

The Gangga Cemetery in Chen Barag Banner, Inner Mongolia

Joint Hulun Buir Archaeology Team of the Institute of Archaeology, CASS, Inner Mongolian Institute of Cultural Relics and Archaeology, School of Archaeology and Museology, Peking University and Hulun Buir Nationality Museum

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Abstract

In July through October 2014, the Joint Hulun Buir Archaeological Team organized by the Institute of Archaeology, CASS and other institutions conducted excavation to the Gangga Cemetery in Chen Barag Banner. This cemetery covering an area of about 2ha was located on the riverbank terrace about 6km to the east of Hoh Nor Town and about 600m to the south of the mainstream of the Hailar River. The excavated area is 680sq m, from which 16 burials were recovered. All of the burials had wooden burial receptacles, most of which were log coffins, and some of them were furnished with wooden board coffins. The grave goods unearthed from these burials included pottery wares, wooden saddles, birch bark quivers, iron arrowheads, bronze belt ornaments, agate beads, etc. The date of Gangga Cemetery was around the 8–10th centuries CE, which is significantly valuable for the exploration of the origination of the Mongol ethnic group.

Introduction to the cemetery

The Gangga Cemetery is located in the Hoh Nor Town (The original name is Wangong Town), Chen Barag Banner, Inner Mongolia. This cemetery is situated on the riverbank terrace about 6km to the east of Hoh Nor Town seat and about 600m to the south of the mainstream of the Hailar River, approximately 1km to the north of Harbin-Manchuria Railroad, approximately 55km west of Hulun Buir City, 36km southwest of Bayan Hure Town, the seat of the Chen Barag Banner local government, and 7km southeast of the Dong (East) Ujur Süm across the Hailar River (Figure 1). The cemetery is currently located in gentle sand dunes and sparse vegetation. In the south of the site the division line between the sandy dunes and the grassland is particularly evident. This cemetery covers an area of about 2ha.

Project origins and discovery

The origin of the Mongol ethnic group has many different legends and hypotheses, and has not had a reliable conclusion yet. To start a project to explore the origin of the Mongol ethnic group and a field exploration on the imperial mausoleums of the Yuan Dynasty at its birthplace have important academic values and social meanings. In August 2012, “The comprehensive research on the origin of Mongol ethnic group and the imperial mausoleums of the Yuan Dynasty” was listed as a key commission project of the National Social Science Fund of China (grant number: 12@ZH014). The main goal of the project will be to scientifically construct the prehistory of the Mongol ethnic group by systematically interpreting the early history of the origin, formation and development of the Mongols before Genghis Khan unified Mongolian Plateau. It will reveal the reasons, the mechanisms, and characteristics for the rise of the peoples in the forest and steppe, and their influence upon the history and culture of China and even the world. In the implementation of the project, archaeology will play a major role, and adopt and carry forth interdisciplinary research methodologies. Field investigations and archaeological excavations in Hulun Buir area will provide sources of empirical archaeological data for the study of the origin of Mongols, while history, ethnology, anthropology, folklore, linguistics

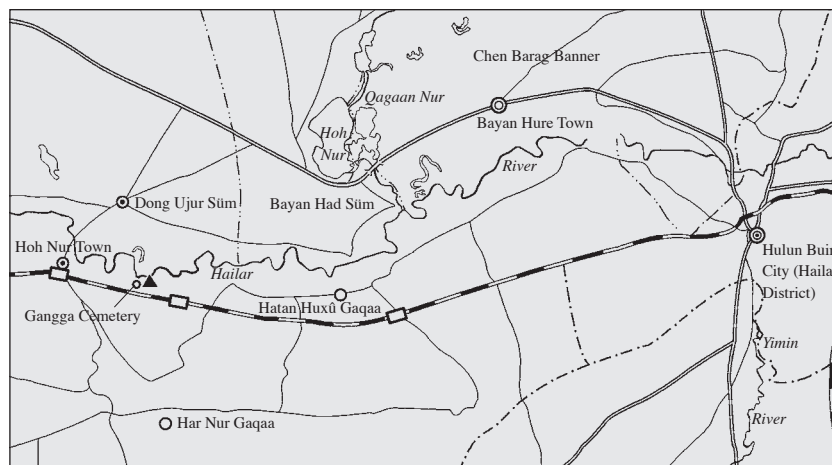


Figure 1 Location of Gangga Cemetery.

and other multidisciplinary researches will be carried out in order to introduce internationally influential academic results on the origin of the Mongol ethnic group.

