

【Grant-in-Aid for Scientific Research (S)】

Broad Section A



Title of Project : Holistic research on the spread and acculturation of early agriculture and on the process of establishment of herding society in East Asia

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Keyword : Secondary agricultural societies, Herding societies, Environmental change, Immigration, Language spread

【Purpose and Background of the Research】

Prehistoric societies in East Asia consisted of the following four areas: agricultural societies (Chinese mainland), secondary agricultural societies (northeast Asia, southwest China), and herding societies (northern Asia). Among these, temporary cooler and drier climatic conditions triggered the cultural spread and acculturation of secondary agricultural societies in northeast Asia. On the other hand, it is believed that herding societies in the western part of Eurasia became established in areas where agriculture had originally spread due to these cooler and drier climatic conditions. However, little progress has been made in research on how agriculture spread to the Great Wall Region and Mongolian Plateau in East Asia. Therefore, there is a need to clarify the processes by which herding societies came into being as result of cooler and drier climate conditions around 3000 BC. In addition, there is also a need to determine whether herding societies developed from agricultural societies as in the western Eurasian grassland area, or the movement of herding people to the Mongolian Plateau from the middle Eurasian grass land area.

【Research Methods】

We should understand the process of spread of rice agriculture in East Asia in terms of secondary agricultural society. In this case, an original culture of rice agriculture existed, such as unique agricultural stone tools, small rice paddy fields with foot passes and temperate Japonica, which is different to that of the original location in the lower and middle Yangtze River basin. It is probable that these agricultural cultures were established in the eastern Shandong Peninsula. The occurrence of cooler and drier climatic conditions around 3000 BC caused extensive damage on the Shandong Peninsula, probably triggering the production of small rice paddy fields with foot passes and temperate Japonica more suited to the cooler environment. The results of boring core and phytolith analysis carried out at Yanjiaquan Site, Qixia Prefecture, Shandong Province suggest that the Longshan culture probably had rice paddy fields. We will conduct excavations at Yanjiaquan Site to measure and analyze the DNA of charred rice grains in order to elucidate the processes by which small rice paddy fields with foot passes and temperate Japonica were established. And we will also make clear the processes by which domesticated grains spread through the analysis of the kernel stamps of pottery. On the other hand, in order to understand how herding societies became established from early agriculture in northern Asia, we will clarify changes in

subsistence activities between the Neolithic and Bronze ages in the Mongolian Plateau by examining dietary changes through the C13 isotopic analysis of human bones. We will excavate at burial cemeteries dating to the Neolithic or early Bronze Age to collect human bones for research on the Mongolian Plateau. Research on the musculoskeletal stress markers (MSMs) of humans proves the existence of differences in subsistence activities during this transitional time. In addition, physical anthropological research and strontium isotopic analysis of human bones will serve to elucidate human movements during prehistoric times.

【Expected Research Achievements and Scientific Significance】

By comparing secondary agriculture in northeast Asia and herding societies in northern Asia, we will shed light on original aspects of human history in East Asia which differ to those of Europe and West Asia. This research will provide insights into the background behind the establishment of independent ancient states in each area. In addition, we will also seek to provide an understanding of human movements and the spread of language groups in the prehistory of East Asia.

【Publications Relevant to the Project】

Kazuo Miyamoto. Early Agriculture in North-east Asia and the Origin of the Yayoi culture. Douseisha Press: Tokyo, pp.311, 2017 (in Japanese).

Kazuo Miyamoto ed. Excavations at Emeelt Tolgoi Site: The third Report on Joint Mongolian -Japanese Excavations in Outer Mongolia. Kyushu University, pp.87, 2018.

【Term of Project】 FY2019-2023

【Budget Allocation】 70,700 Thousand Yen

【Homepage Address and Other Contact Information】

Under construction