

English Abstracts

Kara Tepe – Buddhist Complex of Termez
2014 – 2017

Fine Arts Institute of Academy of Sciences of Uzbekistan
Rissho University Uzbekistan Academic Research Group

Contents

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Part I: Research on the Northern Hill of the Kara Tepe Complex (2014–2017)

1. Establishment and Objective of the Rissho University Uzbekistan Academic Research Group
2. Course of Research on the Kara Tepe Temple
3. Research on Buddhist Sites in Northern Bactria and Associated Issues
4. Overview of the Northern Hill of the Kara Tepe Complex
5. Research on the Kara Tepe Complex
6. Northern Hill of the Kara Tepe Complex: Artifacts Unearthed
7. Summary of Excavational Research

Appendix: Report on Radiocarbon Dating

PLATES

Part II: Detailed Discussion Regarding the Kara Tepe Temple, Artifacts Unearthed and Ruins in the Surrounding Area

Structure of the Central Monastery on the Kara Tepe Temple's Northern Hill

Newly Discovered Wall Paintings from Kara Tepe

Aspects of Foundation Stones and Votive Lamp Dishes Unearthed at the Kara Tepe Complex: Comparisons with Artifacts Unearthed at Ruins in the Surrounding Area

Bactrian Inscriptions on Two Ostraca

Regarding Six Inscribed Potsherds Unearthed at Kara Tepe

The Environment of the Surxondaryo Region from a Physical Geography Perspective

View of the Propagation of Buddhism: Artifacts Unearthed at a Range of Sites from Fergana and Kuva to Khotan and Faraway Chang'an

Eulogy for Professor Kyuzo Kato

List of Authors

Russian Abstracts

English Abstracts

Part I: Research on the Northern Hill of the Kara Tepe Temple Complex (2014–2017) -- Outline

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1 Kara Tepe's Location and Previous Research

The Rissho University Uzbekistan Academic Research Group entered into a five-year research agreement with the Academy of Sciences of the Republic of Uzbekistan in 2014, and has conducted excavations of the Buddhist ruins of Kara Tepe, located on the outskirts of Termez in the Surxondaryo Region (Fig.1,2). Excavations were conducted four times, in September each year from 2014 through 2017.

Beginning with the research undertaken in 1920 on the southern hill, excavations at the Kara Tepe temples have been carried out from 1961 through to the present on a continuous, but at times intermittent basis. On the southern and western hills, multiple complexes of caves, courtyards and stupas have been identified. The site's construction is thought to date to the time of the Kushan Empire during the reign of Vima Takto (also known as Soter Megas) in the mid-1st century, or of Kanishka I, around the 2nd century, based on evidence such as currency that was discovered there. Meanwhile, regarding the era when it fell into disuse, it has been hypothesized that use of the site as a temple was discontinued around the 4th century, based on estimates of the time when it was converted into a burial site. For a detailed discussion of these matters, see Stavisky (1996). Excavation of the northern hill was begun by the Hermitage Museum in the 1990s and later continued by Kyuzo Kato and Shokirjon R. Pidaev, yielding the discovery of a monastery (vihara) as well as the platform for a stupa, estimated to have been around 10 m in height. Zeymal (1999), Fussman (2011) and others have indicated the possibility that additions were made to the northern hill's monastery around the 5th or 6th century (Fig.5).

With regard to the flourishing of Buddhism and Buddhist culture in Termez, where Kara Tepe is located, one needs to consider the many Buddhist ruins distributed along the southern Hindu Kush mountain range and their relationship with the site. In the same way, the pattern of Buddhism's rise and fall, as evidenced by the ruins in the vicinity of the Amu Darya, such as Fayaz Tepe, Zurmala, Chingiz Tepe and Airtam near Kara Tepe, as well as Ush-tur Mullo across the border in Tajikistan, is of great importance as well. It offers clues on the c. 4th century Kushano-Sasanian rule of the area and the impact it had. Meanwhile, various indications that some of these experienced an apparent revival in the 6th century, as base locations for the practice of Buddhism, must not be overlooked when considering the rise and fall of Kara Tepe (Fig.4).

2 Research Site

The area within the Kara Tepe temple complex where the Rissho University Uzbekistan Academic Research Group conducted excavational research from 2014 to 2017 is a site adjacent to the corridor on the western side of the monastery. This site occupies a central position within the complex of Buddhist temples constructed on the northern hill (Fig. 22, 25).

The monastery built on the northern hill of the temple complex is large in scale, measuring 45 m from east to west and 50 m from north to south. It has a large stupa built of sun-dried bricks, and the site on which the facilities were constructed stretches 100 m from north to south.

At the center of the monastery is a courtyard with a planar form slightly wider than it is long, measuring 20 m from east to west and 18 m from north to south, and surrounded by a partition wall. The wall has entryways approximately 2 m wide at three points along the north side, and at two points on each of the remaining three sides. Around the periphery of the partition wall is a corridor around 3 m wide that surrounds it on all four sides. The cor-

ridor measures 30 m in length on the north and south sides, and 28 m on the east and west.

At five points along the north side, nine points on the east side and six points on the south side are small chambers facing this corridor. Their basic scale is approximately 3 m², and fragmentary remnants of vaulted ceilings can be found in some of them. Most of the small chambers are thought to have functioned as monks' cells, with direct access from the corridor.

There are no monk's cells located along the west side of the corridor. The excavational research conducted by the Rissho University researchers from 2014 to 2017 was undertaken with the objective of shedding light on the sections connected to this western corridor.

