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(2) If the flow rate is held constant and the velocity is doubled, the power generated is quadrupled.

The consequence of these phenomena is that the best method of increasing the productivity would be to adopt smaller, vertical impulse-wheels and accelerate the head-races. A survey of Imperial mill sites convinces the author that the Romans eventually became aware of this fact.

This argumentation leads Spain to a novel conception of the invention of the horizontal-wheeled mill. This type remained rare in Antiquity, but recent finds have added five such mills in Gaul and two in Britain, dated from the 1st to the 7th century AD (85). As he rightly points out, history of technology shows that the development does not always proceed from simpler to more complex solutions, but occasionally the other way around. Smaller, faster water-wheels give lower gear ratios and, eventually, smaller gears: “there would come a time when the velocity of the accelerated head-race could drive a wheel at a rotational speed similar to that required by the mill-stones for satisfactory grinding. Thus, a gearless direct drive was possible, simply by changing the axis of the water-wheel from horizontal to vertical” (86).

Spain finds Michael Lewis's early date for the horizontal wheel “persuasive” (85), but in no way impeding for his own theory. The horizontal-wheeled mill may well have been invented in the mid-3rd century BC (Lewis), but been displaced by the vertical-wheeled mill and later reinvented (Spain).

Robert Spain's book is an important and welcome contribution to the slowly growing number of monographs on ancient water-mills. It constitutes the first basically trustworthy hydro-mechanical analysis of these mills, and it offers ample material and suggestions for further studies.

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Thomas F. Tartaron, *Maritime networks in the Mycenaean world*. Cambridge: Cambridge University Press 2013. ISBN 978-1-107-00298-2.

The aim of the author of this volume is to present a more balanced picture of Late Bronze Age maritime interactions in the Mycenaean world. In doing so, Thomas Tartaron analyses and reassesses the maritime networks by emphasizing the importance of small- and medium-scale voyages in the Mycenaean period. He concentrates on the coastal networks where small- and medium-sized vessels were used, especially in the Saronic Gulf—an area he knows well from earlier research. He argues convincingly that such local networks are much more representative of the Mycenaean communities than the long-distance connections which previously have received so much attention.

In the introductory chapter (1–11) Tartaron treats ‘The problems of the Mycenaean world’ i.a. and discusses the issue of terminology: several terms which are commonly used, such as ship, boat, vessel, craft, anchorage harbour, port, and port town give rise to many problems for the identification of the available evidence and material when seen as uncomplicated; consequently, if used without deeper consideration, these terms make further analyses of maritime interconnections problematic. Instead, he argues, they need to be defined within the context of Bronze Age Greece (3–5). He also notes the complexities inherent in a discussion of the coastscape, caused by natural factors such as geomorphological change and global sea-rise, and refers to the challenge of defining the Mycenaean coastal world (7–10). In this analysis, together with the discussion of Mycenaeans and the sea in Chapter 2, ‘Mycenaeans and the world’ (12–47), Tartaron thus directs attention to the methodological and logical problems within discussions of Mycenaean maritime activity and sets the scene for the next chapters. He also considers the ethnographic material in this discussion. The use of ethnographic parallels is always tricky (as the author recognizes), but here and elsewhere in the book they are handled sensibly and in a balanced way.

Chapter 3 concerns the archaeological finds and depictions of ships and boats dated to the Aegean Bronze Age (48–89). Tartaron provides a critical analysis of previous research on Bronze Age ship technology; he attempts to identify various types of ships and boats and concludes that only the galley is widely enough attested to allow for a reasonable understanding of it. As he points out, various smaller vessels may also have been used, but these are more difficult to identify with any certainty (88–89).

The vessels and their crews navigated in the Aegean Sea, and this is the focus of the next chapter (90–138). Here, the maritime environment is examined, while Tartaron takes into account not only local but also global-scale network systems.

