The form and abandonment of the city of Kuik-Mardan, Otrar oasis, Kazakhstan in the Early Islamic period

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Abstract

A joint Kazakh-British archaeological initiative undertook a survey and excavation of the city of Kuik-Mardan, one of the largest of the seventy or so known settlements in the Otrar oasis on the Syr-Darya river, Kazakhstan. Several complimentary field techniques were employed including unmanned aerial vehicle photomapping and an extensive programme of radiometric dating. The radiocarbon dates obtained are the first for any city in the oasis and allow more confident interpretations of the experience of the city to be ventured. Also undertaken was a geoarchaeological investigation of the surrounding irrigation and water supply canal system. Key results include its wholesale destruction during the 6th to 7th century and the form of the later occupation of the city.

Keywords

Islamization, Central Asia, urban archaeology

Introduction

Since 2011, the Centre for Applied Archaeology, University College London, together with a local Kazakh archaeological company (Archaeological Expertise) and the Margulan Institute of Archaeology of Kazakhstan, have been undertaking the Silk Road Cities of Kazakhstan Project in the south of the country. For the past two years, attention has been focused on the city of Kuik-Mardan, one of the largest of the seventy or so known cities in the Otrar oasis on the confluence of the Arys and Syr-Darya rivers (Figure 1).

Insert Figure 1 about here

The Otrar oasis occupied a geographical niche: bounded by the Syr-Darya river and the Kyzyl-Kum desert to the south and the Karatau mountains to the north. For much of the medieval period this locale was a frontier territory of the Islamic world with the steppe cultures to the north. Like much of Transoxania, the oasis had always lain beyond the control of the Sasanian Empire and was a patchwork of fortifications of the largely nomadic Turkic princedoms.

Morphologically, the cities at Otrar had a basic tripartite structure of citadel, fortified inner town (*shakhristan*) and suburbs (*rabad*), typical of many Central Asian cities (Wheatley 2001, 322). The basic model of the administrative and military heart dwelling in the citadel and inner town, with lower status residences and industries like potteries in the suburbs is still broadly accepted. However, this was an organizing principal rather than a rigid planning practise and increasingly the realisation is that these cities were morphologically nuanced urban forms evolving along differing trajectories (ibid). At Kuik-Mardan an unusual second smaller citadel was located to the east of the main citadel, although having never been archaeologically investigated, its form and function are almost entirely unknown.

The defended urban area of Kuik-Mardan covers 17 ha, and is one of the principal settlements in the oasis, along with the main Otrar *tobe* (high flat topped mound or *tell*), Kok-Mardan, Jalpaktobe, Altyntobe and Kuyruktobe (Figure 1). At 140 ha, the final form of the main Otrar *tobe* dwarfed the others, although its relative scale throughout its evolution is obscure.

Kuik-Mardan is also known as Konurtobe in Kazakh, meaning “brown hill” or “burnt hill” (Baipakov *et al.* 2006a, 4; Kidir 2009, 154-155). The city has been subject to previous archaeological investigations led by Aleksandr Natanovich Bernshtam (1910-1956) in 1949-1951 and by Karl Baipakov in 1986, principally in the citadel where three residential buildings were excavated (Baipakov *et al.* 2006a; Kidir 2009, 154-155; Figure 2). All three buildings had been burnt and the ceramics finds dated two to the 7th to 8th century and the third to the 9th to11th century (Baipakov *et al.* 2006a, 4-7). In addition, an inhumation cemetery was found 700 m to the east, and was used between the 5th to 7th centuries (ibid). Another excavation was undertaken in the *shakhristan* on what has been interpreted as a temple complex, although few details are available and the results remain unpublished (Baipakov and Aldabergenov 2005, 30).

A limited number of archaeological investigations were also undertaken in the *rabad* where evidence of pottery kilns, and residential occupation dating to the end of the first millennium AD was found. Unfortunately, the locations of the excavations in the *rabad* are unknown and much of this work remains again unpublished.

