

The Rediscovery and Complete Excavation of Ördek's Necropolis

Victor H. Mair
University of Pennsylvania

In the summer of 1934, the Swedish archeologist, Folke Bergman, discovered an important Bronze Age burial ground in the desert about a hundred miles to the west of the fabled ruins of Krouraina (Uyghur: Krorän; Modern Standard Mandarin [MSM]: Loulan). This hillock-shaped cemetery came to be known as Ördek's Necropolis, but is more precisely referred to as Small River Cemetery Number 5 (in MSM it is called "Xiaohe Mudi"). After Bergman in 1939 published a detailed report on his investigations at the cemetery, the site went unvisited for more than half a century until the year 2000, when it was rediscovered by a Chinese documentary crew using Global Positioning System instrumentation.

In the three seasons between 2002 and 2005, the Small River Cemetery has been extensively excavated, and an abundant amount of textiles, ornaments, implements, and other artifacts have been recovered. In addition, more than thirty well-preserved mummies, together with the coffins in which they were buried, were exhumed from the sandy necropolis. These latest findings match those of Bergman very closely, but multiply them greatly. Although it will take years to analyze all of the new materials, already we can draw some important inferences from them about the religious beliefs and practices of the community who buried their dead here. The recent excavations have also yielded rich resources for the study of the ethnic identity and cultural affiliations of the deceased. The present paper is the first technically oriented introduction in English to the surveys and excavations carried out by Uyghur and Chinese archeologists during the past five years.

Introduction

In the summer of 1934, the Swedish archeologist, Folke Bergman, was exploring prehistoric sites in the desert to the west of Lop Nor (in Eastern Central Asia [ECA], now called Xinjiang ["New Borders"] by the government of the People's

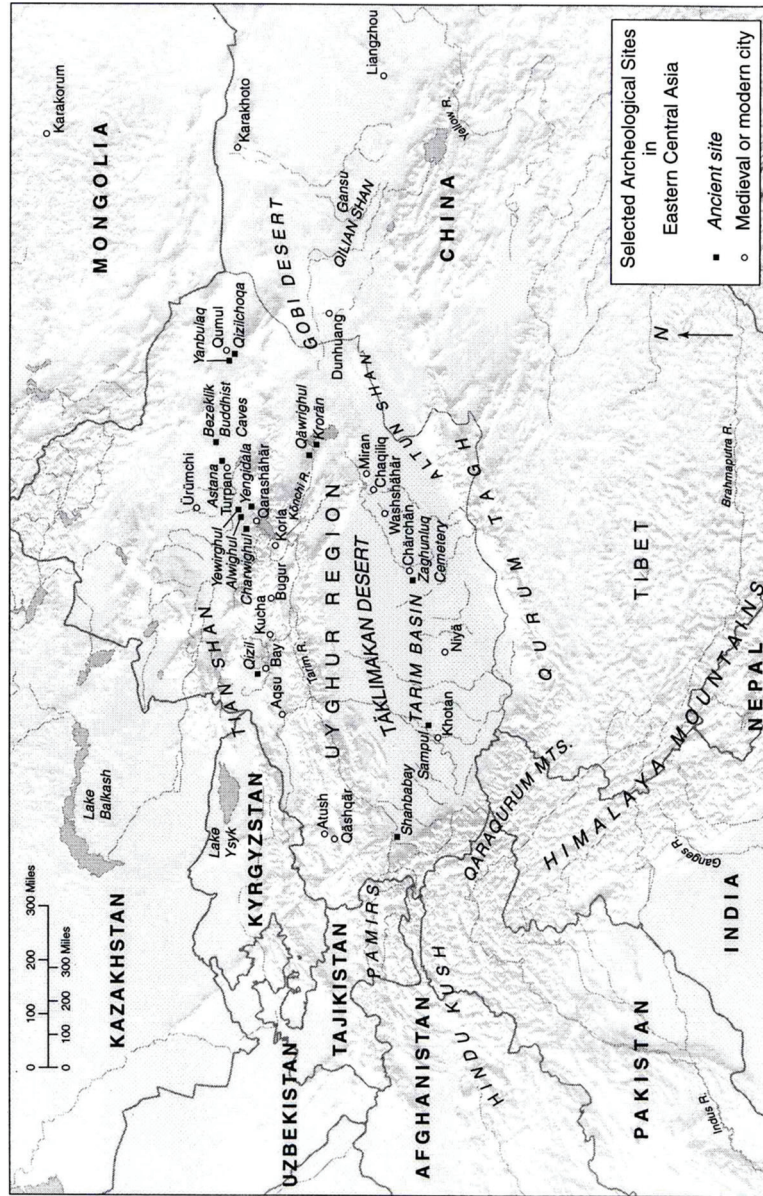


Figure 1: Map of the main archeological sites of the Uyghur Region.

Republic of China). Bergman's investigations were part of the large-scale expeditions organized by his countryman, Sven Hedin (1865-1952). Hedin had first visited the region in the nineties of the nineteenth century, and in 1928 he solved the problem of the changing basins of Lop Nor, which were related to the shifting lower course of the Tarim River as it flowed along the northern edge of the eastern portion of the Tāklimakān Desert. Hedin's work opened the way for more detailed explorations of the entire Tarim Basin, and Bergman's 1934 season was intended to carry out archeological surveys and excavations that had been mapped by earlier Swedish missions to the area (Figure 1).

Bergman was accompanied by an old Lop hunter named Ördek, who decades earlier had served as a guide for Hedin. Sometime around 1910-1911, Ördek had come upon an extraordinary graveyard in the middle of the desert. It was reported to have upwards of a thousand burials, and was one of the key sites that Bergman was hoping to study during his 1934 explorations. Bergman and his small team followed a nondescript waterway that he casually christened "Small River" (Xiaohe in Modern Standard Mandarin [MSM]). The Small River flowed southward from the middle reaches of the Kōnchi (MSM: Kongque) River until it disappeared in the sand about 20 kilometers to the northeast of Ayagh Arghan (MSM: Alagan; Figure 2).

As he went, Bergman studied a series of cemeteries in the valley of the Small River, but the one he most wanted to find was the legendary necropolis of Ördek. After many false steps and much frustration, Bergman finally located Ördek's Necropolis toward the end of the summer, and he numbered it 5 in the Small River series. I shall refer to it as SRC5 for Small River Cemetery number 5 (Chinese archeologists refer to it as Xiaohe Mudi ["Small River Cemetery"]).

SRC5 was every bit as fabulous as Ördek had made it out to be. Bergman excavated 12 burials and recovered approximately 200 artifacts that were transported to Stockholm. He took photographs of the site and artifacts recovered from it, drew precise maps of the cemetery and its surroundings, made careful drawings, and kept a detailed record of his observations. He also remarked on the looting and disturbance that were evident from the coffin boards and human body parts strewn over the surface of the cemetery.¹ All

of this he published in his 1939 *Archaeological Researches in Sinkiang*. When it appeared, the news of SRC5 that it brought captured the imagination of scholars and laypeople alike around the world. For over sixty years after that time, no one set foot on SRC5.

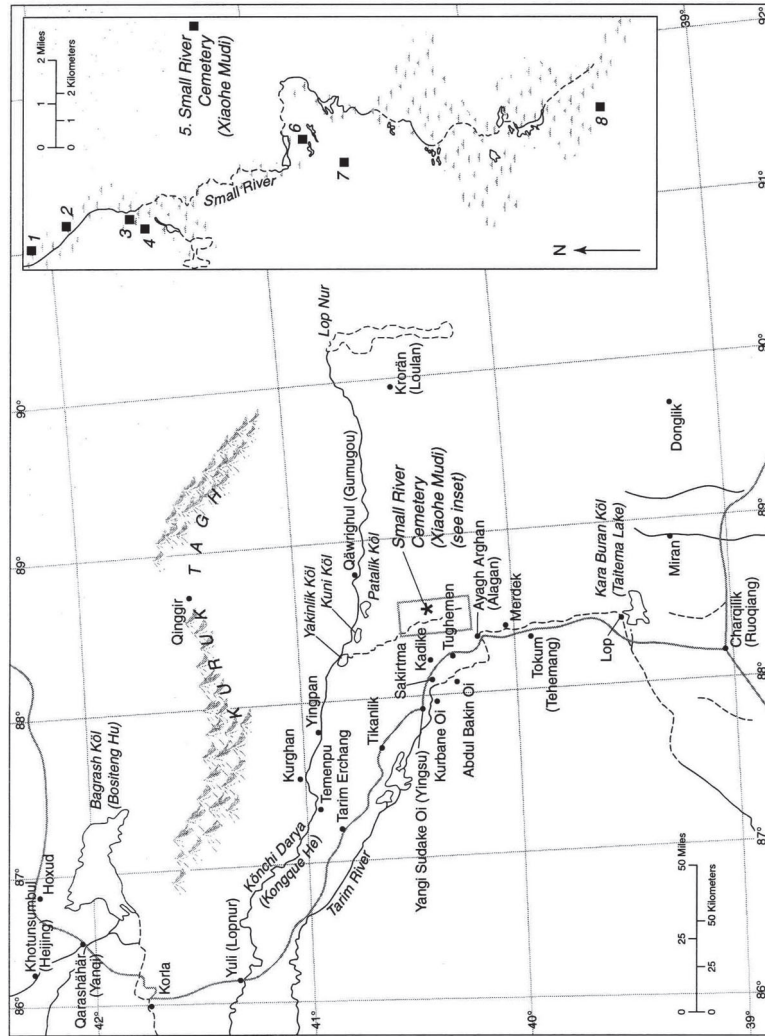


Figure 2: Map of the Lop Region with an inset showing the Small River.

In November, 1997, the Chinese translation of Bergman’s book was published, which immediately prompted a race to rediscover SRC5. At the end of the year 2000, the Shenzhen

Da Tang Yingshi Guanggao Gongsì [Shenzhen Great Tang Movie and Advertising Company] organized a Zhongguo Xiyu Damo Xing [Expedition to the Great Desert of China's Western Regions]. Relying on Global Positioning System (GPS) instrumentation and aided by the veteran archeologist Wang Binghua,² former Director of the Xinjiang Wenwu Kaogu Yanjiusuo (Xinjiang Institute of Archeology and Cultural Relics), the expedition located SRC5 without much difficulty on December 11, 2000. Their rediscovery was widely reported in the news media, and caused quite a sensation within China. It also led to a new round of looting, prompting the Guojia Wenwu Ju (State Bureau for Cultural Relics) to approve a preliminary excavation and survey by the regional Institute of Archeology and Cultural Relics under the current Director, Idris Abdursul. This limited investigation began in December, 2002 and lasted for approximately one month, during which four graves were excavated at the western end (just inside the smaller palisade [see below]) and a general survey of the entire cemetery was carried out.

After the archeologists from Ürümchi left at the conclusion of the short 2002-3 season, the looters returned with a vengeance, ravaging 50 square meters at the very center of the necropolis. Upon learning of the severe destruction that had been wreaked at the site, the State Bureau for Cultural Relics in October, 2003 authorized the complete excavation of SRC5 and removal of all important human and material remains as the only practical way to preserve them from the looters, who were themselves determined to take away anything of value. It was thought that several years would be necessary to finish the work, and measurable progress was made during the 2003-4 season (October-March) when 33 burials were excavated in the two layers that were uncovered. These yielded 25 adults and 8 juveniles, among which there were 15 well-preserved mummies complete with their clothing and other accoutrements. All the graves excavated consisted of one coffin and one occupant per coffin.

By the end of the 2003-4 season, the excavations in the western sector of SRC5 had already reached a depth of approximately 1.8 meters. It has still not been determined conclusively whether the successive layers of burials signify different cultural and chronological strata. It is believed,

though, that the lowest layer dates to around 4,000 years ago and that layers 1-3 share similar cultural characteristics, while layers 4-5 possess another set (Li 2005).

It is only feasible for archeologists to work at SRC5 from around November to March, about four to five months. The rest of the year, the site would be prey to the looters who are well-equipped, desperate, and need only do their dirty work for a few days at a time. The impracticality of posting guards at the site year round and year after year made it all the more compelling for the authorities to sanction the complete excavation of the site and removal of anything of importance. Until that could be done, however, the regional Institute of Archeology and Cultural Relics decided that it was necessary to leave behind a couple of archeologists to watch over the site when they departed for Ürümchi on March 25, 2004 at the conclusion of their second major season. They did not dare to post local workers as guards, nor did they hire local inhabitants to assist in their excavations, since bitter experience at other sites in the region had shown that such individuals often took advantage of their familiarity and access to engage in illegal activities at night or off-season. Until the total excavation of SRC5 was finished, only archeologists would work at the site, and only archeologists would protect the site.

