

The medieval cities of Otrar oasis, Kazakhstan.

Kuik-Mardan Excavation 2018

Site code: KMK18

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Introduction

In 2018 the Centre for Applied Archaeology, UCL Institute of Archaeology undertook a short excavation at Kuik-Mardan within the Otrar oasis in the Syr-Darya River region, Kazakhstan. The aim of this excavation season was primarily that of training 1st and 2nd year UCL archaeology undergraduate students in archaeological excavation and finds processing techniques, however secondary research aims were developed prior to excavation.

The site of Kuik-Mardan is made-up of several elements: a west citadel; shahristan; rabad; east citadel and surrounding wall. Previous excavations at the site have focused predominantly on the west citadel, shahristan and rabad. Dating from these investigations have suggested the settlement was in use from at least the c.7th-11th centuries. No excavation has been undertaken on the eastern citadel, however past surveys of surface finds have led to the belief that the east citadel was a later insertion and was extant from the c.12th-14th centuries. It was decided, therefore, to use the 2018 training excavation to test the assumed date of the east citadel. In consultation with Sabit Permenkul and Ali Seraliyev from the Otrar Museum, it was agreed that a 5m x 5m trial trench would be opened on the top of the east citadel with the aim of establishing the final settlement date of this area of the site and testing the hypothesis that the east citadel is a later insertion on the site.

Following the works of the 2016 season, use of several remote sensing techniques was also continued to understand the layout of Kuik-Mardan and to identify the areas of interest for future research.

Excavation Methodology

A 5m x 5m grid system was set out on the east citadel by the students using triangulation, and one 5m x 5m square chosen for excavation (Trench 1).

The surface finds were collected, and consisted of small sherds with minimal abrasion, predominantly course wares, and have been tentatively dated to the c.10th-12th centuries. No evidence of later ceramics, including any glazed wares, were observed, however it is possible these were removed during previous phases of field walking.

The trenches were then excavated by hand and recorded by the students, and the features excavated stratigraphically. Context sheets were used to record the features, and everything was photographed and hand planned at 1:20.

Photogrammetry was used on some of the features in order to create 3D models, while unmanned aerial vehicle (UAV) photomapping and geophysical ground penetrating radar (GPR) survey were also employed on the east citadel in the hopes they might aid in forming a basic picture of the structural layout on the east citadel. Possible results of these are discussed below.

Once off-site the finds were hand washed and dried before being catalogued and photographed by the students.

All the pottery dates used within this report are tentative spot dates which have been reached by comparing fabrics and styles with information within published reports from the region. The pottery has not been looked at by a pottery specialist, and so any dates within this report should be treated as a rough guide only.

Stratigraphic sequence

Trench 1

Excavation of Trench 1 revealed a complex stratigraphical sequence consisting of five phases of activity on the site:

Phase 1

The earliest activity excavated within the trench consisted of a substantial mudbrick building, consisting of a series of mudbrick walls [207]; [208]; [209]; [214]; [218] and [220], surfaces [216]; [236] and [237] as well as sufa [217] and kan heating system [222]. Much of the building had eroded, with the maximum height of the walls surviving to c.0.25m. The floors were badly worn and degraded, with only a few mudbricks still visible in floor [216]. No occupation layers survived, however pottery from the infilling of the kan [221] likely dates to the c. 9th-10th century.

Associated with wall [218] were two shallow postholes [224] and [226]. Situated against the external face of the wall, it is believed these may have once held wooden supports for the roof of the building.



Figure 1. Walls [209] and [[214] with floor [216]. Phase 4 pit [206] in the background.



Figure 2. Sufa [217] and partially excavated kan [222].



Figure 3. Pottery from fill of kan [222].



Figure 4. Pottery from fill of kan [222].

Phase 2

Overlying the Phase 1 building were various areas of collapsed mudbrick structures. Contexts [219]; [234] and [235] consisted of at least c.0.23m of light grey-brown sandy-silt, comprised mainly of mudbricks in various stages of decay. Some pottery was retrieved from within [219] which has been tentatively dated to the 9th-10th century.



Figure 5. Pottery from [219].

