

As a medievalist, I can only hope that he chooses to write a companion volume covering the medieval West.

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**Wind, Water, Work: Ancient and Medieval Milling Technology.**

By Adam Lucas. Leiden: Brill, 2006. Pp. xx+439. \$197.

Watermills and windmills were often the most sophisticated technological artifacts to be found in premodern communities. They were also at the center of most communities' social and economic life. Until quite recently, these two aspects of the historical significance of milling have been kept apart by specialized scholarship. While social historians have investigated the social relevance of milling activities, they have not pushed their analysis to the level of technical design. On the other hand, historians of milling have provided careful technical descriptions of milling machines, as well as reconstructions of their patterns of chronological and geographical diffusion, but mostly against a stereotyped social and cultural background, one that has only recently begun to be explored and revised. Now, sophisticated studies are providing fine-grained illustrations of the relation between the machines' technical features, the ways in which they were used, the criteria by which they were judged to work efficiently, and the patterns of social interaction that invested these machines with meaning.

The best examples of this revisionist scholarship have taken the form of detailed case studies, based on new archival and archaeological materials. Because of their richly textured reconstructions and microanalytic methodologies, these studies tend to be limited in their scope—both geographically and chronologically. Adam Lucas's remarkable monograph is a timely attempt to offer the reader a broad survey based on this growing but still fragmented literature. The result is a valuable overview of the development of milling technology in ancient and medieval societies, an overview in which a few long-held historiographical assumptions are interestingly revised.

The book is divided in a rather conventional manner, with a first part on agricultural milling—that is, machines and activities related to grinding grain—and a second part on industrial milling—the processing of materials other than grain. In the first part Lucas follows the development of milling from the ancient world to the late medieval period. Although the main focus remains on Europe, there are numerous references to milling activities and machinery from the Islamic world and China. Some significant points are based on archival and archaeological findings, such as the chronological priority of the vertical-wheeled watermill with respect to the