

“closest thing to a hero” in Trilling’s book is John Ruskin (p. 85), but Ruskin seems an unpromising messiah in the search to replace modernism with something more substantial than irony and pastiche. Rather than pursuing the long, uphill struggle to have unique craft creations accepted as art by the elite of the elite, their proponents might instead consider laying aside their Victorian prejudice against the mass-produced object, and regard a larger world.

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Volta: Science and Culture in the Age of Enlightenment.

By Giuliano Pancaldi. Princeton, N.J.: Princeton University Press, 2003.
Pp. xv+381. \$35.

This is a remarkable study of Alessandro Volta’s science of electricity in its social and cultural context, one that adds significantly to the scholarship on Enlightenment science and technology. The first monograph on Volta to appear in English, it offers an in-depth contextual analysis of his experimental practice founded on Giuliano Pancaldi’s detailed knowledge of the sources, including some archival materials which have never been used before. The narrative is structured around closely interrelated themes: Volta’s education, career, and social networks; his understanding of the relation between theory and experiment; and the meanings that Volta and his contemporaries attributed to his spectacularly successful scientific instruments.

Pancaldi describes in some detail the cultural and social worlds in which Volta moved during his eventful life, his career strategies, his local and international networks, his relations with patrons and the politically powerful (most notably Napoléon). It is by following Volta’s able maneuvering through these social spaces that one can properly situate and understand his experimental practices, his taking sides in contemporary scientific controversies, and the design and use of his electrical machines. Of particular interest to readers of *Technology and Culture* will be those chapters devoted to the invention of instruments such as the electrophorus, the condenser, and the battery. Readers might be intrigued by the name that Volta first gave to his battery: the “artificial electrical organ.” He considered it to be particularly interesting for natural philosophers, primarily because it replicated the electrical discharge of the torpedo fish—thus supporting Volta’s argument in his controversy with Luigi Galvani over animal electricity.

In discussing the invention of the battery, Pancaldi offers an interesting, almost step-by-step reconstruction of the complex social and technical

process that shaped this artifact and gave it its original meaning. At each stage he highlights the elements of contingency that entered the process, concluding that “despite what was by then Volta’s excellent and long-standing record as an electrician, the battery was the outcome of a comparatively quick and unexpected turn of events” (pp. 283–84). His attention then turns to the subsequent appropriation of this instrument by practitioners all over Europe and its shifting meaning as it entered new agendas and diverse research programs.

Pancaldi draws on recent insights into the flexible interpretation of experimental results and artifacts, as well as into the patronage system of early modern science, to argue effectively for the social shaping of Volta’s conceptual and material innovations. He presents his reconstruction of Volta’s inventions as a reaction against unilinear histories of science and technology. Reducing the scale of analysis to the details of Volta’s strategies in local controversies serves the purpose of showing the complex interplay between the design of the instrument, its meaningful uses, and Volta’s theoretical assumptions. In the light of these findings, Pancaldi can call into question attempts to explain inventions such as the battery through references to Volta’s theories alone or to ill-defined factors such as the “quantifying spirit” of the late eighteenth century. Ultimately, he identifies the processes that brought to Volta’s experimental results and inventions a common pattern of “competitive imitation and appropriation” (p. 209). That is, in each case the ongoing competition with other expert electricians and their research programs was an essential element in shaping the innovation process.

Shifting his discourse to the historiographical level, Pancaldi argues that it is only after diversity and contingency have reentered the picture of scientific and technological growth that one can begin to assess the true legacy of the Enlightenment to our industrial societies. Rejecting as spurious the dichotomy of the narratives for and against Enlightenment science, he invites us to recognize the positive effect of methodological proliferation and the “free circulation of people, ideas, instruments and practices” (p. 289). But then, of course, taking sides in the longstanding debate on Enlightenment values says more about us than about Volta and his contemporaries.

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