Phase 3

Cut into the Phase 2 building collapse were three inhumation burials. Inhumations [230] and [229] were both adults, laying in a supine and extended position and orientated north-west—south-east. Both burials had been placed within grave cuts [228] and [231] measuring between 0.20m and 0.45m deep, and are without grave goods. Given their burial positions and orientation, they are likely Islamic, and given their position in the stratigraphic sequence they are likely c.10th-12th century or later in date, however this prediction is based on the stratigraphic sequence alone.

Inhumation [203] also truncated the Phase 2 building collapse, however this burial was of a juvenile placed in a crouched position with the body facing north-east and the head turned to face upwards. The burial was without grave goods and had been placed within a shallow cut with no clear shape, c.0.18m deep. Although stratigraphically this burial lies within Phase 3, i.e. it is later than the building collapse of Phase 2, the positioning of the body means it has not been buried in a traditional Islamic fashion, although variation in practice is not uncommon, especially on the fringes of the Islamic world.. A refined date for this burial is not possible at this stage, and further excavation of this phase of the citadel's history could provide a better date for this style of burial.



Figure 6. Excavation of burial [230] in progress.



Figure 7. Crouched juvenile burial [203], orientated north-west—south-east.

Phase 4

Phase 4 consisted of two pits [206] and [233]. Both pits were filled with loose mid-greyish-brown sandy-silt with sherds of predominantly coarseware pottery, with some fine ware and tandyr fragments, tentatively dated to the c.10th-12th centuries. These pits have been interpreted as possible rubbish pits, potentially associated with post abandonment activity, although it is possible that these pits are evidence of later looting of the site.



Figure 8. Excavation of Phase 4 pit [206].



Figure 9. Pottery from fill [205] from rubbish pit [206].

Phase 5

Phase 5 consisted of a light brown sandy-silt layer [201] composed of windblown material and decomposed mudbrick with very frequent pottery fragments which sealed the whole trench. These fragments are mainly from courseware vessels and fragments of tandyr, and have been tentatively dated to the c. 11th-12th century. Few of the sherds appear abraded, and many of the sherds are of a substantial size, suggesting they have moved little and are essentially *in situ*. This layer represents the final abandonment and collapse of the top of the east citadel.

Sealing the trench was 0.10m of windblown material with frequent small sherds of c.11th-12th century pottery, as well as frequent rooting and vegetation.



Figure 10. Pottery sample from context [201].

Unphased

Within Phase 4 pit [233] was revealed a lower mudbrick wall with a layer of loose silt between it and Phase 1 wall [220]. It is believed that this is evidence of an earlier phase of building and its subsequent abandonment beneath the recorded Phase 1 building. These features were not fully exposed, and so have not been assigned a phase or context numbers.



Figure 11. Phase 4 pit [233] with Phase 1 wall [220] and lower unphased phases of abandonment and wall below.

Pottery

All of the pottery found from the Trench 1 was washed and cleaned. They all were photographed and looked at by the team. The pictures of the pottery, description of their basic categorisation and pottery pieces themselves will be handed over to the museum.

The analysis of the pottery would be one of the areas of future work.



Figure 12. Pottery from context 201.

Trench 2

On Day 1 visiting the site, the students noticed human remains on the surface on the western (north-western) citadel of the monument. A human skull was observed eroding out of the top of the citadel. After discussions with the archaeologists of Otrar museum, the decision was made to clean the area and lift the skeleton providing proper documentation. This is in accordance with the practice of the museum of reburying the surface human remains.

A 2m x 2m area was set out over the skeleton on the west citadel to be cleaned (Trench 2). The area around the skeleton was cleaned. Skeleton [212] was revealed to be an adult, orientated north-west—south-east, lying supine extended. The body was placed in a shallow grave [213], and was sealed by c.0.15m of windblown soil [210]. Due to the position and orientation, the burial is thought to be Islamic, however no associated grave goods or stratigraphic sequence were evident and so it was not possible to further refine this date.

The skeleton was modelled photogrammetrically. It will allow future investigations by physical anthropologists if there would be an interest to research it further. The team did not have a qualified specialist to look at the bone material, and current working hypothesis is that the skeleton is from early 20th century, probably from 20s and 30s when large number of deaths is recorded in Kazakhstan due to famine.



Figure 13. Inhumation [212].

