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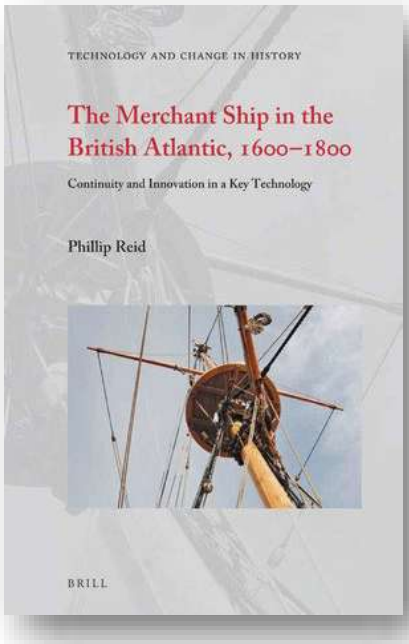

The Merchant Ship in the British Atlantic, 1600-1800

Phillip Reid

Leiden/Boston: Brill, 2020.

Series *Technology and Change in History* v. 18, eds. Adam Lucas and Steven A. Walton. 308 pp., intro, figures, illustrations, and tables, glossary, appendixes, bibliography, index.

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Review by Laurence D. Schiller

There is a tendency by many historians to minimize or dismiss the role of technology in their writings. Yet key technologies, and how they have been adapted, changed, evolved, or discarded by a society can not only be determinative factors in the development of any specific culture or state in any period of history, but can help deepen our understanding of a culture and its people. Much has been written, for example, on Medieval European warfare, culture, politics, and society but the adoption of enabling key technologies by Europeans has tended to be overlooked in these narratives. Without, for example, the introduction of the stirrup from Asia in the late 6th or early 7th century BCE, and its subsequent adoption and adaptation by western European societies, armored knights and their style of warfare would have been likely impossible, thus distinctly changing the nature of the feudal system which formed the basis of western European society for centuries. The stirrup, as with any invention, is not by itself significant and was used by Asian invaders in Europe for decades before it was recognized as a useful technology and produced by indigenous European societies. It becomes significant and important at the point at which it was adopted and disseminated by these societies because it is then that it enabled the creation of the feudal knight and all that that development entailed. If we are willing to examine why it was adopted at the time it was adopted, as well as by whom and in what iteration, we can learn much more about Medieval European societies and their development at a particular point in history.[1]

Phillip Reid makes this same point in his excellent book on the merchant ship in the British Atlantic from 1600-1800. There is a wealth of material already extant

[1] See Lynn White, *Medieval Technology and Social Change* (Oxford University Press, 1964) for a discussion of the stirrup and other important technologies which impacted the development of Medieval European society.

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examining the slave trade, plantation agriculture, the impact of diseases on indigenous and non-indigenous people, the economics of the early modern Atlantic trade, and so forth, but very little has been written on the key technology, the merchant ships themselves, which permitted the maritime trade and the societies that depended on it, to exist. "A technological history of the British Atlantic merchant ship in this period," Reid writes, "is properly situated amongst literature on the Atlantic World, maritime economic history, and maritime archaeology, as well as the history of technology." (4) It is in the intersection of these different literatures that Reid feels can shed new and important light on the questions surrounding the development of the British Atlantic during this two-century period.

There is agreement in the literature that despite the considerable disruption to the Atlantic trade as a result of warfare between the major seafaring European powers during this 200-year period, the productivity of British (and British American) trade grew, contributing to a growth in that country's, and ultimately post-revolutionary America's as well, Atlantic economy. The question is why? Reid's point is that to properly understand the 'why', we need to acknowledge that changes in maritime technology, specifically in ship technology, were significant factors in the growth of productivity in the industry. In this ground-breaking book, he sets out to do exactly that by first, challenging the prevailing assumptions by historians of the British Atlantic concerning ship technology and its impact in this period, and second, by challenging scholars who dismiss pre-industrial technology as having any significance to the development of British Atlantic societies. Reid asserts that in order to understand the people who created the Atlantic world before the Industrial Age, we have to understand why they used any particular technology and what drove them, in practical terms, to either change, discard, or continue to use any particular ship technology, for example hull design or the number, shape, and types of sails. Their choices were not random but determined by a host of motives and needs, which sometimes conflicted, of owners, shipwrights, and the people who manned the ships. Strongly involved in these choices was always a cost-benefit analysis, for the maritime trade had considerable risks associated with it, ranging from economic loss for the owners, to actual physical danger to the men who sailed the ships. The Atlantic was a dangerous place and sailors might be shipwrecked, attacked by other predatory powers, infected with a tropical disease, or have any number of other things happen to them. Risk was high so risk-management by everyone concerned was an important consideration in choosing technologies for a ship, not just for the owners or shipwrights, but also for those who sailed them, or consciously chose NOT to sail ships that they did not feel were worth the risk to their lives. Part of understanding why the maritime trade grew more successful is understanding what technology made it so and what made it acceptable to all involved.