In addition, the large stupa on the north side, with a platform measuring 16 m from east to west and 15 m from north to south, has a corridor 4 m wide on all sides but the east. It forms a chaitya for the placement of a worship hall facing the corridor, and is considered to have been built in an integrated manner with the monastery with which it connects on its south side.

A small stupa is housed within the larger one. The western section of the main stupa has gained attention for its high probability of containing facilities built in an integrated manner with the small stupa, and this section was one of the targets of our research.

3 Structural Remnants Researched

[Room No. 41]

The scope of excavational research completed in the four years from 2014 to 2017 extends 11 m on the west side and 15.6 m on the south (Fig. 25). The section of the corridor on the east side that runs north and south has a built-up shelf along the eastern wall with a width of 5.1 m, and the section on the west side that runs east and west has a width of 4.9 m. All together the excavated area measures 135 m².

With regard to the condition of each wall, as could be determined, the depth from the current ground level to the floor surface measures 320 cm at the western wall. When fully considering the determined condition of each wall, the process of its original construction can be verified most definitively for this western wall. Fundamentally, sun-dried bricks were first stacked to form the extant structure of the wall body, then the surface was coated with wall mud, and finally the lower half was completed with an application of red pigment. Wall mud is extant on the western wall to a height of approximately 170 cm at the inside corner, and progressively decreases in extant scope to the south, with approximate heights of 50 cm from the floor surface toward the middle and 30 cm at the south end. Red pigment is extant on the wall surface to a height of approximately 60 cm from the floor surface at the inner corner of the corridor.

As a result of mud having flaked off the wall surface, the manner in which the sun-dried bricks were stacked during its construction can be verified. Sun-dried bricks of the following sizes were used: 32 cm per side and 12 cm thick, 32 cm x 13 cm and 33 cm x 12 cm. These differ from the sun-dried bricks that could be confirmed in the walls of the central monastery, which measure 34 to 36 cm per side. The use of sun-dried bricks measuring 32 to 33 cm per side is a feature shared with the stupa on the north side, as well as with monastery walls at the neighboring Fayaz Tepe temples, and they are thought to be the product of a relatively earlier period.

At the western wall, two general instances of wall construction can be verified. Where the layer of wall mud coating the surface of the bricks is extant, the state of the initial construction has been preserved, while the wall body above it was assessed as having been re-stacked. South of the middle portion of the wall, it can be verified that the layer of mud there progressively diminishes in height as it goes south. Bricks that have been exposed to heat form

another layer as well, and have adhered to a carbide layer identified in the brick stacking in the corridor section. This is considered to be evidence of a collapse of the wall's body due to fire, as well as of subsequent repairs made to it.

The stacked bricks that can be confirmed in the western wall form eleven layers above the extant wall mud at the interior corner of the corridor, and to the south of the middle portion, one instance of repair can be verified as well (Fig. 31, 33).

At the southern wall, within a range of approximately 240 cm from the interior corner of the corridor, wall mud is well preserved on its lower portion, and it could be verified that the sun-dried bricks were stacked in an integrated manner in approximately eleven layers (Fig. 31, 35).

At the northern wall, wall mud is extant to a height of approximately 180 cm from the floor surface, and in the upper section sun-dried bricks stacked in approximately 7 layers could be confirmed. In the vicinity of the entrance to the northern stupa at the east end, stacks of 4 to 6 layers could be verified on both sides. On the west side of the entrance, red pigment could be authenticated around the lower 30 to 80 cm. The entrance to the northern stupa is approximately 185 cm wide, and is built up approximately 25 cm higher than the floor surface of the corridor portion. The floor surface at the entrance is supplemented with fired bricks approximately 25 cm in width, a feature shared with sections of the floor in rooms no. 54 and 55. In the structural remains on the northern hill of the temple complex, this is considered to represent an old attribute.

At the eastern wall, in the sections that were authenticated, the wall body is supplemented at its lower part with a built-up shelf approximately 60 cm high and 120 cm deep, and is considered to continue running to the south. On the wall body that can be verified above the built-up shelf, remnants of wall mud can be confirmed on approximately the lower 80 cm, with red pigment extant to a height of approximately 70 cm towards the entrance to room no. 6. On the upper 60 cm of extant wall mud, there were many areas where the condition of the sun-dried bricks' stacking was unclear, but on the very highest part, 9-layer stacks of bricks could be verified (Fig. 31, 32).

At the north end of the eastern wall, the entrance to room no. 6 can be confirmed as having a width of 145 cm. Research on room no. 6 began early in the study of the northern hill's ruins. It is a monk's cell with a built-up shelf at the back and along the left and right sides and, in the ruins' current state, the only one connected to the no. 41 corridor.

Concerning the no. 41 corridor, it is located around what is thought to have been a monastery (the western monastery), an edifice surrounded by a corridor with a width of approximately 500 cm, wider than at the northern hill's central monastery, and measuring an estimated 20 m inside the corridor, including its courtyard. As indicated by the difference in size of the sun-dried bricks that compose the wall body, it has a high likelihood of predating the northern hill's central monastery.

[Room No. 52]

Room no. 52 lies due west of the northern stupa (Fig. 36). While excavational research on this room was carried out in 2016 and 2017, an unearthed wall body was verified as having a wall painting on it. Delays on the recovery of this painting have hampered a determination of a fuller picture of its features. At a level of excavation approximately 200 cm beneath the current ground level, the presence of wall painting artifacts became clear, with the presence of pigments that had been applied onto the sun-dried bricks composing the surface of a collapsed wall. The dimensions of room no. 52, verified partway through its excavation, are as follows: the width north to south is 300 cm, and the length east to west is hypothesized to be 300 cm as well. The space between this room and room no. 54, positioned at its southern side, is 120 cm. These are square rooms measuring 300 cm on each side and lined up next to

each other in a north–south direction.

