visit as many as possible, making sure we include in our sample at least

¹ Some of the Chinese archaeologists, such as Wei Jian, recognize the possibility that this line was reused by the Xixia but they insist on dating its construction to the Han period.

one example of each feature type. To achieve this goal and in order to maximize the number of sites we could visit, our team was divided into two or three smaller teams, each composed of 4-6 people working independently on a designated survey area or on excavations. At each site we visited we documented visible features, conducted systematic survey of the site and its surroundings, collecting and documenting all the artifacts we could find on the surface, taking measurements and drone photos (including orthophotos and infrared imaging). Below we discuss the different sites and locations visited according to the different types, starting with the wall line itself.

The basic information about the different structures and features we surveyed is summarized in Tables 1 and 2. Below we only provide additional information, analyses and illustrations.

1. The wall line

The Gobi wall-line stretches in an arc shape, some 321 km long. In geographic terms this section of the wall circumvents from the north a large mountainous area which is the southern extension of the Altai mountains. At center of the arc it crosses one section of this mountain, therefore it is higher in the center and lower on the two sides (Fig. ???)

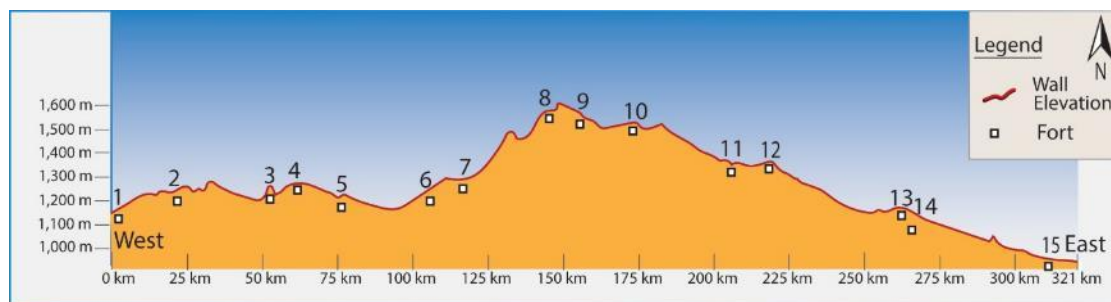


Fig. 1: A cross section of the wall line, showing the elevations above sea level of the wall and garrisons.

The location, on the northern foothills was perhaps chosen because rainfall water from the mountain is drained down to those locations. The high underground water table here allow for the digging of wells and provide the people who built the wall and stationed along it access to water – a precious resource in such an arid desert environment. Another advantage to this circumvention, which resulted in a longer wall compared to a line which cut through the mountains, is that most of the wall can be built on a relatively flat ground. One notable exception to this selection of flat areas for the wall line is around coordinates 42.17719, 103.03, where the wall climbs to an isolated high peak rather than circumscribe around it (see description below).

During the survey we traveled along the wall line. At different points we stopped to observe it more closely and we make those observation near the different sites we surveyed. The wall line can be traced throughout most of its length but its preservation conditions varied. At some places, especially at the eastern part of it is

highly eroded and covered by sand while at other locations it stands more than 1m high. An example for an eroded wall section were observed, for example, north to enclosure G10. Here a line of stones, which was slightly elevated above the surrounded ground and partly covered with sand was observed (Fig 2). At other locations larger number of stones are visible on the surface and the width of the wall is more clearly visible (Fig. 3). At different locations surface observations suggest that the wall was made of inner and outer faces, made of stones or wood with the space between them filled with earth. This observation was confirmed for the section excavated near site G05 (see below) but it is not necessarily true for all sections. The section that climbed to the top of an isolated mountain, between coordinates 42.18166, 103.03747 to 42.17551, 103.02561 is very well preserved and is made entirely out of stones (Fig. 4).

At a few locations, especially in the western part of the Gobi wall section, the wall is built from wood, combined with stone and earth or wood and earth only. The best-preserved part that we located is around coordinates 42.19759, 103.13355. The wall here stands some 2m high and make an extensive use of wood branches (Fig. 5), but evidence for extensive use of wood (smaller and larger branches) was identified at other sections as well as in our excavations near enclosure G05. At none of the wall sections we surveyed we found any artifacts.



Fig. 2: The wall line north of enclosure G10.



Fig. 3: The wall line northeast of enclosure G08. Coordinates: 42.47, 104.039



Fig. 4: Well preserve line of wall made of stone between coordinates 42.18166, 103.03747 to 42.17551, 103.02561



Fig. 5: A well preserved wall section made of wood and earth located around coordinates 42.19759, 103.13355.

Dating the wall and associated structures was one of the main goals of our expedition. Previously, Kovalev and Erdenebaatar (2021: 66) collected 8 C14 samples – two from garrison no. 3 and 6 from different sections of the wall. Another two samples were collected and dated by the Japanese – Mongolian expedition: one from G06 and another from a wall section near G08. The dates from G03 and G06 are discussed below. The dates of the samples they collected from the wall line range from 820 to 605 BP, which after calibration fall between 1175 to 1400 AD. We hope that the samples we collected from wall sections and garrisons and forts will help dating the wall more accurately.

2. Rectangular garrisons

All together we identified 15 relatively large rectangular enclosures, identified as garrisons and marked G01-G15. (Fig. 7). One of those (G09) is questionable but the rest are clearly seen on the satellite images. Excluding G09, the garrisons range in size from 4,745 m² to 13,986 m². Most of them are positioned with their corners oriented to the cardinal direction with some deviations (Fig. 6).

