Preface to the special issue on interdisciplinary studies tackling the Jomon social structure

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Preface

There are many shell-mounds of the Jomon period on the Japanese archipelago. Because the people of the Jomon period also used these shell-mounds as graveyards, a large number of human bones—estimated to exceed 10000—from that time remain and have been excavated. Many of these human bones were excavated in the 1920s, and the human bones excavated from shell-mounds in Aichi and Okayama Prefectures were the core material of the ‘Japanese origin controversy’, nihon jinshu ron, before and after the World War II. These human bones have also been used as reference materials for research on the grave systems and social structures of the Jomon period.

Many archaeological researchers have used these materials to study the grave systems and social structures of the Jomon period. For example, as mentioned in the review of this issue, Hideji Harunari proposed a hypothesis about kinship organization at that time, based on the types of tooth extraction (Harunari, 1973, etc.). Kensaku Hayashi focused on the uneven distribution of the head orientation of the corpses, and hypothesized that the head orientation indicates the descent group and reflected the social structure at that time (Hayashi, 1977, etc.). These hypotheses have been repeatedly stated on various occasions over the four decades since they were published, and have become practically established in Jomon research.

Recent advances in anthropological and biological analysis of human bones have made it possible to date directly from human bones by 14C, analyse dietary habits based on carbon/nitrogen isotope ratios, estimate immigrants by strontium isotope ratio analysis, and estimate genetic relationships by genome analysis. By using these methods, the hypotheses of Harunari and Hayashi can be tested, promoting new research areas.

To investigate the earlier hypotheses, the research team that I am the representative of obtained research funding, namely a Grant-in-Aid for Scientific Research (B) ‘Synthetic study of Jomon social structure by the collaboration between archaeology and anthropology’ (2010–2012), a Grant-in-Aid for Scientific Research (B) ‘Construction and development the collaboration model between archaeologist and anthropologist by studying the human skeletons excavated from Hobi shell-mound’ (2013–2015), and a Grant-in-Aid for Scientific Research (A) ‘Reconstruction of Jomon social studies by interdisciplinary research among archaeology, anthropology and scientific studies on cultural properties’ (2018–2021), and conducted excavations of the Hobi shell-mound in Aichi Prefecture. Through these excavations, we found new human bone materials, which included banjo-shuseki-bo (collective secondary burials and square-shaped bone-pile burials), and were able to investigate the human bones excavated from the Ikawazu and Yoshigo shell-mounds, which are near the Hobi shell-mound. As a result, we succeeded in obtaining new findings. This special issue contains some of these successful research results.

In this special issue, Mizushima et al. (2022) report the traits of human bones contained in the two banjo-shuseki-bo excavated from the Hobi shell-mound. They found that the human bones contained in the banjo-shuseki-bo showed a significantly/near-significantly greater pilasteric index than those of individual skeletons excavated from the same site. They mention that one possible explanation for why the femur pilasteric structure was so developed in the Hobi banjo-shuseki-bo males was that people who worked in physically demanding labor during their lives or a specific kinship group may have been chosen as the subjects of the banjo-shuseki-bo. It is very significant that the human bones contained in the banjo-shuseki-bo might have been selected for particular reasons.

Kondo et al. (2022) focused on the ritual tooth ablation that can be observed in the human bones contained in the banjo-shuseki-bo excavated from the Hobi shell-mound. They described the morphology and tooth extraction status of individual mandibles, and assessed interindividual relationships on the basis of tooth crown diameter. Although a certain degree of kin relation was predicted among individuals from the new collective burial, which seems comparable to those found in modern Japanese twin pairs, almost the same degree of close kin relationship was detected in interindividual variation and in intersite variation with the neighboring Jomon sites. This is a very interesting finding when considering the character of the people contained in the banjo-shuseki-bo.

Waku et al. (2022) determined complete mitochondrial DNA sequences of the double-burial human bones excavated from the Ikawazu shell-mound and proved that an adult woman and a child who had been buried in the same grave were not in a mother–child relationship. Traditionally, such
double-buried cases have been considered as parent–child graves, but genome analysis disproves this for these two individuals. This finding gives important suggestions when considering the burial systems and social structures of the Jomon period.

Kusaka et al. (2022) analyzed strontium isotopes from human bones excavated from the Ikawazu and Hobi shell-mounds. The results indicated that the tooth enamel from the banjo-shuseki-bo exhibited higher strontium isotope ratios than those of tooth enamel from the single burial in the Hobi shell-mound. The tooth enamel from the banjo-shuseki burial and a mass burial in the Ikawazu shell-mound included some individuals with higher strontium isotope ratios. Because these values were higher than the range of the values of human bone samples, modern plants around the sites, and enamel of terrestrial animals, they indicate the possibility that these individuals grew up in another place and were then buried in the sites. The individuals in the banjo-shuseki-bo may include immigrants who grew up in other areas or their diets incorporated food from other areas. By identifying migrants in this way, the sex of the migrants gives us the key to thinking about what the marriage was like at the time.

Yoneda (in preparation) dated the human bones contained in the banjo-shuseki-bo excavated at Hobi shell-mound and analyzed their dietary habits. They found no difference in the diet between the single burial and the banjo-shuseki-bo, but some human bones contained in the banjo-shuseki-bo excavated in 2011–2013 were strongly dependent on marine products. They also noted that the variations in dietary habits with the time observed in the human bones excavated at the Inariyama shell-mound could also be observed in the human bones at the Hobi shell-mound. These points are also very interesting when considering the society at that time.

As can be seen from the papers of this special issue, the study of Jomon period burial systems and social structures has now entered a new research stage. Moreover, it is clear that the study of Jomon society can no longer be carried out purely by archaeological methods, but requires creation of new fields of study such as bioarchaeology.

References


Yoneda M. (manuscript is in preparation and will be included in online with the special issue) Dating and dietary reconstruction from Jomon human bones in the square trench tombs of the Homi shell-mound site, Aichi Prefecture, Japan.