Water-power in North Africa and the
development of the horizontal water-wheel

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Introduction

A recent article by K. Greene in this journal has re-addressed the issue of the level of technological development achieved in classical antiquity.\(^1\) Crucial to the debate is the development and use of the water-mill. Not only does it represent the harnessing of a natural force as a prime mover, but it has economic implications for the scale of food-processing and the centralisation of production. The basic mechanism may also be adapted for other purposes.\(^2\) In numerous publications Wikander has argued for a much earlier widespread application of water-power than was formerly thought;\(^3\) while the general picture he presents is convincing, the exact nature of the technology’s spread and development remains unclear. One of the outstanding questions is the developmental relationship between mills whose water-wheel is set vertically on a horizontal axle (vertical-wheeled mills), and those in which the water-wheel is set horizontally on a vertical axle (horizontal-wheeled mills). The geographical and chronological distribution of different types of water-mill is likely to be influenced by both geographical and social factors, but is as yet little understood. Our knowledge of the development of the water mill in its different forms remains hampered by a basic lack of scientifically excavated, securely dated and well published mills.

The Chemtou bridge and mill

In this context the publication of the extraordinary milling installation at Chemtou (Simitthus) in Tunisia is very important. The mill’s significance is threefold: it lies on the one perennial river in an area where water resources are not abundant and are seasonally variable; it utilises a highly-sophisticated turbine drive not otherwise attested until A.D. 1577; and it has not one but three mill-wheels, implying production of flour on a sizeable scale.

The building lies among the ruins of the Trajanic bridge at Chemtou, on the N bank of the Oued Medjerda (Bagrada). A preliminary summary of research on the bridge is given by U. Hess (pp. 93-94), in advance of a full-scale monograph to appear in the series of Simitthus re-

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