In August 2013, the Chen Barag Banner Nationality Museum professionals provided some clues for the cemetery. The joint Hulun Buir Archaeological Team organized by the Institute of Archaeology, Institute of Archaeology, CASS, the Inner Mongolian Institute of Cultural Relics and Archaeology and School of Archaeology and Museology, Peking University conducted survey to the Gangga Cemetery as well as its peripheral region in Chen Barag Banner. Surface collection of artifacts included potsherds, iron arrowheads and other artifacts as well as human bones. From the characteristics

of the collected potsherds, it can be concluded that the pottery at the site can be classified into two major types which include gray fine clay pottery and grayish-brown sandy pottery. Pottery wares were manufactured with both wheel-throwing and hand-manufacturing technologies. From this research we can recognize two types of pottery ware types which were jars and pots. Preliminary analyses of the Gangga Cemetery reveal that the artifacts at the site should belong to ancient nomadic groups. In order to clarify the nature, culture, and the age of the cemetery, along with the cemetery's taphonomy and preservation situation, it was necessary to look for important archaeological remains associated with the Mongolian ethnic origin. After approval by the Bureau of Cultural Relics of Inner Mongolia Autonomous Region, rescue excavation was conducted on the six burials exposed on the ground surface. The excavation results showed that dugout log coffins are the main burial receptacles in the Gangga Cemetery. Grave goods are abundant and the major ones included ornaments, living utensils, and equestrian and archery fittings and implements. All of the artifacts are representative cultural remains of nomadic pastoral ethnic groups. The coffin wood samples were radiocarbon dated to approximately the 8th to 10th centuries CE. By approval of the State Administration of Cultural Heritage, from July to October 2014, the joint Hulun Buir Archaeological Team carried out systematic coring tests and formal archaeological excavation on the Gangga Cemetery and acquired substantial results. This

is one of the most important archaeological discoveries in recent years in the Hulun Buir area for exploring the origin of the Mongol ethnic group and provides the latest series of empirically derived archaeological data.

Important archaeology results

The 2014 excavation area was located on the eastern side of the Gangga Cemetery. The total excavated area is 680sq m., from which 16 burials were recovered (Figures 2 and 3). The graves were all superimposed by a yellow sand layer and intruded into a black sand layer. From the shape of the remaining pits we can see that the pit shaft graves were rectangular with a flat bottom.

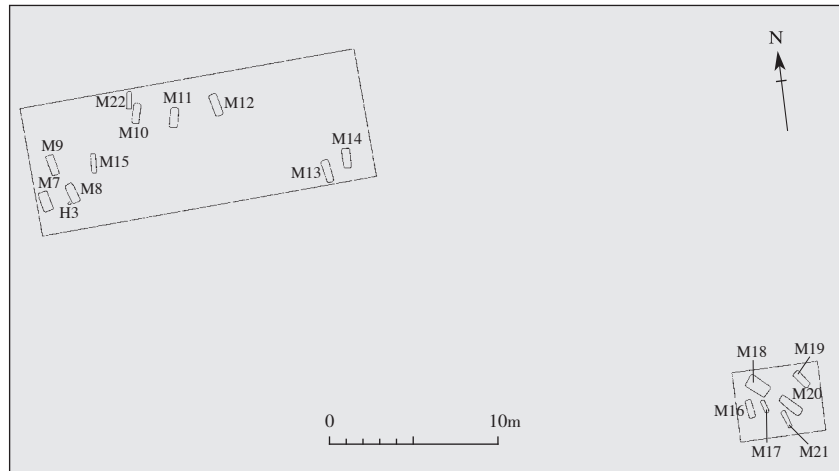


Figure 2 Distribution of the burials of the Gangga Cemetery excavated in 2014.



Figure 3 Burials of the Gangga Cemetery excavated in 2014 (Part, top is east).

In total 15 of the discovered graves have wooden burial receptacles. Nine of the graves include a dugout log coffin (M7, M9, M11, M13-15, M18, M20 and M22). The pine wood logs of many of the log coffins were sized according to the burial occupant's body shape. In the central section a hole was cut in the wood, and both of the ends of the tree trunk were preserved to become the solid coffin heads. At the time of burial, the burial occupant and grave goods were put into the coffin, and were wrapped in birch bark or animal hides. There is a great deal of variation among the size of the log coffins, and the thicknesses of the logs are also dissimilar. Among them, the coffins of burial M7 had a length of 1.73m, and a width of 0.37–0.45m (Figure 4). The log coffin of M11 has a length of 1.73m, and a width of 0.47–0.55m (Figure 5). The log coffin of M13 had a length of 1.72m, and a width of 0.42m (Figure 6). The log coffin of M15 had a length of 2.1m, and a width of 0.4m. The log coffin in the southwest of M18's grave has a length of 1.93–2m and a width of 0.49–0.5m and the log coffin in the northeast of M18's grave had a length of 1.8–1.84m and a width of 0.4–0.47m (Figure 7). The log coffin of M20 had a length of 2.23m and a width of 0.45–0.56m. It is an example of one of the largest and best preserved coffins in this excavation. This coffin provides valuable data on the shape, structure, and use of the log coffins in this cemetery (Figures 8–10).