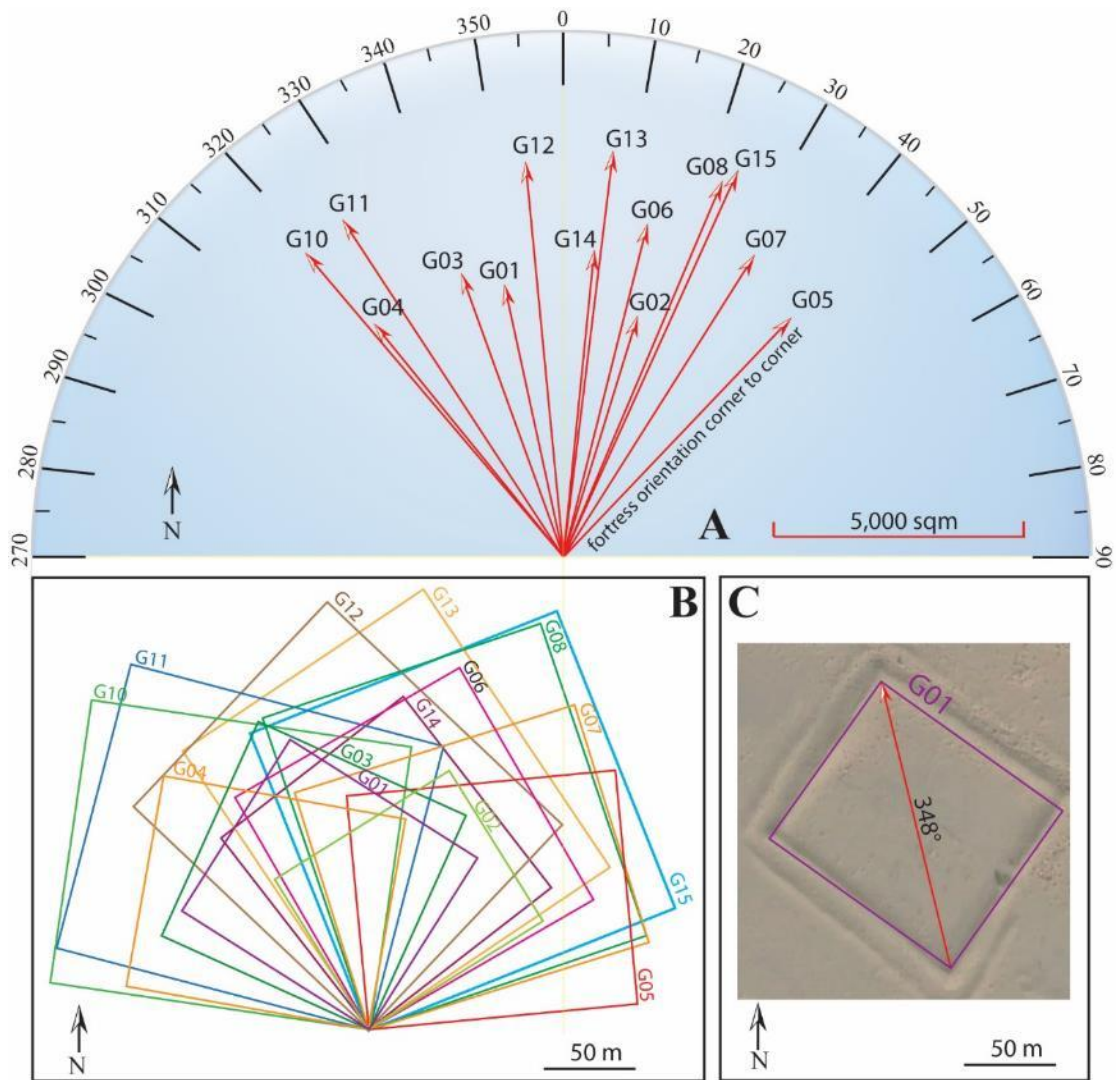


Fig. 6: Orientation and size of fortress structures (excluding fortress G09) . (A) Radial plot depicting fortress orientations. Red line lengths represent fortress size, while azimuths indicate orientation from the southernmost to the northernmost corner (B) Outline comparisons of fortress structures, size and orientation, colors are random for clarity. (C) Example of fortress G01, illustrating the method for determining orientation. The red line connects the southernmost to the northernmost corner yielding an orientation of 348°.

All the garrisons are located south of the wall line and most of them relatively close to it. The average distance between garrisons is 23km but some are much closer to each other (c. 12km) and others are more distant (c. 44km) (Fig 7 and table 1). During our expedition we visited ten of those sites, at two of them (G05 and G10) we conducted test excavations. Those will be discussed in the excavation section and the remaining seven (not including G09) are discussed below in consecutive order from west to east. In each of those sites we took drone photos of the site as well as regular photos of specific features, conducted intensive pedestrian survey inside and around the enclosures, and use a metal detector to uncover metal artifacts.



Fig. 7: The location of the rectangular enclosures along the wall-line (map by Dan Golan, background adopted form a Soviet map)

G03 (42.15132, 103.01183): This garrison is a trapezoidal shaped enclosure measuring 88x86m (internal diagonals 140m north-south and 120m east-west). The site was visited by Kovalev and Erdenebaatar (2021: 58) which marked it as Fortress no. 3. The earthen walls of the site are well preserved up to 1m high. The locations of corner towers are clear Figs. 8 & 9).



Fig. 8: G03 drone photo looking north



Fig. 9: G03 drone photo from above

Very few artifacts were found by our survey of the site. A black glazed base of ceramic vessel was found outside and north of the sites wall (Fig. 10a) and flint artifacts (Fig. 10b) were found south and east of the site walls. Finds unique to this garrison are wooden stakes (pegs) that were stuck into the garrison's walls. The stakes are about 20-30cm long with one side clearly pointed (Fig. 11). A sample of 5 stakes were taken for dating and tree identification. Previously, Kovalev and Erdenebaatar (2021: 66) dated one such wooden stake to 780 ± 30 BP (AD 1219 to 1280AD). Another wooden sample they took from the same site provided a date of 1135 ± 20 BP (AD 880 to 990).