As a result of the excavation in room no. 52, multiple clearly defined wall paintings were verified to be extant. These include a painting of the upper body of a left-facing figure in a decorative pattern, with a semi-circular form above it (Fig.37 – 44).

[Room No. 54]

Room no.54 is partitioned from the entrance to the facilities on the west side of the chaitya by a wall body of stacked sun bricks, measuring approximately 80 cm wide from east to west, while the wall body on the east side measures approximately 100 cm (Fig.45). Although the ceiling was not extant, due to a collapse, its interior was in a good state of preservation. With a planar form rectangular in shape, its dimensions measure 280 cm north to south and 290 cm east to west. Its principal north–south axis has a slight westward inclination, matching the inclination of both the principal axis of the main stupa located on the east side as well as that of the western corridor.

The surface of the wall in room no. 54 has a height of approximately 230 cm from the floor. The survival of a modified section curving slightly inward could be verified and is presumed to have framed a vaulted ceiling. The height of the ceiling is estimated to have been approximately 290 cm. Wall mud is extant, coating the sun-dried bricks across the whole surface of the walls. Red pigment could be verified on the lower 120 cm of all four walls with white pigment present above. On the northern section of the room's west wall is an entrance measuring 100 cm wide and 200 cm high that connects to room no. 56 on the west side.

In addition, on the eastern section of the room's south wall is an entrance with a width of 110 cm and a height of 90 cm. This section seems to connect to room no. 56 as well. On the floor surface of this south wall entrance, mainly toward the side farther in, baked bricks measuring approximately 30 cm wide and 5 cm thick had been laid, and it is presumed that they originally covered the whole floor. On the west wall at a height of 110 cm from the floor was a small altar alcove with a width of 40 cm, a height of 30 cm and a depth of 20 cm.

[Room No. 55]

Room no. 55 is situated 400 cm down the south side of room no. 54 and 250 cm down the north side of the north end of the western corridor(Fig.48,49). The east wall of the room is aligned with rooms no. 50 and 52 in a straight line running north–south, and is thought to have been built according to a uniform plan. The ceiling section had collapsed and so everything still extant is at the level of the side walls and below. Excavational research clarified the dimensions of room no. 55 with measurements of 220 cm north to south and 610 cm east to west, and an entrance with a width of 100 cm could be verified on the north side of the west end. While the floor surface, as could be verified, was at a depth of 300 cm from the surface soil, on the north–south wall 200 cm above the floor was found a protrusion shaped like a horizontal tie beam, and so the wall surfaces could be confirmed extant as high as the upper 50 cm of it. Based on the height of both of these walls, the height of the vaulted ceiling in room no. 55 can be hypothesized to have been approximately 320 cm from the floor surface.

Excavation at room no. 55 yielded verification of human bones from a burial in the extended position, across two layers near the floor surface. It was established that eight baked bricks measuring 25 cm per side had been laid on the floor surface in an orderly manner. It could also be verified that 12 baked bricks had been laid at the north side of the middle section of the room in three north–south rows, and up to five east–west rows. Furthermore, it could be verified that there were three remaining bricks leaned up against the southside wall of the middle section of the room, and two more at some distance toward the west side of the room.

From the situation of room no. 55 that could be verified, it can be assumed that baked bricks measuring 25 cm per side were laid on a considerable portion of its floor surface, centered around the north side of the middle sec-

tion of the room. Baked bricks with a thickness of approximately 5 cm were also laid on the floor surface at the entrance to the level and square-shaped room no. 54, which adjoins the room on the north side. This can probably be understood as an indication of concurrent construction.

On the surface of the walls, the wall mud coating the sun-dried bricks is extant across nearly the entire surface. Above the horizontal tie beam-shaped protrusion 200 cm above the floor surface on the north–south wall surfaces that form the long sides, white paint pigment could be verified sectionally, centering around the western section. Meanwhile, beneath the protrusion, red pigment could only be found in a few limited sections. With regard to the state of preservation of the wall surface overall, many fissures could be seen in the surface of the wall mud, and above the horizontal tie beam-shaped protrusion on the west wall, stacked sun-dried bricks could be confirmed in five layers. On the east wall on the chaitya side, at a height of 120 cm above the floor surface, a window-like setup with a width of 90 cm had been installed and filled with sun-dried bricks. The width of the wall body in this section is 100 cm and can probably be assumed to indicate the wall structure for room no. 55 overall. On the north side of this window-like setup is a small altar alcove measuring 40 cm in both width and height.

[Room No. 56]

Room no. 56 was researched in 2016, and it became clear that paintings were present on the wall surfaces(Fig. 50). The planar form verified for this room displays an “L” shape, with widths of 130 cm in the east–west direction and 150 cm north–south, and it connects to rooms no. 54 and 55. Rather than being constructed in the form of a room, the section served as a passageway between rooms no. 54 and 55, and its south and east walls were adorned with wall paintings.

Of the verified wall paintings, four have been disclosed: (1) the upper bodies of two figures facing left, (2) the face of a slightly right-facing figure, (3) the upper bodies of two figures facing each other beneath a decorative pattern with a half-circular form above it, and (4) fragmentary portions of figures' faces with an associated decorative pattern (Fig. 51 – 55) .

4 Relics Unearthed

The relics unearthed in the four years of research from 2014 to 2017 consist mainly of several hundred earthenware sherds, along with a small number of fragments from metal artifacts, and stone artifacts, among others.

