MONUMENT IN ITS SETTINGS CASE STUDY AKYRTAS AND OTRAR ARCHAEOLOGICAL PROJECTS

Voyakin Dmitriy / Kazakhstan
Institute of Archaeology Ministry of Education and Science Rcience Republic of Kazakhstan
Head of Archaeological Mission in Otrar Oasis
Karl Baipakov
Institute of Archaeology Ministry of Education and Science Rcience Republic of Kazakhstan
Director of the Institute of Archaeology MES RK

Monument is a drop of hoary antiquity. Today in order to lift the historical veil only one possibility exists – to investigate, preserve and document. No any doubt that monument closely associates with its surroundings and one of the most important aspects is to preserve as much as possible in spatial mining.

One of the problems is still rudimental tourism sphere which usually appears as indicator of local people and government concernment in problematic questions of monuments preservation and safeguarding. Fortunately, fast developing economy in Kazakhstan gave additional impulse to government for implementing big program "Cultural Heritage" focused on the preservation and investigation of monuments. In the frame of this program several scientific projects have got started. Tourism as phenomenon closely related with one or other well-known monuments gave precise idea to which region finance should come. South Kazakhstan is the most attractive part of the country in mining of co-called pilgrimage tourism. Two most attending sites, Otrar and Akyrtas, are on the way from Almaty to Turkestan.

Now the most perspective tourists' junctions are: Southern or Sairam-Turkestan. Region of Southern Kazakhstan is one of the richest of various and chronologically diverse archaeological monuments (fig. 1). These are Paleolithic sites Koskurgan and Shoktas which are located near Turkestan city in Karatau Mountains. Among the monuments of the Stone Age there is one famous cave site - Karaungur VI-V millennium BC. Very interesting monuments of the first state Kangyu - medieval towns along the Great Silk Road (on its Tyanshan and Syrdariya directions: Ispidzhab-Sairam, Buduhked, Gazgird, Shimkent, Uzbaniket, Otrar, Iassy-Turkestan, Sauran, Sygnak-Baladzh). Foregoing archaeological monuments were included in the list of objects in the frame of scientific program "Revival of Ancient Otrar" for investigation, conservation and further transformation these monuments to museums under the sky. According with this scientific program main aim of the investigation should be preservation and involving archaeological sites to a co-called historical and archaeological tourism infrastructure.

One of the proposed routs "Silk Road from Turk to Greek" or "From Ancient Turk Kaganates to Byzantium" should reveal ancient political, economical and cultural relations of Kazakhstan and Europe (Eurasia) nations in ancient time, and middle ages. Wide archaeological investigations and conservation activities are caring out to prepare international tourist rout form Chimkent city to Turkestan and back. This itinerary starts in Chimkent city from visiting of ancient town with its center (shahristan) in the heart of modern city. It originated in II c. BC. Here such objects as citadel, shahristan, fortification features will be conserved. Based on excavated materials in close relation with remains of medieval town archaeological park and museum of history of Chimkent city will be construct. Now tourists have possibility to visit Regional Historic and Local Lore Museum with its rich archaeological and ethnographical collections.

From Chimkent rout follows to ancient town Ispidzhap-Sairam which is situated on the territory of modern Sairam city, 8 km from Chimkent. That was largest city of Maveranahr (territory to the east from Syrdaria river), crossroad of Silk Road directions to south (Tashkent, Bukhara, Merv and Nishapur), to North-West (Europe), to North (Desht-i-Kypchak steppe), to East (in Zhetysy - Seven rivers and China). Ispidzhab was the town where famous Khodzha Ahmad Yassaui was born. On the territory of Sairam city some well- known monuments are located - father's and mother's of Khodzha Ahmad Yassaui mausoleums, ruins of Christian monastery VII-VIII cc. and minaret dated by XVIII c. From Sairam throughout Chimkent following by paved road "Chimkent-Arys-Shaulder-Turkestan" tourist rout leads to medieval town Usbaniket on the Arys river, now it is archaeological sites Zhuantobe, Karaspan and Borizhary necropolis. Here ruins of town's installations belong to I-X,

XIII-XVII cc AD and ancient mausoleums attract tourists.