There are six burials using wooden board coffins as burial receptacles (M8, M12, M16, M17, M19 and M21). Wooden board coffin discovered in Gangga Cemetery all

have a rectangular shape, the decay is serious and only decomposed wooden boards remained. The two sides of the coffin walls are relatively long, and the two ends are relatively short and slightly surpass the side boards. Among them the burial receptacles of burials M8 and M17 are rather special. Within M8 the bottom of the wooden board coffin has a layer of birch bark (Figure 11). The occupant of M17 is a child and above its coffin lid is covered a layer of birch bark. The remains of the coffin boards are also distinct. The northeast and the southwest sides of coffin walls all have a length of 1.28m. The space within the coffin walls is 0.21–0.27m in width. The southeast coffin board measures 0.4m, and has a thickness of 0.02–0.03m. The northwest coffin board has a length of 0.42m and a thickness of 0.04–0.05m.

As a result of wind erosion damage, the burial M10 has only the bottom preserved. There were no other burial receptacle traces. Therefore, there is not any way to accurately determine the original shape of the coffin.

Burial positions in this cemetery include supine or sideways flexed burials. Few of the burials are supine extended burials. The heads orient to the north, northwest and the northeast directions. Most burials are single burials. Grave M18 has the only double person joint burial, the occupants of which were an adult female and an adolescent male. This is the first excavation in the Hulun Buir grassland that includes log coffins with a joint female-male burial (see Figure 7).

Grave goods in the graves are very abundant, and can



Figure 4 M7 (NE–SW).



Figure 5 M11 (NE–SW).



Figure 6 M13 (SW–NE).



Figure 7 M18 (NE–SW).

be divided up according to their functions to include everyday goods, ornaments, as well as equestrian and archery goods. The major daily living articles include pottery jars, pottery pots, and birch bark jars. In this excavation's 16 graves, 11 graves yielded 15 pottery wares. Four of the graves contain two pottery wares and the remaining ones have one pottery ware each. Many pottery vessels were unearthed nearby the burial occupant's head and feet, or between the legs. For example in M8 one pottery jar was placed between the occupant's legs (Figure 12). In M10 the grave goods include one pottery pot, which was found beside the occupant's foot (Figure 13). Within M18 there are two pottery jars which were placed at the grave occupant's



Figure 8 M20 (SW-NE).



Figure 9 Head end of the log coffin of M20 (NE-SW).



Figure 10 Foot end of the log coffin of M20 (NE-SW).

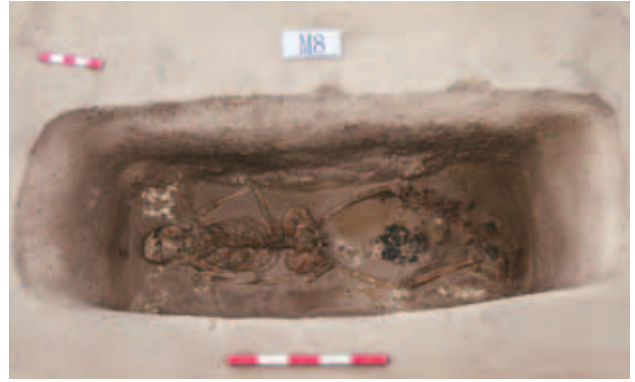


Figure 11 M8 (W-E).



Figure 12 Pottery wares and arrows with wooden shaft and iron head unearthed from M8 in situ (S-N).



Figure 13 Pottery jar unearthed from M10 in situ (SW-NE).

head and feet (See Figure 7). Within M11 there was one pottery jar and one pot, which was unearthed from the west side of the occupant's foot (see Figure 5). The pottery manufacturing method can be divided into two types, which include wheel-throwing and hand-making. The textures of the pottery wares are sandy or fine clay pottery. Most are decorated with fine-combed dots and attached repoussé designs. The pottery wares are sorted

into two types which are jars and pots. The jars are again subdivided into two types that include bulging-belly jars and cylindrical jars (Figures 14–17).