Aerial Photography

Comprehensive aerial mapping of Kuik-Mardan took place in 2016. This year, the team used previously created models before arrival to discuss and plan the research. Due to a dry summer period, the appearance of Kuik-Mardan looks very different in 2018 in comparison with 2016. A new aerial mapping exercise was undertaken for all of the core areas of Kuik-Mardan and new maps were created to compare the results from 2016 and 2018. The findings were briefly discussed with the local archaeologists and the outputs will be handed over to them.

Future analyses will reveal a lot more about morphology of the site. It will also help to understand the layout of the walls in the city.

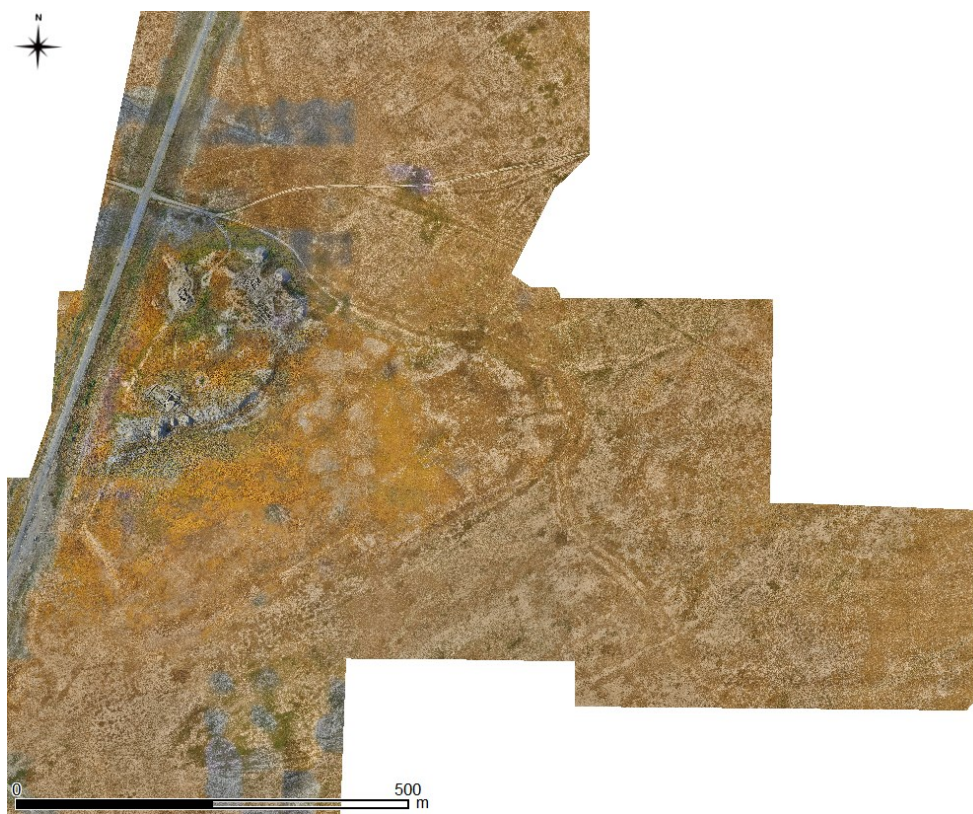


Figure 14. Aerial map of Kuik-Mardan from 2016.