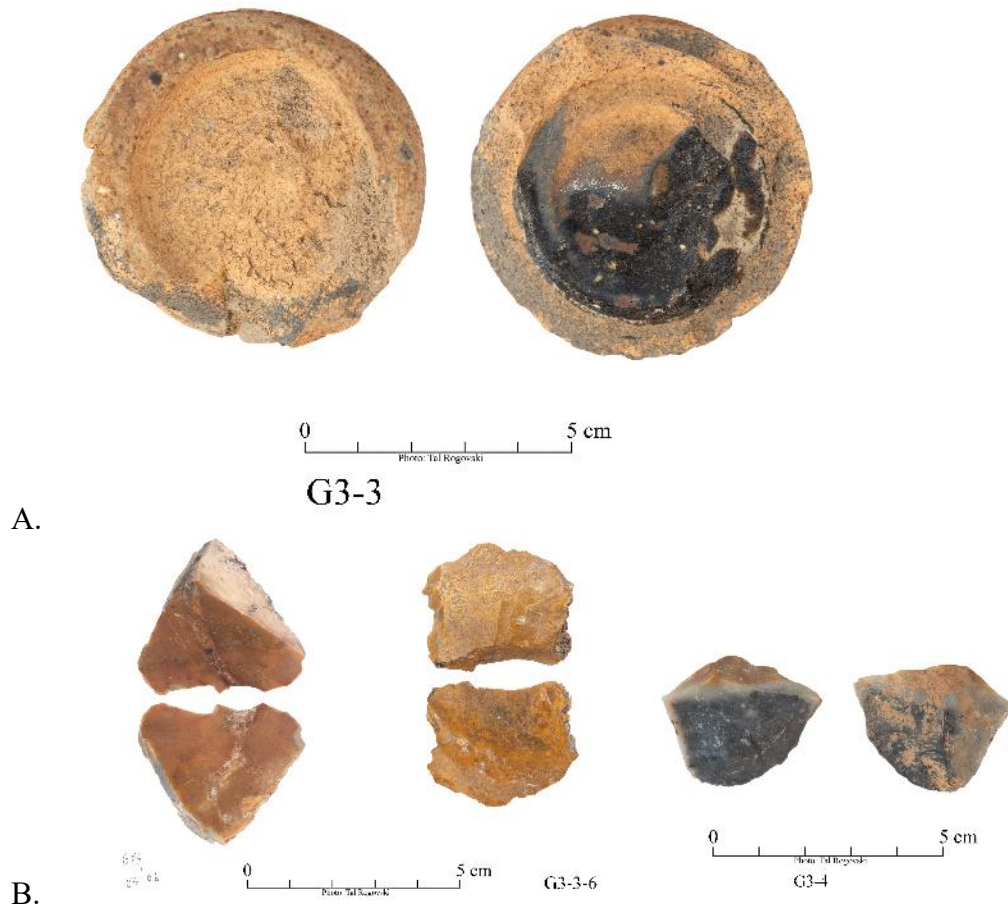


Fig. 10: Artifacts found at G03: A. Ceramic base; B. Flint artifacts



Fig. 11: Wooden stakes from site G03

G04 (42.19178, 103.14206): This garrison was visited by Kovalev and Erdenebaatar (2021: 58) and labeled Fortress no. 4. It is a rectangular 85x98m in size. The walls are well preserved to about 1m high and they and the surrounding ditches that are highly visible (Fig. 12 & 13). A gate may have been located at the center of the eastern (southeastern) garrison's wall. Three small pieces of dark glazed pottery were found inside the garrison's walls (in the southern part). In spite of intensive Metal Detector survey, we did not find any metal artifact here.



Fig. 12: Drone photo of G04

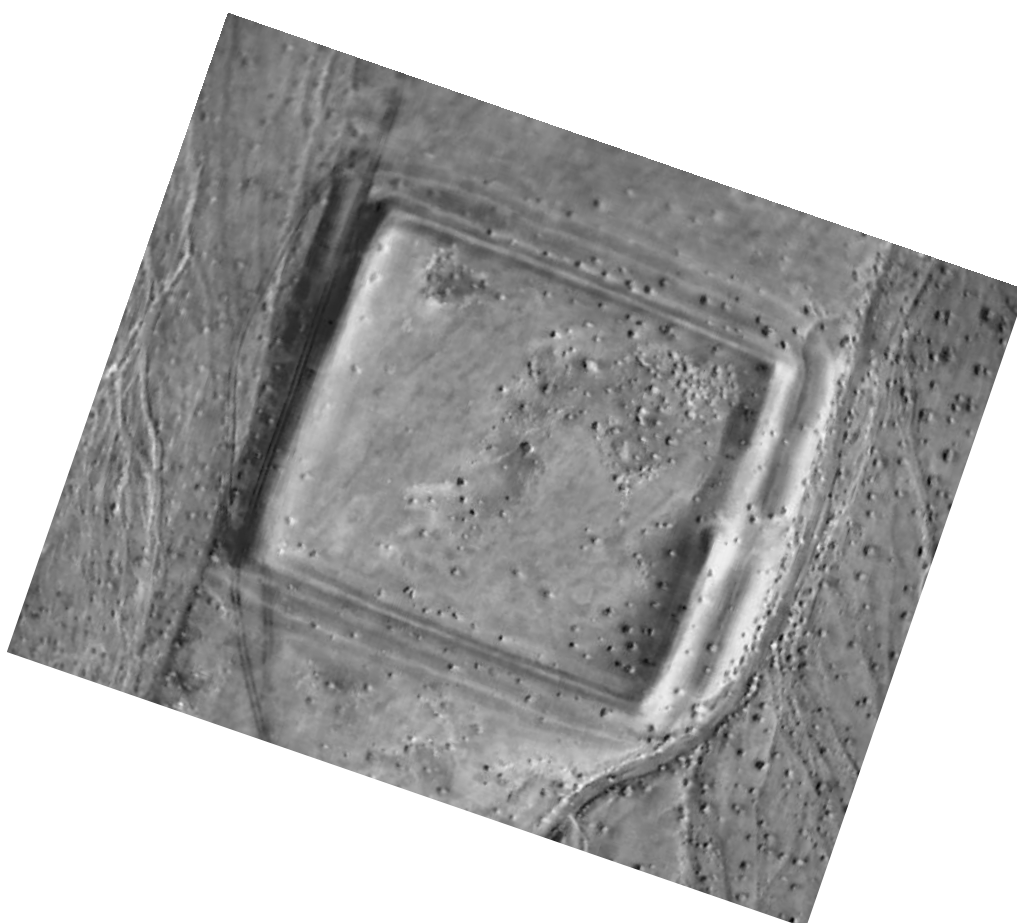


Fig. 13: An infra-red drone image of G04 (the enclosing ditch is very clearly seen)

G06 (42.33963, 103.61582): This garrison was visited by Kovalev and Erdenebaatar (2021: 60) and labeled Fortress no. 6. Among all the garrisons we visited G06 is the best preserved. It is rectangular in shape 103x104m. The site and its surrounded area is partly covered by sand dunes but the wall are clearly visible and, in some places, stands some 2m high (Figs 14 & 15). A unique feature of this garrison is the exposure of the wood that were extensively used to construct the entire enclosing walls (Fig. 16). Our team cleaned a section at the northwestern enclosing wall. The section was some 0.5m and more than 1m deep which show the extensive use of wood (Fig. 17). Some of the timber used here was large wooden beams. We took samples of the wood from this section for dating and analysis (Fig. 18). Japanese–Mongolian team visited this site in 2012 and took wooden sample that was dated to 906±21 BP (AD 1044–1215) (Kovalev and Erdenebaatar (2021: 66).

Our survey of G06 uncovered one potshard, two ceramic spindle whorls (one was found outside the enclosure's walls), and three coins (Fig. 19). The shard is tentatively dated to the Xixia period. Two of the coins (Fig. 20) are dated to the Qing period – one to the Kangxi era (康熙, 1661-1722) and one to the Qianlung era (乾隆, 1735-1796).



