



**The Age of Electroacoustics: Transforming Science and Sound.** By Roland Wittje. Cambridge, MA: MIT Press, 2016. (Transformations: Studies in the History of Science and Technology series) 312 pp. ISBN 978-0-262-03526-2. <https://mitpress.mit.edu/books/age-electroacoustics>

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*Electroacoustics* is a word whose meaning has undergone many adaptations. As Roland Wittje notes in *The Age of Electroacoustics: Transforming Science and Sound*, the term itself first appeared in German in 1903 (p. 21) and generally referred to the relationship between acoustic and electrical energy, or, the transformation of one to the other through technology—microphones and loudspeakers.

The general theme of Wittje's 300-page *The Age of Electroacoustics* is the historical study of the electrification of acoustics through the lens of German military necessity and scientific research and developments in Germany from the 1890s to the mid-1930s. Wittje's materials are drawn from 12 archives, 10 in German and 2 in English; 3 museum collections, 2 in Germany and 1 in London; and more than 480 publications and documents, about 25% of which are in English.

Wittje makes a number of important contributions, here for the first time in English, uncovering research data and information on the transformation of the study of sound from the primacy of the human ear to the central role of electrification of sound measurement in Germany. He traces the slow movement from the psychometric (human evaluation of sounds) towards the metric (precise measurement and scientific representation of sounds). These include such examples as artillery ranging (determining the location of the enemy's guns) and aircraft detection—both still done using mechanical horns (think big ear trumpets) and evaluated by ear, by military personnel, in WWI and WWII, even though De Forest had invented the triode vacuum tube in 1907.

Wittje's detailed account of the activities and movements of more than two dozen researchers and applied scientists in Germany illustrates that scientific developments seldom proceed in a single historical line. While this is good to read about, this level of detail is likely not for the general reader.



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Areas of cultural and creative studies have grown up around the word *electroacoustics*, a semi-cognate of “sound studies,” as has the creative discipline of electroacoustic / computer music. Sound ecology is a sub-discipline of urban and environmental studies with, for example, noise abatement societies starting in the 1890s. *The Age of Electroacoustics* also provides a brief glimpse into the development of sound for the cinema in Germany, and touches on the exploration of “experimental” electronic / electroacoustic musical instruments. In reading the book, I had to keep reminding myself that the objective was “to contribute to the historiography of twentieth-century science, creating links to a cultural history of sound, and sound studies in other disciplines” (p 3).

Being a twenty-first-century reader, I have become accustomed to referencing other sources and views while reading. I found a major deficiency in the book was the absence of timelines. Timelines provide context. It is not until 70% of the way through the main text that there is reference to the fact that the United States had some ten times the number of researchers in the field of acoustics than did Germany. This information provides significant perspective on the information in the book.

Broadcast technology is rightfully quite well represented in the text, as are elements of sound recording. However it may be necessary to know more about the development of radio and recording in other countries, particularly the UK and the USA, in order to understand how post-World War I Germany was shackled by the terms of the Treaty of Versailles in this area of research.

Roland Wittje’s *The Age of Electroacoustics: Transforming Science and Sound* will be a useful addition for libraries serving a Department or Faculty of Music, Communication Studies, or general Sciences areas where the philosophy and history of technology are in the curriculum. Other volumes in the same MIT Press series, *Transformations: Studies in the History of Science and Technology*, may also be of interest, including those by Sungook Hong, on radio; Alexandra Hui, on 19th-century psychoacoustics; and Myles Jackson, on 19th-century instruments.

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