The metal artifacts include coins and bronze objects, while the stone artifacts include pieces of a limestone human figure, a Garuda figure and columnar capital ornamentation.

A total of ten coins were unearthed: three from the floor surface of the elbow-shaped bend on the west side of the no. 41 corridor, five that were found with human bones buried in room no. 55, and one from the floor surface of room no. 54. While most were of indistinct design, others could be verified as displaying what are thought to be images of a cloak-wearing emperor Kanishka and the goddess Shiva. Some were additionally presumed to be from the Kushan Empire. Other metal artifacts included bronze fasteners and iron nails (Fig. 56,57).

Among the stone artifacts, the head of a human figure measuring 10.6 cm was unearthed from the upper section of accumulated earth in room no. 54. It features horizontal eyebrows, large eyes and a somewhat low nose bridge, and is represented with a full beard and small ears.

The head of the Garuda figure was unearthed from the upper section of accumulated earth on the north side of the no. 41 corridor and has a height of 13.3 cm. Rendered large, it is missing part of the large nose with curved tip that is characteristic of the Garuda. A leg from the figure measuring 9.6 cm in length was unearthed as well. (Fig. 59).

The columnar capital ornamentation was unearthed in the vicinity of the pieces of the Garuda figure, and measures 11.5 cm in height with a diameter of 23 cm. On its exterior are featured lotus petals in three layers. (Fig. 60).

Many small limestone fragments were unearthed as well, but their forms were not clearly preserved. Based on the locations of their unearthing, these limestone artifacts are hypothesized to have been used as ornamentations on the northern stupa positioned on the northwest side.

Fragments of a Buddha statue, a relic characteristic in Buddhist culture, were unearthed as well. These were finger fragments from an earthen Buddha statue discovered in the accumulated soil on the north side of the no. 41 corridor. Three fragments were unearthed, with only two of these verifiable as fingertips. One was 3.6 cm in length, while the two fingertip fragments were 5 cm in length. Judging from the size of the fingertips, the total height of the earthen statue can be estimated to have been approximately 2 m. (Fig. 58)

While earthenware fragments represent the bulk of unearthed artifacts and number in the hundreds, the majority are only minute sherds. Those with which the image of the earthenware item could be restored and held up to measurement numbered approximately 100. They included large crocks and narrow-necked jars, medium sized crocks and narrow-necked jars, wide-mouthed jars and bowls of medium size, and also smaller-sized wide-mouth jars, bowls and votive lamp dishes. (Fig. 62 – 71)

The earthenware fragments were carefully selected, for their solidity and density from their firing, as well as for containing only a minuscule amount of sand grains in their paste. Many feature a light brown coloration, and red pigment has been applied to them inside and out, particularly on the rims of the small-sized artifacts.

The small votive lamp dishes that were unearthed were especially plentiful, some verifiably with the adherence of soot to their rims. Over the years the shape of the rim where the wick was set began to be fashioned with a flat, level surface, and the whole section pinched outward transitioned to feature a protruding form. This change in form has been verified widely across ruins in Bactria, and enables verification of regional development in pottery production techniques.

In the Kara Tepe temple complex, the existence of two pottery kilns has been reported on a hilltop approximately 300 m to the north of the northern hill's Buddhist temple complex. The kilns were built using a combination of bricks, and it can be inferred from the melting to the bricks that their firing heat reached very high temperatures. (Fig. 72,73)

Approximately ten narrow-necked jars of medium size with lettered inscriptions and patterns applied with India ink were unearthed as well, and have been given the status of important historical materials.

5 Dating of the Kara Tepe Northern Hill Temple Complex

Previous research placed the date of construction of the Kara Tepe temple complex at the time of the Kushan Empire, but an examination is now underway to secure a more nuanced picture of the dating. At least part of this complex of Buddhist temples was constructed in the latter half of the 1st century, and though they gradually slid into disuse around the 4th century, the possibility that they saw renewed activity again in the 6th century has been hypothesized.

The decline in their use during the 4th century is based on the evidence that the Buddhist temple complex was reutilized for burials. This was established by the assumed dates for the 26 coins buried together with approximately 20 human bones that were identified in some of the southern hill's caves and frontside institutions, comprising the Complex A ruins.

Also, in terms of architectural techniques, in the monastery monks' cells where their rectangular, planar layouts

are outfitted with vaulted ceilings, a technique known as the squinch arch is employed at the junctures of the walls' upper sections and the ceilings. Squinches are considered to be a construction method used in masonry architecture, where building material such as stone or brick is used to frame a vaulted ceiling from a square planar surface.

This construction method is estimated to have originated from the architecture of the Sasanian Empire, and is thought to have been introduced to areas such as Bactria and the periphery of the Hindu Kush mountain range in the 5th century. The probability that its introduction to the Kara Tepe temple complex also occurred in the 5th century or later is considered to be high (Iwai 2013).

Beyond this data, which was based on previous considerations of the site's dating, we aimed to secure a fuller picture of the dating process from the new perspectives in research conducted by our researchers. This involved radiocarbon (14C) dating of excavated artifacts and three types of materials were analyzed: (1) unearthed bone fragments, including those of human origin, (2) unearthed carbides, and (3) bone fragments contained in the sun-dried bricks used in the construction of the temple complex's institutions. (Fig.77).

【Human bone sample】

This bone sample was found buried in the lower stratum of accumulated dirt in room no. 55. Among the human bones found buried in two strata, those from the lower stratum were analyzed. The analysis returned the following result: 541 AD (95.4%), 652 AD. What this suggests is that in the soil cover, approximately 50 cm above the floor surface, burials took place between the latter half of the 6th century and the first half of the 7th century. Accordingly, it is hypothesized that room no. 55 retained its function as a monk's cell at least until approximately the 5th century.