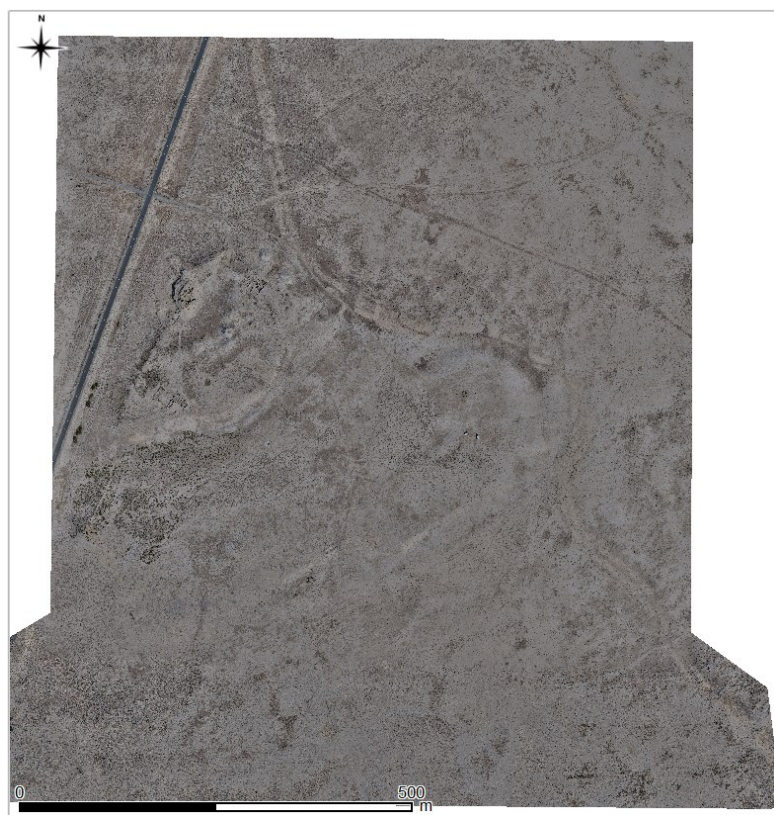


Figure 15. . Aerial map of Kuik-Mardan from 2018.

Photogrammetry

The field season was used to train the students in photogrammetric recording techniques. Most of the important features of Kuik-Mardan were recorded photogrammetrically as a result. Some additional finds from the wider Otrar area that are in the archaeological base were also recorded. These will give very detailed and 3-dimensional models for the museum staff. And the future researchers would be able to investigate the excavations from its different stages.

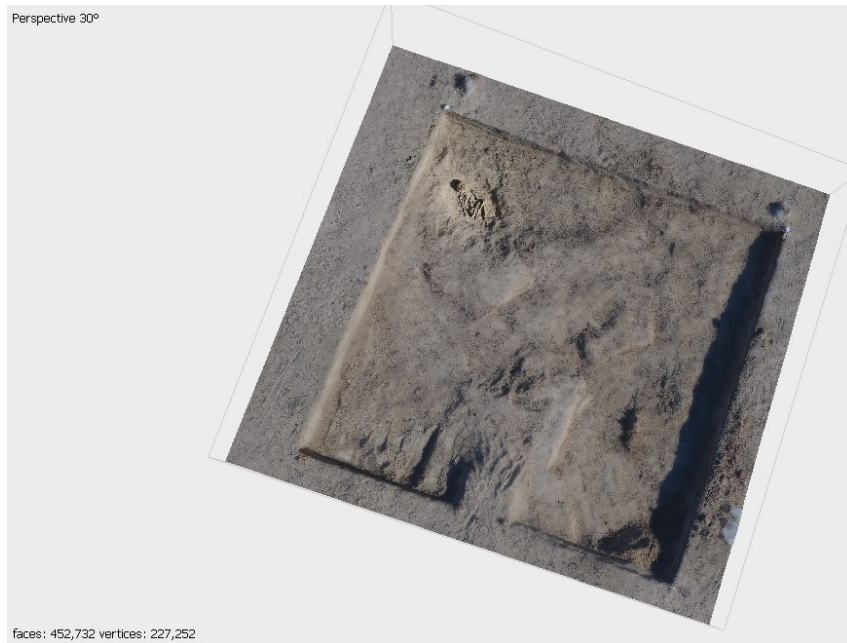


Figure 16. Trench 1 with excavation of burial [230] modelled photogrammetrically.



Figure 17. Model of burial [230].