Ways of navigating by use of various aids, such as landmarks, seamarks, skymarks, and what Tartaron names “phenomenology of the voyage” are discussed, as well as the transmission of this knowledge from generation to generation. He concludes that short- and medium-distance social and economic sea travel normally would have carried on with little or no palace interference, while long-distance trade involving high-status goods would more likely have required palace involvement. He also treats the evidence from Linear B and iconography as well as the Homeric epics, and concludes that the information which can be drawn from the *Odyssey*, for example, is not new for the Iron Age, but must reflect—at least partly—older traditions of building phenomenological itineraries. He analyses the factors which affected communication by sea—an analysis which is also of interest for studies of human interaction with the natural environment in the wider region. Tartaron’s conclusion that the local networks were more stable and permanent than the long-distance connections is convincingly argued.

The discussion of navigation and landmarks in Chapter 5, ‘Coasts and harbors of the Bronze Age Aegean’ (139–181), puts the light on the coastal landscape. The author’s discussion of the coasts and their geomorphology over time also includes anthropogenic contributions through, for example, the construction of harbours. The section on methods of reconstructing the landscape and detecting Bronze Age harbours is informative and also useful for people working with the historical environment in general in the area. The chapter ends with a model for a systematic approach to detecting Bronze Age harbours.

Chapter 6 (182–211) deals with the concepts relating to the coastal worlds of the Mycenaean period—for example, maritime cultural landscape, coastscapes, etc. The term “small world” is often applied to mean a type of social network, but it is used in different ways in different fields. Tartaron defines his use of the term clearly, and that makes it possible for him to refine the discussion of such local worlds within the region in question, into a more coherent picture of everyday activity, and define the factors that influenced it. These local networks are then reflected against the evidence for long distance trading in order to explore the connection between various levels of networks. He also criticizes the more quantitative network models that have been presented for the Aegean Bronze Age; he prefers qualitative models of the maritime networks. Neither is wrong, if well and carefully applied, but it is true that Tartaron’s case studies on the Saronic Gulf, together with what he names “potential coastscapes and small worlds”, i.e. Miletos and Dimini, enable him to weigh various types of evidence against each other and present his ideas on the small-scale world in depth. His case for the existence of a handful of larger nodes of what he calls “maritime connectivity” and

the fluctuations between cohesion and fragmentation in this maritime cultural landscape in the Saronic Gulf is well and convincingly argued throughout. The discussions are also situated in a larger regional framework, which adds to the value of the book.

The illustrations are adequate even if some photos are rather dark (e.g. 3.5). There is a useful index and an impressive list of references.

The book is well written and the author’s engagement with and knowledge of his subject is evident in the text. There are of course points that can be criticized, but those are minor and do not detract from the value of the volume. This is a book that fills a gap in our discussion of the Aegean Bronze Age world.

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Kunst von unten? Stil und Gesellschaft in der antiken Welt von der »arte plebea« bis heute (Palilia, 27), eds. Francesco de Angelis, Jens-Arne Dickmann, Felix Pirson and Ralf von den Hoff, Deutsches Archäologisches Institut Rom. Wiesbaden 2012. 184 pp. ISBN 978-3-89500-915-0.

In June 2007 a group of distinguished scholars participated in a colloquium held in Rome, in celebration of Paul Zanker’s 70th birthday. The theme discussed at the event was the relationship between the form, content and social position of images in the ancient world. The inclusion of the concept “*arte plebea*” in the colloquium’s title emphasizes the importance of Zanker’s teacher, Ranucchio Bianchi Bandinelli, within this line of research, especially the latter’s groundbreaking article of that same title, published in the first issue of the *Dialoghi di archeologia* in 1967. Zanker soon paid heed to Bianchi Bandinelli’s call for studies that approached ancient art from a historical and sociological—as opposed to a purely aesthetic—point of view. This is most clearly the case in two of his articles published during the 1970s, and dealing with the funerary reliefs of freedmen (*JdI* 90, 1975, 267–315) and decorations in Pompeian houses (*JdI* 94, 1979, 460–523). The fact that all contributors to the present volume are among the leading scholars in their respective fields is a testament to Zanker’s lasting influence on the study of Roman art. When viewed as separate entities, all articles included in the reviewed book are of the quality that one would expect from such distinguished scholars.