

# 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

他

<https://doi.org/10.15017/7160669>

---

出版情報 : pp.1-104, 2023-12-15. Department of Archaeology, Faculty of Humanities, Kyushu University

バージョン :

権利関係 :

## Reference

- Baba, H. 1991** *Anthropology additional vol. 1: Anthropometry no. 2 Osteometry*. Yuzankaku Press, Tokyo (in Japanese).
- Bentley, R.A. 2006** Strontium Isotopes from the Earth to the Archaeological Skeleton: A Review. *Journal of Archaeological Method and Theory*, 13:135-187
- Bentley, R.A., Price, T.D. and Stephan, E. 2004** Determining the 'local'  $^{87}\text{Sr}/^{86}\text{Sr}$  range for archaeological skeletons: A case study from Neolithic Europe. *Journal of Archaeological Science*, 31: 365-375.
- Buckley, M., Kansa, S. W., Howard, S., Campbell, S., Thomas-Oates, J., and Matthew Collins. 2010** Distinguishing between archaeological sheep and goat bones using a single collagen peptide. *Journal of Archaeological Science* 37, 13-20.
- Buikstra, J.E., Ubelaker, D.H. 1994** *Standards for data collection from human skeletal remains*. Arkansas Archaeological Survey, Fayetteville.
- Blum, J.D., Taliadro, E.H., Weisse, M.T. and Holmes, R.T. 2000** Changes in Sr/Ca, Ba/Ca and  $^{87}\text{Sr}/^{86}\text{Sr}$  ratios between trophic levels in two forest ecosystems in the northeastern U.S.A. *Biogeochemistry* 49: 87-101.
- Copeland, S., Sponheimer, M., Le Roux, P., Grimes, V., Lee-Thorp J., de Ruiter, D., and Richards M. 2008** Strontium isotope ratios ( $^{87}\text{Sr}/^{86}\text{Sr}$ ) of tooth enamel: a comparison of solution and laser ablation multicollector inductively coupled plasma mass spectrometry methods. *Rapid Communications in Mass Spectrometry* 22; 3187-3194.
- Copeland, S. R., Sponheimer, M., Lee-Thorp, J. A., Le Roux, P. J., De Ruiter, D. J., and Richards, M. P. (2010)**. Strontium isotope ratios in fossil teeth from South Africa: assessing laser ablation MC-ICP-MS analysis and the extent of diagenesis. *Journal of Archaeological Science* 37, 1437-1446.
- Ericson, J.E., 1985** Strontium isotope characterization in the study of prehistoric human ecology. *Journal of Human Evolution* 14: 503-514.
- France, D. L. 2009** *Human and nonhuman bone identification: a color atlas*. CRC Press, US.
- Гантулга, Ж. 2016** Сагсай хэлбэрийн булш, *Монголын Эртний Булш Оруулга III*, Улаанбаатар: 56-62.
- Göhring, A., Hölzl, S., and Strauss, H. 2023** Multi-isotope fingerprints of recent environmental samples from the Baltic coast and their implications for bioarchaeological studies. *Science of The Total Environment*, 20: <https://doi.org/10.1016/j.scitotenv.2023.162513>
- Hillson, S. 1996** *Dental Anthropology*. Cambridge University Press, Cambridge.
- Hiramoto, Y. 1981** The secular change in the stature of Japanese viewed from the bones. *The Archaeological Journal*, 197: 24-28 (in Japanese).
- Honeychurch, W. 2015** *Inner Asia and Spatial Politics of Empire Archaeology, Mobility, and Culture Contact*, Springer, New York.
- Horstwood, M.S.A., Evans, J.A. and Montgomery, J. 2008** Determination of Sr isotopes in calcium phosphates using laser ablation inductively coupled plasma mass spectrometry and their application to archaeological tooth enamel. *Geochimica et Cosmochimica Acta*, 72: 5659-5674.
- Kato, Y. 1976** *Illustrated Comparative Anatomy of Domestic Animals*. Yokendo Press, Tokyo (in Japanese).
- Ковалев, А. 2012** *Чемурчекский Культурный Феномен*. Санкт-Петербург.
- Kovalev, A. 2022** Megalithic traditions in the Early Bronze Age of the Mongolian Altai: the Chemurchek (Qie'muerqieke) cultural phenomenon. *Megalithic World Volume II*, Archaeopress: 767-789.
- Kovalev, A. & Erdenebaatar, D. 2009** Discovery of New Cultures of the Bronze Age in Mongolia According to the Data Obtained by the International Central Asian Archaeological Expedition. *Current Archaeological Research in Mongolia* Papers from the First International Conference on "Archaeological Research in Mongolia" held in Ulaanbaatar, August 19<sup>th</sup>-23<sup>rd</sup>, 2007", Rheinische Friedrich-Wilhelms-Universität Bonn, Bonn, Germany: 149-170.
- Kusaka, S., A. Ando, T. Nakano, T. Yumoto, E. Ishimatsu, M. Yoneda, F. Hyodo, F. & K. Katayama. 2009**. A Sr isotope analysis on the relationship between ritual tooth ablation and migration among the Jomon people in Japan. *Journal of Archaeological Science* 36: 2289-2297.
- Kusaka, S., Nakano, T., Yumoto, T., & Nakatsukasa, M. 2011** Strontium isotope evidence of migration and diet in relation to ritual tooth ablation: A case study from the Inariyama Jomon site, Japan. *Journal of Archaeological Science* 38: 166-174.
- Kusaka, S., Yamada, Y., Yoneda, M. 2018** Ecological and cultural shifts of hunter-gatherers of the Jomon period paralleled with environmental changes. *American Journal of Physical Anthropology* 167: 377-388.
- Lovejoy, C.O., Meindl, R.S., Pryzbeck, T.R., Mensforth, R.P. 1985** Chronological metamorphosis of the auricular surface of the ilium: A new method for the determination of adult skeletal age at death. *American Journal of Physical Anthropology*, 68: 15-28.
- Matsui, A. 2008** *Fundamentals of zooarchaeology in Japan*. Kyoto University, Kyoto. Press, Kyoto.
- Meindl, R.S., Lovejoy C.O. 1985** Ectocranial suture closure: A revised method for the determination of skeletal age at death based on the lateral-anterior sutures. *American Journal of Physical Anthropology*, 68: 57-66.