The ornaments include rod-shaped jade ornaments, red agate bead, glass beads, bronze belt ornaments and bronze or silver earrings. There is only one rod-shaped jade ornament that comes from above the left scapula of the occupant of M11. The jade has a clear color



Figure 14 Pottery jar (M9:1).



Figure 15 Pottery jar (M18:1).



Figure 16 Pottery jar (M10:2).



Figure 17 Pottery jar (M18:2).

and preliminary judgments indicate that this should be nephrite. The jade's two ends are slightly thicker and the central section is thinner. The jade body surface has many slight edges, forming an octagonal cross-section. One end has a drilled hole, near the drilled hole the end is slightly rounded and the other end is slightly beveled. The total length is 9.5cm (Figure 18). In total three burials yielded beads as grave goods. In M11 there are two glass beads and one agate bead. Among them the two glass beads come from the top center of the skull and the left side of the skull of the burial occupant. The beads are oval in shape, translucent white in color and have a hole drilled the center. One agate bead, which is garnet red in color, was discovered from the right side of the neck of the burial occupant. The bead body has a heptagonal cross-section and the profile is in lenticular shape. The center has a drilled hole (Figure 19). In M15 five beads were concentrated from the right side of the grave occupant's neck. Among them there are three agate beads, one has assumed a mauve color, and another one has assumed a white color. The beads are spherical with a glossy surface (Figure 20). One bead has assumed a gray color and is slightly damaged. The middle is slightly thick, and the two ends are slightly thinner, and the surface is very



Figure 18 Arrangement of grave goods at the head of of the occupant of M11 (SW-NE).



Figure 20 Agate bead (M15:2).

smooth. Two agate beads were unearthed from M18, one of which was found at the right side of the grave occupant's mandible and the other one was found from the right side of the grave occupant's pelvis. Both beads have a garnet red color, circular shape, and the center has a drilled hole.

Five burials yielded bronze belt ornaments, generally each of which contained one to eight pieces. M22 has the largest quantity of bronze belt ornaments which 36 pieces in total. These separate ornaments should belong to a complete belt around the grave occupant's waist (Figure 21). The belt ornaments were unearthed as a single in some cases and an assemblage of a series of bronze belt ornaments, the shapes of which are square, circular, semicircular, heart-shaped, or linked arc-shaped. Many of the openwork patterns have complex and regular tendril designs. The reverse of many of the bronze belt ornaments have leather attached showing exquisite technology (Figures 22 and 23). In total there are two bronze earrings that have come from two burials. Among the two earrings, one earring was discovered in the right side of the occupant's ear.

Important equestrian and archery tools include birch bark quivers, arrows, wooden bows, wooden saddles,



Figure 19 Agate bead (M11:4).



Figure 21 Bronze belt ornaments unearthed from M22 in situ (SW-NE).



Figure 22 Bronze belt ornament (M22:29).



Figure 23 Bronze belt ornament (M22:25).



Figure 24 Iron arrowheads (M22:40-1 through 40-7).

iron stirrups and a horse bit. There were a total of three birch bark quivers. In burial M7 a birch bark quiver was placed along the right side of the upper body of the occupant, close to the southwest wall of the coffin. The quiver was about 84cm in length and its bottom surface was slightly oval. This is the longest birch bark quiver in the Gangga Cemetery (see Figure 4). The quiver in M9 has a long cylindrical shape, and during the time of excavation, no associated arrow shafts or arrowheads were found. In M22, 14 iron arrowheads were found. The quiver body was crushed and there were serious cracks. In M20, one birch bark quiver with iron arrowheads, one bow and one saddle were discovered. The birch bark quiver and iron arrowheads were placed along the left side of the upper body of the occupant and

were in good condition. Some of the iron arrowheads had fallen out of the quiver close to the left side of the grave occupant's head. The arrowheads were seriously rusted. A wooden bow is located on the right side of the grave occupant's right upper arm, close to the southwest wall of the coffin. It was preserved relatively well, and is wrapped in birch bark. The horse saddle is located in the southeastern end of the log coffin, however its shape has been deformed (see Figures 9 and 10). In M22, 14 iron arrowheads were excavated and were concentrated at the grave occupant's left thigh. These iron arrowheads can be classified into three types which are spade-shaped, slender rectangular-shaped and willow-leaf shaped (Figure 24). All arrowheads were seriously corroded by rust.