Further rout throughout modern Arys town leads to Shaulder village and Otrar oasis. Otrar archaeological site is unique monument of ancient turk archaeology, history and culture. Archaeological investigations have been implementing here since 1969. In ancient Otrar city Friday Mosque of XIV-XV cc AD was excavated. It was conserved. Remains of medieval baths, residential area of different epochs, pottery workshops of XIII-XIV cc AD, fortification and irrigation system are very interesting. Except Otrar there are such sites as Kuiruktobe, Altyntobe and Mardan-Kuik which can attract tourists' attention. Kuiruktobe is ancient Keder city. The earliest on the territory of Kazakhstan mosque of X c AD was excavated here. In the Shaulder village big archaeological and ethnographical museum exists. Excursion provides for visiting of Arystan-bab's mausoleum where teacher of Khodzha Ahmad Yassaui - Arystan-bab was buried.

Following by Shaulder-Turkestan road tourists come to Turkestan city where they can visit mavsoleum of Khodzha Ahmad Yassaui. 40 km west form Turkestan it proposes to visit ancient Sauran city. Sauran is unique monument. It is city remains dating by XIV-XVIII cc. with well preserved fortification and excavated mosque and madrasah of XVI c. described by author of XVI c. Vasifi.

There are two ways return to Chimkent - by the same itinerary or passing Kentau city through Karatau Mountains and visit mosque of XIX c in Baba-Ata. In many respects this tourist way coincides with pilgrim's road visiting Muslim relics: mausoleum of Arystan-bab and mausoleum of Khodzha Ahmet Yassaui. These are pilgrims from Kazakhstan, Kyrgyzstan, Uzbekistan, Tajikistan, Russia, foreign Muslim countries.

This rout was the most popular in soviet time. And now it is still popular. Thus, statistics says that about 100 000 tourists visit Otrar oasis yearly and tourist and pilgrim steam is growing up very fast. Creation of tourism infrastructure (roads, hotels), museums under the sky, booklets, albums, guide books publishing, preparing didactics video materials provided in the frame of program "Revival of Ancient Otrar" will allow giving new qualitative wave of tourism development in the south of Kazakhstan.

Another rout is called Dzetysu (or Almaty) rout. Almaty with its suburb and Taldy-Korgan city will be beginning of historical and archaeological tourism. From Almaty circular rout - saka kurgans of Issyk and Turgen valleys and medieval town Talhyr-Almaty is starting. Unique monument of ancient rock art - sanctuary Tamgaly-Tas is situated 170 km to the west from Almaty.

Two tourist ways could be form from Taldykorgan: Taldykorgan - medieval town Kayalyk in Sarkand district with its Buddhist temple, Friday mosque, mausoleum and palace of karluk kings - jabgu; second rout - Taldykorgan - sanctuary Eshki-Olmes which is situated on the Koksu river in 35 km east from the city.

Taraz tourist junction includes rote Taraz - lower Barshan (medieval town), king kurgans Zhety-tobe and Akyrtas Architectural-Achaeological Complex. Unique Complex Akyrtas attracts both tourists and pilgrims. Creative infrastructure on this rout will make it very popular. Functioning way Taraz - famous mausoleums f XI c. AD Aisha-Bibi and Babadzhy Khatun permanently increases tourist rank.

It seems that tourist sphere in Kazakhstan is developing quite fast. On the one hand, inner causes which are pilgrimage and portion of historical and archaeological tourists and from the other hand, outer causes which are governmental (local) and international support gives good perspectives. But a potential threat for the monuments is in intensive expansion of agricultural branch.

Several problems appear in the way of investigation of ancient monuments. These are sedimentation, erosion, layers sequence (issue of correct interpretation and presentation) and modern land developing. All these factors change picture very fast. But sedimentation in this case is positive element which preserves monument itself and original ground (surroundings/settings) while other processes are the causes of destruction. Land-reclamation in southern Kazakhstan became the biggest problem because of cotton crops which effuse very fast and demand developing of new lands.