Insert Figure 2 about here

The basic aim of our project was, through the application of several complimentary field techniques, to understand the form, function and development of Kuik-Mardan. However, the city, like the vast majority of settlements in Central Asia, was almost entirely constructed of mudbrick and rammed earth (*pakhsa*), and these materials bring a special set of challenges to the archaeologist as they create a very different archaeological record to that of stone. With stone, it was usually easier to reuse materials and adapt structures rather than build anew. With mudbrick the opposite was true: it was far simpler to flatten structures and use them as foundations for entirely new builds (Kennedy 2006). Over centuries, this repeated levelling of buildings with thick mudbrick walls created substantial underlying deposits. Mudbrick cities literally rose up from the surrounding plains as artificial hills (known in Kazakhstan as *tobes*). The main problem for the archaeologists is the great depth of these deposits often makes the investigation of the earlier phases of a city's occupation logistically and financially difficult, if not impossible. For example, at Kuik-Mardan, the citadel sat on a *tobe* of archaeological deposits more than 10 m thick, and in effect only the abandonment and later phases of the settlement could be adequately explored.

Methods

The fieldwork used three complimentary fieldwork methods: unmanned aerial vehicle (UAV) photomapping; surface finds collection of the fortified inner town; and finally, trial trench hand excavation. The first two techniques had never been used on the site before, and it was hoped than together these would allow us to rapidly map the city in detail, and form a basic picture of the distribution of artefacts, buildings and overall land-use. These techniques were selected as they had been successfully applied to other Central Asian mudbrick cities, such as Merv in Turkmenistan (Williams 2012).

The results of the UAV photo-mapping and field-walking surveys were used to inform the location of the trial trenches. The selected targets were primarily the outline of buildings visible from the air, and areas containing abundant slag industrial waste. Other negative areas, with no clear results from earlier surveys were also selected for trial trench excavation. The excavations were undertaken both to ground-truth the survey results, and to gain material suitable for radiocarbon dating from appropriate contexts, such as the primary demolition deposits of buildings. Ten geoarchaeological test-pits were also dug by machine excavator through sections of the surrounding canals.

The radiometric dating programme was a key aim of the project as there are no published calibrated dates from any settlement in the oasis. It is also hoped that these calendar dates could provide an outline chronological framework of the city, and provide anchor points for the potential future reassessment of the dating of finds assemblages, principally ceramics.

The Excavation

Rabad

<u>Trench 1</u>

This trench was located to investigate a building directly adjacent to the *rabad* wall (Figures 2 and 3). Two phases of mudbrick buildings were identified, comprising an earlier wall [37] overlain by a later building represented by walls [28] and [32], and a floor [34]. The layout and function of these buildings is still a matter of conjecture as the small size of the trench greatly limited any interpretation. Overlying floor [34] was demolition deposit [29] of mudbrick blocks and charcoal lenses, and the latter produced a radiocarbon date of 1267 ± 32

BP (SUERC-72641, 687-769 cal AD, one sigma calibrated). No later activity was identified other than a modern feature which possibly represents one of the previous archaeological trenches excavated by Bernshtam in 1949-1951.

Insert Figure 3 about here

Trenches 2 and 4

The mudbrick foundations of the *rabad* wall and a narrow external gateway was identified in two small trenches (Figure 2). The narrow entrance was a form known as a ”pylon gateway” with a portion of thickened wall either side.

Trench 3

The trench was located within a building visible on the aerial drone survey, and was primarily intended to recover associated dating material (Figures 2 and 4). The building was constructed of mudbrick with low platforms or *sufas* abutting the internal walls ([50], [63] and [79]), in the typical form for the region. Sporadic burnt deposits ([77], [64] and [65]) were found throughout the inside of building and two radiocarbon dates taken from burnt deposit [64] (sample 9) produced results of 1246 ± 31 BP (SUERC-72646, 686-800 cal AD, one sigma calibrated) and 1256 ± 31 BP (SUERC-72647, 689-772 cal AD, one sigma calibrated). The burnt deposits were overlain by a thick deposit of mudbrick demolition [49] containing finds of pottery, including a whole red-slip coated jug vessel dating to the 7th century (Baipakov and Erzakovich 1989, 43).