Academic value as well as related questions

The Gangga Cemetery excavation contributes to building the cultural sequence of the ancient nomadic groups in the Hulun Buir region. Through a comparative analysis of the archaeological material associated with the region's culture, the Gangga Cemetery's culture and time period can be determined. In regard to pursuing the Mongol ethnic group's origin the obtained excavation and research results have very important academic value. These results reveal the following several important points:

Firstly, the Gangga Cemetery has a distribution of 86 burials, which is the largest scale ancient cemetery group in Hulun Buir known to date. Over 22 burials have been excavated. The burial distribution is dense and orderly. The quantity of wooden board coffins is relatively few, and log coffins are the most important burial receptacle. The grave goods are very abundant and are representative of nomadic pastoral culture. The cemetery's date is approximately the 8–10th centuries CE. The Gangga Cemetery excavation is the Hulun Buir grassland's most important archaeological excavation since the beginning of the 21st century. It is recorded in the *Jisi zhi* 祭祀志 (Treatises on Sacrifice) of *Yuan shi* 元史 (History of Yuan) that the Mongolian imperial family was using log coffin as burial receptacle. "The coffins were made of fragrant Chinese cedar, and is split in half. [Then the split half-log] was dug a hollow space resembling a human shape, and among its width and length were just enough to contain the body." Ye Ziqi, a writer in the early Ming Dynasty, describes in his *Caomuzi* (Book of the fading-like-grass master) that "the coffins of the Yuan Dynasty, using two pieces of tree wood, both were cut to hollow, the size and shape of which fitted the human body, and then matched them together into a coffin. When the deceased was placed in, the coffin was lacquered and hooped with three gold rings, and then sent to the mausoleum yard in the far north and deeply buried." The shape of the log coffins found in the Gangga Cemetery can be seen as an important source for the log coffins of the Mongolian imperial family in the later period.

Secondly, from the burial receptacle type, funeral customs, as well as grave goods' characteristics, we can see that the Gangga Cemetery and other already known cemeteries in Hulun Buir grassland such as the Xianbei cemeteries in Jalai Nur (Zheng 1961; Inner Mongolian 1961 and 1994a), Lebdrin (Zhao 1990; Inner Mongolian 1994b) and that of the Liao Dynasty at Bayan Hure all have some obvious differences. However the Gangga Cemetery and the Xi (West) Ujur and Xar Tala (Institute of Archaeology 2006) Cemeteries have some definite similarities.

The Xi Ujur Cemetery is located at the Bayan Hure Town, Chen Barag Banner, at approximately 80km northwest of a sand dune plateau and about 0.5km north from the Hailar River. In 1986 (Bai 1989) and 1995 (Hulun Buir 1997) two rescue excavations were carried out and

in total six burials were excavated. The discovered burial receptacles can be classified into three types: the first type is log coffin, which was used by three burials. The second type is wooden board coffin, which was used by two graves. The third type has birch bark as burial receptacle, and appears only in one grave. The three graves excavated in 1986 all have log coffin as burial receptacle. The logs were cut to the desired length and the top was trimmed entirely flat. The central part was dug out to form a rectangular shaped groove, and the deceased and grave goods were placed within it. The log coffins of burials 86M2 and 86M3 were the only completely preserved coffins. The former has a length of 1.9m and a width of 0.5–0.55m. The latter has a length of 2.14m and a width of 0.72m. There are many similarities between the shapes of the wooden coffins of the Gangga Cemetery and the Xi Ujur Cemetery. However, the number and proportion of log coffins in the Gangga Cemetery have been found to be significantly more than those of the Xi Ujur Cemetery. The two wooden board coffins discovered in the Xi Ujur Cemetery have rectangular shapes. The head end of the coffin is slightly wider and the foot end is slightly narrower. The four corners of each have a square wooden pillar with a rectangular mortise hole. The two side panels of the coffin wall have a tenon to insert into the mortise hole. In burial 95M2, the wooden board coffin was completely preserved, but it did not have the lid and bottom, which is different from the structure of the wooden board coffins of the Gangga Cemetery.

The Xar Tala Cemetery is located at a terrace approximately 5km east of Xar Tala Town, Hailar District and 2km north of the Hailar River. In 1997 and 1998, a total of 10 graves were excavated. From eight well-preserved graves' burial receptacles we can see that seven of the graves have single coffins. The remaining grave M6 has one inner coffin and one outer coffin. The shape of the wooden coffin can be classified into three types: those that have a lid and a bottom, those that have a lid but no bottom, and those that do not have a lid or a bottom. Among the coffins, those have a lid but do not have a bottom constitute the majority and in total have six examples. There is one burial whose coffin has a lid and a bottom, and one burial whose coffin has neither lid nor bottom.