In the latter part of September, 2004, archeologists of the regional Institute of Archeology and Cultural Relics, this time in collaboration with the Bianjiang Kaogu Yanjiu Zhongxin (Center for Border Archeology) of Jilin University (in Changchun, Jilin) began a new season, which would turn out to be the final one. To speed up the complete excavation of SRC5, which had now become an urgent necessity to keep a step ahead of the looters, a long conveyor belt was installed. Large quantities of sand were moved to the base of the hillock to expose the burials at lower levels. After study of the conditions of each burial and recovery of all significant contents, the sand was moved back up the hillock and repositioned in canvas bags to ensure that the essential integrity of the necropolis would be retained. Among the oddities discovered during that season was a male surrogate corpse made of wood, but otherwise treated as though it were the remains of a human being. There was also a mummy made in a combination of part of an actual desiccated corpse with the remainder of the body being made out of wood.

On April 17, 2005, the Chinese government announced that SRC5 was one of the ten most important archeological discoveries of 2004. This official recognition should prove helpful in securing various types of support for the continued study and conservation of materials from the site. International collaboration, if permitted by the central government, would provide invaluable technical and financial assistance.

Location and Climate

SRC5 is located in the desert about 60 kilometers south of the middle reaches of the Kōnchi River. It is 175 kilometers west of the ruins of the ancient city of Kroraina (U: Krorān; MSM: Loulan) and 36 kilometers to the north-northeast of Ayagh Arghan, which is situated on the bend of the Tarim River where it begins to disappear into the desert sands. It is only 4 kilometers to the east of the Small River, from which it would have been visible to anyone coming from that direction because it rises above the other, lower dunes. Thus when water was flowing in the latter, it would have been within easy walking distance of boat transportation. Now, however, the immediate vicinity of SRC5 is completely desolate, with no living vegetation or sign of animal life except for a few sparrows and the like (Idilisi and Li 2005: 41).

It will be helpful, in familiarizing ourselves with the Small River Valley, to say something about the larger rivers with which it is associated. The Kōnchi River (U: *kōnchi daryâ* ["Tanner's River"]; MSM: *kongque he* ["Peacock River"], a semantically distorted transcription of the Uyghur name) gathers the outflow of Baghrash Kōl (Uyghur etymology obscure; Mongolian Tengis Nuur ["Heavenly Lake"]; MSM Bositeng [origin obscure] Hu ["lake"]), which lies about 40 kilometers to the east-northeast of the city of Korla. The Kōnchi River first flows westward, then gradually turns south and finally eastward. The lower course beyond Temenpu has been dried up since 1921, but the old river channel, which continues on from this point and used to be called the Kum River (U: *qum daryâ* ["Sand River"]), and before that Kuruk River (U: *quruq daryâ* ["Dry River"]), is now commonly referred to as the Kōnchi River throughout its entire length. The great Tarim River (Tarim is a Uyghur word meaning simply "river," but more precisely "river-arm," "branching off of a river") has its beginning near the western end of the Tarim Basin and

flows eastward across the northern edge. At Yuli (or Weili, a town most confusingly now called Lop Nor for administrative purposes), it parallels the Kōnchi to the north for about a hundred miles eastward, but then gradually veers off more toward the southeast until it disappears in the desert about 25 miles to the west of the Small River.

There is much about SRC5 that makes it an archeological site of the greatest importance, but one aspect that causes it to draw the most attention is the fact that it has yielded so many well-preserved mummies. The key factors that result in the excellent preservation of human remains and other organic materials at numerous sites along the southern, eastern, and northeastern edges of the Tarim Basin and adjoining areas are: 1. drainage, 2. ventilation, 3. aridity, 4. cold, 5. salinity. SRC5 has at least the first four of these properties to a remarkable degree. Although chemical tests need to be carried out to determine whether it also possessed a high salt content, I suspect that its location in the midst of so many dried-up rivers, streams, and lakes would indicate that the sand of the necropolis is significantly saline and alkaline.

Aside from the propensity of the necropolis to produce well-preserved mummies, the topography of the site would also have made it a suitable location for a sacred burial ground. Throughout history and prehistory, human beings in many parts of the world have often selected a prominent height upon which to bury their dead. In the fundamentally flat, barren expanse of the region to the west of Lop Nor, even a small hillock would stand out in the vastness of the desert sands, with little else than low, crescent-shaped dunes to break up the distance. The eminence of SRC5, however slight, would have made it a propitious place upon which to construct a burial ground.

Dating and Context

It is conjectured by the excavators (already in their report of the 2002-3 season), that the lower limit of SRC5 is later than the first stage of burials at Qāwrighul (MSM: Gumugou, 3800 BP), while the upper limit is possibly as early as Qāwrighul I, or perhaps even somewhat earlier. Because the archeological materials of SRC5 can be divided into those coming from earlier and later strata, it will eventually be possible to examine changes in the characteristics of the different strata and the

artifacts that come from them. In this way, the relative dating of the remains will be ascertained. After that, absolute dating will be determined on the basis of C14 tests on the large number of samples taken from objects found at different strata and belonging to various cultural subtypes. Before the C14 dating can be carried out to obtain absolute dates, for the moment we may accept the judgment of the excavators that SRC5 is a Bronze Age site and that it belongs to the second millennium BC, i.e., three to four thousand years ago.

In *The Tarim Mummies*, Mallory and Mair noted numerous features linking SRC5 with Bronze Age Qāwrighul Culture (timber uprights, use of ephedra, grain baskets, absence of ceramics, etc.), but also observed continuity with Iron Age burial sites of the region (e.g., Yinpān and Krórān) (2000: 132, 148-152, 187-188).

Initial Description of the Site

Seen from the air, SRC5 takes the shape of an oval mound stretching roughly 80 meters from east to west and 40 meters from north to south (Figure 3). The necropolis rises 7.75 meters above the surface of the desert at its highest point and occupies a total of more than 2,500 square meters. The hillock is not a naturally formed sand dune, but is the product of human activity at the site. The mound must have been built up over a considerable period of time, inasmuch as it harbors a total of five layers of burials. The lowest level of burials was dug into a natural dune which, more than three thousand years ago, must have been very much like the low, small dunes that still surround the necropolis in all directions. The other four levels of burials were constructed in sabulous layers that formed as the result of a combination of natural and artificial processes, namely, wind-borne and human-deposited sand. Once the mound was built up to a height slightly greater than that of the surrounding dunes, the ambient pattern of arenose deposition would have been altered, with the consequence that the hillock would, by virtue of its standing higher than anything in the vicinity, attract and arrest relatively greater amounts of aeolian sand than the monotonous dunes surrounding it. The sand-catching properties of the hillock would have been heightened by the erection of so many grave posts on top of it.

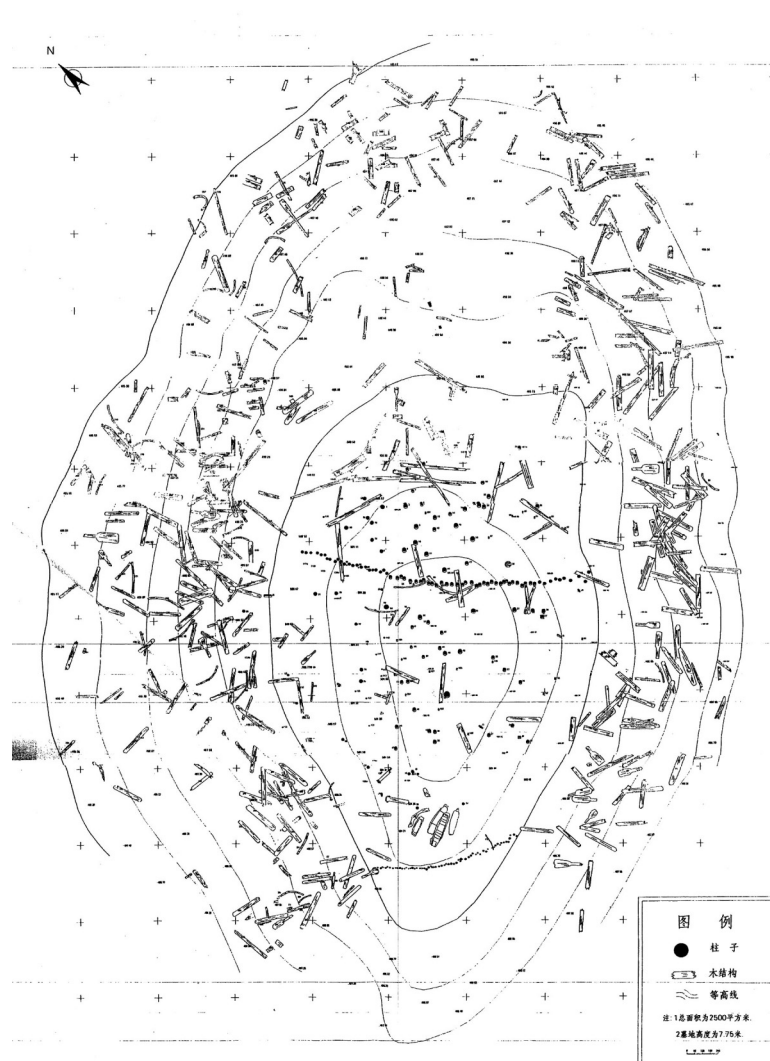


Figure 3: Plane diagram of SRC5. After Xinjiang 2003: foldout map.

Among the many enigmatic features of the necropolis are two palisades that run from north to south³ across the mound of sand. Various speculations have been put forth about the purpose of these palisades, such as that they were meant to divide the cemetery into sectors for different groups. Yet the pattern of burials has not confirmed any of these surmises. I would suggest that the palisades may have been intended as

windbreaks both to hold the outsized, artificial dune in place and to catch additional wind-borne sand. In essence, I believe that the palisades were designed, as it were, to maintain and grow the hillock. This is evident from their careful placement and tight construction. One of the palisades stretches across the very middle of the mound. It is composed of thick posts placed next to each other in a long line, and would have served to stop the majority of sand particles that were blown against it. The second palisade, composed of thinner—yet still tightly juxtaposed—posts, is set at the western end of the mound. I suspect that the placement of this secondary palisade was determined by the directionality of the prevailing winds in the area, and that it was meant to complement and enhance the efficiency of the main palisade.

After the burials of the western sector of the cemetery had been excavated and cleared away, the central palisade wall was exposed to a height of 1.2 meters. Judging from the length of several timbers that had fallen over at the northern and southern edges, the height of the palisades (including the portion buried in the sand) must have been around two meters. Tall as the palisade wall is, its base does not extend to the bottom of the five layers of the necropolis. This has led the excavators to the following important conclusion: the central palisade-wall, which is such a striking feature of the layout of the cemetery, could not have been an integral component of the original design. Rather, the cemetery must already have been in use for a considerable period of time when it was decided to build the wall.

Excavation of the western sector of the cemetery indicates that it was subdivided into an area for burial and another area for sacrifice. The sacrificial area was located in the northwestern part of the western sector and consisted of two altars aligned side by side, one to the east and one to the west. Each of the sacrificial altars consisted of six wooden columns arranged in a circle. The diameter of the circles was roughly two meters. The wooden columns were all narrower at the top and thicker at the bottom. Where the diameter of the column abruptly changed, the skull and / or horns of an ox was suspended by a rope made of grass. The eastern circle of wooden posts is somewhat higher than that of the western circle.

As of September, 2004, the eastern sector of the

cemetery had not yet been excavated, yet already on the surface there were evident over ten thick, tall standing posts that formed two circles and a semi-circle. At the upper portion of the posts, the diameter of the timber changed abruptly from thicker to thinner. On the surface of the ground inside and around these circles of the eastern sector, a large quantity of ovicaprid (goats / sheep) and bovine (cattle) horns were found. It is surmised that they were left behind from sacrifices held at the necropolis.