- Miyamoto, K.** 2016 Change and Development process of the Stone-slab graves in Bronze Age of Mongolian Plateau. *Shien*, 153: 31-57 (in Japanese).
- Miyamoto, K.** 2018 Bronze Age Khirigsuur and Stone-slab Burial Cultures on the Mongolian Plateau. *Excavations at Daram and Tevsh Site*. Fukuoka: 67-78.
- Miyamoto, K. and Amgalantugus T.** 2016 Excavations at Tevsh site. *Excavations at Daram and Tevsh Sites*. Fukuoka: 42-49.
- Miyamoto K., Amgalantugus T., and Delgermaa L.** 2017 Excavations at Bor Ovoo Site. *Excavations at Bor Ovoo and Khyar Kharaach Sites*. Fukuoka: 3-23.
- Miyamoto, K. ed.** 2017 *Excavations at Bor Ovoo and Khyar Kharaach Site*, Faculty of Humanities, Kyushu University, Fukuoka.
- Miyamoto K. ed.** 2018 *Excavations at Emeelt Tolgoi Site*, Faculty of Humanities, Kyushu University, Fukuoka.
- Miyamoto, K. & Obata, H. ed.** 2016 *Excavations at Daram and Tevsh Site*, Faculty of Humanities, Kyushu University, Fukuoka.
- Miyamoto, K., Tajiri Y., Amgalantugus, T., Batbold, N and Delgermaa, L.** 2017 Excavations at Khyar Kharaach site. *Excavations at Bor Ovoo and Khyar Kharaach Sites*. Fukuoka: 24-54.
- Miyamoto, K., Amgalantugus, T., and Delgermaa, L.** 2017 Excavations at Bor Ovoo Site. *Excavations at Bor Ovoo and Khyar Kharaach Sites*. Fukuoka: 3-23.
- Miyamoto, K., Tajiri Y., Amgalantugus, T., Batbold, N and Delgermaa, L.** 2017 Excavations at Khyar Kharaach site. *Excavations at Bor Ovoo and Khyar Kharaach Sites*, Fukuoka: 24-54.
- Nakahashi, T., Nagai, M.** 1986 Sex assessment of fragmentary skeletal remain. *Journal of the Anthropological Society of Nippon*, 94: 289-305 (in Japanese with English summary).
- Ohtaishi, N.** 1980 Determination of Sex, Age and Death-season of Recovered Remains of Sika deer (*Cervus nippon*) by Jaw and Tooth-cement. *Archaeology and natural science*.13: 51-74.
- Okazaki, K., Yonemoto, S., Nakahashi, T.** 2016 The analysis on the human skeletal remains of the Bronze Age unearthed from the both sites of Daram in the Khentii province and Tevsh in the southern Khangai, Mongol. *Excavations at Daram and Tevsh sites*. Kyushu University Press, Fukuoka: 50-62.
- Okazaki, K. and Yonemoto, S.** 2017 Human skeletal remains of the Bronze Age unearthed from the both sites of Hyar-Haraach in the Govi-Altai province and Bor-Ovoo in the Bayankhongor Province, Mongol. *Excavation at Bor Ovoo and Khyar Kharaach sites*. Kyushu Computer Printing Limited Company, Fukuoka: 55-65.