【Bone sample no. 6】

This sample was collected from the very lowest part of the central section of the north wall, at the elbow-shaped bend on the west side of the no. 41 corridor. An analysis returned the following result: 250 AD (95.4%), 390 AD. This corresponds to an approximate date range of mid-3rd century to the end of the 4th century, meaning the no. 41 corridor would have been constructed subsequent to this period.

【Bone sample no. 9】

This sample was unearthed from cover soil approximately 30 cm above the floor surface, at the elbow-shaped bend on the west side of the no. 41 corridor. The analysis returned the following result: 313 AD (66.0%), 395 AD. Accordingly, it is hypothesized that the site was covered with approximately 30 cm of earth during the 4th century.

【Carbide sample no. 1】

This sample was collected from cover soil at the elbow-shaped bend on the west side of the no. 41 corridor. It was extracted from a carbide layer deposited horizontally at a height of 154 cm from the floor surface. An analysis returned the following result: 417 AD (95.4%), 545 AD. Accordingly, it is hypothesized that the corridor was covered with approximately 154 cm of earth by around the mid-point of the 6th century.

【Carbide sample no. 2】

This sample was collected from cover soil in the western section of the no. 41 corridor. It was taken from a carbide layer deposited horizontally at a height of 138 cm from the floor surface. Our analysis returned the following result: 131 AD (85.8%), 258 AD. This indicates that the corridor had already begun being buried by soil by the mid-3rd century, at the latest.

Bone fragments were collected from within sun-dried bricks at the following sites: five in monks' cells, one at the eastern stupa and two at walls identified in the excavational research area. However, the only samples that could be definitively analyzed were those collected at one of the two wall locations identified in the excavational research

area.

[Bone sample no. 7]

This sample was collected from within sun-dried bricks located around the middle of the east wall of the no. 41 corridor. An analysis returned the following result: 670 AD (90.6%), 778 AD. It can be presumed that this date range indicates the possibility that repairs were made to the upper section of the corridor's east wall around the 8th century.

Although the results intended at the time of collection could not be attained, due to the samples' state of preservation, the results of analyses outlined above can be judged as having been particularly effective in estimating the era in which the corridor section of the western monastery was constructed. With excavational research having led to a hypothesis of its presence, the corridor section of the western monastery is considered to have been constructed around the mid-3rd century, during the time of the Kushan Empire, and to have had repairs made to the upper section of its east wall around the 8th century. From these points it can be hypothesized that it may correspond to repairs made to room no. 6, which is surrounded by walls. We are unable to judge, however, whether these repairs date to an era when the site still functioned as a temple, or if they result from later use of the complex for other purposes.

Having obtained the results of radiocarbon dating as outlined above, the following hypothesis can be laid out with regard to dating some of the construction located on the northern hill of the complex.

Room no. 55, in which human bones were unearthed, is extant as high as the upper portion of the eaves line, yet cannot be determined to contain squinches in the corners as a construction technique for dealing with corners in ceiling installation. Regarding the construction technique used, its construction clearly dates back to the era when the central monastery was built. The layout of room no. 55 is such that entry is made through room no. 56, which has wall paintings and a window high on the wall on the side facing the eastern stupa to let in light. With confirmed data drawn from the wall paintings, which feature an assembly of human figures, the date of their production is considered to be in the 2nd century when the Kushan Empire was at its peak. This era predates the time of construction hypothesized for the no. 41 corridor.

Accordingly, it can be hypothesized on the basis of currently verifiable data that the structures located in the area west of the northern stupa and north of the no. 41 corridor (Section A) were built during Period I. This era is considered to correspond to a range of dates between the end of the 1st and the beginning of the 2nd century, when the earliest-dated construction was carried out on the northern hill of the complex. Among the structures there are the following: room no. 56, which has wall paintings; room no. 55, which connects to room no. 56; room no. 54, which is lined up next to room no. 55; and room no. 52, in which wall painting fragments have been unearthed. (Fig.78)

In the ruins' present state it is not possible to verify other structures that fit into this area's facilities, but it is hypothesized that room no. 52 and room no. 56, which has wall paintings, were maintained more as worship halls than as monks' cells.

It is also thought that in Period II the western monastery (Section B), as hypothesized on the basis of the no. 41 corridor, was constructed and existed concurrently with the small stupa contained within the large northern stupa. It should then be possible to hypothesize that this era correlates with the mid-3rd century, approximately, when the Kushan Empire was in its final period. This hypothesis is in accord with the fundamental premise, regarding the Buddhist temple complex, that the formation of the monastery with its arrangement of monks' cells that housed practitioners is predicated on the existence of a stupa as the central object of worship. The western monastery, hypothesized on the basis of the no. 41 corridor, is thought to have measured 20 m inside the corridor. This is approxi-

mately half the size of the central monastery, which measures 40 m on each side. Future research will hopefully authenticate its dimensions.

In Period III, hypothesized to correspond to approximately the end of the 3rd century and first half of the 4th century, a chaitya with worship hall (Section C) and central monastery (Section D) were maintained outside the periphery of the 5 m of corridor surrounding the northern stupa on the north, south and west sides. This was constructed with the circular stupa atop a platform measuring 16 m from east to west and 15 m from north to south. The northern stupa has steps on its east side, worship halls in more than five locations on its south side and four on its north side, as well as a series of small-scale partitions on its west side. In front of them is placed a foundation stone in a north-south direction and a unidirectionally-sloping roof.