Already before the 2004-5 season, the surface of the eastern sector presented an exceedingly complicated spatio-temporal mosaic of burials, structures for sacrifice, and a wooden building whose relationship to the cemetery as a whole may hold the key to understanding the rationale of the entire layout. The complete excavation and analysis of the site will undoubtedly result in a much better picture of how its various components were intended to function in relation to each other.⁴

A Forest of Phalluses and Vulvas

The strongest impression felt by those who visit the site is of the tremendous number of poplar posts to be seen there. A quick count of the ones that are still standing or visible on the surface yields over 140, and the latest count after the recent excavations put the total number at more than 190. Many of the posts are over four meters in height. In cross section, the posts marking the burials are either round or polyangular, the latter having between seven and eleven angles (i.e., between 6 and 10 sides; 7 and 11 are frequently recurring numbers at SRC5). The top portions of the tomb posts are either oval or elliptical. Most curious of all are the posts that have exaggerated oar shapes, with the blades being much broader than an actual oar. What is more, the upper part of the oar is often painted black and the lower part red, with several horizontal decorative lines occurring in the lower, red portion. Upon first glance, it would seem that the oar-shaped posts are utterly incongruous in the midst of the vast, arid desert. Further consideration, however, reveals that the SRC5 people⁵ had good reasons (one quotidian and one symbolic) for erecting so many oar-shaped posts on their hallowed, desert necropolis.

The vertical posts visible on the surface of the hillock

constitute only a portion of the total. The largest proportion was hidden beneath the ground. It did not take the excavators long to figure out why this is so. At the bottom of each thick post was almost invariably to be found a coffin. Typically there was a large, thick post behind the head at the upper end of the coffin (like a tombstone), while there was a smaller post in front of the feet at the bottom end of the coffin. Starting at the surface of the sand in front of one of the larger posts and digging downward, the excavators would usually come upon a wooden coffin at a depth of about one meter. At this level, the tops of the posts for the next level would begin to emerge, so that the levels were interlocked in a jigsaw-like fashion.

There is a one-to-one correlation between the sex of the deceased in a given coffin and the shape of the large post near the upper end of the coffin: the vertical posts next to the head of males were invariably oar-shaped, the vertical posts next to the head of females were carved into a polyangular cigar- or torpedo-like shape that was thicker toward the top and slightly thinner toward the bottom. Obviously, these two distinctive shapes symbolized something of great importance for the people who buried their dead at SRC5. There is little doubt that the large cigar- or torpedo-shaped posts at the head of female burials were meant to represent a phallus (or *liṅga* / *liṅgam*), while the outsized oar-shaped posts with their long, rectangular blades having curved ends that stood next to the head of male burials were intended to represent a vulva (or *yoni*). Thus the whole of the cemetery was blanketed with blatant sexual symbolism.

In the center of the cemetery stood an enormous wooden post carved in the shape of a pointed awl, the largest phallic symbol discovered at the site. It had been completely painted with red color. The upper tip was rounded, but the shaft was shaped so as to have nine angles. As one might have expected, it was placed at the head of an old lady. The special status of this venerable woman was further signaled by an extra post that had been erected between the gigantic phallus and her coffin. On this additional post was hung an enormous pair of cattle horns bleached a blinding white by the ages. The entire coffin was painted bright red, and the body of the old lady who lay inside it was extremely well preserved. Her face appeared gaunt, yet her eyes were closed serenely, and she had an overall air of ineffable satisfaction.

Both the phallic and vulvate posts were of exaggerated proportions (the vulva foreposts being larger [up to 2 m. in height and .8 m. wide]), undoubtedly to emphasize their extraordinary qualities. The upper portions of the posts were painted red and they had woolen cords wrapped around them that held bundles of grasses in place. The forest of soaring phalluses and vulvas at SRC5 presents a palpable panorama of devotion to reproductive capacity. It is difficult to imagine a more impressive display of the veneration of human procreateness.

In nearly half of the burials at the second level, in front of the “male” and “female” posts there was also another high, thick post. At the base of this large post, bundles of plant material (reeds, camel thorn, ephedra, tamarisk, and so forth) were held in place by woolen cords. Mixed in with the bundles was a thick reed sharpened at both ends and some bones from the legs of an ovicaprid. Cow dung was smeared on the bundle of grasses, and at one side was placed a fairly large basket woven of straw. At the top of both the male and female posts were embedded small bronze plaques. The bases of the thicker posts were formed from natural tree trunks with the bark removed. On many of the bases, a lateral root was left. Bronze plaques were also found on some of the roots.

The sexual symbolism that pervaded the necropolis was by no means limited to the large posts at the upper end of the coffins. In many of the female burials were found affectionately—and sometimes extremely realistically—carved phalluses that were placed by the side of the tomb occupant. In some female burials there were more than one poplar phallus. Such overt, pervasive attention to sexual reproduction is extremely rare in the world for a burial ground, and the degree to which it is prevalent at SRC5 has left the excavators deeply puzzled. It seems to me, however, that the explanation for this obsession with reproductivity is not far to seek. The harsh living conditions (extremes of heat, cold, aridity, wind-blown sand, poor nutrition, and so forth) would surely have resulted in high levels of mortality, particularly among infants and juveniles who are most vulnerable to such adversities. Consequently, the people who buried their dead at SRC5 would have been keenly aware of the need to maintain their population at a sustainable level by frequent childbirth. The demographic realities of an isolated group in one of the

world's most challenging environments for human survival would inevitably have led to a strong emphasis on procreation. What is perhaps most remarkable about the SRC5 community is the creative, aesthetically evocative manner in which they designed and constructed their extraordinary necropolis.

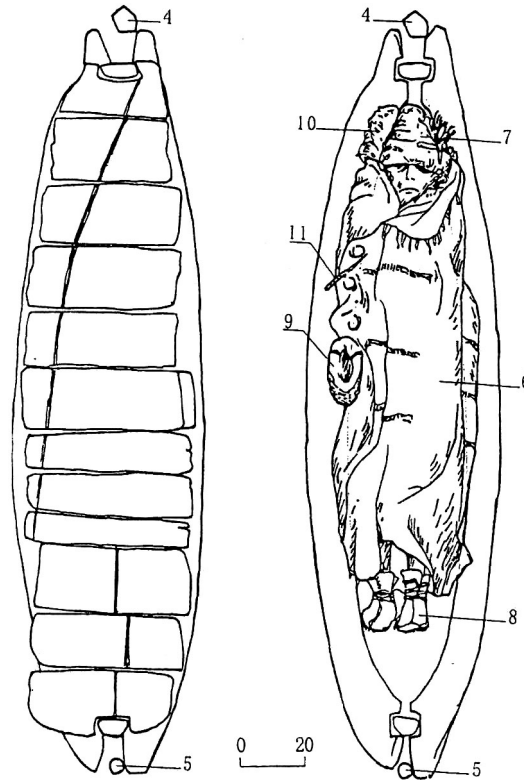


Figure 4: Plane drawing of M4. After Xinjiang 2003: fig. 30 (p. 22). 1. tamarisk branches (removed); 2. cowhide (removed); 3. small felt bag (removed); 4. wooden post; 5. wooden post; 6. woolen cape; 7. felt hat; 8. leather boots; 9. basket woven of grass; 10. pelt; 11. wooden pin

Boat Coffins

None of the coffins at SRC5 have bottoms. The deceased, wrapped in their capes, were laid directly on the sandy bottom of their grave (a simple pit dug in the sand), their heads mostly pointing toward the east (Figure 4). Some have

compared the coffins at SRC5 to boats without bottoms. Actually, judging from the way the sideboards angle slightly outward toward the bottom and inward toward the top, a better analogy would be to an overturned boat, the short boards (an average of about ten or more per coffin) placed crossways for the coffin cover serving as the bottom of the overturned boat. The boards of the cover varied in width so as to match the curvature of the sides of the coffin. Most of the boat coffins were over two meters in length, but one only 55 centimeters long was found with an infant inside of it. The child's entire body was wrapped in a yellowish wool cape, and only its face was showing. At the other extreme was a boat coffin that had been torn apart by grave robbers; its sideboards were 245 cm. long.

The tops of all the coffins were snugly covered by stiff cowhide; usually it took three of the hides to cover a single coffin, and they were as tough as a shield. In the center of the cowhide was placed a bundle of tamarisk (U: *yulghun*; MSM: *hongliu*) branches, most commonly consisting of a dozen sticks, and a reed. Beneath the cowhide that was wrapped over the top and around the sides, the wood of the coffins was as fresh as though it had just been cut. Many of the burials were so effectively sealed that not a single grain of sand was to be found in them. The deceased lay supine in extended position, seeming as though in a blissful sleep.

The coffins were made of two thick poplar (diversiform-leaved poplar; U: *toghrak*; MSM: *huyang*; there are also other poplars in the Tarim Basin, for which *teräk* serves as a common designation) planks that had been extensively worked by hollowing out on one side until they resembled opening and closing parentheses that were tightly pressed on either side of the deceased's body. The tops and bottoms of the two parentheses were notched so that they could be fitted tightly in place against the narrow headboard and footboard. The cowhides were from cattle that had been freshly slaughtered at the site, hence they were still pliable when they were wrapped around the sides and the footboard and headboard of the coffin. In the aridity of the desert, all of the moisture in the hides would evaporate, so that they would gradually shrink until they tightly encased the entire coffin. Since every single coffin in the necropolis that had been undisturbed was wrapped in cowhide, one can well imagine how many cattle

were sacrificed at this site to supply so many hides. Their weight, plus the angles of the sideboards and the way they were fitted against the headboard and footboard of the coffin caused the entire ensemble to become a very sturdy structure when it was completed. Packing sand around the whole made it all the more solid.

Boat burials are not at all unusual in prehistoric cultures. They are to be found, for example, at Abydos (circa 3000 BC) and other sites in Egypt. They are particularly common among Viking burials, as on the Orkney Islands dating to about 1,100 years ago, and understandably so for such a seafaring people. There are several very impressive boat burials at Vestfold (near Stockholm) from around the same time. One of the most thought-provoking aspects concerning some of the bigger boat burials is that they carry chariots or wagons. Riverine and maritime transportation was the earliest form of human nonpedal locomotion. As we shall see below, it was crucial even for the Bronze Age denizens of the Tāklimakān Desert.

Mud-covered Outer Coffins

A total of four mud-covered coffins have been found in the northern and southern sections of the cemetery. In the northern section, the remains of at least five more such coffins that had been disturbed were recovered. These mud-covered outer coffins are altogether different from the boat-shaped coffins discussed above. In the first place, their covers are rectangular and covered with layer after layer of solidly packed mud. Beneath the cover is a small chamber made of thick wooden planks joined together at the ends. Surprisingly, beneath the wooden chamber is found the boat coffin so typical of SRC5. Even more striking is the fact that the occupants of all four of the intact mud-encased outer coffins were adult females, and the grave goods that accompanied them were richer than for most other burials. Their faces were painted with five red lines, and one had a particularly fine hat of light yellow wool, a brightly colored woolen necklace around her neck, golden earrings, a wooden comb near her waist, and a composite wooden phallus wrapped with woolen cord died red placed next to the right side of her abdomen (Figure 5). On the surface, each of the tombs of these mud-covered coffins was surrounded by a circle of 6-8 large, tall posts.

Clearly, the women who were entombed inside the mud-

covered outer coffins must have been highly esteemed by the community to receive the special treatment that they were accorded. My suspicion is that the solution to this enigma is linked to the extraordinary emphasis placed upon reproductive symbolism at the site discussed elsewhere in this study. These women were most likely highly valued by their compatriots because they had given birth to a number of healthy children. Thus they would have been revered for having played a vital role in sustaining the community. In a sense, it was as much their fertility as their individual persons that was being respected by the relatively more lavish burials they received.