Fig. 14: Drone photo of G06 and its surrounded area

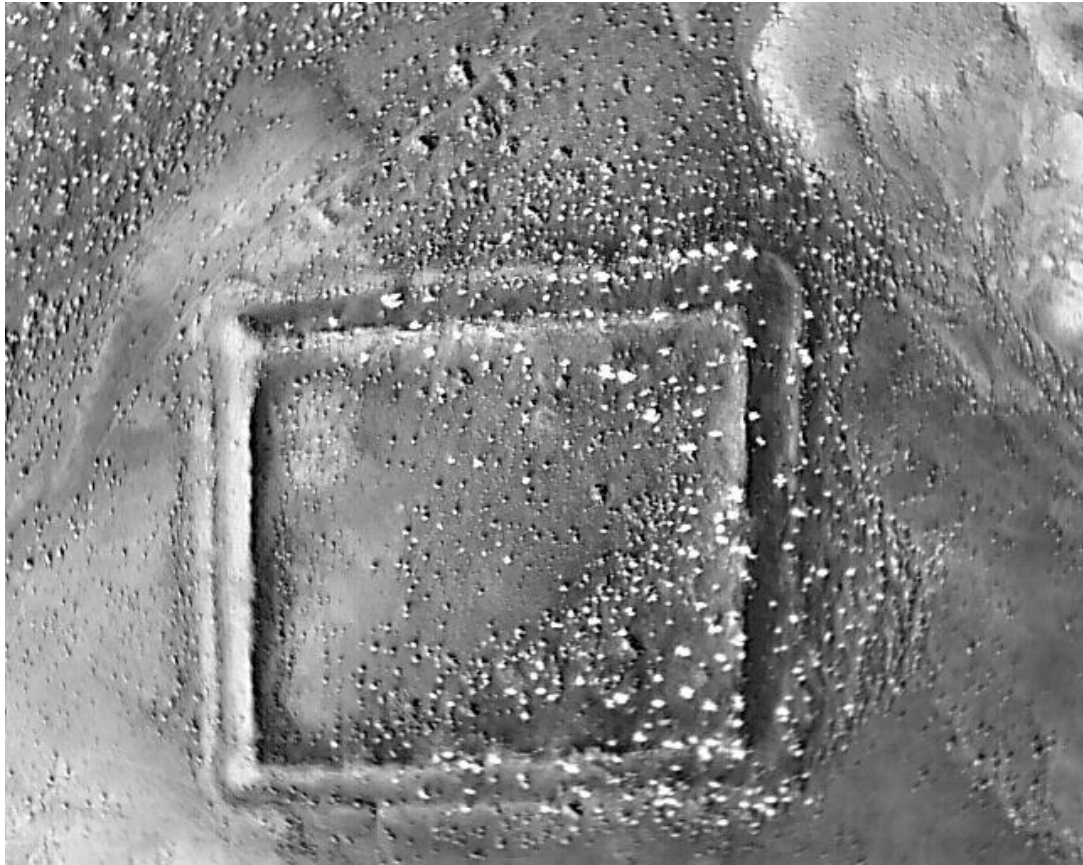


Fig. 15: An infra-red drone image of G06 (the enclosing ditch is very clearly seen)



Fig. 16: Section of the enclosure wall of G06. The outer and inner faces of this wall are clearly made of wood.



Fig. 17: Section of the enclosure wall of G06 cleaned by our team.



Fig. 18: A wooden beam from the walls of G06.



Fig. 19: Artifacts found at G06



Fig. 20: Coins found at G06

G07 (42.34569, 103.73799): This garrison was visited by Kovalev and Erdenebaatar (2021: 60) and labeled Fortress no. 7. Among all the garrisons this is the only one that is located practically adjacent to the wall line. It is a rectangular enclosure measuring 80x103m. Because of the sand coverage only the southeastern corner of the garrison is clearly visible (Fig. 21). However, taking Infra-Red images of this site we were able to see its structure more clearly (Fig. 22) Some twelve small ceramic and porcelain shards were recovered by our survey team from G07. Most are glazed some black and some white with brown-color line decoration (Fig. 23). Some of these shards were tentatively identified as Mongol period ceramics.