One of the excellent things about this work is Reid's willingness to bring together the insights of different disciplines, which opened up different avenues of exploration as he examined his topic. This was particularly important when there are not many extant paper records specifically on ship construction and preserved archeological remains are generally limited in the Atlantic to a wreck's lower hull, making it difficult to discern what the superstructure of the wreck might have been. The foundation of his research rests on what documentary record there is combined with whatever archeological remains have been found but, thinking outside the traditional box, he found it useful, within limits, to answer questions about operational issues and building techniques by asking those who build and sail period replicas (experimental archeology) about their experiences which, he feels, can shed light on how the original builders and sailors built and operated these ships. Moreover, while still fairly new and expensive to use, computer simulations can help us learn about such things as stresses on these ships in foul weather and how that might affect structural integrity or sailing properties. Understanding how these ships responded to the conditions of sailing in the Atlantic can clarify how and why people of this time made the choices they did in selecting and utilizing technology for their ships.

With this methodology in hand, Reid sets out to try and challenge old assumptions with new data, pose his own hypotheses, and suggest questions for further study. Understanding that his audience may be conversant in

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history but not necessarily in nautical matters, he presents his material in a clear, concise way buttressed with a thorough glossary of nautical terms at the end of the work. His seven chapters seek to build the reader's knowledge by examining first the context of the trade in the Atlantic, and then continues the discussion by explaining the physical nature of sailing ships, how they were built, the different types of designs that existed for different types and sizes of merchant ships, who the merchant venturers were that spent the money to build the ships and who the shipwrights were who built them. Finally, the last two chapters deal with the men who sailed the ships, from the Master, who was in command, to the lowest level of seaman, including a discussion of the nature of their lives shipboard and how they worked together to sail the ship. Understanding the technology and how it was applied tells us a great deal about the parameters within which the technology existed. This is critical to our understanding of not only what choices people actually made but what choices they could potentially make or see that they could make. He is very careful to point out that it is fallacious thinking to look at the development of technology as a linear progression, cherry picking that which would later lead to developments in the Industrial Age and ignoring the rest, often denigrating the practitioners as somehow rigid conservatives unwilling to accept change. Reid emphatically makes the point that this is unfair and not a true understanding of the motives and perceptions of the people of that era. For modern readers to understand why these people made the choices that they did, we have to separate out our understanding of how ship technology developed in the 19th and 20th centuries and view it from their perspective as to what was desirable, possible, and risk-acceptable. What is clear is that when change made sense, they adopted it, and when it did not, they maintained what worked for them.

Reid concludes his work with some hypotheses that he feels he has provided data for, hypotheses that challenge some long-standing assumptions in the historical literature that have stated that merchant ship technology was static during this period and thus had no impact on the increase of the ton-per-man ratios in the 18th century and the success of the British Atlantic maritime trade overall during these 200 years. On the contrary, he points out that the English, and probably the French as well, adapted elements of Dutch hull design that expanded cargo capacity without increasing the size of the ships, and that changes in the sail rig, where the relative combination of fore and aft sails versus square sails changed, increased efficiency and held down costs. Part of this involved new combinations of sails plus the change in the sail rig towards having more, but smaller, sails, which were more manageable by fewer crew, reducing crew size and their considerable cost. While challenging old assumptions, Reid is also careful to point out that he has not answered all the important questions, simply made some informed guesses, and that there is much work to be done to "determine what the costs and benefits were in multiple important respects as to why certain technological choices were made, carried forward, or abandoned." (228). He ends by posing some very specific questions and again points out the need to use both the information that can be gleaned from experimental archeology and computer analysis, including using their modeling software to look at wrecks virtually assembling and disassembling them to discover how they were put together. In the end, by striving to understand the context within which these people lived and the nature and variety of factors and pressures that drove them to make technological decisions, we can better understand how technology of the time related to the development of maritime history. It is an approach, Reid points out, that can be used to "understand how any people, at any time and in any place, have taken their own particular technological approach to their sea ventures." (240)

This is an excellent book, well researched, utilizing a multidisciplinary approach that should give any serious historian something to consider in their own research. It is a strong beginning to a young academic's career and it is hoped that Reid will continue to research and produce new works on this interesting topic.

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