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The Barbegal water mill in its environment: archaeology and the economic and social history of antiquity

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Introduction

A central issue in the debate on the rôle of technological change in the transition from Antiquity to the Middle Ages is that of the mastery of mechanized hydraulic power.¹ Considerable progress has been made on this subject since F. Benoit discovered the Barbegal mill in the 1940s. In the half-century since his excavations many other sites have been identified but Barbegal remains the key site. The continued importance of the mill is due in part to its excellent state of preservation but also to its environmental context which provides the opportunity for an interdisciplinary archaeological analysis of the monument's relationship within a broader regional context.² Six years of excavation have yielded much new information on the mill, and in the process have opened some new avenues of research on the economy of antiquity.

Our research strategy on the mill and its environment was influenced by recent achievements of the archaeological disciplines. The interpretative potential of these disciplines, despite having outgrown their status as simple auxiliaries of history, has not been fully acknowledged. Historians do not, of course, question the right of the archaeological disciplines to play a significant rôle for periods when written documentation is non-existent (prehistory) or scant (protohistory or the early Middle Ages). But many still find it difficult to concede that archaeology has a critical rôle to play in the study of the economic history of antiquity. The potential of archaeology to address central questions regarding our understanding of the ancient economy has already been manifested in the study of ceramics which made it possible, among other things, to identify the nature and source of imported agricultural products on the basis of their containers, and thus to produce maps of commercial movements. Interest in productive structures has also led archaeologists to investigate the organization and production of rural estates. Paleobotanical studies have contributed to a better knowledge of the products themselves. In the area of landscape studies, archaeology has revived interest in the very abstract notion of territory as, for example, in studies of land parcelling morphology (orthonormal parcelling and "cadasters"). Though initially little more than simple inventories of sites based on archaeological surveys, research on settlement has made considerable progress thanks to the Anglo-Saxon development of "systematic survey" in the Mediterranean area.³ Finally, the environmental sciences have made it possible to reinsert archaeological sites within a concrete geographical setting.⁴

The Barbegal mill and the economic and social history of Arles: an "approche sitologique"⁵

I shall begin by presenting the environmental and archaeological data gathered by my environmentalist colleagues and myself. The emphasis will be on the aspect French archaeologists refer to as "sitologique."

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- 1 Most recently, K. Greene, "Technology and innovation in context: the Roman background to mediaeval and later developments," *JRA* 7 (1994) 22-33.
 - 2 The historical and geographical context for this study, the city of Arles and the Rhône delta, also made this experimental research on the economy of a territory of particular interest.
 - 3 Cf. G. Barker and J. Lloyd (eds.), *Roman landscapes. Archaeological survey in the Mediterranean region* (London 1991).
 - 4 Cf. F. Favory et J.-L. Fiches (eds.), *Les campagnes de la France méditerranéenne dans l'Antiquité et le Haut Moyen-Age: études microrégionales* (Paris 1993).