Artisan/Practitioners and the Rise of the New Sciences, 1400–1600 by Pamela O. Long (review)

Jim Bennett

Technology and Culture, Volume 55, Number 1, January 2014, pp. 254-256
(Review)

Published by Johns Hopkins University Press
DOI: 10.1353/tech.2014.0014

For additional information about this article
https://muse.jhu.edu/article/538924
tant and characteristic technique of the history of cartography, the close visual analysis of the maps themselves. This analysis can reveal a map’s rhetorical claims and a great deal about the knowledge circles of both the mapmaker and the intended audience. Lacking this type of analysis, the arguments seem less solid than they could be and the illustrations float free, acting more as visual reference points than as evidence.

A second limitation lies in the space allocated to various topics. Unger dedicates a full chapter to classical and early medieval traditions of map-making, during which time ships did not decorate maps. This is well-known material, easily available elsewhere, and a quick acknowledgement of the strong focus on the land that characterized medieval maps would have sufficed, leaving more room for complex analyses of the individual maps that Unger discusses in his core chapters (7 and 8). The book would have profited from full chapters devoted to the development of ships, the changing techniques of collecting data and making maps, and the meanings that Europeans ascribed to the oceans and oceanic navigation. Building up toward the insights in the final chapter, these themes would help to expose the thought-worlds and contexts within which ships made sense to contemporaries as decoration on maps.

Despite these caveats, this book will be of interest to historians of cartography and of European seafaring, particularly for the information that it offers about ships on individual maps and its effective survey of earlier literature on the history of cartography, while graduate students will find it a good source of potential research topics in an important area.

VICTORIA MORSE

Victoria Morse is associate professor of history and director of the Medieval and Renaissance Studies Concentration at Carleton College. She has contributed to Cartography in the European Renaissance (2007), edited by David Woodward, and has published on the geographical thought of Opicino de Canistris.

Artisan/Practitioners and the Rise of the New Sciences, 1400–1600.


This book derives from a series of lectures given by the author at Oregon State University in 2010 and the tone, as well as the didactic ambition, of a lecturer survives in places. Yet much of the value of the book stems from this context. It is at once a challenging and ambitious account of the rise of the new sciences in the fifteenth and sixteenth centuries and an introduction for a non-specialist reader to the thesis that ascribes a pivotal role to artisanal practice. Pamela Long does not avoid addressing the contentious nature of this thesis and an early chapter is an extremely valuable account of the his-
toriographical issues involved, themselves approached in terms of their own historical narrative traced through the practices of historians of science and technology. Historiography, however important for the practitioner of history, is often arid and off-putting for newcomers lacking a reading experience to give it location and significance. Here, carried on by its own narrative, it is a brilliant demonstration of the importance and longevity of the discourse, sustained by the human stories of the protagonists.

A central question is the changing relevance of practical skill and technique to empirically informed accounts of the natural world, and any such discussion must adopt a scrupulous care over such terms as “art” and “nature,” where modern meanings and assumptions will distort any understanding of early-modern relationships, not least by anticipating accepted meanings in advance of their formation. The author is particularly sure-footed in this area, guiding the reader, for example, through the transition seen in the two treatises of Francesco di Giorgio toward natural knowledge, and securing our appreciation of a widespread change through an examination of this historical instance. Long is never content to accept easy and familiar assumptions about the past.

The Vitruvian tradition in text as well as in architectural practice is presented as a fertile meeting ground for discussion and exchange. Just as Vitruvius himself stressed that both *ratiocinatio* and *fabrica* were required of the architect, the understanding of his text demanded knowledge of both Latin and building, though not necessarily in the same person. Long highlights the complementary contributions of Brunelleschi, as an exceptionally original architect/engineer, and the humanist scholar Alberti, who had a deep interest in the practical arts as well as a familiarity with the Vitruvian text. The Vitruvian example also encouraged some artisans to write treatises themselves, Ghiberti being an influential example. Again, Francesco di Giorgio learned Latin and produced the first vernacular translation of Vitruvius.

This Vitruvian tradition is presented as a catalyst for exchange between learning and skill, but only one instance of what Long calls “trading zones,” where such communication could take place. Here she is explicitly adopting a concept framed by Peter Galison in discussing twentieth-century particle physics, now shown to be illuminating for a much earlier period. While the author acknowledges that there are many such zones, she chooses to concentrate on three: arsenals, mining and the processing of ores, and the city of Rome in the late sixteenth century with its ambitious engineering projects.

A concluding chapter draws the account together and makes it relevant to the reform of early-modern natural philosophy, its methodology as well as its content. The book is a very valuable addition to this area of debate: while it can be used as an introductory text, it is historiographically sophis-
ticated, fully engaged with current scholarship, and impressively supported by footnotes and references. This means that anyone—novice or specialist—can use it as a starting point for pursuing any number of the lines of thought it has so cogently introduced.

JIM BENNETT


**The Psychophysical Ear: Musical Experiments, Experimental Sounds, 1840–1910.**


The field of psychophysics is usually seen as a branch of experimental psychology, and the early history of psychophysics (from its origins in the mid-nineteenth century) is usually seen as constituting the beginnings of “scientific” psychology. Alexandra Hui, by contrast, argues that the history of psychophysics during its first decades (1840–1910) was also intimately tied to the making and hearing of experimental sounds and to the musical instruments by which they were created. Her study places great emphasis on the musical instruments and apparatus that a few central scientific figures created (or had created for them), and on the important role of musical aesthetics. She concentrates attention on the well-known psychophysical work of Gustav Fechner, Hermann Helmholtz, Ernst Mach, Wilhelm Wundt, and Carl Stumpf, as well as on the musical aesthetics of Helmholtz, Mach, and Stumpf, and on that of music critics A. B. Marx, Eduard Hanslick, Hugo Riemann, and Eduard Kulke. The result is a fresh but brief and episodic study in which “the psychophysical ear,” and not experimental psychology, stands at the center of historical attention.

Hui stresses the various roles of musical (and other acoustical) instruments, physical and physiological acoustics, and musical aesthetics in shaping psychophysics (before 1910), in particular how various experiments in sound creation and perception helped shaped what she calls the psychophysical ear. Instead of being concerned with psychophysics’ role in shaping the history of psychology, Hui looks instead at psychophysics as a practice and viewpoint that was historically contingent on the material and cultural history of liberal, musically oriented, upper-middle-class German and Austrian scientists and musical critics. To what extent, she asks, did the laws of physics and physiology clash with the contingency (both historical and cultural) of musical aesthetics as practice and theory?

She argues that psychophysics became increasingly attached to the study of the sensory perception of sound. In the course of the period 1840–1910, the new psychophysicists (i.e., Helmholtz, Mach, Wundt, and Stumpf) went