There are a total of three burials in which the lid of the coffin is covered with birch bark. Among them, the northwest end of the coffin lid board of M1 has remnants of birch bark preserved. In M10 the southeast section of the coffin lid board has birch bark covered, which is entirely preserved. In M7 the entire coffin lid panel is covered in a layer of birch bark, the central section of which has a relatively uniform row of small circular holes. This finding proves that the birch barks on both the northeast and southwest sides were originally stitched together. However, the Xar Tala Cemetery does not have a log coffin, which is clearly different from the Gangga Cemetery. However, the wooden board coffins of the Gangga Cemetery all have lids but no one have a bottom.

The custom of spreading birch bark on the bottom of lid boards of some coffins is relatively similar to that in the Xar Tala Cemetery.

The six burials excavated at the Xi Ujur Cemetery are all single sideways flexed burials. The heads of the burial occupants oriented to the north or northwest. The grave goods are placed near the tomb occupant's head, feet, between the legs and sometimes beside the body. For example, in burial 86M2 one birch bark wooden bow is located on the right side of the tomb occupant and one wooden saddle is placed next to the left upper arm. In 95M2 one pottery jar and one pottery pot are placed next to the left upper half of the occupant's head and to the left lower side of the foot respectively. One birch bark quiver was located on the right side of the occupant and was filled with 12 arrows, all of which have wooden shafts and iron heads. The quiver is placed underneath a stitched leather bow case. A wooden saddle is placed next to the occupant's waist, and in between the thighs are iron stirrups.

The Xar Tala Cemetery has mainly single burials. There is only one example of a double joint burial of adult men and women. The burial positions primarily include the side-flexed burials. There is only one example of a prone flexed burial. The head of the occupant oriented towards the southeast. Grave goods found within the wooden coffin can be assorted into four different scenarios: (1) there is one example of grave goods that are placed upon or covered onto the grave occupant's body. For example in M6 there is a wooden bow and a wooden shafted iron spear placed on the body. In M10 there is a wooden tray covered on the head; (2) grave goods are placed around the head or side of the body of the occupant. For example, in M8, a pottery jar and a pottery pot are placed on the northeastern side of the burial occupant; in M9, a pottery jar and a birch bark jar are placed on the sides of the head of the occupant, each on one side. In M4 and M6 birch bark quivers were placed behind the back of the burial occupant; (3) grave goods are placed under grave occupant's skull like a pillow, such as in M6 a saddle made of wood and birch bark was placed beneath the skull; (4) grave goods are worn on the grave occupant's ear, neck, wrist and ankle. For example, a gold eardrop is found at M1's occupant's ear, and there is a string of 10 glass beads around the neck, a silver bracelet on the left wrist. In M10, the left and right ears of the burial occupant wore gilt silver eardrops, and on the neck was a string of 96 glass beads.

The flexed burial is the most common burial position in the above-mentioned three cemeteries. From the functions and features of grave goods, the pottery is the main every-day life artifacts including an assemblage of the pottery jars and pots. Beads and earrings of all kinds are very popular. The type and quantity of riding and shooting paraphernalia are rich, bows, arrows and quiver usually appear as an assemblage, saddles, stirrups and horse bits are also common. These commonalities testify that there was a close link between the Xi Ujur, Xar Tala

and Gangga Cemeteries. In the Xar Tala Cemetery two of female burials were excavated and had necklaces made of glass beads. In the Gangga Cemetery three of the female burials have red agate beads and other jewelry around the occupants' neck. This matches the records in the ancient literature about the Shiwei people that "It is custom to love red beads, as women's adornments, hanging on the neck, and the more (beads she wears), the loftier (she is regarded); if the woman does not have these then she cannot marry (Wei 1974)" and "the riches use beads of miscellaneous colors to wear around the neck (Ouyang 1975)." The discoveries of bows, arrows, quiver, saddle and other archery paraphernalia found as assemblages in the cemetery also match the records in ancient literature describing the Shiwei people "with horn bow, and an especially long arrow (Wei 1974)" and "weapons include bow made of horn and arrow made of thorn, and their people were especially good at archery (Liu 1975)."

