

## Wood Utilization in the Yayoi Society

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This book discusses social development in the Yayoi period based on an analysis of woodworking techniques and wood utilization. During the Yayoi period, full-scale agriculture and the use of metal tools began in the Japanese archipelago. To produce large quantities of agricultural tools and daily necessities, wood consumption increased rapidly during this period. As wood requires considerable labor for acquisition, transportation, and processing, the change in wood use is thought to have had a strong impact on the local community. The conventional economic theory of the Yayoi period is based on a study of stone and metal tools, but by reviewing the period from the perspective of wood use, it may be possible to construct a picture of a society constrained by the environment and the availability of resources.

However, no basic methodology has been established in conventional woodworking studies. Due to a lack of basic understanding of woodworking techniques and chronology, no applied social theory has been reached. Therefore, in this book, **Part I** organizes the system of woodworking technology in the Yayoi period, **Part II** elucidates the typological development of wood products to position the material empirically, and **Part III** discusses the spatial structure of and changes in the wood supply and elucidates the mechanisms underlying the economic expansion of early agricultural society through wood use.

In **Part I**, the fundamentals of woodworking technology are summarized, and the uses and operational systems of woodworking tools and methods for reconstructing the woodworking process are discussed. Woodworking technology is the totality of the combination of “what tools to use, on what kind of wood, and how to use them,” and the results are affected by variables such as the form of tools, working posture, and processing movements. **Chapter 1** summarizes woodworking principles and characteristics and develops a theoretical foundation for estimating the work content from tools. Woodworking tools consist of a blade and a handle. The latter, which is related to body movements, is suitable for functionality-based analysis. Reviewing the existing classification of handles, in **Chapter 2**, handles are classified from a functionalist perspective, and in **Chapters 3–5**, the blade classification corresponding to handle forms is shown. Through this method, the functionality of various woodworking tools is clarified, as is the correspondence between woodworking tools and processes by comparing them with toolmarks. In **Chapter 6**, a method for arranging more detailed work procedures is established, and the subdivision of the sawing process and its changes over time is examined.

In **Part II**, a typological analysis of wooden products is conducted, and the spatiotemporal relationships among the individual materials are discussed. While the chronology of wood artifacts currently depends on the accompanying artifacts, this book considers the form of the artifacts as a criterion for determining chronology. It also discusses the development of production techniques and genealogical relationships and examines the relationships among materials concerning the production subjects. The subjects of this study are daily necessities in regard to hoes (**Chapter 7**) and mudguards (**Chapter 8**), as well as refined high cups (**Chapter 9**), spoons, and scoops (**Chapter 10**). The woodworking chronology allows us to obtain information on the makers from the wooden artifacts and to incorporate production-related remains,

including unmade artifacts, into a theory of the woodworking system. The chronology of wooden farm tools is also reviewed, providing new perspectives on the composition and functionality of farm tools. The contradictions regarding the theory of distribution of finished products in the late Yayoi period are also pointed out, as are differences in the technological genealogy of refined products between neighboring settlements, thereby casting doubt on the theory of centralized production.

In **Part III**, based on the basic research described above, the actual image of the woodworking system is clarified and its significance for the history of social formation is examined. In **Chapter 11**, the weakness of the existing methodology, which relies on quantitative analysis of unfinished products, is pointed out, and a research method for a woodworking system theory that integrates the concrete system theory of woodworking in **Part I** and the typological woodworking theory in **Part II** is established. Wooden tools are prone to decay, but blades survive under various conditions. The structure of woodworking production can be discussed by estimating the woodworking activities of settlements based on the composition of woodworking tools and comparing the morphological and technological aspects of woodworking artifacts from different settlements. **Chapter 12** examines woodworking activities after the molding process and clarifies that the commonly accepted theory of a “stepwise division of labor” did not occur. Throughout the Yayoi period, the woodworking production system in each settlement was isogenic, regardless of the resource environment, and no evidence exists of the distribution of unfinished or finished products. Furthermore, a segmented structure was found within the settlements, with groups of several households developing independent woodworking activities during the Yayoi period. Nevertheless, as Yayoi society moved into the lowlands for agriculture, access to wood resources varied depending on the location. In **Chapter 13**, wood is shown to have been distributed in the form of planks from the hills, where forest resources were particularly rich, to the lowlands. Initially, it appeared that timber was procured in the vicinity of settlements, but the supply base eventually shifted to the hills, forming a “core procurement zone” that balanced the uneven distribution of timber resources and facilitated introverted economic coordination. However, in the latter half of the middle period, forest resources within this zone were depleted, partly because of climate change, and the old social bonds were destabilized as a supply base was sought in the outer regions. Although the large-scale supply of timber ceased in the late period, it continued to support the economic base of the kingship, leading to the Kofun period. The **final chapter** clarifies that the economic characteristics of the wood supply functioned as a subsystem different from those of stone and metal tools, and that wood acquisition developed the areal interaction of various groups in the local community. Furthermore, the need for a comprehensive resource theory is emphasized because unique social relationships were believed to have been formed during the acquisition of resources, thereby promoting social formation.