Foodways in early farming societies: microwear and starch grain analysis on experimental and archaeological grinding tools from Central China

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English Summary

China was one of the world's primary centres of independent agricultural development. This dissertation offers further insights into the foodways of the earliest farmers in the upper catchment of the Huai River in Central China. Chapter 2 combines two different analytical methods, use wear and starch grain analysis, to investigate the uses of different types of grinding tools. At the site of Jiahu in the research region, use-wear traces associated with processing cereal and wood-like material were identified. This result provides substantial evidence of cereal processing in the early Neolithic period. It also reveals the diversity of functions in the grinding tool assemblage. Interestingly, the use-wear distribution indicates that grinding slabs without feet and cylindrical rollers were mainly associated with the cereal processing, while grinding slabs with feet were primarily related to wood-like material processing. Quantitative analysis of the starch data also indicates that grinding slabs without feet possess more starch grains than the grinding slabs with feet. Therefore, it has been argued that specific types of grinding tools were used for processing specific kinds of material. Chapter 3 explores further which grinding techniques were employed for cereal processing by the Jiahu inhabitants. The experiments carried out for Chapter 3 reveals that the micro-polish developed from dry- and wet-grinding of cereals is different in terms of the resulting texture and morphology. This result offers an approach to infer past food-processing techniques by analysing the used areas of the ancient grinding implements. Although wet- and dry-grinding are both common processing practices nowadays in China, the analyses indicate that the Jiahu population preferred to grind dry cereals. Comparing to wet-grinding, Chapter 4 discovers that dry-grinding causes more significant morphological changes to starch grains and consequently affect starch grain recognition and identification, especially in the case of starch grains from rice. This finding suggests that the scarcity of starch grains from rice on grinding tools from many of the early rice farming societies such as Jiahu could probably have resulted from plant processing using the dry-grinding technique. Thus, rice was probably processed with Neolithic grinding tools to a more considerable extent than previously considered. Chapter 5 investigates dietary plant food processing at the site of Tanghu, another Neolithic community in the research region. The results reveal that flour-based foods were produced from various plants at Tanghu, but mainly from cereals. Similar to the site of Jiahu, a dry-grinding technique was preferred for cereal processing at Tanghu. Apart from food processing, the Tanghu grinding tool assemblage was associated with processing bone. These findings provide more data on the Neolithic culinary practices and different uses of grinding tools, allowing a consideration of ancient foodways more broadly in the research region. Chapter 6 consolidates the results from the study of archaeological grinding tools and previous research on food and food-related activities to discuss the

foodways of the Jiahu population. In Chapter 7, a comparison of foodways at the site of Jiahu and sites attributed to the Peiligang Culture suggests similarities and differences among these communities, reflecting the intangible cultural boundaries and interactions between these two Neolithic cultures. Overall, this dissertation highlights that the Neolithic grinding tools played different roles in early farming societies, especially in food processing practices. By combining the research on grinding tools and the information related to food and food-related activities, it also demonstrates an efficient way to reconstruct elements of lifeways of early farmers through studying their foodways.