Additionally, the central monastery, in correspondence to the northern chaitya, can be hypothesized to have been constructed immediately after the period when the chaitya was first being maintained. With a scale of 40 m², its courtyard measures 20 m east to west and 18 m north to south. It was surrounded on all four sides by a corridor, with monks' cells situated around all sides except the west. Built with the stupa positioned at its north as its main axis, the central monastery was constructed with rooms no. 7 and 8 situated at the center of the north side as passageways, and rooms no. 28 and 29 to the south of the courtyard as central facilities.

Period IV is hypothesized to correspond to the end of the 4th century and after, when repairs were made to the central monastery. The structure corresponds to the eastern stupa with its platform measuring 11 m east to west and 10 m north to south. In this period, rooms no. 7 and 8 at the middle of the south side were closed off, and room no. 19 at the northeast corner was newly restructured as a passageway.

An outline of the hypothesized dates for the currently verifiable facilities is given above. In the southeast section of the central monastery, monks' cells constructed with the incorporation of foundation stones and intricate partitioning can be verified. There is high probability that an older structure that left only slight traces had been constructed earlier at this spot.

The buildings currently verified on the northern hill of the complex, such as the stupa and monastery, were constructed by shaping a large-scale flat, level surface extending considerably to the north side. The foundation stones and complex room structure, verifiable at the monastery's southeast section, can be hypothesized to be ruins of a structure built prior to the currently verifiable monastery when acknowledging the considerable significance of this location's not being part of the levelled section of ground extending to the north.

In addition, regarding the southern stupa built on a somewhat elevated site to the south of the central monastery, there is an approximately 1 m depression measuring 10 m on each side, constructed 8 m on the west side of a stacked sun-dried brick wall. The existence of an associated structure can be hypothesized, but its dating is uncertain. In the present state, it is hypothesized to date to either Period III, when the central monastery was constructed, or earlier. The possibility of its dating to around Period II, however, is also conceivable.

Part II: Detailed Discussion Regarding the Kara Tepe Temple, Artifacts Unearthed and Ruins in the Surrounding Area

The Structure of the Central Monastery on the Northern Hill of the Kara Tepe Temple Complex --Abstract

HONMA Takehito

During excavation at the Kara Tepe temple in academic year 2017, I conducted documentary research on the northern hill's central monastery. In this paper I first present basic data about its rooms and then image data for room interiors and the monastery's periphery at the end, all photographed with a 360° camera (Table 1, Diagram 18). The 360° images can be viewed with a device such as a smart phone with an Internet connection by accessing the links from the QR codes shown in the diagram.

On the basis of previous research and field investigations made by Gérard Fussman, Kato Kyuzo and Atsushi Iwamoto, I have also reexamined the structure of the monastery and added some analysis. As a result, it was observed that the layout, dimensions and form of entrance rooms had exhibited regularity inline with the room's location, while the forms of windows and altars exhibited a tendency in their distribution that showed no relation to their location. As this contrast reflects differences in factors that include the facilities' purpose and dates of repair and reconstruction, I concluded that since the monastery, corridor and courtyard exhibited integrated planning, they were essentially constructed concurrently.

The preservation of extant structures was affected by the Afghan winds blowing from the west and southwest. In many of the well-preserved rooms on the east side, the presence of squinches placed at the top corners of wall surfaces was verified. According to Iwai Shumpei, due to the presence of squinches thought to have been introduced to Bamiyan by at least the 6th century or earlier, it can be determined that the central monastery was active in an antecedent era, even in relation to the rest of the Kara Tepe temple.

Concerning the previously indicated left-to-right asymmetric structure of the monastery, it is presumed that constructing rooms on the monastery's west side would have been physically unfeasible, due to the presence of the western corridor detected during investigations made by the current Rissho University Uzbekistan Academic Research Group. Regarding the western corridor and central monastery, based on the way a small altar alcove found together with a large altar alcove at the north end of the west wall in the central monastery's corridor had been carved into a wall of sun-dried bricks that were used in the construction of the western corridor, it was possible to recognize the anteroposterior relation between the two. The conclusion was that the western corridor preceded construction of the central monastery.

I have added several additional analyses, but many issues remain. Reexaminations will need to be made in the future with detailed reports of remnant structures and artifacts from the area already excavated, as well as further progress in areas not yet excavated that include the western corridor.

Newly Discovered Wall Paintings from Kara Tepe: A Comparison with Extant Examples from East Turkestan --Abstract

YASUDA Haruki

In one of the worship halls surrounding three sides of the large stupa in the Buddhist temple complex on the

northern hill at Kara Tepe, specifically the small worship hall no. 56 in the middle of its west side, a wall painting with vivid coloration was discovered.

In this area, where the Rissho University Uzbekistan Academic Research Group conducted excavations during academic year 2016, the work carried out through the end of September yielded the discovery of wall painting fragments in sedimentation, leading to the prediction of a wall painting located there. In October, further research in the same area by the Academy of Sciences of the Republic of Uzbekistan yielded three wall painting fragments in which even more vivid coloration was preserved.

Some of the wall paintings discovered by the Academy of Sciences team appeared in the *Fan va Turmush* bulletin (2016, Editions 3–4) and soon after were reprinted and introduced in Rissho University's summary report for academic year 2016 (p. 19, illustrations 1–4) as well.

However, in September, 2017, the ceiling section of the small worship hall no. 56 was covered over with wooden boards. Research at the site of the wall paintings was no longer to be permitted, and we have encountered no subsequent follow-up reports from the Academy of Sciences.

