

# Excavations at Avdalai Khyasaa Site: The Fourth Report on Joint Mongolian–Japanese Excavations in Outer Mongolia

MIYAMOTO, Kazuo  
Faculty of Humanities, Kyushu University

ADACHI, Tatsuro  
Kyushu University Advanced Asian Archaeological Research Center

AMGALANTGUS, Tsend  
The Institute of History and Archaeology in Mongolian Academy of Science

BATBOLD, Natsag  
The Institute of History and Archaeology in Mongolian Academy of Science

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# Closing Remarks

**Kazuo Miyamoto**

Through excavations at Avdalai khyasaa Site along with the results of previous excavations at Bor ovoo Site, Khyar kharaach Site and Emeelt tolgoi Site, we were able to construct a chronology for Bronze Age graves in western Mongolia. We found a Chemuruchek culture grave and Munkhkhairkhan culture graves at Avdalai khyasaa Site. This is the first time that a Chemuruchek culture grave or Munkhkhairkhan culture grave has been found in Zavkhan aimag. The chronological order of the Bronze Age in western Mongolia constructed through these excavations can be used to show the existence of Chemuruchek, Munkhkhairkhan and khirigsuur cultures.

The chronology of khirigsuur culture graves (Miyamoto 2018) shows that round khirigsuurs (Type 1), round graves (Type 2), square khirigsuurs (Type 3) and square graves (Type 4) changed from having no erected corner stones to having erected corner stones, which are referred to as Sagsai-type (Гантулга 2016). Round khirigsuurs (Type 1) and round graves (Type 2) were distributed mainly in western Mongolia and spread eastward to the middle Mongolian Plateau in the latter half of the second millennium BC. At the same time, square khirigsuurs (Type 3) and square graves (Type 4) were also distributed mainly in northern Mongolia and spread southward to western and middle Mongolia. We could see the same situation in which round khirigsuurs (Type 1) and round graves (Type 2) are distributed in a relatively westward position, and square khirigsuurs (Type 3) and square graves (Type 4) are distributed in a relatively eastward position at Avdalai khyasaa Site. This is thought to be due to the different original places between Type 1, Type 2 and Type 3, Type 4.

Grave No. 12 has a style of pottery similar to that of the Chemuruchek culture, dating to between the 26th and 20th centuries BC. We believe that this grave is part of the Afanasevo culture, Chemuruchek culture or Khemceg culture. The grave was firstly constructed in this graveyard at Avdali khyasaa Site and came under the influence of the Altai area. It is inferred that people moved from the Sayan-Altai

region to north-western Mongolia, bringing with them Afanasevo bronzes (Fig. 120-1). However, this grave is thought to have been disturbed at the beginning of the period of khirigsuur culture, sometime between the 16th and 14th centuries BC. Khirigsuur culture people looted this grave from the northeast to south direction, at which time they dug up the middle surface of the burial pit. Animal bones dating to the time of looting were discovered, with physical analysis of these bones showing them to be from a deer and a sheep or goat. It is thought that the looters performed some kind of ritual ceremony involving the sacrifice of a deer and a sheep or goat after looting this grave. The presence of the bones of a deer, an animal that was hunted, among the bones of sacrificed animals indicates the transition from a hunting-based society to a herding society with sheep or goats at this time.

Grave No. 15 and Grave No. 8 are Munkhkhairkhan culture graves. These graves have flat square stone heaps piled up inside square rim stones, which indicates a typical Munkhkhairkhan culture grave structure. Carbon isotope analysis of human bones from the second burial pit at Grave No. 15 dates these remains to between the 19th and 17th centuries BC. The deceased individual in the second burial pit of Grave No. 15 had a bronze earring and a wooden spoon, which are typical burial goods in Munkhkhairkhan culture graves. Because Munkhkhairkhan culture graves are distributed only in northwestern Mongolia (Fig. 120-2), it is believed that Munkhkhairkhan culture graves developed from Afanasevo culture, Chemuruchek culture or Khemceg culture graves. It is supposed that Munkhkhairkhan culture people had Seima Turbino bronzes.

Although Grave No. 8 also has square flat stone heaps piled up inside square rim stones, the deceased individual was reburied sometime between the 13th and 9th centuries BC, when khirigsuur culture graves started to be constructed at Avdalai khyasaa Site. After Munkhkhairkhan culture graves dating to between the 18th and 15th centuries BC were

constructed, the reburial pit of Grave No. 8 was also reconstructed in the same way, as seen in the disturbance of Grave No. 12, a Chemuruchek culture grave, caused by looting. It is supposed that people with a khirigsuur culture came to the Avdalai khyasaa cemetery from another area and were reburied at Grave No. 8, which had already been constructed as a Munkhkhairkhan culture grave.

Strontium analysis on teeth was also conducted at Avdali khyasaa Site. Strontium figures on teeth indicate local geological differences in Mongolia. According to these results, differences in strontium figures among individual graveyard sites indicate different birthplaces. Differences in strontium figures between the individuals buried in Grave No. 8 and those in khirigsuur culture graves at Avdalai khyasaa Site are believed to be due to the fact that people buried in Grave No. 8 moved from another area to a cemetery at Avdalai khyasaa Site where Munkhkhairkhan culture graves had already been constructed. According to physical anthropological analysis, the individual found in Grave No. 8 had a much larger facial width than other individuals of the khirigsuur culture at Avdalai khyasaa Site. These results provide scientific evidence suggesting the movement of nomadic peoples.

Khirigsuur culture graves are divided as follows according to whether or not they have four erected corner stones: round khirigsuurs (Type 1) are divided into Type 1a and Type 1b; round graves (Type 2) into Type 2a and Type 2b; square khirigsuurs (Type 3) into Type 3a and Type 3b; and square graves (Type) into Type 4a and 4b. Based on carbon dating analysis of human bones (Fig. 37), Round Khirigsuur No. 11: Type 1a dates to between the 13th and 11th centuries BC, and Round Graves No. 9, No. 31: Type 2a to between the 12th and 9th centuries BC. On the other

hand, based on carbon dating of collagen from animal bones found among circular satellite stone stacks, Round Khirigsuur No. 18: Type 1a dates to between the 10th and 8th centuries BC, and Square Khirigsuur No. 4: Type 3a to between the 11th and 10th centuries BC. Khirigsuur culture graves, including Type 4b, date to between the 13th and 9th centuries BC (Төрбэр 2016b), the same as other khirigsuur culture graves like at Bor ovoo Site, Khyar kharaach Site (Miyamoto ed. 2017) and Emeelt tolgoi Site (Miyamoto ed. 2018). It is believed that khirigsuur culture graves are mainly distributed in western and middle Mongolia, where Karasuk bronze culture was probably distributed in the same period and area.

According to physical anthropological research, a significantly high frequency of fractures or trauma were confirmed among all five individuals found at Avdalai khyasaa Site. The individuals buried at Avdalai khyasaa Site are, like at Emeelt Tolgoi Site, Khyar kharaach Site, Bor ovoo Site and Tevsh Site, taller in height compared with other prehistoric peoples in East Asia (Okazaki et al. 2016, Okazaki & Yonemoto 2018). The individuals found at Avdalai khyasaa Site, as at Emeelt tolgoi Site, Khyar kharaach Site, Bor ovoo Site and Tevsh Site, had sustained far more injuries than other hunter-gatherers or farmers as a result of accidents related to riding horses (Okazaki & Yonemoto 2017). Herding societies would have been based on a more nomadic lifestyle than other peoples. Thus, the evidence proves that Bronze Age herding societies in the Mongolian Plateau maintained a nomadic lifestyle.

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