Insert Figure 4 about here

Trench 5, 6 and 7

Three 2 m by 2 m test-pits were excavated in an area of the *rabad* where little could be discerned (Figure 2). This area in the north-west was flat with no upstanding features, and covered with dense vegetation precluding the identification of buildings by UAV survey. There were also few finds recovered from this general locale during the surface collection survey. The three test-pits exhibited a relatively similar stratigraphic sequence of a series of overlying compacted surfaces ([68], [69], [70] and [71]) often containing abundant crushed pottery sherds and animal bone fragments. To the west, Trench 7 also contained the remains of a mudbrick wall ([81]). Overlying these deposits was a uniform sterile layer of material ([67]) up to 0.5 m thick, washed-down the hillslope. The recorded surfaces may well indicate that this was an open area or an east-west aligned street.

Main Citadel and Shakhristan

Trench 8

A trench was dug immediately to the south of the north-west mural donjon in the anticipation of identifying a gateway into the *shakhristan* (Figure 2). However, instead of a gateway, a shallow series of demolition deposits was found overlying the remnants of the north wall of the citadel. These deposits were sampled but contained no material suitable for radiocarbon dating. However, they are likely to be contemporary with the destruction of the adjacent north-west mural donjon. The north wall was about 4 m thick and constructed of irregular mudbrick courses set in a matrix of a rammed mass of mudbrick or *pakhsa*. To date, no gateway into the *shakhristan* or citadel has been identified by excavation and their locations remain undiscovered.

Trench 9

This trench was in effect the excavation of a large mural donjon in the north-east of the *shakhristan* (Figures 2 and 5). The L-shaped structure, 42 m by 23 m, built of mudbrick on a massive *pakhsa* foundation and surviving to a height of at least 10 m, formed part of the city defences, partially projected from the enceinte wall and consisted of both vertical and battered faces. However, the internal arrangement of the building is difficult to interpret with at least 14 small rooms or cells, built of mudbrick walls but lacking any apparent doorways.

Insert Figure 5 about here

The donjon had at least three constructional phases, although it must borne in mind that as the full depth of the stratigraphic deposits were not excavated and the walls left *in situ*, this phasing is tentative and has obvious limitations. Nevertheless, based on the results, an attempt has been made to interpret the mural donjon’s chronological development.

The earliest occupation (phase 1) was the front or north-west portion of the donjon, with later walls (phase 2) built abutting the rear of the existing structure. The results of the excavation of room 114 provided the most informative evidence, with discrete burnt deposit [44] directly overlying mudbrick floor [45]. What event this small patch of burning derived from is debatable, but its limited extent suggests it is more likely to represent rake-out from a hearth or oven, than a destruction deposit. Two radiocarbon date samples (<5>) of charcoal from deposit [44] produced a result of 1811 ± 32 BP (SUERC-72637; 139-241 cal AD, one sigma calibrated) and 1838 ± 32 BP (SUERC-72645; 133-218 cal AD, one sigma calibrated). While this indicates that the donjon was at least in use by the late 2nd to early 3rd century AD, the timespan between this period and its actual date of construction remains conjecture.

At some unknown later date, the donjon was slightly enlarged with two rooms (phase 2) added to the rear. The similarity of the demolition deposits filling the both phases 1 and 2 indicates that the entire donjon was abandoned and deliberately slighted. This was best illustrated by the sequence in Room 111 (phase 2). Abutting internal wall [26] a series of mudbrick demolition and burnt ash deposits were deliberately dumped into the room from the south. Such was the thickness of these deposits, the base to the sequence was not reached, but the excavation of the upper portion proved to be informative (Figure 5). Three of these ash dumps ([8], [14] and [19]) were sampled (<1> <2> and <3>) and radiocarbon dates from [14] and [19] produced results of 1341 ± 32 BP (SUERC-72639, 650-688 cal AD, one sigma calibrated) and 1315 ± 32 BP (SUERC-72640, 660-764 cal AD, one sigma calibrated) respectively. Additionally, in adjacent room 104 (phase 1) a large dump of pottery, with numerous complete vessels dating between the 6th and 8th centuries, was recovered from near the base of the demolition sequence.

The phase 3 occupation is the least well understood, but mudbrick wall [13] representing a small structure of two rooms, was built off the backfilled remains of the donjon. In addition, across the rest of the donjon, a series of deep pits were dug (not shown). The function of these pits and whether they were contemporary with the wall [13] is uncertain.