The sections discovered are most likely parts of a wall painting of larger dimension, presenting an illustrated biography of the Buddha, or perhaps illustrations of Jātakas (tales of the Buddha's former lives), or even depictions of the Buddha preaching. A painting of this type, furthermore, would constitute a relic of extremely precious value. Considering these issues, it is truly lamentable that we are still now unable to access a full image of the paintings.

In one painting, with very clear composition, are two bearded figures who appear to have their heads covered with hoods or turbans. They have been preserved from their chests up, and are regarded as nobility or lay donor figures. At first glance, the following compositional characteristics can be observed: facial contours rendered in crimson lines, neither thick nor thin; shading to the almond-shaped eyes, as well as large pupils, nostrils and nose bridges; and, furthermore, vibrancy and depth of coloration from the use of lapis lazuli. Stylistic comparisons with works such as the wall paintings that were brought by Sir Marc Aurel Stein from East Turkestan (Xinjiang, China) and Miran, along the Southwestern Route (collection of the National Museum, New Delhi), are to be taken into account.

Anticipated future research will hopefully lead to the discovery of other wall paintings in even better condition. In any event, when considering confluent relations with paintings produced in areas of East Turkestan, such as Khotan and Kizil, as well as the painting styles developed in Afghanistan and West Asia, as seen in the wall paintings of Bamiyan, the paintings recently discovered at Kara Tepe can be regarded as new research material of even more precious value than that of the already well-known wall paintings in Fayaz Tepe.

Aspects of Foundation Stones and Votive Lamp Dishes Unearthed at the Kara Tepe Complex: Comparisons with Artifacts Unearthed at Ruins in the Surrounding Area --Abstract

IKEGAMI Satoru

Of the relics unearthed in excavational research in the western area of the northern hill in the Kara Tepe complex, earthenware artifacts make up the bulk, but a few fragments of limestone artifacts could be verified as well.

The earthenware artifacts that could be verified include large crock-shaped earthenware, medium sized narrow-necked and wide-mouthed earthenware shaped as jars, and small earthenware in the shape of wide-mouthed jars and dishes. As far as samples whose appearance as a whole could be observed, the most plentiful among them were the small dish-shaped earthenware artifacts.

With the quantity of soot adhering to the rims of these small dish-shaped earthenware artifacts, it is thought that they were used as votive lamp dishes. They are characterized by their solidity and density from the high quality of their firing, and the basic hue of their coloration was a light shade of reddish-brown. They measure 9.2 to 10.8 cm in diameter and 2 to 3.6 cm in height, with vestiges of spiral string-cutting marks that could be verified on the exteriors of their bases that measure approximately 4 cm in diameter.

These different forms of earthenware can be classified on the basis of their rim shape, as follows:

Type 1: Artifacts with simple rims;

Type 2: Artifacts with rim ends extended to form a level surface;

Type 3: Artifacts with the width of the rim's level surface extended;

Type 4: Artifacts with rims protruding markedly at one point to hold wicks.

Comparing these artifacts with those unearthed at nine other ruins in Bactria and surrounding regions, the presence of Type 1 and 4 artifacts can verifiably be determined to be evidence of their being shared across the different sites. The Type 2 and 3 forms of earthenware unearthed at Kara Tepe and other sites are regarded as artifacts with unique forms that express the individual character of a particular site's ruins.

By conducting radiocarbon analysis of a carbide deposit found in the vicinity of the Type 4 artifacts unearthed in the course of the current research inquiry, it was possible to estimate the era of their production to some degree. With analysis returning results of a date range corresponding to 417–545 AD, it could be determined that the deposit dated to somewhere between the first half of the 5th century and the 6th century.

From this we were able to consider the date of production for the Type 4 votive lamp dishes from Kara Tepe to date back to the latter half of the 5th century.

A piece from a limestone foundation stone was unearthed from the floor surface of room no. 55. This small fragment has a width of approximately 18 cm and a height of 8 cm, and was made in the form of a foundation stone only at the portion sticking out from the wall surface at an angle. It would have been used not to independently support a column as a foundation stone, but rather to ornament the exterior of the building's foundation.

Considering the location where it was unearthed, it can be presumed to have been used to adorn the platform of the large stupa at the north side of Kara Tepe's northern hill.

From the Kara Tepe temples, foundation stones were unearthed at each of the sites researched, and indicate the existence of columns used to support roofing components. In the southern hill area, which is characterized by remnant cave structures in the form of corridors, foundation stones were unearthed from the ruins of building structures in front of the caves. In front of the western hill area caves, there is a linear distribution of foundation stones in the courtyard of a building, and a unidirectionally-sloping roof has been reconstructed there.

In the northern hill area, approximately 20 foundation stones were unearthed in the courtyard of the central monastery, having fallen from an upper section and possibly originating from outside the monastery. In some of the monks' cells aligned on the east side of the courtyard, circular foundation stones were placed at the base of the walls as well. Also, on the west side of the large stupa that stood at the north side is an arrangement of small foundation stones, establishing that the chaitya's inner corridor was constructed with a roof.

During research in 2016, a piece of limestone foundation stone was unearthed from the floor of room no. 55. This small fragment has a width of approximately 18 cm and a height of 8 cm, and was styled in the form of a foundation stone just at the portion extending from the wall surface at an angle. It would not have been used to independently support a column as a foundation stone, but rather to ornament the exterior of the building's foundation. Considering the location where it was unearthed, it is hypothesized to have been discarded after use in facilities associated

with the large stupa that stood at the north side.