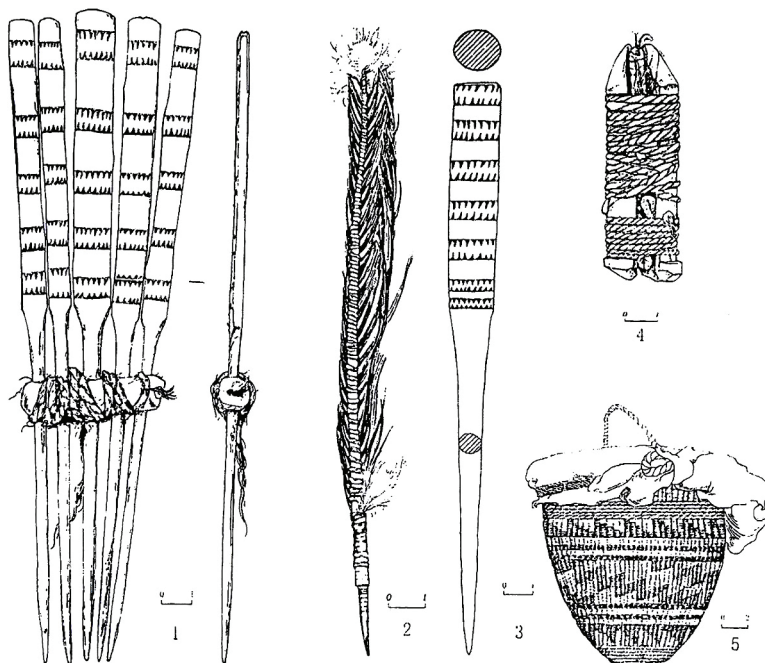


Figure 5: Selection of artifacts recovered from M4 (I). After Xinjiang 2003: fig. 35 (p. 27). 1. wooden comb; 2. feather; 3. wooden pin; 4. composite wooden phallus; 5. basket woven of grass

Masks of human faces and human figures, both carved out of poplar wood, were among the grave goods accompanying the burials inside the mud-encased outer coffins (Figure 6). The carved human faces were made of a solid, oval block of wood. They are small, measuring only around 9 centimeters in diameter (more precisely, one of them is 8.7 cm. long x 5.1 cm. wide x 6.1 cm. thick [to account for the enormous nose

measuring 3.1 cm. from top to bottom, 5.2 cm. along the length of the bridge from the root to the tip, and 2.4 cm. wide from side to side]). The masks are skillfully carved and painted. In contrast, the technique used to carve the human figures is relatively simple, but hauntingly evocative. Woolen cord was wrapped around the faces and the bodies, and sometimes the rows of cord held feathers in place. It is particularly interesting to note that round bronze earrings hung from the ears of the carved figures.

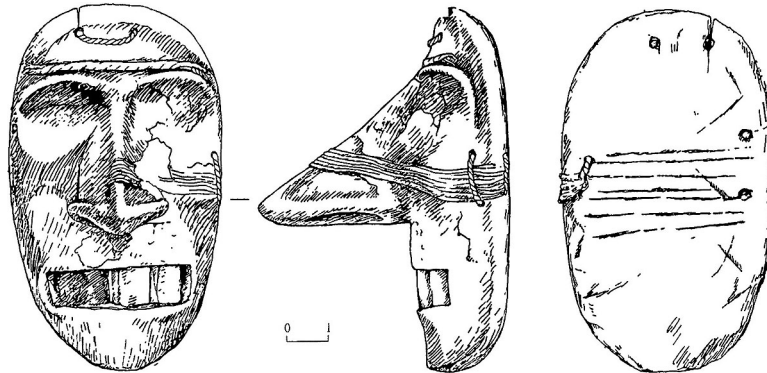


Figure 6: Wooden mask from MC: 93. After Xinjiang 2003: fig. 50 (p. 37).

Certain peculiarities of the masks merit further comment. Aside from the gigantic noses, these human faces display an exaggerated brow ridge, deep-set eye sockets, prominent cheekbones, and a large mouth full of outsize teeth. The masks have pairs of holes drilled through the top and sides; these were clearly intended for holding the masks in place.

Mock-corpses

During the current excavations, a total of six mock-corpses were discovered at SRC5. These mock-corpses were made of wood and otherwise treated as though they were genuine human corpses. Through analysis of the wooden posts in front of the coffins in which they were placed, archeologists working at the site have determined that the burials of the six mock-corpses were carried out within a short period of time and that all of the deceased whom they represented were males. The forms of the ersatz corpses were essentially similar; their faces were flat and were painted with red X patterns. In one tomb two male mock-corpses were buried together.

One can only conjecture about what might have led to so many males being represented by mock-corpses in such a short period of time, but several reasonable inferences can be drawn from the limited information: 1. Mock-corpses were used because the actual bodies of the men were not available. 2. This means that the men most likely had died somewhere away from their own community. 3. The cause of death was related to an activity or occupation conducted primarily by males (war, diplomacy, trade, etc.). 4. Despite their deaths, the men were still respected by their countrymen and deemed worthy of proper burial.

The placement of mock-corpses in coffins at SRC5 indicates that the people who buried their dead there were aware that the bodies of the deceased members of their community often turned into mummies (and that the individuals who died in winter were especially well preserved). This must have been thought to be a normal state of affairs for the afterlife. Consequently, the lack of a more or less well-preserved body for a dead relative would have been looked upon as abnormal and inauspicious, hence the necessity for a substitute when—for whatever reason—a real body could not be had.

During the 2003-4 season, there was also exhumed a rare specimen that was a combination of a real mummy with a wooden frame.

Clothing

The mummies exhumed at SRC5 were garbed in a more or less standard set of clothing (Figure 7). An important item of apparel was the loincloth. Woven of wool, it was basically a narrow band with tassels hanging down. Those of the males were shorter, just long enough to cover the genitalia. Those for women were longer and could go all the way to the knees, in which case they may be called string skirts. On their feet, they wore low boots stitched from cowhide or lynx (?) pelt with the fur facing outward on the sole but inward elsewhere. The boots were tied around the ankle with a thick cord.

An essential possession was a large cape made of wool. Though long and commodious, such capes had no seams. A few tassels were attached to one edge; for women they were at the top, but for men they were at the bottom. The cape was essentially a big, square or rectangular woolen cloth (a typical

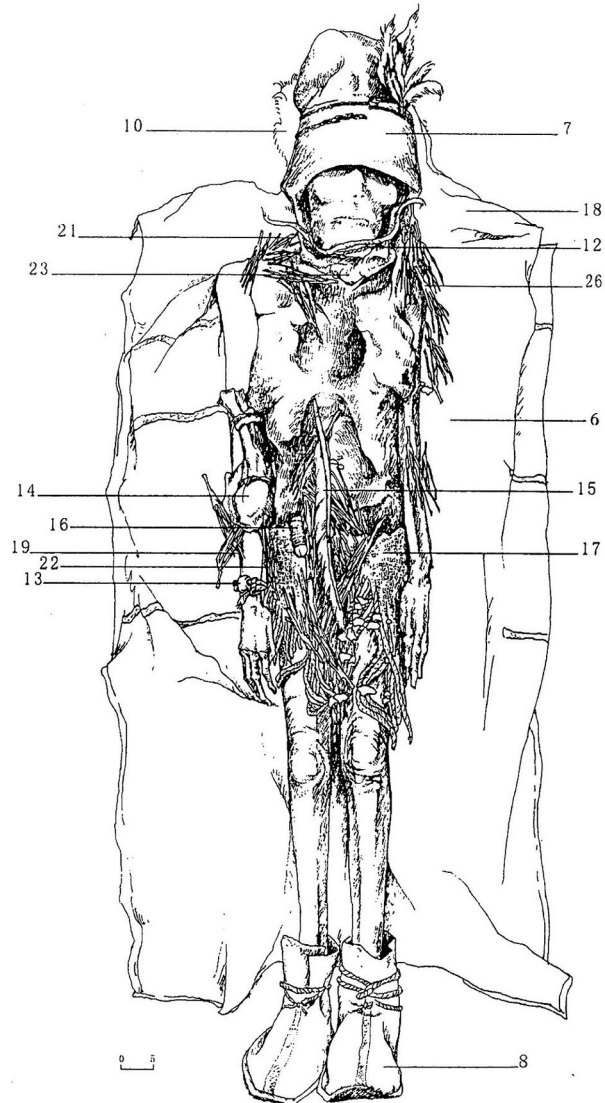


Figure 7: Female mummy from M4. After Xinjiang 2003: fig. 31 (p. 23). 6. woolen cape; 7. felt hat; 8. leather boots; 10. pelt; 12. necklace; 13. jade bracelet; 14. leather bag; 15. decorative feather; 16. wooden phallus (for detail see fig. 5); 17. string skirt; 18. cape used as a pad beneath the body; 19. wooden comb; 20. fragmentary sections of bovine tendon (placed beneath body and hence not visible); 21. bits of bovine / ovicaprid ear; 22. bundles of tamarisk branches; 23. lump of milky white substance; 24. woolen cord (placed beneath body); 25. *Ibid.*; 26. ephedra

dimension is 1.6 m. by 1.2 m.) done in tabby weave. No dyes were used, but differences in the natural color of the wool threads were skillfully utilized to form lighter and darker bands (white, cream, gray, light brown, dark brown). Long enough to cover a person from head to toe, in death the cape was used as a shroud, but in life it could either be draped over the shoulder or wrapped around the body. In the 20 degrees below centigrade or lower winter temperatures of the Lop Nor region, this simple garment would not have provided much protection from the bitter cold, regardless of its being made of wool.

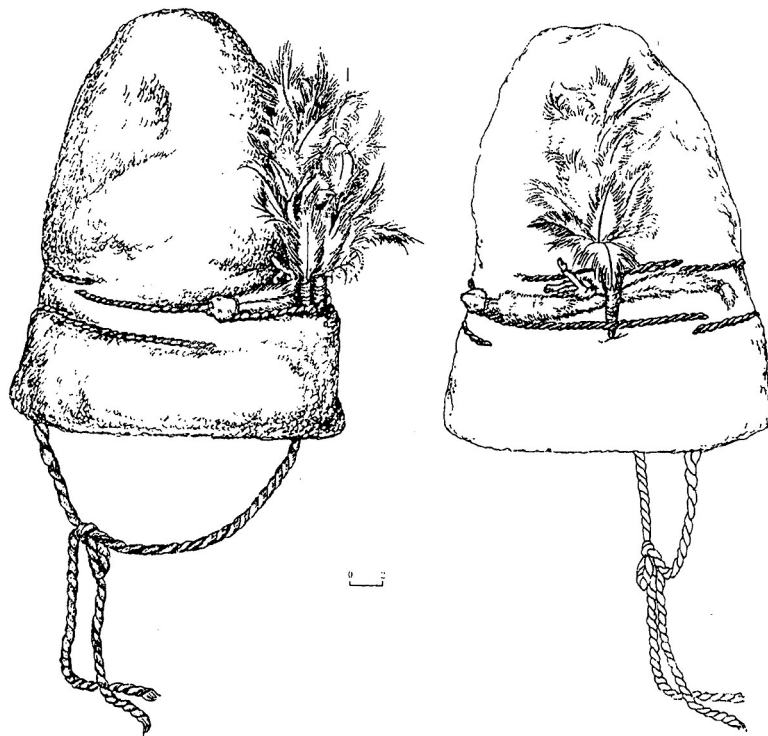


Figure 8: Front and side views of felt hat from M4. After Xinjiang 2003: fig. 32 (p. 24).

The people at SRC5 did not yet possess full-fledged plaids. That would have to wait for the community at Qizilchoqa (“Red Hillock”; MSM: Hongqiu) near the oasis town of Qaradōwā (MSM: Wupu) outside of Qumul (MSM: Hami). The cemetery at Qizilchoqa dates to around 1200 BC and has

yielded an abundance of genuine plaids done in diagonal twill

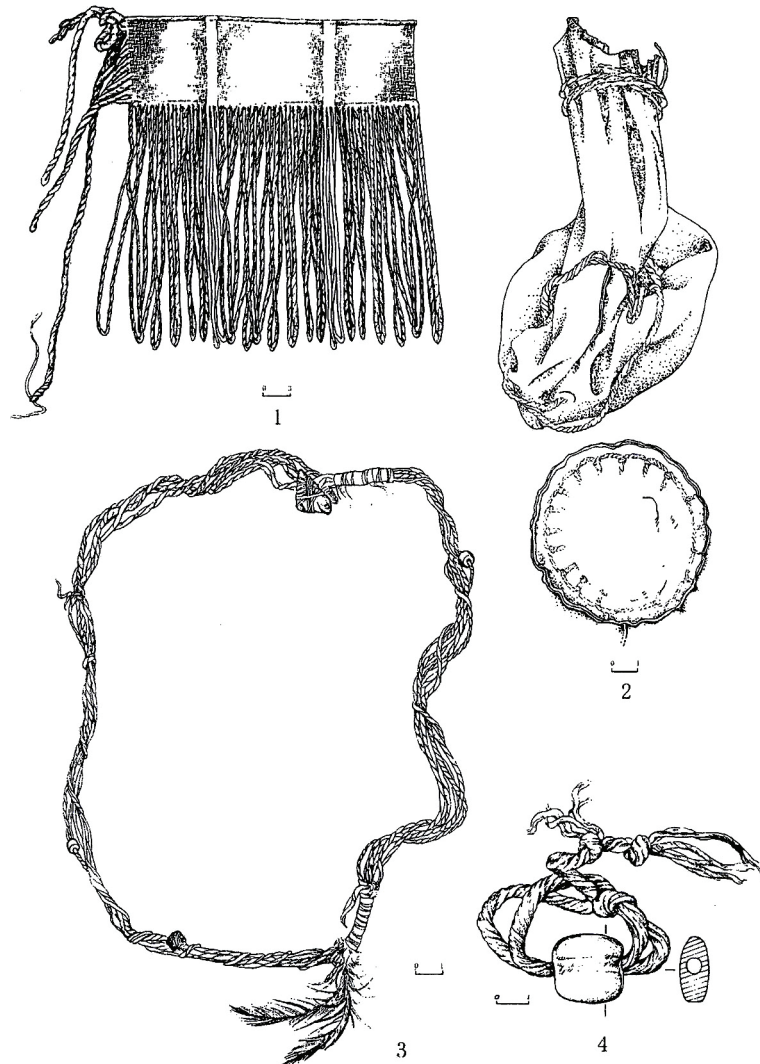


Figure 9: Selection of artifacts recovered from M4 (II). After Xinjiang 2003: fig. 34 (p. 26). 1. woolen string skirt; 2. leather bag; 3. necklace; 4. bracelet

weave. At SRC5, however, we may speak of proto-plaids, for the word “plaid” comes from a Gaelic term that means “mantle,” which is precisely what the ubiquitous capes or cloaks found at the necropolis were. Furthermore, although the weavers of

SRC5 had developed neither diagonal twill nor the checked pattern we associate with plaid, they did skillfully utilize the different shades of natural wool to produce bands of color in their capes and other textiles.