The physical anthropological results show that from the skull and craniofacial morphological features together, the human bones unearthed at Xar Tala have generally Mongoloid features, such as ovoid crania, undeveloped eyebrow ridge (*arcus superciliaris*) and glabella projection, flat face, shallow nasion depression, and a weak nasal bone protrusion. Especially prevalent cranial features, such as brachycranial type, low skull, high vertical craniofacial index and pronounced sloping forehead show that the Xar Tala ancient people were closer to the North Mongoloid type (Institute of Archaeology 2006:109–21). In previous studies, the remains of the Xi Ujur and Xar Tala Cemeteries were named as the "Xar Tala Culture (Institute of Archaeology 2006:71–108)", representing the Shiwei people living in the Hulun Buir grasslands during the 7th to 10th centuries. The new discoveries in Gangga Cemetery have greatly enriched the cultural connotations for Xar Tala Culture, the history of the Shiwei people, as well as an inquiry into the origin of the Mongol ethnic group, and provides concrete scientific archaeological evidence.

Thirdly, the Laboratory of Anthropology of the Research Center for Chinese Frontier Archaeology of Jilin University collected 18 human bone specimens from the Gangga Cemetery. These human bones were identified using morphological and anthropological observations in the process of identification of sex and age according to the specific contexts of these unearthed samples. A comprehensive analysis of the bones identified 11 males, four females, one possible male, one possible female, and one sample whose sex could not be determined. The ages of the individuals of 17 skeletons could be identified. The age distribution shows that the occupants of the cemetery died in three age sections: young (15–23 years old), prime-aged (24 to 35 years old), middle-aged (36 to 55 years old). The most skeletons were in the prime-aged category.

We carried out measurements on the relatively complete skull samples. From the cranial shape, there is not an obvious difference between the two sexes at the Gangga

Cemetery. The average cranial index shows a brachycrany (index range of 80–84.9). There are two examples of male individuals whose skull type is mesocrany (index of 75 to 79.9). One example of a female individual might have a deformed parietal bone, and has a hyperbrachycrany shape (index range of 85–89.9). The cranial length-height index shows a chamaecrany type (index lower than 69.9). The other two examples of male individuals have a orthocrany shape (index range of 70–74.9). The cranial breadth-height index shows a tapeinocrany type (index below 91.9). The naso-malar angle is relatively large. These measurements and craniofacial characteristics are similar to the Khitan, Xianbei and other ancient nomadic people in Northeast China, which are the combination of chamaecrany, tapeinocrany and brachycrany, and the face is quite flat, which have certain types of inheritance relationships with the craniofacial features of the modern populations of the Central Asian Type of Mongoloid race. The Central Asian Type appears mainly in Mongolia and Inner Mongolia, which on a broader geographic scale belongs to the Mongolian Plateau, and is the main type of the Mongolian ethnicity today. Their cranial types mainly include brachycrany, tapeinocrany and orthocrany with a bias to chamaecrany, and a high and broad face that is very flat. Discovery and research related to the Gangga Cemetery lay an important academic foundation for establishing the Hulun Buir region as the place of Mongolian origin.

Fourthly, the archaeological laboratory of the Gangga Cemetery boxed and sent all the burials back to Hulun Buir Nationality Museum to carry out laboratory recovering, preservation of archaeological finds, and utilized multiple ways to collect and record information, including photography, infrared photography, and three-dimensional scanning techniques. The archaeological laboratory not only excavated and recovered artifacts, but also carried out scientific detection and analyses, such as soil composition, structure, temperature, moisture content, pH, the material composition of all kinds of artifacts, damaging status, quality, composition, temperature, humidity and hardness. Because the unearthed artifacts are all very fragile, they need to be reinforced and sealed in order to pre-protect the materials. Therefore it is necessary to preserve the artifacts after the time of unearthing as well as when the original samples were collected. The status of the objects must be monitored, including climate change, as well as the deteriorating state and tendency of the artifacts. Therefore, in order to ensure long term preservation of the excavated artifacts, an accurate control of the original environmental conditions of the artifacts is needed in order to simulate their original statuses. By laboratory archaeology, the preservation of the Gangga Cemetery's log coffins and wooden board coffins was conducted, and new advancements are made in the laboratory archaeology and protection of cultural heritages of the Hulun Buir Grassland.

Fifthly, the Gangga Cemetery archaeological material further promotes archeology, history, ethnology and

anthropology and other multidisciplinary researches, and strives to utilize innovative methods to understand the origin of the Mongol ethnic group and to scientifically construct the framework of Mongolian prehistory, and scientifically explain the important role of the Mongol ethnic group in the convergence of the Chinese Nationality to form a pluralistic unity. An in-depth investigation of the creation of the forest hunting and steppe nomadic cultures by the Mongols will greatly enrich the connotation of Chinese civilization, and objectively reveal the contribution of the Mongol ethnic group in the history of China and the world.