Fig. 21: A drone photo of G07

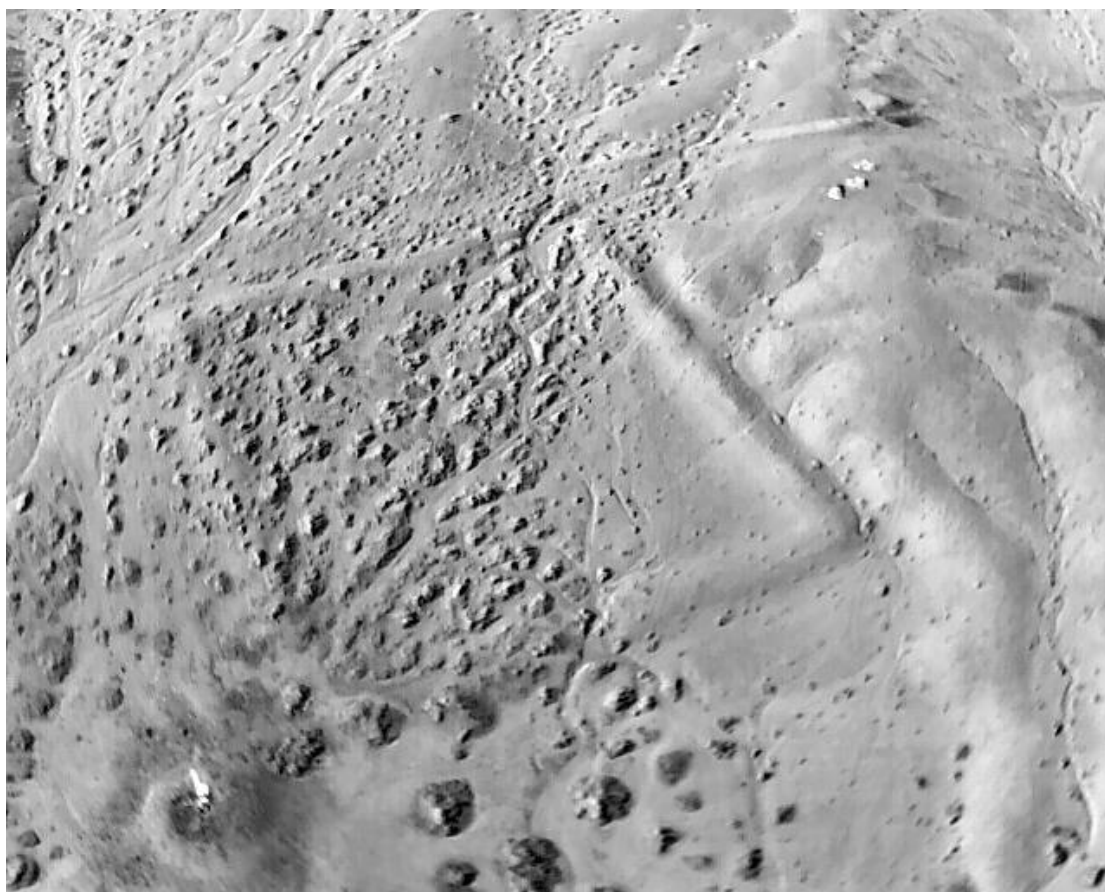


Fig. 22: An Infra-Red image of G07



Fig 21: Shards and other artifacts recovered from G07

G08 (42.47144, 104.03172): This garrison was visited by Kovalev and Erdenebaatar (2021: 60) and labeled Fortress no. 8. The garrison's size is 108x125m. This garrison is well preserved with its ditch and corner towers clearly visible. It is located relatively close to the wall line which is also relatively well preserved in this area (Fig. 24). A relatively large number of small shards, most of them black glazed, were recovered from different parts of this enclosure (Fig 25). Some of them have been tentatively identified (by Chinese archaeologists) to the Xixia period and others that may be modern.



Fig. 24: A drone photo of G08 and the wall line north of it.



Fig. 25: Shards recovered from G08.

G11 (42.43807, 104.66517): This garrison was visited by Kovalev and Erdenebaatar (2021: 60) and labeled Fortress no. 10. The garrison's size is 110x132m. It is relatively eroded and partly covered with sand (Fig. 26). In spite of intensively surveying inside and outside the garrison's walls we were able to find only one stone artifact and not shards.



Fig. 26: A drone photo of G11

G12 (42.31544, 104.99789): This garrison was visited by Kovalev and Erdenebaatar (2021: 60) and labeled Fortress no. 11. The garrison's size is 111x136m. The walls of this garrison are relatively well preserved with the corner towers and enclosing ditch highly visible (Fig. 27). In spite of intensively surveying inside and outside the garrison's walls we were unable to recover any artifact.



Fig. 27: A drone photo of G12

3. Hilltop Forts

All together we identified three small stone-built hill-top forts in the survey area. One of them, F43, is located at the extreme eastern side of the wall section, very close to the Mongolian-Chinese border. This site is described by Kovalev and Erdenebaatar (2021: 64), but we were unable to visit it due to its proximity to the border (Table 2). The other two forts, F41 and F42 are located at the western part of the wall section. Both forts are relatively small, they have well preserved stone walls (but see description below) and are located on at strategic locations with very good visibility over their surrounding environment. One of them, F41 is located some 3km north of the wall line and some 5.8km northwest of garrison G03. The other fort, F42, is located about 25km south of the wall line and some 31km southeast of F41. In geographical terms, the two forts are located at the two extreme ends of a natural pass (route) that crosses the local mountain ridge. Thus, our working hypothesis is that they are part of the wall-system and were constructing to guard this strategic route.

F41 (42.19413, 102.97452): Located on top of a hill situated on the eastern side of a dry river that cut through the mountain ridge (Fig. 28). The fort control the natural route that passes through the mountain ridge (Fig. 29). This site is described by Kovalev and Erdenebaatar (2021: 64). They name it Fort 1, Shivee khatavch. It is a small elliptic shape structure. The internal space is some 13m from east to west and 4.5m north-south. In the inside the built walls erect stone walls are clear but, on the outside, there is a larger spread of accumulated stones – perhaps as a result of the collapse of

the walls or perhaps representing a larger foundation ramp on which the fort was built (Figs. 30 and 31). On the inside the walls are preserved to about 1-2m high but they are much higher on the outside. No artifacts were found inside or around F41 and no materials for dating either.



Fig. 28: A drone phot of F41 looking northwards showing the position of the fort east of the river and close to its norther entrance into the mountain range area.