The most distinctive item of clothing of the SRC5 people—young and old, male and female alike—were their peaked, felt hats (Figure 8). These came in all the different natural shades of wool. The contrast of red cords stitched against the white, cream, or brown background was particularly striking. On the left side was sewn a weasel pelt, sometimes with the head of the weasel hanging from the front of the hat. Feathers were tied to a wooden peg and the peg was inserted into the side of the hat, looking very much like a European alpine hat. Aside from their ornamental value, the weasel pelt and feathers might also have symbolized hunting prowess.

The people of SRC5 cultivated a plain, yet attractive, beauty. They did not eschew all ornamentation, but they certainly were not given to excessive application of jewelry and decoration either. Many of the deceased wore cord necklaces around their neck, and it was not uncommon for them to sport a simple bracelet consisting of a perforated piece of jade on a piece of string (Figure 9). The extent of their trading networks may be gauged by the fact that the stone of one bracelet, a type of serpentine, came from the Qurum Tagh (Kunlun Mountains) approximately 500 kilometers to the south (NHK 2005: 85).

Baskets

The graves contained no pottery, apparently because no suitable clays were to be had in the region. Nor were there bronze vessels, although the SRC5 people clearly belonged to the Bronze Age (BA). (Naturally, nothing made of iron has been found at the site.) Small bronze ornaments and plaques were found in the graves, and the quality of the woodworking they routinely did indicates that they probably used the metal extensively in their daily lives. Yet, doubtless because of a lack of ore for local production, it must have been so rare that they could not afford to bury bronze tools or other implements with their dead. Instead, the substances that the SRC5 people relied on for containers and vessels were plant or animal derived: leather, felt, wood, and most distinctively grass stalks,

plant stems, roots, small branches, and various fibers. The presence of bundles of desert plants in the burials is tacit recognition of the degree to which the SRC5 people were dependent upon and reverential toward the scant vegetation of their environment.

Above all, it was in their basketry that they showed their adaptability, ingenuity, and virtuosic craftsmanship. In the burials, there was invariably found a small basket woven of grass, straw, and other plant materials, typically placed next to the right side of the corpse. The opening of the basket was usually sealed with white felt. Inside were grains of wheat, millet, and / or some gruel-like foodstuff. The ornate, finely worked baskets were the food containers and vessels par excellence of the SRC5 community. For convenience in carrying them, all the baskets had simple handles made of cord attached on either side of the opening at the top.

Considering the fact that organic plant remains are fragile and readily degradable, the quantity of perfectly preserved baskets recovered from the cemetery is astonishing. While environmental conditions may have been largely responsible for the excellent preservation of so many baskets (they frequently have the appearance of being brand-new), the fact that they were extremely well made of carefully chosen materials must also be taken into account. Furthermore, the baskets made by the SRC5 people display a highly developed esthetic sense of shape, proportion, and decoration.

Some of the baskets had their lower portion distended all around like a pot; others were cylindrical. Their bottoms could be rounded, flat, or pointed. These versatile, masterful basketweavers used the stems and stalks of grasses, as well as fibers from other parts of diverse plants, plus small, willowy branches and fine roots. As they did with wool, the SRC5 people used plant substances of different colors to create geometric patterns. In addition, they were extraordinarily sensitive to the sheen and textural qualities of the materials they employed. Thus they could produce subtle and pleasing arrangements of light and dark shades in triangles, steps, and so on. (The same artistic impulses are evident in the decorations on the posts that mark their burials, on the ornately carved shafts of their arrows, and even on the wooden pins that secured their capes and the tines of their wooden combs; Figure 10.) It is obvious

that these weavers were not interested merely in the utilitarian function of their baskets. The level of loving creativity and care that went into these little baskets speaks powerfully across the millennia of a remarkable culture.

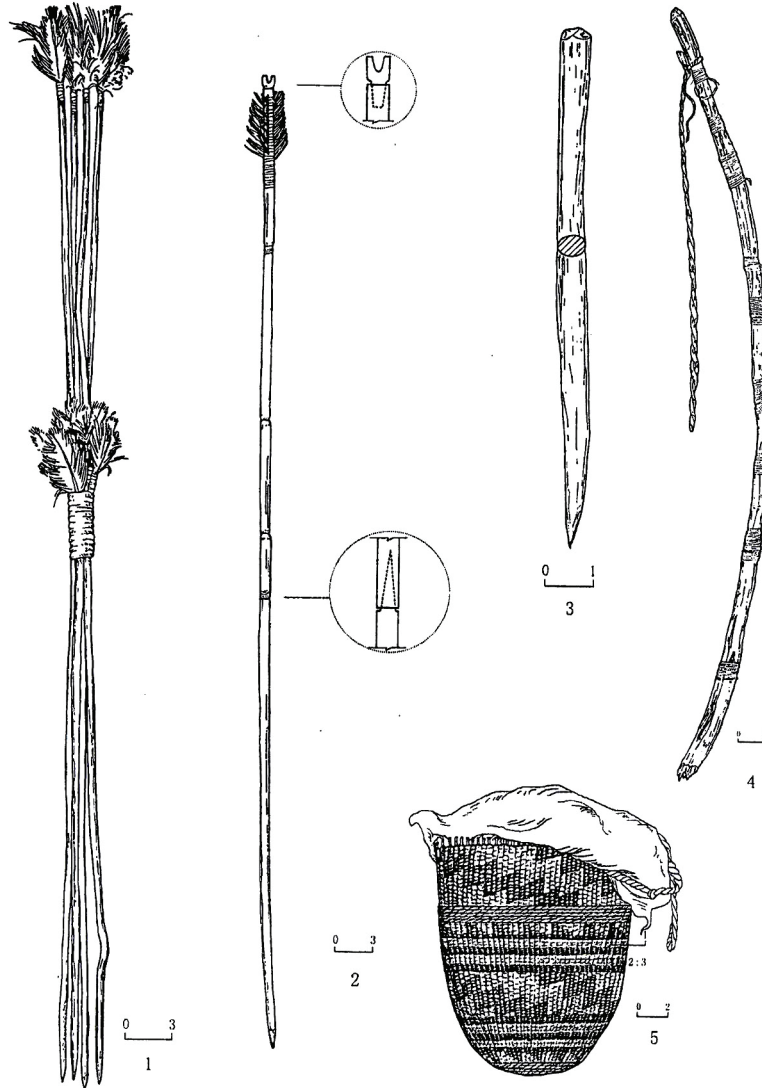


Figure 10: Objects recovered from M2. After Xinjiang 2003: fig. 25 (p. 20). 1. feathered arrows; 2. arrow; 3. wooden pin; 4. mortuary bow; 5. basket woven of grass

Ephedra and Other Burial Items

Twigs and branches of ephedra (MSM: *mahuang*) were placed on or beside the body of every single person buried at SRC5. Some of the deceased were literally smothered in small bundles of ephedra, and little bags of ephedra (as well as grains of wheat, millet, or barley) were sometimes tied along the edges of the capes wrapped around the bodies of the deceased. The community clearly considered this plant to have special properties. There has been much speculation about whether the ephedra was used as an ingredient in ritualistic beverages thought to confer immortality or induce euphoria (such as Indic soma or Iranian haoma). This is entirely possible, but we must also remember that ephedra has long been a key component in traditional medicine, both in the East and in the West. Possessing the properties of a nasal decongestant and dilator of the pulmonary passages, ephedra would have been of great value to people who were frequently exposed to smoky fires, wind-borne sand, and freezing temperatures.

Beside the neck of the deceased there were often found bits and pieces of the ears of bovines or ovicaprids. Also often interred with the tomb occupants were tamarisk branches and feathers with red woolen cords wrapped around their quills. There were also gender-specific burial goods. For example, in male burials, on either side at the base of the vulva post in front of the coffin were a mortuary bow and arrows.⁶ Women had one or more small (roughly life-size) wooden phalluses placed on top of them. There were also minor differences in the ornamentation and nature of other items accompanying the occupant in death. The felt hats of males were usually higher and more peaked, and studded with a row of feathers, in contrast to female hats which tended to be broad and round, and decorated with a single feather. The cloaks of the males had a fringe along the bottom edge, whereas the cloaks of the women had the fringe around the head and shoulders. The loincloths of the males were simple and narrow, almost like a belt, while those of the females were like short skirts. (The clothing worn by the deceased at SRC5 has been described in greater detail above.) A few special grave goods may have been related to the status or position of the grave occupant.

Settlements

Of the many mysteries surrounding SRC5, archeologists of the Uyghur Region consider the most puzzling to be the lack of any contemporaneous settlements in the vicinity. Within a radius of five kilometers, there is no evidence of life. Surveys conducted outward more than ten kilometers in all directions from the necropolis reveal no evidence of contemporary human habitation.⁷ Yet this is a sizable cemetery: where did the people who buried their dead here live? These were not the sort of highly mobile nomads who traversed the steppe north of the Altai Mountains and had sacred burial grounds in remote places (e.g., Ukok, Pazyryk). What is more, the hundreds of coffins and posts would have required the felling and transporting of many large poplars. Some of the logs used were up to 50 centimeters (or 19 inches, more than a foot and a half) in diameter. Just looking at the forest of large posts planted all over the surface of the hillock and the two densely concentrated palisades (not to mention the hefty coffin boards strewn about and buried beneath the ground), one gains the distinct impression of an extravagant, nearly profligate, use of timber—in stark contrast to the barren quality of the landscape in all directions as far as the eye can see.

Where did this enormous amount of lumber used at SRC5 come from? Even if the area has undergone an intensification of desiccation during the past 4,000 years (which is indubitably the case), one would expect to find some stumps and branches of dead trees within the vicinity of the necropolis. After all, the massive amount of timber in SRC5 has survived extremely well for three to four millennia under the same conditions as those of the land which surrounds it. Indeed, one could argue that its prominent elevation subjected the wood on the hillock to greater forces of environmental degradation (especially wind and sand) than those operative in the desert around it. Moreover, all of the wood at the site has been extensively worked. The broad, long, sharp cuts on the posts and the expertly hollowed-out sideboards of the coffins present convincing evidence that special tools of a sophisticated quality must have been extensively used by the community.⁸ Yet, at SRC5 itself, not a single specimen of such a high quality woodworking tool has been found. On present evidence, we must conclude that most of the woodworking was probably

done elsewhere and the finished posts, coffins, and other wooden objects transported to the necropolis from a distance. The question, then, is "How far?"

Some historians have asserted that SRC5 was the royal burial grounds for the kingdom of Kroraina (Loulan). Such a claim, however, is rather fanciful, inasmuch as not even the most determined descendants would repeatedly, over a lengthy period of time, and for hundreds of their dead, haul tons of lumber 175 kilometers across some of the world's harshest desert terrain. When the river systems of the eastern Tarim Basin were full of water and more extensive than now, they could have come by boat, but they still would have had to travel lengthy distances across land at the beginning and end of their journey. Adding impossibility to improbability, the kingdom of Kroraina flourished more than 1,500 years after the time of SRC5, so it could not conceivably have been the source of the burials there.