References

- Bai, Jinsong 白劲松 . 1989. 陈巴尔虎旗西乌珠尔古墓清理简报 (A brief report on the ancient tombs in West Uzhur, Chenbarhu Qi). *Liaohai wenwu xuekan* 辽海文物学刊 (Liaohai cultural relics journal) 2:144–51.
- Hulun Buir League Station for the Preservation of Ancient Monuments 呼伦贝尔盟文物管理站 . 1997. 陈巴尔虎旗西乌珠尔古墓葬调查清理简报 (The survey and recovering of the ancient burials at Xi Ujur in Chen Barag Banner). *Nei Menggu wenwu kaogu* 内蒙古文物考古 (Cultural relics and archaeology in Inner Mongolia) 2:75–9.
- Hulunbeier League Station for the Preservation of Ancient Monuments 呼伦贝尔盟文物管理站 and Chenbaerhu Banner Office for Preservation of Ancient Monuments 陈巴尔虎旗文物管理所 . 2004. 内蒙古陈巴尔虎旗巴彦库仁辽代墓葬清理简报 (Excavation report of the Liao tombs at Bayankuren, Chenbaerhu Banner in Inner Mongolia). *Kaoguxue jikan* 考古学集刊 (Papers on Chinese Archaeology) 14:267–79.
- Inner Mongolian Archaeological Team 内蒙古文物工作队 . 1961. 内蒙古扎赉诺尔古墓群发掘简报 (Ancient tombs at Chalai Nor, Inner Mongolia). *Kaogu* 考古 (Archaeology) 12:673–80.
- Inner Mongolian Institute of Cultural Relics and Archaeology 内蒙古文物考古研究所 . 1994a. 扎赉诺尔古墓群 1986 年清理发掘报告 (The excavation of the ancient cemetery at Jalai Nur in 1986). In *Nei Menggu wenwu kaogu wenji* 内蒙古文物考古文集 (Papers on cultural relics and archaeology in Inner Mongolia). Beijing: Zhongguo Da Baike Quanshu chubanshe. vol. 1, pp. 369–83.
- Inner Mongolian Institute of Cultural Relics and Archaeology 内蒙古文物考古研究所 et al. 1994b. 额尔古纳右旗拉布达林鲜卑墓群发掘简报 (Excavation of the Xianbei burials at Lebdrin in Ergun Right Banner, Inner Mongolia). In *Nei Menggu wenwu kaogu wenji* 内蒙古文物考古文集 (Papers on cultural relics and archaeology in Inner Mongolia). Beijing: Zhongguo Da Baike Quanshu chubanshe. vol. 1, pp. 384–96.
- Institute of Archaeology, CASS 中国社会科学院考古研究所 et al. 2006. *Hailar Xie'ertala mudi* 海拉尔谢尔塔拉墓地 (Xie'ertala Cemetery site at Hailaer). Beijing: Kexue chubanshe.
- [Five-Dynasties]Liu, Xu 刘昉 . 1975. *Shiwei zhuan* 室韦传 (Account of Shiwei). *Jiu Tang shu* 旧唐书 (Old book of

- Tang). Beijing: Zhonghua shuju. vol. 16, p. 5357.
- [Song]Ouyang, Xiu 欧阳修 . 1975. *Shiwei zhuan* 室韦传 (Account of Shiwei). *Xin Tang shu* 新唐书 (New book of Tang). Beijing: Zhonghua shuju. vol. 20, p. 6176.
- [Ming]Song, Lian 宋濂 . 1976. *Jisi zhi* 祭祀志 (Treatises on Sacrifice) of *Yuan shi* 元史 (History of Yuan). Beijing: Zhonghua shuju. vol. 6, pp. 1925–6.
- [Northern Qi]Wei, Shou 魏收 . 1974. *Shiwei zhuan* 失韦传 (Account of Shiwei). *Wei shu* 魏书 (Book of Wei). Beijing: Zhonghua shuju. vol. 6, p. 2221.
- [Ming]Ye, Qizi 叶子奇 . 1959. *Zazhi pian* 杂制篇 (Miscellaneous essays) of *Caomuzi* 草木子 (Book of the fading-like-grass master). Beijing: Zhonghua shuju. p. 60.
- Zhao, Yue 赵越 . 1990. 内蒙古额右旗拉布达林发现鲜卑墓 (Xianbei burials discovered at Lebdrin in Ergun Right Banner, Inner Mongolia), *Kaogu* 10:890–3.

Zheng, Long 郑隆 . 1961. 内蒙古扎赉诺尔古墓群调查记 (Inner Mongolia Jalai Nur ancient cemetery investigation report). *Wenwu* 文物 (Cultural relics) 9:16–9.

Postscript

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