

Exploring Prehistoric Pottery in Japan



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A Study of Organic Inclusions, Adhering Materials, and Impressions of Woven Items

Edited by
Hiroki Obata

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Cover: Pottery with cord marks from a Jōmon site placed on a mat.

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Preface

Hiroki Obata

In prehistoric archaeology, pottery or earthenware functioned as a measuring tool of human time-space. In Japan, numerous rescue excavations by administrative bodies are undertaken before development projects and pottery analysis plays a significant role in building a chronological framework through the entire archipelago. A drastic decrease in rescue surveys in Japan in the last two decades, however, has terminated that process of numerous rescue excavations and their reports.

In this situation of a decreasing number of excavations, a new field arose in Japanese archaeology – the study of information ‘buried’ within pottery clay, such as seeds and insects closely linked to human activities. By combining X-ray analysis with AI technology, previously invisible organic materials buried in earthenware came to be visualised, and this flowered into cooperative studies with related fields of natural science, i.e. botany, entomology, agriculture, pharmacy, and chemistry. With this technology we can also extract information about the history of plant cultivation and its impact on human life (agriculturalisation and sedentarisation).

The research proposal presented in this study is based on the research project ‘Excavating Pottery: Technology Development Research for the Establishment and Social Implementation of 22nd-Century Archaeological Research’ (Grant-in-Aid for Scientific Research, Innovative Research Area A [Project Number: 20A102]), which began in 2020 and concluded at the end of the fiscal year 2024. In this project, we advocate Earthenware Comprehensive Analysis to reconstruct society, subsistence, and spirituality in higher resolution than previous studies by developing the analytical methods and demonstrating their effectiveness. We hope that this research, with its innovative approach, will serve as a model to enhance archaeology/anthropology in countries where pottery has been used as a proxy for dating or in spatial studies, as in Japan’s past archaeological studies. This research proposal is a pioneering initiative with a global interest, and besides the methods developed during this project, we plan both to develop new techniques to re-evaluate existing archaeological materials using various methods of advanced science and technology, and to establish a 22nd-century study of archaeological resources. We also plan to transform the society surrounding science and archaeology. This book introduces new results obtained from these practical studies and includes innovative results that cannot be revealed via traditional methods of Japanese archaeology.