The foundation stones with double-layered circular steps on top of square bases that were excavated at the Kara Tepe temples had widths of 29–64 cm and heights of 18–31 cm. The specimens unearthed from the courtyard of the central monastery on the northern hill area were the largest among these. Comparing the aspects of these limestone foundation stones with those unearthed at ruins in Bactria and surrounding areas, among which the Ai-Khanoum ruins from the time of the Greco-Bactrian Kingdom are the oldest, it can be verified that the small-sized samples make up the bulk of foundation stones unearthed at the Kara Tepe site. Constructional details show that they have undergone simplification and from this, the possibility of the foundation stones unearthed at Kara Tepe being produced at a late stage of the Kushan Empire, or later in the post-Kushan period, can be hypothesized.

Bactrian Inscriptions on Two Ostraca --Abstract

YOSHIDA Yutaka

In this short note the author edits the Bactrian inscriptions found on two ostraca. One of them comprises two lines and begins with $\epsilon\iota\delta\iota\ \mu\iota$ “this (is) the ...” and followed by $\gamma\alpha\rho\alpha$], a word possibly meaning “vessel”. Line 2 begins with $\iota\ \mu\alpha\delta\iota$ “(for) the mother”. The inscription seems to have been written by a man who donated the vessel for his deceased parents' religious merits. The inscription of other ostraca again comprises two lines, but the present author is able to recognize few words, partly because only weak traces of letters are visible.

Six New Inscribed Potsherds from Kara-tepa --Abstract

Stefan BAUMS

The excavations conducted by Risshō University at the archeological site of Termiz in Uzbekistan between 2014 and 2018 have brought to light a number of potsherds. Six of these bear traces of ink, and in four of these cases we can be sure that the vessels from which the sherds come contained inscriptions in Kharoṣṭhī script. For two of these, the remains are substantial enough to suggest an interpretation: the expression of honor to a co-donor, and the hope that all beings may be brought to nirvāṇa. Both of these are known parts of the donative formula at Termiz and in ancient Gandhāra more generally. The present article discusses the reading and interpretation of these sherds, comparing them to a number of similar cases in Gandhāran epigraphy. In doing so, it also suggests an improved reading for a bas-relief from Bagram now in the Musée Guimet.

The Environment of the Surxondaryo Region from a Physical Geography Perspective --Abstract

SHIMAZU Hiroshi

Our objective in this study was to gain an understanding of the physical environment of the Surxondaryo Region in southern Uzbekistan by focusing on its physical geography, and on its landform development in particular. We also examined the terrain on which the group of ruins, distributed in and around the Termez area, are located. For this study, we conducted a geomorphological analysis based on contour maps made with ALOS-2's 30m DEM (digital elevation model), along with imagery from Google Earth and field surveys carried out in early September of 2016 and 2017.

We examined the geomorphological characteristics of the route of the ancient road from Guzar to Termez. Most

of the ancient roads, like the current highways, were built on the fluvial terraces that were formed along rivers, providing flat surfaces in mountainous areas and their valleys, which resulted from erosion along weak and erodible strata. The road across the narrow ridges which consist of hard rock. was built in the transverse valleys The road across the mountain range was built in this way in order to minimize ups and dpwns. However, because their subsequent valleys formed as a result of the complex geological structure of this region, it was difficult to ascertain which route was more suitable for crossing the mountain range. Therefore, the determination of the routing of the road appears to be a result of trial and error.

In order to interpret the landform characteristics of the central part of the Surxondaryo Region, we created a geomorphological map by using a contour map derived from ALOS-2 30m DEM data and Google Earth images. We classified the landform of this region into 18 geomorphological features, including “the Surxondaryo Flat Surfaces” and “Central Hills”. The former Surxondaryo Flat Surface was formed by sedimentary deposits from the former Surxondaro River in the tectonic basin, surrounded by rising mountains. Subsequently, as the central part of the Surxondaryo Flat Surface began to rise and the central hills were formed, the surface was divided into eastern and western sections. Steep cliffs, whose relative height ranges from 20 to 30 meters, were formed between the floodplain of the Amu Darya and the lowest toe of the Surxondaryo Flat Surfaces and Central Hills.

The ruins surrounding Termez are located adjacent to the cliffs. The form and direction of the cliffs’ extension suggest that the toe of the Surxandaryo Flat Surfaces and hills were eroded by a large-scale lateral shift in the course of the Amu Darya River, from the south toward the north. The trigger for the shift in the river’s course seems to have been a narrowing of the Amu Darya floodplain, caused by the migration of sand dunes from the west.

A View of the Propagation of Buddhism: Artifacts Unearthed at a Range of Sites from Fergana and Kuva to Khotan and Faraway Chang’an --Abstract

TEJIMA Isshin

It is commonly known that the only Buddhist monastery ruins in the Fergana Basin, located at the eastern tip of Uzbekistan, are found in the Kuva District. Relics from these ruins, thought to date from the 6th to 8th centuries, include depictions of various Buddhist deities, with three statues being particularly noteworthy. Two are sculptures of a figure wearing a crown adorned with skulls, and the other is a sculpture depicting a three-eyed figure.

In India, Hinduism and early esoteric Buddhism (Vajrayāna) emerged in the 4th century, with the latter developing into its systematic middle-stage form in the mid-7th century. These statues, excavated at said ruins in Central Asia, are believed to have been sculpted in the transitional period between the early and middle-stage forms of esoteric Buddhism, and as such are extremely rare and valuable artifacts.

In this paper I draw the conclusion that the statue of the three-eyed deity described above is not a statue of the Buddha, but rather a depiction of an esoteric bodhisattva. Supporting this assessment, I have reasoned that the existence of several other esoteric Buddhist wall paintings in Central and East Asia, along with their painters’ proficiency, hint at bonds of a religious nature in the propagation of the faith that connected the three sites of Kuva, Khotan and Chang’an.