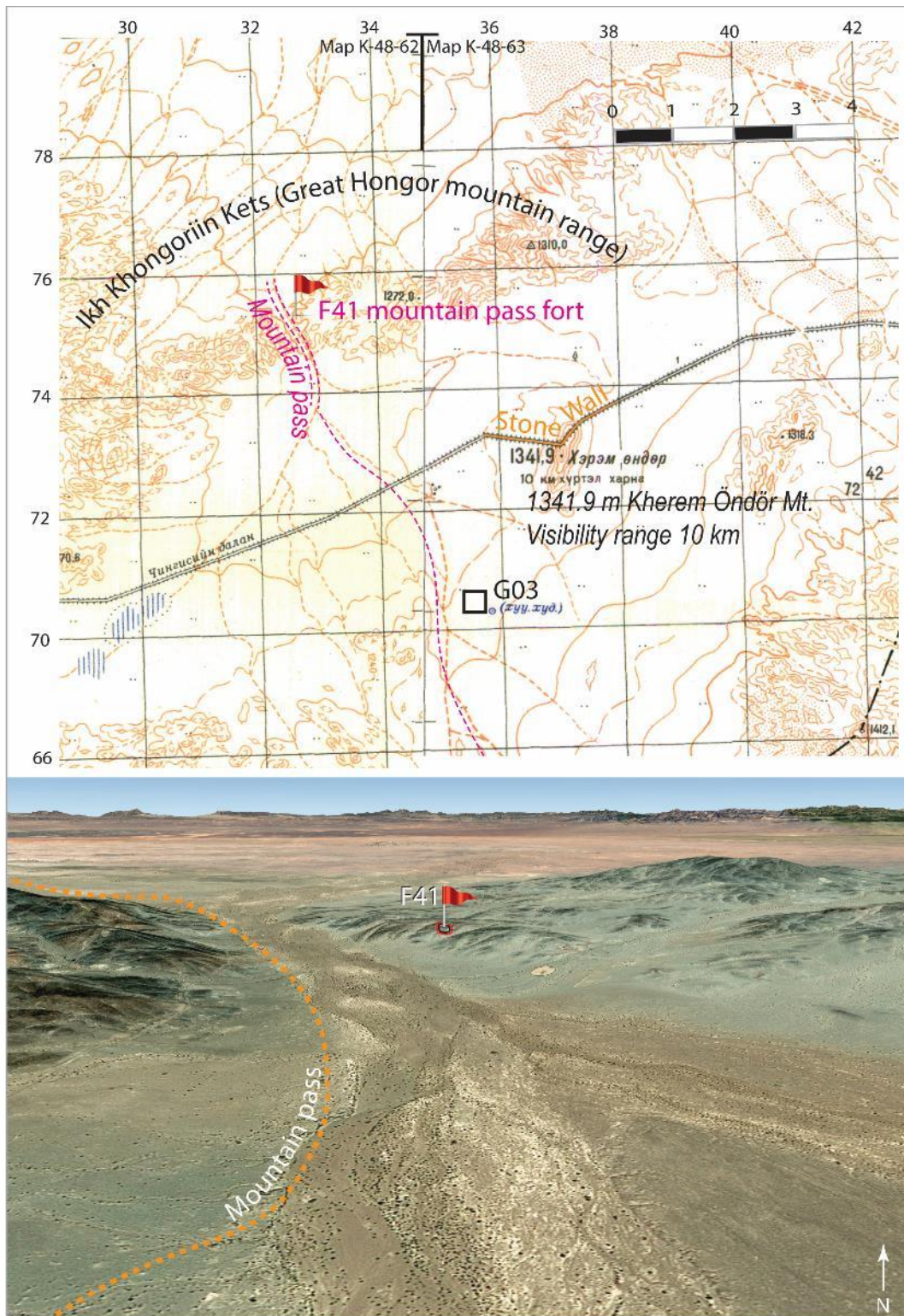


Fig. 29: A topo map and a 3D illustration describing the location of F41 and its situation vis-à-vis the natural north-south route in this area.



Fig. 30: A drone phot of F41.



Fig. 31: A drone phot of F41 (a view from above).

F42 (42.01893, 103.26533): Located on top of a hill situated on the western side of a dry river that cut through the mountain ridge. It is located on the northern entrance to a steep section which is the southern terminus of this pass (Fig. 32). The location of the fort is high above the river bed (Fig. 33). This site is described by Kovalev and Erdenebaatar (2021: 64). They name it Fort 2. Like F41 this is an oval shaped structure. Its internal size is about 14 m (north-south) and 7m (east-west) (Fig. 34). Unlike F41 the internal and external faces of the walls are visible and the wall is some 2m wide and stand to about 3m high at the highest places (Fig. 35). Unlike the walls of F41, wooden beams are integrated inside the stone construction of the walls of F42. The wooden beams, some of them relatively large, are integrated with the unworked stones (Fig. 36). We took a sample of wood for dating and analysis (Fig. 37). No other objects were found in or around F42.

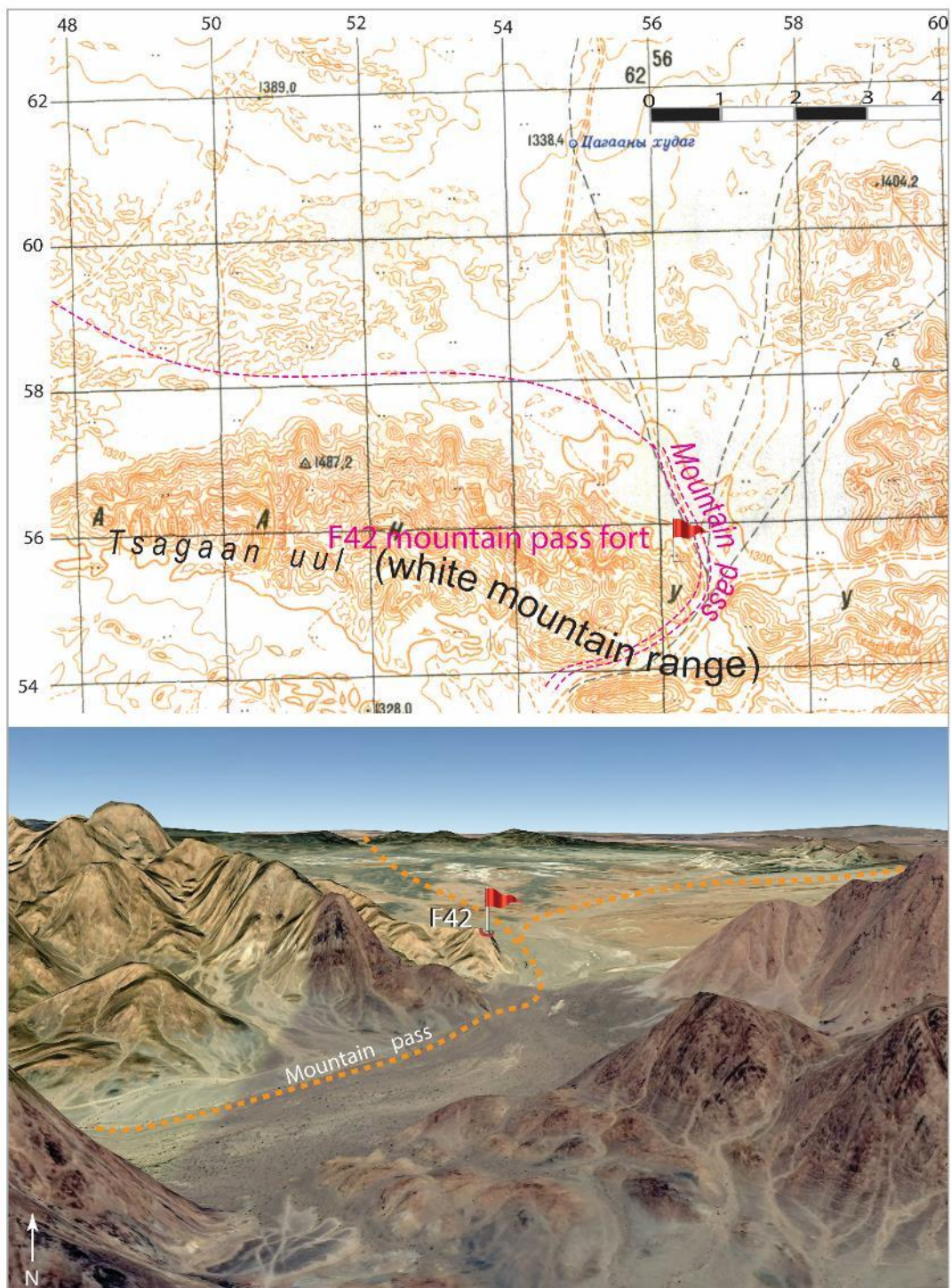


Fig. 32: A topo map and a 3D illustration describing the location of F42 and its situation vis-à-vis the natural north-south route in this area.



Fig. 33: The location of F42, a look southwards towards the pass between the steep mountains.



Fig. 34: A drone photo of F42.