Far more likely to have been associated with SRC5, and much closer, are the cemeteries at Qāwrighul and on the Tōwān River along the lower reaches of the Kōnchi River that were discovered in 1979 by Wang Binghua and Mu Shunying. Not only do they date to roughly the same period as SRC5 (over 3,500 years ago), the mummies exhumed from them share similar features: light brown hair, long noses, thin lips—all features characteristic of Europoid individuals. The people of the Qāwrighul and Tōwān burials also used finely woven small baskets for carrying grain and wore pointed felt hats. The Qāwrighul people likewise expended an enormous quantity of wooden posts for their tombs, although they were arranged in a quite different fashion from those at SRC5. At Qāwrighul, the posts formed seven concentric circles, with rows of long posts radiating outward in all four directions in a pattern that is widely recognized as constituting a type of solar symbolism. At the center of these sun burials, only males were found (this is in sharp contrast to SRC5 where females were given pride of place and treatment). Thus, there most likely was some consanguinity of culture and ethnicity between the people of SRC5 and the people who buried their deceased at Qāwrighul and Tōwān, which were only 25 miles (40 kilometers) apart as the crow flies.

I believe that the second millennium BC people who buried their dead along the lower reaches of the Kōnchi River

and those from the same period who buried their dead along the Small River belonged to the same regional culture. Yet, despite their geographical, temporal, physical, ethnic, and cultural closeness, the peoples who built these cemeteries had developed their own distinctive burial customs.

As to where exactly the people who buried their dead at SRC5 might have come from, it could have been anywhere along the SR or the middle reaches of the Kōnchi, or even the lower reaches of the Tarim. Travel by boat to a point close to SRC5 would have been easy and fairly quick (a matter of a few days from any of those places), and oxen could have hauled the logs a relatively short distance to and from the point of embarkation at each end of the journey. The most likely place to look for settlements would be around the dried-up lakes along these rivers, of which there are plenty (e.g., Yakinlik Kōl, Kuni Kōl, Patalik Kōl). Indeed, there are several right at the sharp bend of the Small River itself, between SRC5 and SRC6.

The Chinese reports on the excavations and survey at SRC5 through spring 2005 stress that, within a radius of ten kilometers in the valley of the dried-up Small River, not a single tree is to be seen, including the withered trunks of dead trees that one encounters elsewhere along old watercourses in the Tāklimakan. However, just before this study was about to go to press (in the spring of 2006), I was fortunate enough to view an NHK documentary on the site and read a book that accompanied it. Watching the film carefully and repeatedly, it became clear that—while there is no living vegetation within sight of SRC5—there is evidence of dead bushes and trees close to the necropolis. Furthermore, the documentary provides unmistakable proof of the deposition of layers of leaves within the necropolis itself. It is, of course, virtually impossible that any vegetation would ever have grown on the sand mound, but there must have been a considerable amount of foliage in the vicinity at the time SRC5 was functioning as the burial ground for a particular community. Like the sand that has accumulated to a height of over seven meters, the leaves too would have been carried by the wind and deposited on the hillock.

Satellite photographs shown in the NHK documentary reveal ancient watercourses flowing through what is now barren desert (Figure 11).⁹ Although we should not imagine

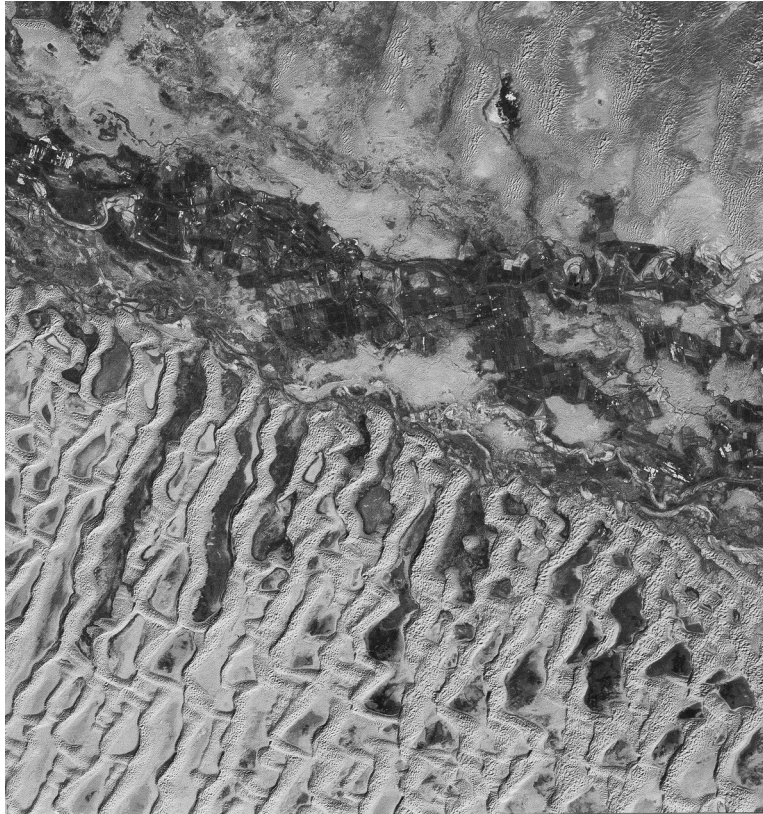


Figure 11: EOSAT space image of the Tarim Basin. JERS-1 OPS, Bands 3, 2, 1 (RGB); December 4, 1993. The sand dunes of the Tarim Basin abruptly end at the Tarim River, giving way to an agricultural zone between the Tarim and Könchi Rivers. The strongly patterned sand dunes appear in shades of off-white and light gray (in this black-and-white photograph made from a color scan). The agricultural fields are various shades of dark gray and black. While the precise position of SRC5 cannot be located on this photograph, it is within the general area and would be found amid the dunes in the bottom portion. The tangled snarl of the meandering rivers with their oases presents a stark contrast to the monotonous expanse of bands of undulating dunes separated by old stream beds, dried-up marshes, and vanished ponds.

that the Tāklimakan has ever been full of lush vegetal growth, human beings have been able to survive in green oases dotted along its watercourses during the past four thousand years (Mair 2005). There have, however, been times when and

places where water was somewhat more plentiful than it is now. Such was the area of the Small River in the second millennium BC.

I am convinced that the drying up of the Small River and its associated ponds, lakes, and streams was part of the same phenomenon that led to the shifting, and ultimately vanishing, of Lop Nor. Namely, the Tarim River (along with other closely linked rivers such as the Kōnchi that flow from the west to the east), which used to feed Lop Nor as well as the Small River and its associated streams, lakes, and ponds, have simply ceased to provide enough volume in their lower courses to fill them. I leave it to the hydraulic engineers and paleoclimatologists to explain how, when, and why this happened. A clue, however, may be found in the fact that river courses along the southern and southeastern rim of the Tāklimakan that used to flow into the desert up to a hundred or more kilometers, sustaining oases along their banks, all dried up at around the same time that Lop Nor disappeared (by the first half of the fourth century). This would seem to indicate that a general intensification of the already arid environment occurred around the end of the Han Dynasty, i.e., the end of the second century.

Aside from fluctuations of regional and global climate, another reason why the rivers that feed Lop Nor and its associated bodies of water shift their channels (sometimes dramatically), causing old lakes and streams to dry up rapidly and creating new ones elsewhere, is that the overall differential in elevation across hundreds of square kilometers in this area is only a few meters. Hence, when sand and silt block one channel—which, considering the large quantities of wind-borne sand in the region, could readily happen when the channels are relatively shallow—it was all too easy for rivers large and small to form an entirely different channel that might take a quite different direction. Naturally, when a river changes its trajectory, all of the old oases that were dependent upon it for their survival would swiftly perish, while new ones would rapidly form along the altered channels.

There was still a significant amount of vegetation between Ayagh Arghan and the Small River when the Swedish expeditions mapped that area during the first third of the twentieth century. It is not inconceivable that communities could have flourished in such areas close to the Small River

when it was full of water. Further utilization of satellite imaging and remote sensing will certainly be helpful in determining where the settlements of the Small River Valley people were located.

The Death of a People

Why did the people of the Small River Valley disappear? Did they succumb to an epidemic? Fall prey to war or internecine strife? While we cannot absolutely rule out the possibility that some such catastrophic event was the cause of the demise of the SRC5 people and the communities associated with them, I suspect that the most likely cause was simply the gradual (or perhaps fairly sudden) desiccation of the Lop Nor region, including the lower reaches of the Tarim and Kōnchi rivers, together with their affluents and effluents.

Judging from cores of the desert floor that have been taken (Mair 2005), the types of vegetation, cultural attributes, and the entirety of the archeological, climatological, and historical data, the Lop Nor region was already quite arid when human beings first began to occupy it around four thousand years ago. In other words, the first occupants of the region were already living on the cusp of survivability. However, because of the existence of Lop Nor, the Tarim, and the Kōnchi, as well as numerous smaller lakes and streams associated with them (some of which are marked on the maps ([Figures 1 and 2]), human beings could eke out a living through fishing in these aquatic bodies, hunting along the margins, pasturing their animals in the green patches that grew near them, and irrigating small plots for limited agriculture with water drawn from them. In other words, these intrepid, early settlers of the Lop Nor region were totally dependent on the fragile supply of water available to them in the form of the lakes, ponds, rivers, streams, and marshes near which they lived. Once those bodies of water dried up, it would have been utterly impossible for the inhabitants of the region to remain there. They simply would have had to move on, and that is probably what they did.

It is well known that there used to be towns dotted here and there along the watercourses flowing into the Tāklimakan Desert around the eastern and southern edges of the Tarim Basin all the way to Niyā and beyond (Keriyā, Cheriya, Dāndān Öylik, etc.). By the third or fourth century AD, all of these

oases were dead. The ruins of some of these fabled towns are now to be found a hundred or more kilometers out in the desert. Periodically, in rare times of unusual amounts of rainfall and greater than usual meltwater from the mountains to the north and south of the Tarim Basin, some of the old watercourses along which these ghost oases are situated might fill up temporarily or partially, and this would likely account for Bergman's being able to boat along the Small River and explore its hinterland. Chinese geological maps of the 1950s classify the Small River as a seasonal watercourse. Now, apparently, there is no water in it all year-round.

The existence of more than a dozen ancient cemeteries close to the dried-up channel of the Small River but no settlements there for the past two millennia means that, in all likelihood, the area has not been habitable for humans since that time. It may have been possible to enter the desert by following the Small River when it was filled with water due to heavier than normal rains or on a seasonal basis (in summer when there was more meltwater emanating from the Tängri Tagh [MSM: Tian Shan]). But the area of the Small River has not been able to sustain human habitation on a year-round basis for approximately two thousand years, and it was probably already becoming very difficult for people to live there a thousand years before then. Thus, there would have been a window of opportunity for people to live in the Small River Valley that lasted approximately throughout the second millennium BC.

Desiderata

One of the first things that needs to be done is to obtain C14 dates for the various strata of the necropolis. And, to the extent that it is possible, carefully selected samples of the plentiful wood that is found at the site should be utilized for dendrochronological studies.

Physical anthropologists who have examined the well-preserved mummies from SRC5 on-site have determined that they were of Europoid type, with no apparent Mongoloid admixture. Naturally, the wealth of human remains from the necropolis will make possible eventual genetic studies, and it will be interesting to see how the results compare with those from Qäwrighul and other sites in the Tarim Basin (Cui 2003; Cui and Zhou 2004; Cui *et al.* forthcoming). The ancient DNA

(both mitochondrial and Y-chromosomal) of the SRC5 people should be compared to the haplotypes of the modern inhabitants of the eastern Tarim Basin and surrounding areas. Beyond that, the ancient and modern DNA of the people of SRC5 and the eastern Tarim Basin ought to be closely compared to specific populations (e.g., Celtic, Germanic, Slavic, Italic, Finno-Ugric, etc.) who existed during the second millennium BC and might have been in contact with or linked to them.

In addition to genetic studies of the mummies, physical anthropological studies of the skeletal materials from SRC5 need to be carried out and comparisons made with the already extensive set of data compiled by Han Kangxin and his colleagues for other sites in the Tarim Basin and surrounding areas,¹⁰ as well as with material from farther afield (at least to the Urals in the west and the Ordos in the east).