Most of the monuments are protected simply by marking protecting zones, but monuments settings/surroundings are in big danger and actually no other possibility to protect and save it except the way of documentation and 3D reconstruction. Thereupon old photos, sketches, plans, maps etc. are much more preferable and informative than modern aero/satellite images. So, reality was destroyed and now it exists only in photos, notes, sketches, graphical reconstructions etc. as virtual reality.

Idea to preserve monument and its surroundings issues from careful archaeological investigation, documentation, protection and 3D spatial landscape reconstruction which

usually only chance to present monument in its settings "as it was".

From the other hand, some installations within the so-called buffer zone of the archaeological complex could present settings belonging to different chronological frames. To preserve complex in continuity and show different monuments as a one picture of historical retrospective is the main aim of any activity direct to monument preservation.

Based on the principle of the first article of ICOMOS Charter for the Protection and Management of the Archaeological Heritage (1990), which reads as follows "archaeological heritage… comprises all vestiges of human existence and consists of places relating to all manifestations of human activity, abandoned structures and remains of all kinds (including subterranean and underwater sites), together with all the portable cultural material associated with them", Archaeological-Architectural site Akyrtas situated 45 km east from Taraz city is recognized as most complex and at the same time most attractive one for scientists as well as for tourists. It consists of several sites which are consolidated by territory.

Monumental structure made of megalithic hewed red sandstone blocks. The structure is 142X166 m size elongate of N-S direction (fig. 2). Among scientists hypothesis that it could be a palace erected by Arab architect is dominate. Several scientific views on the functional definition of the ruins exist: caravanserai, Buddhist or Nestorian monastery. From the eastern side of the palace area 250 per 250 m enclosed by mud brick walls is clearly visible from aerial view. This part is understood as garden-park zone. From south and north of palace hauzs (water collectors), caravanserais and farmsteads are located. 1, 5 km to the west hill the south side of which shows outcrop of red stone rock. This is an ancient quarry all around of which hewed half prepared blocks are scattered. On the top of the hill ruins of watchtower is rest. From back (northern) side of the hill clay (loess) open-pits are clearly traceable. Following 1 km to western direction rectangular 40x40 m structure built of mud bricks called as "fortress" appears. Near by good preserved mud brick building with the walls' height 2,5-3 m situates. Saka kurgans, slaves' earth-houses, water supply system etc. - parts of the Akyrtas complex.

Dating for different parts of the complex is quite wide - from Iron Age (V-III cc. BC) to medieval XIV cc. Most of the objects belong to Middle Ages.

In 2003 within the frame of Governmental program "Cultural Heritage" co-called palace of Akyrtas site was chosen for transformation into tourist object and conservation.

Inner and outer walls of huge structure were totally covered by Aeolian sedimentation, ancient construction waste and rubbery traces which destroyed most of the upper part of the walls. Big number of stone blocks lie all around in disorder position. No clear information concerning peculiarity of architectural elements of the building exist, in spite of fact that this mysterious construction attracts attention of scientists from XIX c. From the surface only ruins 0.8-100 cm height covered with a soil and poor vegetation are visible. Trail trenches which were set in northern-western part of the structure gave possibility to study and document walls stone masonry and take series of samples of masonry mortar and plaster. But really big surprise was given by outer wall masonry. It has showed height of 4 meters and 11 centimeters.

Situation with an idea how to present this monument to tourist after aforementioned discovery was changed. In the close proximity to the outer walls different size heaps were spread by perimeter. After making trail trenches it became clear that the heaps are soil which was thrown out from the wall's foundation ditch. These heaps hide vertical wall's surface which should be excavated and exhibit.

It was decided to collect 3D data and save removed parts as virtual model in order to maintain proper documentation and save all parts belonging to monument's surroundings which should be removed and excavated. All process of architectural-archaeological documentation of Akyrtas's palace was divided into three main stages: before, during and after any conservation (and archaeological) activities to reach these objectives.

First stage consists of detail survey of the topographical feature of monument, plan parallel photography, stone by stone 3D plan drawing. Monument was marked out for several equal sections and survey by using TS Leica TCR 307 and 407 models with points step less than 1 m. This action gave possibility to obtain precise information on existing difference in heights thanks to what it became possible to define slopes (traces of the walls deterioration), features which mark entrances, walls and other installations. Received information was process in AutoCAD LandDesktop 3.0 (fig. 3, 4).

