serious issues and come up with solutions long before official authorities acted. Moral crusaders sometimes do indeed prefigure the shape of things to come.

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DANIEL WARNER, **Live Wires: A History of Electronic Music**. London: Reaktion Books, 2017. Pp. 208. ISBN 978-1-78023-824-1. £16.00 (cloth cover).
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This concise history of electronic music caught my attention, since I've always used examples from history of music in my history-of-computing course, as these offer such nice examples of the far-reaching consequences of the rise of the digital age. *Live Wires* offers much information and a great narrative on the history of electronic music. In five chapters, the author treats five different technologies that shaped modern music: the tape recorder, circuits (synthesizers, mainly), the turntable, the microphone and the computer. Reading Daniel Warner's book made me aware of the potential music has in researching cultural changes due to technology, which reaches beyond what I had been teaching up to now.

If you pick up this book, you'll surely read about the music of your youth (and afterwards), and learn that there was more to it than you might have expected. Not only did I come across more electronic influences than I was aware of; composers, musicians and the audience (or the listeners) have all fundamentally changed their ideas about music over the last century. Warner makes you aware of these changes in his fluent and catchy style, offering a lot of detail, on both the technicalities and the social context. The details he includes serve a clear purpose, and although the structure of the book implies that some names will pop up in most chapters, that didn't bother me. It might, as I experienced, make you reread earlier paragraphs now and then, to remember the chronology of events. I particularly enjoyed the 'Recommended listening' list, an addendum which delayed the writing of this review for several weeks.

There are three critical remarks to be made. First of all, Warner takes the technological changes in music production as a guiding principle in his history. While I agree with him, that you can't discard the technicalities in this history, he takes this to an extreme, by making technological developments the core of his account. Sometimes the technology itself is even taken for granted, as if the ideas underpinning it were obvious and just waiting for realization. Certainly with the computer this has not been the case: all kinds of people were appropriating these machines for their purposes and it was their success, or lack thereof, that stimulated industrial production of machines. Warner's book offers stories about how the microphone and other technologies were adopted by a variety of musical (sub)cultures, who were not necessarily in touch – in some cases weren't even aware of each other's existence. One may also read how, sometimes, these technologies were experimented on by musicians or composers striving for a particular effect, thereby creating or initiating the demand for a particular technology. These subcultures of musicians/composers, growing in number over time, would have offered a much more suitable structure to the narrative.

A second critical remark is that Warner doesn't distinguish between use and appropriation, as has become common in the history of technology. Admittedly, he may have a point in this case, since musicians are always appropriating their instruments, but he doesn't make this explicit. In the chapter about the microphone, Warner relates some beautiful parallels to the computer stories in the development of this technology. The microphone wasn't just used to record or amplify as it was designed for, but was by some people, Warner shows, discovered to make new sounds audible to the audience, and therefore offered new opportunites to the composer. Musicians made unexpected use of one of the drawbacks of the new equipment: the feedback whooping when the microphone would pick up it's own amplified sound. Certainly on some

level, one can speak of appropriation here. A discussion on the applicability of 'appropriation' as a theoretical framework would have benefited this book.

Finally, the epilogue is a disappointment. In the introduction, Warner hints at a historical development that forever changed both the composers and the listeners profoundly, for better and for worse, democratizing the music scene. In the five chapters constituting the bulk of the book, he describes various ways in which this came about. A summary of this, and what it says about the historical development of music on a more general level, would have been welcome. As it stands, the reader must be content with just a few reminiscences, hinting more to the future of music than to its history.

Nevertheless, Warner's book has much to offer. *Live Wires* is a real page turner, which will keep the reader engaged. I recommended it to everyone who teaches a history-of-technology course and wants to illustrate the impact of technology using the history of music. Despite its shortcomings, it is a wonderful book to read: Warner is bound to baffle you, and because he is clearly knowledgeable about his subject, he raises awareness of a lot of new information, making this book a great introduction to a subject that deserves attention. Students are bound to hear something to their liking in the 'Recommended listening'; historians will surely change their teaching on the subject. Thanks must go to Daniel Warner for this. I guess that the book would be most enjoyable as an ebook – so that you may actually listen to it.

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In May 2015, a conference was held at Princeton University in honour of Anthony Grafton's sixty-fifth birthday. It brought to a small university town in central New Jersey many of Grafton's students, colleagues and friends from around the world. His doctoral students presented on aspects of his work. Not only an occasion to recognize Grafton's extraordinary and vast scholarship, it was also a celebration of his remarkable capacity for friendship, mentorship and generosity, which has enabled him to transform the historical discipline and inspire its practitioners in multitudinous ways.

So too starts this two-volume collection of essays: with a reminder that friendship, or *amicitia*, like an electric current, animates scholarly rapport to this day. For the sixteenth-century humanist Martin Crusius, friendship was a powerful force that 'often pushes us to do things that we would otherwise have been slow to undertake' (p. xv). None of the contributors here are Grafton's direct doctoral advisees; they are friends, colleagues and students who collaborated with him on various projects. Some essays recover the conversations which sparked their new research directions. They show how these exchanges bore fruit across disciplines, nationalities and academic ranks. Friendship was the very currency by which the early modern Republic of Letters operated at its most generous, and Grafton and his fellow scholars stand as a testament to its undiminished value in its modern analogue.

For the Sake of Learning begins with a short preface and Grafton's biography and bibliography, which frame the eminent scholar and his achievements and wide-ranging impact. The volumes contain fifty-six contributions organized around seven thematic sections: 'Scaliger and Casaubon', 'Knowledge communities', 'Scholarship and religion', 'Cultures of collecting', 'Learned practices', 'Approaches to antiquity', and 'Uses of historiography'. Each segment reflects an area of Grafton's long-standing research activity. All touch on the history of knowledge and humanism, and many would easily fit into more than one thematic grouping above. Two reflective