Trench 10

This 5 m by 5 m trench was excavated within a citadel building and identified two internal rooms divided by internal mudbrick wall [106] (Figures 2 and 6). This citadel building was of particular interest as it represented the stratigraphically last occupation. In the north-east room, were six large ceramic vessels or *khums* placed on *pakhsa* floor [107], suggesting this room was used for storage. Significantly, also lying directly on this floor ([107]) and *pakhsa* floor [108] in the adjacent south-west room were two heavily-charred timbers, [105] of willow/poplar and [104] of willow respectively, amongst burnt deposit [109]. Both these timbers were aligned north-west to south-east, parallel to wall [106], and represent the remains of the roof beams. The building appears to have burnt down with the roof collapsing into the interior. Both timbers [104] and [105] were sampled and radiocarbon dated to 1343 ± 32 BP (SUERC-72648; 650-687 cal AD, one sigma calibrated) and 1301 ± 28 (SUERC-72649; 668-764 cal AD, one sigma calibrated) respectively. The importance of these results is that they represent the date of the destruction of the last occupied building in this part of the citadel. After the building had burnt down, there was no further activity and the ruins of the structure silted-up.

Insert Figure 6 about here

East citadel

Trench 11

This trench comprised the partial excavation of a furnace was found on the lower south-east slope of the east citadel (Figure 2). Furnace [73] was found during field-walking and was clearly visible on the surface, not being sealed by any overlying deposits. As this structure was dug into the demolition deposits of the east citadel, this furnace was constructed after the abandonment of much, or all of this area of the city and represents a final phase of use.

The ovoid furnace [73] was at least 0.5 m deep and adhering to the concave sides was a layer of grey green slag at least 50 mm thick. The stokehole [87] was located to the north at a right angle to the furnace, and was not lined with slag, but rather the sides were burnt red clay [95]. The furnace and stokehole were filled with a series of dumps of grey ash, silts and red clays with frequent lumps of grey green slag and finds of medieval pottery sherds. The primary fill of the furnace, grey ash [74] and one of the upper fills of stokehole, grey ash [84] were sampled (<6> and <7>) but no material suitable for radiocarbon dating was recovered. A preliminary analysis of the slag provided inconclusive in determining its likely use. Cutting stokehole [87] was a later feature [86] containing abundant burnt material, possibly representing a replacement stokehole. However, this feature was not excavated due to time restrictions.

The surface finds collection survey of the rabad and east citadel

The entire area of the *rabad* and east citadel (about 15 ha) was systematically field-walked and the majority of surface finds collected, producing an overall total of over 2.5 tonnes (Figure 7). Small, fragmentary finds, especially slag and ceramics were generally not collected. The main citadel was excluded from the survey as the numerous former archaeological excavations had covered the area with discarded finds (principally coarse ceramics) and spoil heaps. In addition, the area of the *rabad* immediately adjacent to the main citadel was covered with a recent hillwash originating from the same spoil heaps, and this area was also avoided.

Insert Figure 7 about here

What was immediately apparent was a correlation between the higher topography and the larger amounts of finds (Figure 7). In essence, elevated areas (more than 2 m above the plain) produced much more material than lower, flat areas. These elevated areas were principally the east citadel, and three areas along the inside of the south *rabad* wall. The height difference on site was due to the process of regularly demolishing and rebuilding substantial mudbrick structures in the same locale. For example, the citadels attained greater heights than the surrounding areas, due to the presence of massive structures, such as fortifications, and regular phases of remodelling. The three areas in the *rabad*, while not as high as the citadels (4 m compared to 13 m and 8 m above the surrounding ground level), still must have been the location of substantial mudbrick buildings.

While some of these buildings may have been mural fortifications, these areas also had the highest concentration of some typically domestic finds, notably grain-processing tools and to a lesser extent, spindle-whorls (Figure 7). In addition, the main slag concentrations were located here as well as in the east citadel, and it seems that the mural defences included residences and workshops.