Fig. 35: The walls of F42 from the inside. The location of the wood sample we took is marked by the yardstick



Fig. 36: Wood integrated inside the stones of the walls of F42



Fig. 37: A wood sample taken from F42

4. Irregular stone enclosures

Perhaps the most unusual type of structures that Kovalev and Erdenebaatar (2021: 70-73) found in the area of the wall are irregular enclosures which they identify as refuge fortresses. Some of those sites were already found by Perlee during his work in this area in the 1960s but none of them were ever excavated or published in any details. According to Kovalev and Erdenebaatar, those enclosures, which are usually built on high ground and include a low stone made wall of irregular shapes, served as a refuge for nomadic population to defend themselves in times of war or danger. While Kovalev and Erdenebaatar date those sites to the Xixia period and associate them with the wall, it is unclear that the samples they date and the ceramic they found in a couple of those sites indeed represent the time of construction and use. Moreover, our research of one of those structures – R52 – which include a comprehensive survey and small scale excavations, suggest that that at least this site was much more complex and larger than previously suggested and that it may include both much earlier as well as later features. We believe that those unique sites deserve a more intensive exploration than what we can do during our current field work.

R52 (42.46639, 104.68418): Kovalev and Erdenebaatar (2021: 71-72) identify this site and named it Khurmen tsagaan ovoo but it seems that they never visited it on the ground. The main feature of this site, already noted by Kovalev and Erdenebaatar, is an irregular enclosure. On its southeastern side this enclosure is terminated by a cliff and on all other three sides it is delineated by a low stone fence. However, our survey revealed that the site is much larger with many stone-built circular structures located in the area north and west of the enclosure. In addition, a large grave was also located north of the enclosure (Fig. 38).

The stone enclosure is 120m wide on the cliff side and some 195m from the cliff to the further point up hill. It encloses an area of 656 m². From the cliff the wall on both sides climbs steeply until it reaches a relatively flat area, where it continues to enclose a large space. On the south – southwestern side it follows more or less the outline of the slopes and to the north and west it is connected to the rest of the mountain range. The wall of the enclosure is made of unworked stones. It is preserved a few courses high – some 0.5m in some places (Figs 39). Gates are one of the most interesting features of the enclosure's wall. We located two well preserved such gates on the northern wall of the enclosure and more may have been on the southern and western side but they are not clear. The gates are a simple version of 'baffle gate' with external and internal gate walls and openings in 90 degrees angle (Fig 40). We intensively surveyed inside the enclosure but did not find any artifact. On one of the stones that are part of the natural cliff at the southeastern side of the site we found a petroglyph of a horse (Fig. 41).

North of the enclosure there is a large circular stone pile made of at least two concentric circles (Fig. 42). The structure is located in a low ground between the enclosure to the south and a lower ridge to the north. In this area we found a relatively large number of black glazed ceramic shards, some of them quite large. It seems that the structure is a grave and the pottery may have been originated from it or related to it (Fig. 43).

North and west of the grave we uncovered a large number of circular structures ranging in size from 3 to 4m diameter. Some of those structures are connected to each other. Most of the structures have a clear opening in their walls, suggesting that those were the 'doors' to domestic structures (Fig. 44-45). Our survey counted some 28 such circles, but because our time at the site was limited there may have been more such structures that we did not identify or are further away from the main site.

Test excavations at the site:

For Bill (also, if you have more information on the site please add it).

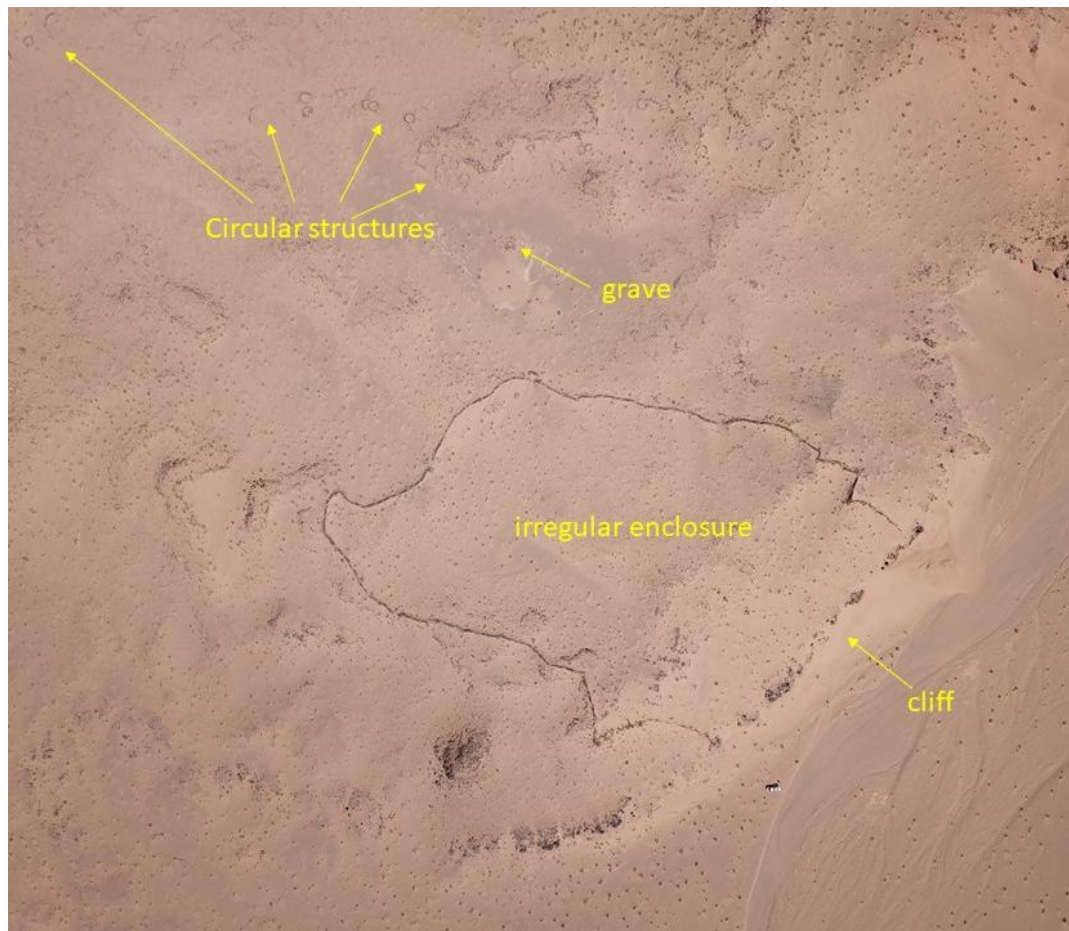


Fig. 38: R52 marking the different features in the site (some of the circular structures are located further to the northwest and are not included in this drone image)