- Payne, S.** 1973 Kill-off Patterns in Sheep and Goats: The Mandibles from Aşvan Kale. *Anatolian Studies* 23: 281-303.
- Phenice, J.W.** 1969 A newly developed method of sexing the pelvis. *American Journal of Physical Anthropology*, 30: 297-301.
- Porhaska, T., Latkoczy, C., Schultheis, G., Teschler-Nicola, M., Stinger, G.** 2002 Investigation of Sr isotope ratios in prehistoric human bones and teeth using laser ablation ICP-MS and ICP-MS after Rb/Sr separation. *Journal of Analytical Atomic Spectrometry*, 17: 887-891.
- Slovak, N.M and Paytan, A.** 2011 Chapter 35 Applications of Sr Isotopes in Archaeology. In: M. Baskaran (ed.), Handbook of Environmental Isotope Geochemistry, Advances in Isotope Geochemistry, DOI 10.1007/978-3-642-10637-8\_35, Springer-Verlag Berlin Heidelberg, pp.743-768.
- Taylor, W. Timothy, T., Jargalan, B., Lowry K. B., Clark, J.,Tuvshinjargal, T., Bayarsaikhan, J.** 2017 A Bayesian chronology for early domestic horse use in the Eastern Steppe. *Journal of Archaeological Science*. 81: 49-58.
- Todd, T.W.** 1920 Age changes in the pubic bone: 1. The white male pubis. *American Journal of Physical Anthropology*, 3: 467-470.
- Төрбар, Ц.** 2016a Хэмцэгийн соёлын булш. Монголын Эртний Булш Оршуулга III, Улаанбаатар: 36-45.
- Төрбар, Ц.** 2016b Хиргисуур. Монголын Эртний Булш Оршуулга III, Улаанбаатар: 88-95.
- Wright, J.** 2014 Landscapes of Inequality? A Critique of Monumental Hierarchy in the Mongolian Bronze. In *Asian Perspectives*, 51(2): 139-163.
- Yonemoto, S., Adachi, T., Nakano, N., Funahashi, K., Tanaka, Y. and Osanai, Y.** 2016 The Strontium analysis on the human skeletal remains of the Bronze Age from the Tevsh sites in the southern Khangai Mongol. *Excavations at Daram and Tevsh sites*. Fukuoka: 69-72.
- Yonemoto, S., Adachi T., Nakano, N., Funahashi, K., and Osanai, Y.** 2017 The Strontium analysis on the human skeletal remains from the Khyar Kharaach site in the Gobi Altai, Mongolia. *Excavations at Bor Ovoo and Khyar Kharaach sites*. Fukuoka: 66-72.
- Yonemoto, S., Adachi, T., Nakano N., Funahashi, K., and Osanai, Y.** 2018 The Strontium analysis on the human skeletal remains from the Emmelt Tolgoi site and Bor Ovoo site in Bayanhongor, Mongolia. *Excavations at Emeelt Tolgoi site*. Fukuoka: 54-61.
- Эрдэнэбаатар, Д.** 2016 Мөнххайрханы соёлын булш. Монголын Эртний Булш Оршуулга III, Улаанбаатар: 46-49.