The survey demonstrated clear concentrations of certain finds types in the east citadel that were by and large, not found elsewhere in the city. These were glazed pottery sherds, fired brick, small ceramic tables (*dastarkhans*; not illustrated), large storage jars (*khums*; not illustrated), clay ovens (*tandyrs*; not illustrated). Apart from the pottery, these finds were difficult to date with any chronological precision. The pottery was mostly polychrome decorated, including blue, white, black and brown glazes, broadly dating to the 14th and 15th centuries (Baipakov and Erzakovich 1989, 32-38). The fired brick may suggest the presence of non-mudbrick buildings, such as hammams and possibly mosques. If a hammam was present, it was presumably located at a low elevation, to allow for the piping of water from the adjacent canal, although only a single fragment of ceramic water pipe was recovered from east citadel.

Preliminary analysis of the finds recovered from the surface of the *rabad* area suggests a date broadly contemporary with the 7th and 8th centuries, and broadly contemporary with the radiocarbon dates from Trenches 1 and 3.

Geoarchaeological investigation of the canals

This fieldwork element was undertaken by Mark Macklin and Willem Toonen, then of University of Aberystwyth, and the following is an interim summary of the preliminary results of only those test-pits located in the vicinity of Kuik-Mardan. Full dissemination of the geoarchaeological results will appear in a separate publication. Ten test-pits were excavated by machine through the fills to the base of the canals and after recording, samples were taken for OSL and radiocarbon dating (Figure 8). Like the samples from the city, this was the first time that any of the canals from the oasis had been subject to radiometric dating (Table 1). Of the canals, Pit 1 and 2 were taken from the canal which also provided Kuik-Mardan with water. The samples from Pit 7 failed to produce a date, and Pits 3 and 8 initially appeared to be of contemporary date, but the subsequent dating suggested otherwise.

Insert Figure 8 about here

The dating of the canals demonstrated, as would be expected of an obvious palimpsest of irrigation systems that different canals fell out of use at different times. Only one was conceivably abandoned at a date contemporary with the Arab invasion (Pit 10) suggesting the irrigation system was largely unaffected by the incursion, or was re-established soon after. Interestingly, the water supply canal to Kuik-Mardan continued in use, possibly suggesting continued occupation, although this may well be because it additionally irrigated fields to the north. One relationship that was clearly apparent was the locating of the larger fortified settlements near to the major bifurcations in the canal system, suggesting that these were responsible for the flow distribution management.

Location	Depth below surface	Radiocarbon Age BP	Calibrated date 68.2%	Lab code
Pit 1	2.10m	903±31	1045-1169AD	SUERC-72625
Pit 2	1.82m	1009±31	990-1035AD	SUERC-72626
Pit 3	2.10m	867±31	1059-1220AD	SUERC-72627
Pit 3	2.50m	850±31	1162-1222AD	SUERC-72628
Pit 8	1.30m	1478±32	516-619AD	SUERC-72629
Pit 8	2.20m	366±29	1457-1620AD	SUERC-72630
Pit 9	1.45m	973±29	1021-1148AD	SUERC-72631
Pit 10	1.55m	1247±29	688-775AD	SUERC-72635
Pit 10	1.80m	1205±31	773-875AD	SUERC-72636

Table 1: Radiocarbon dates from the canals

Environmental samples by Mariangela Vitolo and Marvin Demicoli

Fourteen environmental samples were taken, comprising small bulk soil samples (<1> to <10>), and hand-collected lumps of charcoal (<11> to <14>). Samples were processed at Archaeology South-East in a flotation tank and the residues and flots were retained on 500 µm and 250 µm meshes respectively before being air dried. The residues were passed through graded sieves of 8 mm, 4 mm and 2 mm and each fraction sorted for environmental and artefactual remains. The flots were scanned for datable environmental remains under a stereozoom microscope at 7-45x magnifications.

Charcoal fragments were fractured along three planes (transverse, radial and tangential) according to standardised procedures (Gale and Cutler 2000; Leney and Casteel 1975). Specimens were viewed under a stereozoom microscope for initial grouping, and an incident light microscope at magnifications up to 400x to facilitate identification of the woody taxa present. Taxonomic categories and identifications were assigned by comparing suites of anatomical characteristics visible with those documented in a reference database (Schweingruber 1990). In addition, a wood reference collection at Kew Royal Botanic Gardens was consulted.