Macro surveying with using aforementioned equipment and software were also used in Otrar (medieval urban center in Kazakhstan I-XVIII). There the grid with 3D points 0,3-0.5 per 0.3-0.5 cells was installed. Such a grid gave very

precise overview of the surface which shows even marginal surface changes. These marginal surface changes took on special significant in the way of overlapping old plans and new received information. In addition the herbage within the proposed excavation area was detail measured. Micro aerials of vegetation were traced only on the areas without mud brick structures underneath. In that way, this stage became determinative factor in fixation of architectural features location before excavation activity (fig. 5).

After micro surveying the trail trenches were set up. Profiles showed level of ancient daylight surface. Before further following by traced ancient surface the stone blocks should be properly documented. For that reason the stone blocks fixation was concentrated on stone marking, coding and plan parallel photography (photo planum surveying). Unique identification number was given to each stone. Each architectural feature and archaeological activity was marked with continued number. Thus, stone which belongs to one or another feature has in its code this number. For example, AK-PA-04_1_1, where AK - name of the site (Akyrtas), 04 - year (2004), 1 is a number of archaeological or architectural unit and the last no. 1 is unique stone number. Stones with codes were divided by principles of belonging to wall structures. That was made for following anastilosium practice.

Plan parallel photography was realized by using 25 meters height lifting crane. For the first step only a quarter (north-west part) of the palace was rectified. Mosaic of 28 plan parallel photos was stitched and processed in AutoCAD (fig. 6, 7). Same method later was used for documenting the excavated vertical surfaces of walls stone masonry. Each stone in addition was marked by Total Station and photograph what strengthen the way of identification each separate stone.

Soil heaps were cut with trail trenches, carefully measured with TS, marked out on the aerophoto (modern and old one) and than excavated. After heaps removal (only two biggest heaps which are situated from the east and west were left for exhibition's purpose) impressive vertical wall surfaces became visible from the access road (fig. 8).

On the one hand, heaps of soil was the environmental part of building, but from other question concerning necessity of the removing these parts were raised up. Following to two main principles - to save the ancient surface and open view point on the walls two decisions were made: document heaps which should be removed and based on received information from archaeological trail trenches do not go deeper than 20-30 cm before ancient daylight surface.

As it was mentioned above, fast developing Kazakhstan's economy badly negative influences on the monument surrounding. During new UNESCO project "Historical Geography of Otrar and Otrar Oasis: Basis of Preservation and Safeguarding" new very interesting information was received. In Otrar district old irrigation systems (channels) are actively used by locals. The same situation traced in respect of ancient fields. They are used for installation of modern cotton fields and what is most interesting at the same boarders and scale (fig. 9). Planed in the middle ages grounds now are the most attractive for farmers. Most of the surroundings of ancient sites were destroyed, because of comfortable place for cotton field installations, but some of them still exist like for example near with Buzuk site (fig.10).

To protect surroundings and determine their territorial limits in the program supported by UNESCO following actions are proposed: based on combination of several satellite images and different scale topographical maps mark and check position of each specific features (field, channel etc.). To save monuments environments realize 3D topographical survey of more than 60 archaeological sites.

That was first steps made by archaeological documentation team [1] recently established in the Institute of Archaeology in choosing the general methodology for the difficult question of creation the archaeological parks: to save at least in 3D virtual space pieces of hoary antiquity and to give full scientific information to authority responsible for carrying out all kinds of activity in the frame of the project directing it to the way of minimum changes and maximum preservation. If there is no way to save the reality it should be transferred to a virtual world.

[1] D.Voyakin, M Antonov, D.Sorokin, S. Akylbek, N. Voyakina

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Abstract

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Fig 1. Kazakhstan map.

Fig 2. Akyrtas Palace. Planum.