The archeologists of ECA almost never call in paleozoologists and paleobotanists to examine materials from the sites they work on, but this is an urgent desideratum for SRC5. We need to know exactly what species and subspecies of animals were present at the site. This is particularly the case for ovicaprids and bovines, for their identity may tell us something about the places from which they were introduced. The same is true for wheat, which was clearly an import from the west, yet was such an essential staple of the local people.

A milky white, pasty substance was found to have been spread on the faces and bodies of many of the mummies. It is not known whether this was intended to prevent decay or for some other purpose. Judging from the fact that a similar substance has been found on the bodies of mummies from many other Bronze Age and Early Iron Age sites in ECA, it must have been a widespread mortuary practice.

Many sites in the Kroraina culture area have burials with the typical felt hats and small grain baskets described above. Since these traits persist over a long period of time (roughly the first and second millennia BC) and throughout a broad range (much of the Lop Nor region), the development of the culture they typify and the interrelationships of the various sites related to that culture merit thorough, interdisciplinary investigation.

Still more challenging than the investigation of areal and regional features are the long distance parallels that cry out for

serious comparative research.¹¹ For example, the felt hats at SRC5 are remarkably similar to the Alpine hats of Europe (cf. the figures wearing pointed hats depicted in ancient Celtic gravestones, wooden statues, and warrior votive figures [Dannheimer and Gebhard, *Das keltische Jahrtausend*, figs. 37, 153, 201A, cat. No. 410 on pp. 324-326]), and the string skirts worn by the Bronze Age women of the Small River Valley are strikingly like those that have been found on females among the Bronze Age and Iron Age bog people of Northern Europe (e.g., the Egtved Girl [c. 1400 BC] and the Ølby Girl of Denmark). Such skirts are plentifully attested from the Paleolithic (e.g., Gravettian Culture c. 20,000 BC) and have been found in a broad swath all the way across Europe from Lespugue (in France) to Gagarino (in Russia). (Barber, *Women's Work*, pp. 54-69, figs. 2.1, 2.5-9; Welters, ed., *Folk Dress*, chapters 1, 2, 4, 6, and 10)

We need to ask whether there are any other instances elsewhere in Eurasia of such pervasive sexual symbolism as that which we find at SRC5. And how do the wooden representations of humans at SRC5 correlate with anthropomorphic stelae of the Bronze Age and Early Iron Age all across Europe, especially in and near the steppe? (Cf. Telegin and Mallory, *Stelae*) In comparing the mortuary practices of the people who buried their dead at SRC5 with those of cultures elsewhere, we must bear in mind that this is an area that lacked the natural resources to regularly erect stone monuments (steles, pillars, statues, gravestones, menhirs, balbals, and so forth). It is noteworthy that some of the upright posts at SRC5 had human faces carved on them, and there were fully anthropomorphic wooden statues as well. (Cf. Mallory and Mair, *The Tarim Mummies*, fig. 71) What is more, some of the wooden statues at SRC5 were ithyphallic, and this is likewise a characteristic of mortuary sculpture in the temperate belt of Eurasia that coincides roughly with the range of the string skirt mentioned in the previous paragraph.

SRC5 is a Bronze Age treasure house at the center of Eurasia. The people who buried their dead at this extraordinary necropolis obviously originally came from elsewhere and interacted with other cultures (if only to be supplied with bronze, which could not be produced locally). It would be a waste of a wonderful opportunity to explore Eurasian cultural dynamics at a key period in the development

of civilization if scholars were to ignore the affinities and linkages between SRC5 and other sites both near and far.

Conclusion

Aside from the phallus-posts and vulva-posts, there were large wooden sculptures of human figures, some hauntingly evocative of real persons, and others with hyperbolized genitalia, reinforcing the obsession with procreation that pervades the site. The scores of wooden phalluses recovered from the burials, some graphically realistic and others of extraordinarily complex construction, leave no room for doubt concerning the preoccupation of the SRC5 people with reproductivity, even in the face of death.

Although the amount of grave goods in the burials can by no means be described as extravagant (nor could one expect that it would be considering the economic circumstances that prevailed), the artifacts that have been recovered from the site are of sufficient quantity and quality to gain an idea of the beliefs and practices of the SRC5 community. What was the significance of the small wooden faces carved out of wood (often with grossly overstated proboscises and sunken eyes) that accompanied some of the deceased? In the typology of arrow construction and ornament, which cultures produced specimens comparable to those that have been recovered from SRC5? Where can we find similar mortuary bows? Are there other societies that valued ephedra as much as the SRC5 people? Were there other Bronze Age communities who painted enormous cattle horns red and suspended them from posts in their graveyards? What is the significance of the snake-shaped wooden scepters found at the site? Why were bronze plaques embedded in some of the wooden constructions? Perhaps most intriguing of all, are there any parallels to the numeral-like engravings on wooden implements from some of the burials? (The latter may be of particular importance for the history of writing and / or mathematics.) It will take years to analyze the wealth of materials recovered from the site, but when the work is finished, we will have an elaborate, detailed account of a Bronze Age civilization at the heart of Eurasia. The picture that is already beginning to emerge reveals unmistakably the intimate ties of the SRC5 people with their kin to the west and the multifaceted linkages they were gradually developing

with cultures to the east.

During the latest series of excavations at SRC5, a total of 330 tombs were identified at the site. Of these, 163 undisturbed burials were excavated and an additional 167 that had been ruined by robbers were numbered. Thirty coffins with their mummies were taken back to Ürümqi, and more than a thousand artifacts were recovered. The civilization revealed at SRC5 is quite different from the civilization of the East Asian Heartland at the same time, yet it is not completely unrelated to it. On the other hand, as we have seen above, there are aspects of the culture preserved at SRC5 that are linked to cultures in the West. Thus the people of the Bronze Age civilizations of the Silk Road played a vital role in bridging the gap between eastern and western Eurasia, as did their descendants during the Middle Ages and in more recent history.

Notes

1. It is certain that a goodly portion of the looting at SRC5 occurred between the time that Ördek first saw it and 1934 when Bergman carried out his investigations in the area. For example, Ördek reported that a large wooden building was still standing toward the eastern end of the hillock, and that the roof was covered with leather. The walls inside were all painted red, and there were several coffin boards on the floor. By the time Bergman arrived at SRC5, it was in ruins, and now there is barely a trace of this prehistoric structure that must have played an important role in the operation of the cemetery. According to Bergman's observations, the building was approximately five meters square, and inside it was a pile of bovine skulls and the remains of a woman. The latest archeological reports indicate that, where the building once stood, there is still a row of sturdy wooden planks, the tops of which have been chiseled into mortices. The lower portions of the planks were painted with designs made of alternating black and red color.

The local people who herded their flocks along the Small River in recent times and presumably ventured out to SRC5 upon occasion were said to have used the 3,500-year-old leather from the site to make boots and took the prehistoric capes from the dead to use for saddle blankets. Wealthy local

individuals would hire professional looters to go to SRC5 to look for any precious items (e.g., jade). (What happened to SRC5 also took place at many other archeological sites in and around the Tarim Basin [e.g., Zaghunluq, Sampul, Subeshi]). Consequently, although SRC5 is located in one of the most remote, hostile environments on earth, it has not escaped from repeated ravaging.

2. Already in 1979, while making a film series about the Silk Road, the Japan Broadcasting Corporation (NHK [Nippon Hōsō Kyōkai]) had enlisted the aid of Wang Binghua in finding SRC5. This was the first time in half a century that archeologists had reentered the Lop Nor region. Although they failed to find SRC5 on that occasion, they did unexpectedly discover the Qāwrighul (MSM: Gumugou ["Gully of Ancient Tombs"]) cemetery along the lower reaches of the Kōnchi River, with its burials marked by hundreds of wooden posts arrayed in concentric circles (presumably a form of solar symbolism). Not far away, next to the Tōwān River (MSM: Tieban ["Iron Board"]) River, near the northern tip of Lop Nor, another team accompanying the 1979 expedition, under Mu Shunying, discovered the world-famous Beauty of Kroraina. Both of these important Bronze Age sites date to circa 1800 BC (Mallory and Mair, *The Tarim Mummies*, pp. 136-140).

3. Actually more like north-northwest to south-southeast. Since the north-south axes of the site determined by Bergman and the current excavators differ slightly, it is somewhat difficult to reconcile their directional references.

4. The present paper is based primarily on work done during the 2002-3 and 2003-4 seasons, since extensive reports are available for those two seasons. Where information concerning the 2004-5 season has been released, I draw on it as well. The archeological description of the 2002-3 season is commendably comprehensive and detailed, but it is based on the most limited of the three latest seasons of excavation. Inasmuch as the most extensive excavations were done in 2003-4 and particularly in 2004-5, for which full archeological reports are still being prepared, it will be necessary to supplement this paper after they are issued.

5. I use the expressions “SRC5 people” and “SRC5 community” as a sort of shorthand to stand for “the people / community who buried their dead at SRC5.”

6. A small bow and a bundle of three arrows were inserted vertically on either side of the base of the vulva-post at the head of the male burials. In some cases (again, males only), arrows were found inside the coffins next to the body of the tomb occupant. These might consist of a bundle of four arrows tied together with woolen yarn at the middle. The tips of most of the arrows in the burials consisted simply of the head being sharpened to a point, although some arrows with stone arrowheads were found scattered on the surface of the mound when Bergman discovered it in 1934 (Mallory and Mair 2000: 152). The upper (front) portion of the arrows is made from a thin tamarisk branch, while the lower (back) portion consists of a hollow reed, the nodes of which are conspicuous. The lower end of the tamarisk branch is carved to a point which is inserted into a hole prepared for it in the upper end of the reed portion, making a tight joint at the middle of the arrow. Triple fletching is tied on around the shaftment with cord made of bast fibers. The nock is carved separately from a small wooden peg and skillfully inserted in a hole prepared for it in the butt of the arrow. The arrows range between about 75 and 77 cm and are about .8 cm in diameter. The nocks are from .6 to .8 cm in length, and the fletching approximately 5.5 cm in length and 1 cm in height. These dimensions, as well as the careful construction and finishing, lead one to believe that these were real arrows placed in the grave at the time of burial, and not of a purely mortuary nature.

The bows are not composite, but made simply of a slightly curved and minimally carved tamarisk stick. The bows are very small, only from around 30 to 34 cm, which would have made them unusable for the arrows that were found with them. Cord made of tendon was wrapped tightly and neatly around the bow for 1-2 cm at intervals of 3-6 cm, for a total of eight or nine wrappings. These were probably mainly for decoration, but perhaps also as reinforcing. There is no elaborate arrangement (nock, tip, loop, bridge, etc.) for attaching the string to the bow. The bowstring is merely tied directly around the limb of the bow, about 3-4 cm from the end. The strings were made from two strands of bovine tendon twisted

together. All the strings that I know of were broken, perhaps for a symbolic purpose. The bows that have been recovered from SRC5 cannot be used for evidence of what actual weapons would have looked like, although some aspects of their design may give an indication of certain features, such as the type of string and reinforcing used. For comparative purposes, see Zutterman (2003).

7. During the latest series of excavations, surveys conducted within a circumference of approximately twelve kilometers around SRC5 led to the discovery of 22 different archeological sites, including other burial grounds. Also found during these surveys were about a hundred artifacts made of pottery, stone, bronze, iron, jade, and glass. Preliminary analysis indicates that most of the relics date to around the period of the Han through Jin dynasties (206 BC-420 AD). Judging from the GPS coordinates of these sites, their distribution indicates that they are basically arrayed along a north-south line of transportation that intersected with the celebrated old "Kroraina Road." The comprehensive investigation of these sites along the Small River offers an extraordinary opportunity for the in-depth and in-breadth study of the culture and ecology of the greater Lop Nor delta.

8. In all likelihood, the woodworking tools (particularly those used to make broad, long cuts) of the SRC5 people were composed of bronze (it is difficult to imagine that even the sharpest, most durable stone tools could have produced such clean, lengthy swaths in the poplar logs). Furthermore, no evidence of any broken stone tools has been reported for the site. Even a moderate amount of woodworking done at the necropolis would have resulted in breakage. Although most of the cutting and shaping of the wood may have been done off-site, it still would have been necessary to do the final fitting and assembly at the necropolis. Also, the long, broad planks used for the mud-covered outer coffins and the flat tops of the palisade posts make one feel that some sort of saw may have been employed.