Charred plant macrofossils

Charred plant macrofossils were sporadic, although this could be due to the small sizes of the samples. A caryopsis of wheat (*Triticum* sp.) was recovered from sample <1> and two grape pips (*Vitis vinifera*) from sample <2>. The rest of the charred plant material was unidentified. Other environmental remains recovered from the residues included mammal and fish bones.

Charcoal

Anatomical characters visible on the charcoal fragments were consistent with those of the following taxa:

- *Salix* sp, (willows) and *Salix/Populus* sp, (poplars). Within the Kazakhstan steppe and riverine environments native species of these genera include *Salix songarica, Salix tenuijlis, Salix wilhelmsiana* and *Populus talassica* (Spengler 2013).
- *Ulmus* sp, (elms). In Kazakhstan, *Ulmus pumila* (Siberian elm) is the native species (Spengler 2013).
- *Tamarix* sp, *(*tamarisks). Within this genus, *Tamarix ramosissima* (tamarisk, salt cedar) is present in the Kazakhstan steppes (Spengler 2013).

In general, charcoal preservation was good enough to allow identification. However, a number of fragments were too brittle to permit the sectioning needed to undertake identification. Some charcoal was vitrified, which happens when the wood anatomy fuses, displaying a glassy appearance.

These samples indicate the presence and possible consumption of plant food, such as cereal grains and fruit and provide information on the woody taxa selected for fuel. This suggests that the use of a thorough sampling strategy would result in a higher concentration of plant remains, which would provide information on diet and economy at the site, as well as vegetation environment, fuel selection strategies and other plant use.

<u>Radiocarbon dating</u>

A total of twenty-five samples, all of charcoal, were submitted for AMS radiocarbon dating at the Scottish Universities Environmental Research Centre (SUERC). Details of the radiocarbon dates are given in Tables 1 and 2 quoted in accordance with the international standard, Trondheim convention (Stuiver and Kra 1986), and are given as conventional radiocarbon ages (Stuiver & Polach 1977). One sigma calibrated dates, obtained using Oxcal v4.2.4 and IntCal13 (Reimer *et al.* 2013), are also given at the 68.2% confidence level. Five samples failed to contain sufficient carbon to provide a date and are not included in the tables.

Sample	**Location**	**Context**	**Deposit type**	**Radiocarbon Age BP**	**Calibrated date 68.2%**	**Lab code**
2	shahristan donjon	14	final demolition	1341±32	AD 650-688	SUERC-72639
3	shahristan donjon	19	final demolition	1315±32	AD 660-764	SUERC-72640
4	rabad building (trench 1)	29	destruction deposit	1267±32	AD 687-769	SUERC-72641
5	shahristan donjon	44	occupation layer	1811±32	AD 139-241	SUERC-72637
		44		1838±32	AD 133-218	SUERC-72645
9	rabad building (trench 3)	64	destruction deposit	1246±31	AD 686-800	SUERC-72646

		64		1256±31	AD 689-772	SUERC-72647
11	citadel building	104	burnt roof timbers	1343±32	AD 650-687	SUERC-72648
12	citadel building	105	burnt roof timbers	1301±28	AD 668-764	SUERC-72649

Table 2: Radiocarbon dates from the city

Discussion

Origins of the city

The radiocarbon dating results have demonstrated that the city was well-established by the 2nd to 3rd century AD during the initial period of Soghdian colonization of the oasis. This confirms the prevailing understanding that the city was one the earliest settlements in the oasis, along with Kok Mardan, Otrar *tobe* and Kostobe (Baipakov and Erzakovich, 1989, 29; Baipakov and Aldabergenov 2005, 29; Sala & Deom 2010).

However, it must be borne in mind that this investigation did not identify the foundation date of the city, as the earliest occupation deposits were not reached, and the metres thick underlying stratigraphic deposits remain undated. While the date of the origin remains conjecture, comparable hydraulic oasis settlements of the Lower Syr-Darya and Amu-Darya rivers were founded by at least the middle of the first millennium BC, and a potentially similar date for the Otrar oasis would not be unexpected (Andrianov and Mantellini 2016).