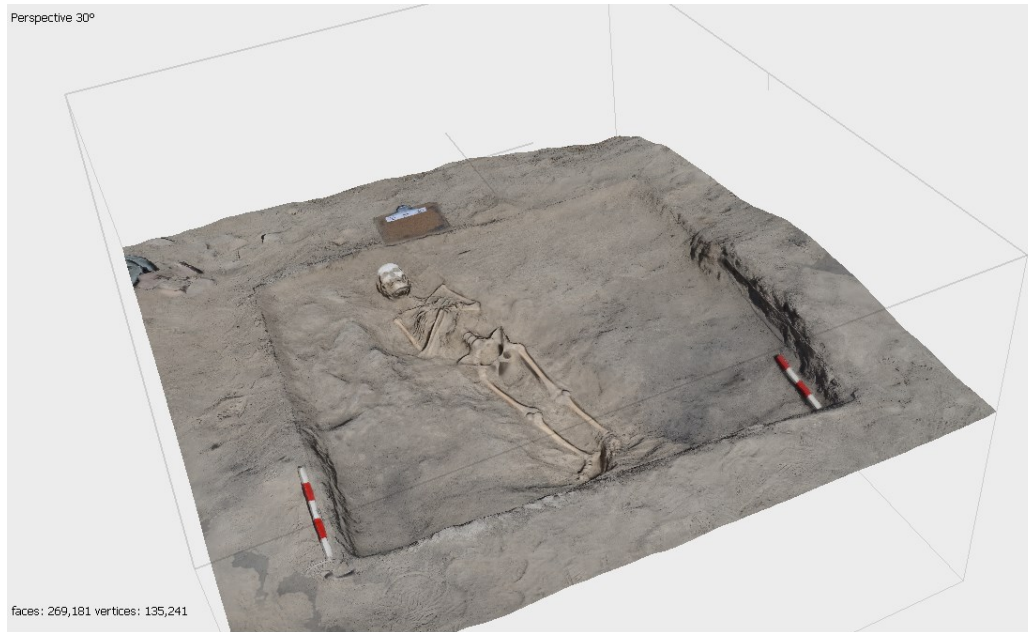


Figure 18. Model of the skeleton [212].

Ground-Penetrating Radar (GPR)

The areas around the excavation were scanned with GPR and the results are due to be delivered very soon after the end of the fieldwork. A similar experiment took place in the 2016 season, where an area of interest was identified from the aerial photography and then scanned with GPR, with a small, targeted excavation then undertaken on the area. The results from this year will contribute to our understanding of how GPR works in this context and it represents the first comprehensive example of merger of GPR, aerial photography and excavation on Central Asian mud architecture remains.



Figure 19. GPR used around the area of Trench 1.

Sampling in Otrar

Sampling works in Otrar were undertaken by Katie Campbell (PhD candidate at University of Oxford). Research in August-September 2018 at Otrar to be carried on from initial work undertaken in June 2017 alongside Kazakh colleagues. Initial analysis of botanical remains in the deposits investigated in 2017 indicated a high level of preservation of charred plant remains, which are useful for carbon dating, as well as having the potential to provide further information about the economy and lifestyle of the past residents of Otrar. The aim of this work is to continue to locate deposits from the period of the Mongol Conquest of Otrar and the following two centuries to provide archaeological information about economic, social and population changes in the city during the 13th and 14th centuries. This study aims to use the impressive amount of excavation work which has already taken place at Otrar to provide samples for further analysis of the chronology and lifestyles in 12th-14th century Otrar. Three areas were carefully selected to provide these samples, based on the initial environmental analysis of those taken in 2017. Environmental samples were taken from the edge of former excavation area III in the northern part of the Shahristan and from the current excavation area, some 30 metres to the northwest of excavation area III which has been excavated by Ilyar Kamaldinov.

Initial observations in Ilyar's excavation area indicated that the preservation of charred organic remains was very good, and discussions with him and his team suggested that the lower layers of this trench date from the 11th to the 14th centuries. As a result, this area provided an excellent opportunity to recover samples of charred archaeological remains. Two areas at the edge of the trench were selected because of the well preserved burnt remains, which are the result of several catastrophic fires which destroyed the mudbrick buildings, charring and preserving their organic roofs and domestic stores of grain.

Both areas where samples were taken have been drawn in order to pinpoint the exact location of each sample and contextualise where they were taken from. Section 4 at the northern end of the western edge of the trench, close to the city wall, contained part of a burnt building, which has been truncated by later pitting. This building contained a large amount of burnt organic remains from the roof, which was constructed from wooden cross beams and reed, and seemed to be packed with mud and other organic material on top. All of this had collapsed in a large fire which ruined the building. Its subsequent collapse covered the house, preserving stored grain and other organic material within the structure, making it an ideal location to recover charred organic remains for this study.

The second area selected within the trench was a series of three buildings constructed in a sequence on top of each other. The two lowest buildings appear to have burnt down, again providing a good opportunity for the recovery of charred organic remains. The middle of the three buildings was exceptionally well preserved, with charred wooden cross-beams and straw from the roof collapsed onto the floor surface. Samples were taken from this area in particular as well as from the buildings below and above. The aim is to carbon date this material and create a detailed chronology from the sequence of archaeological stratigraphy.