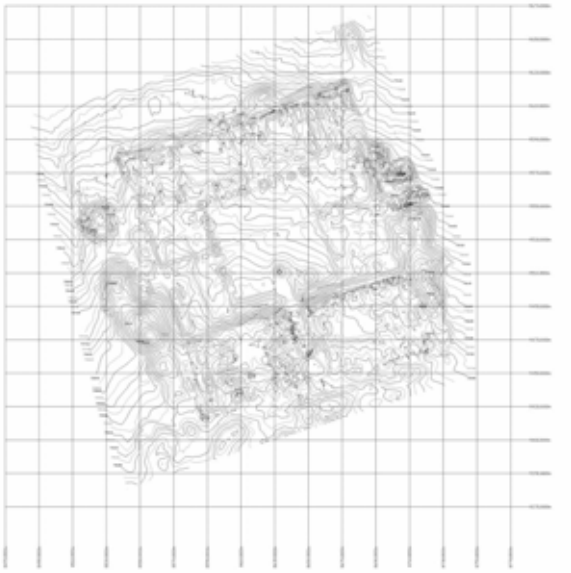

Fig 3. Akyrtas Palace. Macro 3D surveying.

Fig 4. Akyrtas Palace. Heaps. Heights and aerophoto.

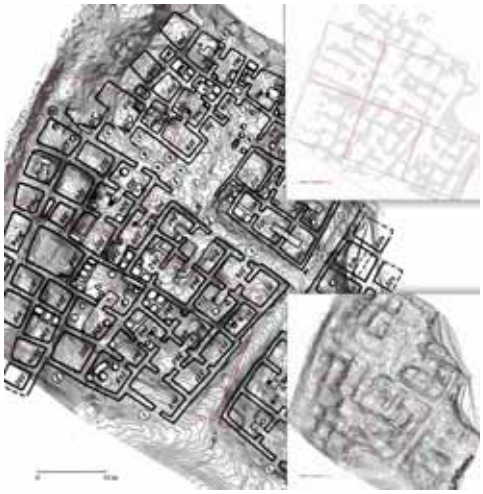

Fig 5. Otrar. Macro 3D surveying, old plan overlapping, crop marks surveying.

Fig 6. Akyrtas. Ortho photography.

Fig 7. Akyrtas. Stone registration.

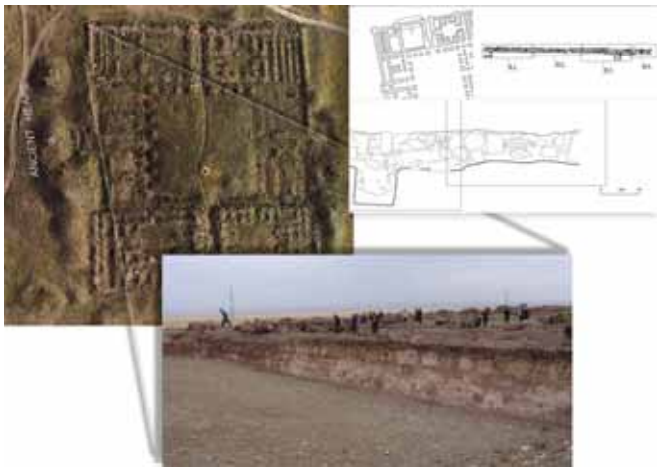

Fig 8. Akyrtas. Outer wall and heaps.

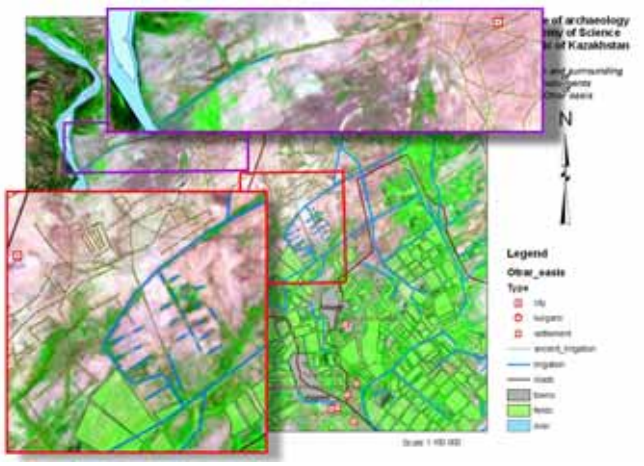

Fig 9. Otrar oasis. Ancient and modern fields and channels.

Fig 10. Buzuk site. Ancient fields and channels.