Urban form

The form of the city maintained the typical Central Asian tripartite arrangement of citadel, *shakhristan* and *rabad*. Whether the east citadel was established or not in this early period is unknown, as it remains entirely unexplored by archaeological excavation. What does appear to be certain was that the city was crowded with buildings apart from the centre of the *rabad*, an area apparently utilised as an open area, as some form of marketplace or route way. After the establishment of the city, an irrigation canal, presumably to supply water was dug respecting the form of the fortifications.

The date of the destruction of the city

The best dating evidence was the radiocarbon samples, which place the destruction of much of the city at some point between 650-760 AD. The evidence from the excavations, like the suggestion of the “burnt hill” place-name, indicates the destruction of the city was widespread, and accompanied by a conflagration. The *shakhristan* mural donjon was deliberately slighted, the citadel buildings burnt and the *rabab* abandoned.

It is worth noting that there is also evidence of destruction at other cities in the oasis of a broadly contemporary date. Fortunately, all of the main settlements have been subject to archaeological excavations to a greater or lesser degree, and tentatively dated by pottery and coins. Of these, in the 8th century, Kok-Mardan was abandoned and Kuruktobe was destroyed in a conflagration (Baipakov *et al.* 2006b; Baipakov and Aldabergenov 2005, 30-31). Altyntobe had a markedly different fate, with the citadel massively re-fortified in the 7th to 8th century and occupation continued unabated until its demise in the 11th century (Baipakov *et al*. 2006b). At the other sites, including the main Otrar *tobe*, there was no clear evidence of any disruption and occupation continued apparently uninterrupted (Baipakov and Aldabergenov 2005; Akishev *et al.* 1972).

While this destruction may have been the result of the same event, possibly a conflict, their contemporaneity is uncertain due the lack of refinement in the dating evidence. Nevertheless, the depravations were not widespread and significantly, the irrigation system was unaffected, although what the wider circumstances of this destructive episode(s) was is uncertain. It is notoriously difficult to identify historical events in the archaeological record and remains beyond the scope of this project. However, it is worth noting that perhaps the most obvious candidate for conflict, the Arab invasion, is not believed to have been particularly difficult or destructive (Karev 2015, 100-103).

Later occupation and Mongol invasion

Some occupation continued, or was relatively quickly re-established at the citadel of Kuik-Mardan after the widespread destruction, albeit in a greatly reduced form. Evidence for this activity was the phase 3 structure in the *shakhristan* mural donjon and the 9th to 11th century building in the citadel (Baipakov *et al*. 2006b, 4-7). The phase 3 structure was built on the backfilled ruins of the donjon, and it appears that the fortifications were no longer tenable. The extent of this activity is uncertain, but the absence of contemporary evidence from elsewhere, including the entire *rabad* suggests it was minor, squatter-like occupation. However, the focus of settlement may have shifted to the east citadel; the pottery from the surface collection suggests that this element of the city was occupied until the 14th to 15th century.

The later fortunes of the oasis, and indeed the region, are dominated by the Mongol invasion and its aftermath. One of the most infamous episodes in the history of Transoxiana was the 1218/1219 siege of Otrar by the Mongols and the subsequent massacre of its inhabitants. Enflamed by the murder of his trade delegation at Otrar, Chinggis Khan ordered Mongol armies west and in a brutal campaign of retribution, destroyed not only Otrar, but other major cities in the region, including Samarkand and Bukhara (Baumer 2016, 133-136). This isolated incident had the profound effect of triggering the change in direction of Mongol expansion from east to west (Schwarz 1998). To this day, the siege of Otrar retains a key place in the Kazakh national consciousness and sense of identity, despite academic disputes about the scale of the actual destruction (e.g. Bustanov 2015).

The east citadel became the sole focus of settlement at Kuik-Mardan after the Mongol invasion although greatly reduced in form. The radiometric dating from the canals indicates that nearly all but one of the canals (Pit 8) were abandoned and no major maintenance of the irrigation systems took place after the conquest and without abundant water, intensive occupation and agriculture would have been untenable. In contrast to the periphery, the main Otrar *tobe* regenerated in the 13th century, with the outer town expanding (Baipakov and Erzakovich 1989, 34-35). After a late flourishing in the Timurid period, the city slowly diminished until its eventual abandonment in the 18th century (Khodzhaev 1993).

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