Figure 20. Burnt building in section 5.



Figure 21. Charred reed in section 5.



Figure 22 Flotation to recover charcoal and other charred organic remains.

Sampling work at Otrar in 2017 and 2018 has demonstrated that the site has a high level of potential for the recovery of charred organic remains, which can contribute chronological and environmental information about the site using techniques that are rarely used on sites of this type in Central Asia. Revisiting former excavations and using new techniques to analyse the stratigraphy, combined with contextualising these results by using samples from ongoing excavations will provide a solid archaeological basis for the context of these samples, which is crucial in order to use these techniques to their best potential. Finally, the exceptional preservation of organic remains within the burnt buildings also provides the opportunity to understand more about the economy and environment of people in Otrar during the 13th and 14th centuries.

Work with the museum

The team visited the newly-designed Otrar museum and talked to the staff members extensively on the museum design and interpretation. Following initial discussions, the students were tasked to assist with interpretation materials. As part of the collaborative work, they edited existing English language panels and streamlined the texts. Additionally, as part of the longer in-museum work, they created 'stories' for selected objects using their archaeological knowledge. Using multi-lingual background of the students, they were also tasked to create short introductory materials in their own languages. These materials will be handed over to museum staff and could be used in future guided tours.



Figure 23. Student working in the museum hall.

The students also worked with the local school children and the local communities and shared their knowledge with them directly.

Ethnographic research – carpet making

The resources available in the Otrar area have been invaluable not only for large-scale archaeological research, but also for independent ethnographic projects. Victoria Sluka, member of the 2018 UCL team used the time in Otrar to collect information on traditional weaving methods, particularly related to pile carpets (түкті кілем). The Otrar Museum and Library provided Kazakh-language books and displays, which tend to be more detailed and accurate than resources available abroad in English. The Museum staff, particularly in the ethnographic departments, were also available to answer more detailed and specific questions relating to the particular research goals.

Being positioned in the Shauldur/Otrar area was also hugely beneficial to this independent research. Interaction with local artisans, both professional and domestic, allowed for more detailed analysis of carpet production, materials, and culture. Of particular use were teachers from the School of Traditional Kazakh Crafts, whose detailed materials, photos, diagrams, and finished carpets were most adept at describing the weaving process. As a more rural area, the Shauldur area has generally been more useful in providing contact with artisans than larger cities like Astana or Almaty. It was also able to provide material samples of distinctly local origin, allowing for scanning electron microscope analysis and sourcing data for archaeological finds. The results of those analyses will be shared with the museum staff in the future.

Conclusion

Overall, despite the short duration of the works in Otrar oasis, there were several successful strands of the works in 2018. The students learned a lot from the process. Thanks to direct support of the Otrar museum and Margulan Institute of Archaeology, UCL team was able to achieve all the goals that were set at the beginning of the project.

The excavation on the east citadel has revealed a sequence of a c.9th-10th century building and its subsequent collapse followed by truncation by a phase of later burials of possible c.10th-12th century date. This sequence was further truncated by c.11th-12th century pits which are likely either rubbish pits or evidence of looting in antiquity. The sequence is sealed by a layer of degraded mudbrick and windblown silts of likely 11th-12th century date. Trench 1 suggests that the final phases of occupation on the east citadel are comparative in date to those on the west, and that the east citadel boasts an equally complex sequence of occupation and activity. No evidence of later 12th-14th century activity was observed within Trench 1, suggesting that any later pottery sherds found in previous field walking exercises were either a product of sporadic camping/short term activity, or any later buildings have completely eroded away leaving no visible trace within the landscape.

Aerial photography and GPR activities showed some initial findings, but their results will need to be interrogated further with the use of high-power computing equipment at UCL in order to extract more valuable outputs that are informative. In this process, the main goal would be collaborating closely with the Otrar museum staff in order to ensure that there is a direct information sharing and ground-truthing element to these exercises.

Collaboration with the museum itself on its halls and with the local community and schools was very useful for the students. Similar activities will also continue in the future years of the project in order to achieve wider impact through archaeological works in the region.