9. The existence of large and small oases around the edges of the Tarim Basin and along the banks of its transient watercourses should not blind us to the fact that the

Täklimakan Desert has fundamentally been large, harsh, and arid for tens of thousands of years (Mair 2005: 8-12). Indeed, the latest geological research, based on a study of windblown silt accumulation and desert formation, indicates that “shifting sand dunes prevailed in the Tarim Basin by at least 5.3 Ma [million years ago], as they do today.” (Sun, Liu 2006)

10. For citations see the references in Mair, “Genes,” p. 39.

11. Some of these deficiencies will be overcome with the forthcoming publication of Elena Kuzmina’s remarkable book entitled *The Prehistory of the Great Silk Road* (University of Pennsylvania Press), even though it was completed before the recent revelations from SRC5 were made available.

Abbreviations

ECA	Eastern Central Asia
GPS	Global Positioning System
M	<i>mu</i> (MSM: “grave, tomb”)
MSM	Modern Standard Mandarin
SRC5	Small River Cemetery No. 5
U	Uyghur

Acknowledgements

Above all, I wish to express my gratitude to Folke Bergman and his team for discovering and describing SRC5 more than seventy years ago when GPS and air conditioned, motorized desert vehicles were not commonplace, and to Idris Abdursul and his colleagues at the Institute of Archeology and Cultural Relics in Ürümchi for continuing the work of the Swedish archeologists through three extraordinarily well-organized and highly productive seasons (2002-3, 2003-4, 2004-5). Their thorough investigations and detailed, timely reports (upon which I have been dependent) have made it possible for me to construct a hopefully coherent, preliminary account of the exploration, excavation, and nature of SRC5. I would also like to thank J P Mallory for his perceptive comments on the bog people of Northern Europe and on other matters relevant to this study, Jim Mathieu for answering my questions about the relative sharpness and durability of

stone and metal cutting tools, Elfriede Regina Knauer for providing helpful references concerning early Celtic costume, Elizabeth J. W. Barber and Irene Good for answering questions concerning Bronze Age textiles and clothing in Western Eurasia, Hiroko Sherry for helping me to understand the Japanese narration while watching the new NHK documentary about SRC5, and John Scarborough for information concerning ephedra in classical Europe (Greece and Rome). (It goes without saying that I alone am responsible for all inadequacies and infelicities that may remain.) I am particularly indebted to Staffan Rosén of Stockholm University and Hakan Wahlquist of the Swedish National Museum of Ethnography for supplying maps and other materials relating to the Swedish expeditions to Central Asia. Gratitude is also due to my friend, Xu Wenkan of Shanghai, for sending me the latest publications from China. Last, but not least, I must register my deep gratitude to the organizers of the Silk Roads Nara International Symposium 2005 who invited me to speak before their assembly; without their encouragement, I would never have found the time to write this paper. Finally, and almost miraculously, Arthur C. Auderheide, the distinguished paleopathologist, sent me the satellite photograph in Fig. 11. It arrived—unrequested—at 4:15 p.m. on the afternoon of May 5, 2006, half an hour before I had intended to dispatch the revised manuscript of this paper to the editor of the journal. Manna from heaven.

Bibliography

Barber, Elizabeth Wayland

- 1994 *Women's Work: The First 20,000 Years. Women, Cloth, and Society in Early Times.* New York, London: W. W. Norton.
- 1999 *The Mummies of Ürümchi.* New York, London: W. W. Norton.

Bergen, C., M. J. L. Th. Niekus, and V. T. van Vilsteren, eds.

- 2002 *The Mysterious Bog People.* Zwolle, Netherland: Waanders.

Bergman, Folke

- 1939 *Archaeological Researches in Sinkiang: Especially the Lop-Nor Region.* Reports from the Scientific Expedition to the North-Western Provinces of China under the Leadership of Dr. Sven Hedin. The Sino-Swedish Expedition, Publication 7. VII. Archaeology 1. Descriptive lists of textiles by Vivi Sylwan; appendices by Sten Konow and Hjalmar Ljungh. Stockholm: Aktiebolaget Thule, 1939. Translated into Mandarin by WANG Anhong as *Xinjiang*

- kaogu ji* [A Record of Xinjiang Archeology]. Xiyu tanxian kaocha daxi [Series on the Exploration and Investigation of the Western Regions], Ruidian dongfang xue yicong [Translations of Swedish Oriental Studies]. Ürümchi: Xinjiang renmin chubanshe, 1997.
- Carling, Gerd.
2005 Proto-Tocharian, Common Tocharian, and Tocharian – on the value of linguistic connections in a reconstructed language. Appendix to Mair 2005.
- CUI Yinqiu
2003 *Xinjiang gudai jumin xianliti DNA yanjiu: Tutufan yu Luobubo* [Mitochondrial DNA Analysis of the Ancient Inhabitants of Xinjiang: Turfan and Lopnor]. Changchun: Jilin University Press.
- CUI Yinqiu, and ZHOU Hui
2004 Cong MtDNA yanjiu jiaodu kan Xinjiang diqu gudai jumin yichuan jiegou de bianhua [Analysis of Genetical Structure of the Ancient Xinjiang Population]. *Zhongyang Minzu Daxue xuebao – Zhaxue shehui kexue bao* [Journal of the Central University for Nationalities – Philosophy and Social Sciences Edition], 31.5, 34-36.
- Cui, Yinqiu, Xiaolei Zhang, Yidai Yang, Shubai Liu, and Hui Zhou
forthcoming Investigating the Genetic Evolutionary History of Xinjiang Populations Using mtDNA Sequences.”
- Dannheimer, Hermann and Rupert Gebhard, ed.
1993 *Das keltische Jahrtausend*. Prähistorische Staatssammlung München Museum für Vor- und Frühgeschichte. Mainz am Rhein: Philipp von Zabern.
- Farquhar, D. M., G. Jarring, and E. Norin
1967 *Sven Hedin Central Asian Atlas. Memoir on Maps*. Vol. II. Index of Geographical Names. Reports from the Scientific Expedition to the North-Western Provinces of China under the Leadership of Dr. Sven Hedin. The Sino-Swedish Expedition, Publication 49. I. Geography, 3. Stockholm: The Sven Hedin Foundation, Statens Etnografiska Museum.
- Glob, P. V.
2004 *The Bog People: Iron-Age Man Preserved*. Tr. From the Danish by Rupert Brace-Mitford. New York: New York Review Books, 2004; originally published in 1965.
- Hoh, Erling
2004 Königreich der Wüste. *Abenteuer Archäologie*, 4, 60-66.
- Jarring, Gunnar
1997 *Central Asian Turkic Place-Names – Lop Nor and Tarim Area –: An Attempt at Classification and Explanation Based on Sven Hedin’s Diaries and Published Works*. Reports from the Scientific Expedition to the North-Western Provinces of China under the Leadership of Dr.

Sven Hedin. The Sino-Swedish Expedition, Publication 56. VIII. Ethnography, 11. Stockholm: The Sven Hedin Foundation.

LI Gengsheng

- 2005 Shenmi de shamo diantang – Xinjiang Xiaohe mudi [A Mysterious Temple in the Desert – Xinjiang's Small River Cemetery]. *Guangming Ribao (Guangming Daily)* (May 23, 2005).

LI Wenyong

- 2005 Xinjiang shiqian sangzang xisu – cong Gumugou dao Xiaohe (Pre-historic Burial Customs in Xinjiang – From Gumougou to Xiaohe). In *Silu zhenbao: Xinjiang wenwu dazhan (The Silk Road Treasures from Xinjiang)*. Hong Kong: Leisure and Cultural Services Department; Hong Kong Heritage Museum, 20-23.

Mair, Victor H.

- 1998 ed. *The Bronze Age and Early Iron Age Peoples of Eastern Central Asia*. 2 vols. Journal of Indo-European Studies Monograph Number Twenty-Six. Washington, DC: The Institute for the Study of Man; Philadelphia: The University of Pennsylvania Museum Publications.
- 2003 The Horse in Late Prehistoric China: Wrestling Culture and Control from the 'Barbarians.' In Marsha Levine, Colin Renfrew, and Katie Boyle, eds., *Prehistoric steppe adaptation and the horse*. McDonald Institute Monographs. Cambridge: McDonald Institute for Archaeological Research, University of Cambridge, 163-187.
- 2005 Genes, Geography, and Glottochronology: The Tarim Basin during Late Prehistory and History. In Karlene Jones-Bley, Martin E. Huld, Angela Della Volpe, and Miriam Robbins Dexter, ed., *Proceedings of the Sixteenth Annual UCLA Indo-European Conference*. Los Angeles, November 5-6, 2004. Journal of Indo-European Studies Monograph Series, No. 50. Washington: Institute for the Study of Man, 2005. Pp. 1-46, with an appendix by Gerd Carling, "Proto-Tocharian, Common Tocharian, and Tocharian – on the value of linguistic connections in a reconstructed language," pp. 47-71.

forthcoming Articles on Xinjiang archeology for *Enciclopedia Italiana*.

Mallory, J. P. and Victor H. Mair

- 2000 *The Tarim Mummies: Ancient China and the Mystery of the Earliest Peoples from the West*. London: Thames and Hudson.

NAN Xianghong

- 2004 Luobu Bo, Xiaohe mudi jingshi zaixian [The Small River Cemetery in the Lop Nor Region Startles the World with Its Reappearance]. *Nanfang Zhoumo [Southern Weekly]* (September 9, 2004), B 9-12.

NHK

- 2005 "Shin Shiruku Rôdo" Purojekuto [NHK "New Silk Road" Project], ed. *NHK Supesharu Shin Shiruku Rôdo, 1: Rôran yon sen nen no nemuri; Torufan shakunetsu no daigarô [NHK Special – New Silk Road, 1: Loulan, Asleep for Four Thousand Years; Turfan, a Great Painted*

- Corridor in the Blazing Heat*]. Tokyo: Nihon Hôshô Shuppan Kyôkai.
- Sun, Jimin and Tungsheng Liu
 2006 The Age of the Taklimakan Desert. *Science*, vol. 312 (June 16, 2006), 1621.
- Telegin, D. Ya and J. P. Mallory
 1994 *The Anthropomorphic Stelae of the Ukraine: The Early Iconography of the Indo-Europeans*. Journal of Indo-European Studies Monograph Number 11. Washington, DC: The Institute for the Study of Man.
- WANG Binghua, ed.
 2001 *Xinjiang gushi: gudai Xinjiang jumin ji qi wenhua (The Ancient Corpses of Xinjiang: The Peoples of Ancient Xinjiang and Their Culture)*. Ürümqi: Xinjiang Renmin Chubanshe.
- Welters, Linda, ed.
 1999 *Folk Dress in Europe and Anatolia: Beliefs about Protection and Fertility*. Oxford, New York: Berg.
- Xinjiang Wenwu Kaogu Yanjiusuo [Xinjiang Institute of Archeology and Cultural Relics].
 2003 2002 nian Xiaohe mudi kaogu diaocha yu fajue baogao [Report on the Archeological Investigation and Excavation at Xiaohe Cemetery for the Year 2002]. *Xinjiang Wenwu [Xinjiang Cultural Relics]*, 2, 8-46.
- Yidilisi (Idris) and LI Wenying
 2005 Shouhu da Loulan [Guarding Greater Loulan]. *Zhongguo Wenhua Yichan (China Cultural Heritage)*, cum. 9, 30-53.
- Yidilisi (Idris), LIU Guorui, LI Wenying
 2004 Xinjiang Luobu Bo Xiaohe mudi quanmian fajue huo jieduanxing zhongyao chengguo [The Complete Excavation of the Small River Cemetery in the Lop Nor Area of Xinjiang Achieves Important Results for the Current Phase].” *Zhongguo Wenhua Bao (China Cultural Relics News)*, 1251 (September 17, 2004), 1-2.
- ZHANG Hongchi
 2004 Luobu shamo 3000 nian gumu tan mi: shang qian guancai mai qi zhong [Probing the Secrets of a 3,000 Year Old Ancient Cemetery in the Lop Desert: Upwards of a Thousand Coffins Are Buried There]. Online publication of Xinhua News Agency (Xinhua Wang). Posted October 18, 2004; accessed October 19, 2004, 10:03:09.
- Zutterman, Christophe
 2003 The Bow in the Ancient Near East, a Re-evaluation of Archery from the Late 2nd Millennium to the End of the Achaemenid Empire. *Iranica Antiqua*, 38, 119-165.