Fig 39: The enclosure's wall

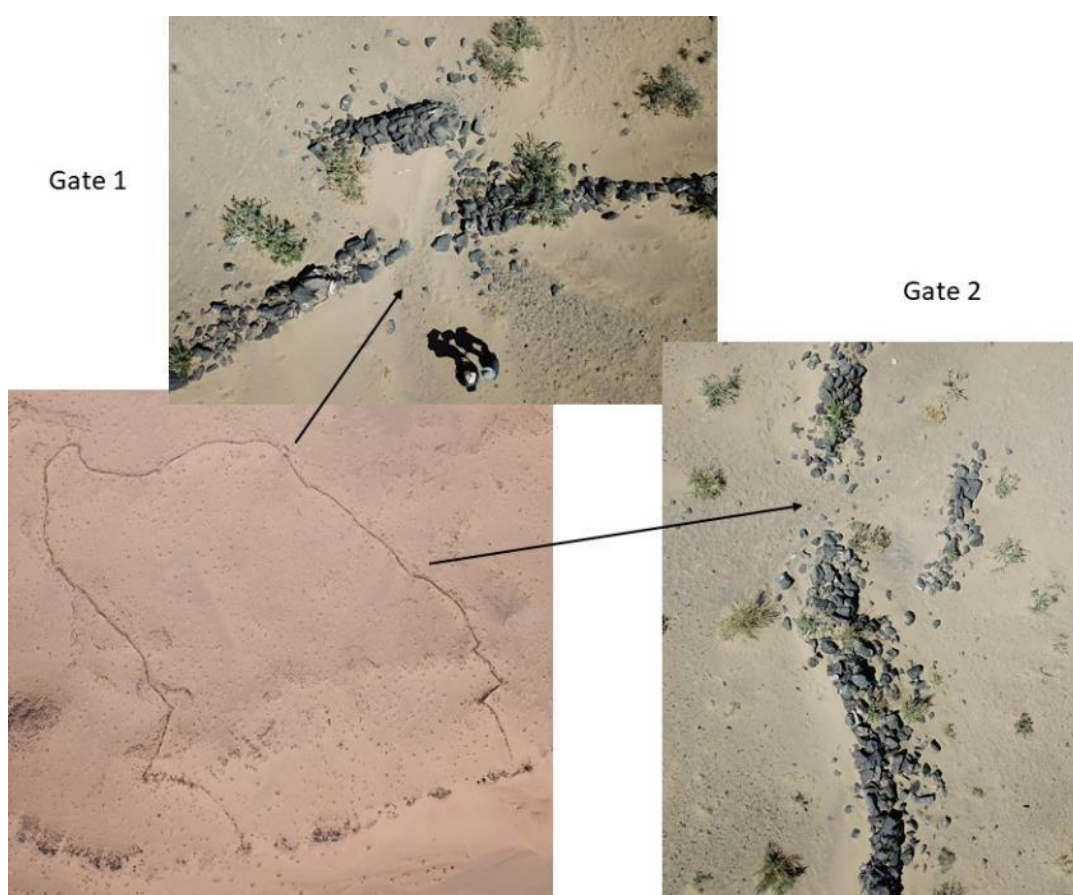


Fig. 40: The enclosure's gates



Fig. 41: A horse petroglyph



Fig. 42: A drone photo of the grave



Fig. 43: Some of the ceramic found in the area of the grave



Fig. 44: A circular stone structure



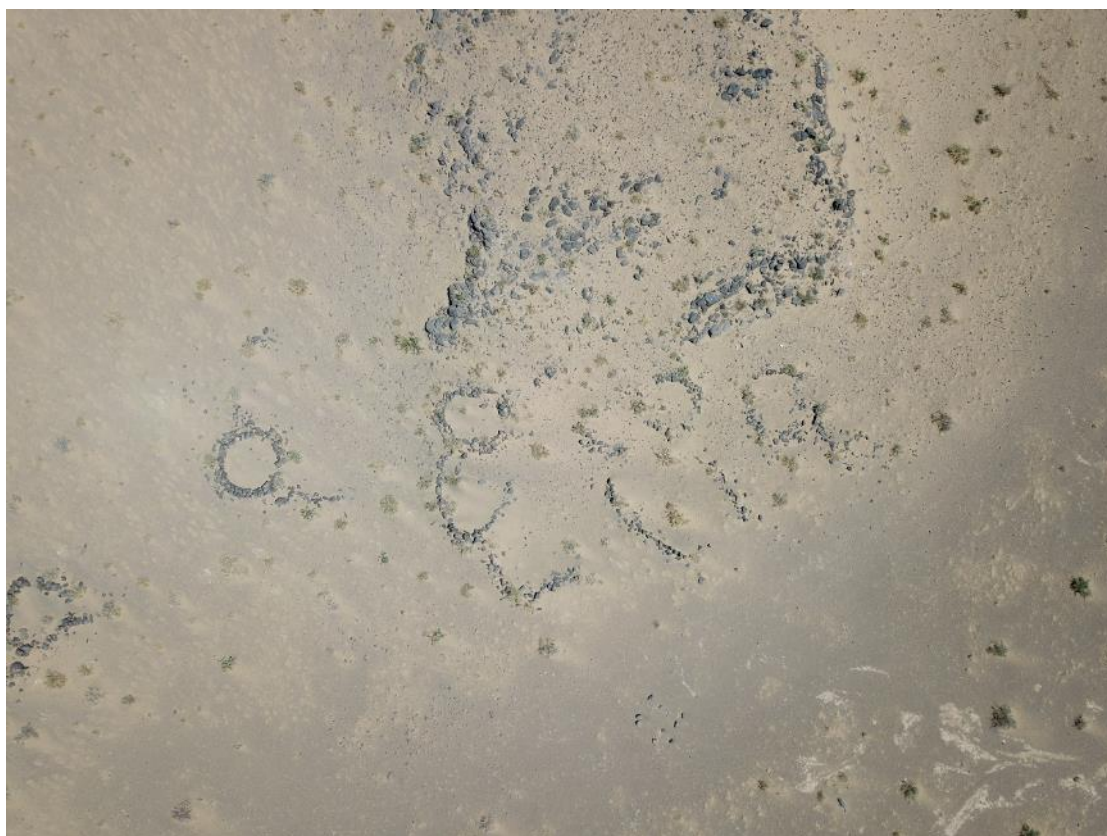


Fig. 45: Drone photos of circular stone structures

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