

Origins in Acoustics

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Preface to the Original Edition

This book started out to be an introductory chapter on the history of sound for a projected textbook devoted to the subject of physical acoustics. I had supposed, naively as it turned out, that the assembling of such material would be a straightforward task of referring to the literature on the history of sound. To my dismay, this literature turned out to be unaccountably meager. In my attempt to identify a few quotations, and check a few references, I found one footnote leading to another and no satisfying way to stop the chain reaction except to keep on until I ran out of footnotes. If this doesn't qualify as a reduction ad absurdum, it can certainly stand as an illustration of the primitive mathematician's "method of exhaustions." Needless to add, the material soon outgrew the appropriate dimensions of an introductory chapter. The net result of the undertaking is this book.

The lack of a definitive history of the science of sound made it necessary to use, as a guide to the source material, fragmentary historical notes and footnote references appearing in a wide variety of textbooks and treatises on the various topics in physical science that overlap or make peripheral contact with the field of physical acoustics. Before long I woke up to the fact that this pattern itself had a special significance. For many years I have preached to students, or to anyone else who would listen, that acoustics is a "crossroads" subject--that it bears its richest fruits when regarded as a synthesis of other classical disciplines rather than when pursued in textual isolation. The significance I found in the pattern of the source material was that this conception of the subject matter of acoustics also characterized its pattern of historical evolution. Moreover, I believe it is this feature which accounts for the paucity of historical literature in this field; the historical origins in acoustics at any stage of its development are not, for the most part, to be found in the state of acoustics in a preceding era, but in the antecedent history of mathematics, mechanics, heat, and a handful of the other disciplines that contribute in a two-way intellectual exchange with the content of modern acoustics. These convictions about modern acoustics are set forth in some detail in the Introduction.

There are striking differences in the types of relevant source material that pertain to different periods in the development of science. For example, any examination, beyond the most superficial, of the state of science in antiquity confronts the amateur with the intimidating problems of the highly technical field of doxography. In addition to linguistic hazards, which I was ill prepared to cope with, the neophyte is confronted with what I cannot refrain from labeling as a cult of obscurantism. The science of abbreviation has achieved at the hands of these specialists a degree of compactness rivaling the eclecticism of the matrix calculus. These difficulties served to make me even more acutely conscious of my amateur standing as a historian. I can only hope that any gaucheries exposed in part 1 will serve to goad someone better qualified into doing justice to the wealth of extant material. The splendid *Source Book in Greek Science*, by I.E. Drabkin and M.R. Cohen, was an eye-opener for me, its mine of information being valuable not only for the excellent selection of translations, but also for its critical notes and its ancillary guides to the literature dealing with the period. Many of the quotations for which I have given references to the originals appear also in this *Source Book*.

As for the period extending roughly from Boethius to Leonardo da Vinci, these ages would be a lot darker, scientifically speaking, if it were not for the late G. Sarton's monumental *Introduction to the History of Science*.

The source material dealing with scientific progress in the sixteenth and seventeenth centuries is, if anything, more obscure than for the period of antiquity. The material is old enough, and printing was young enough, that most of the original books and manuscripts are rare and must be properly guarded as library treasures. Besides, enough of the original material is still available, and science has marched so rapidly with time, that much of the incentive has been removed for the kind of recensions, translations, and commentaries that grew up around the documentary tradition of antiquity. Subsequent "Collected Works" are relatively less rare, but many of these lose the flavor of the originals.

Keenly mindful of my own grumbling about incomplete, over-abbreviated, and incorrect references, I have tried sedulously to avoid these sins. Every reference to the literature has been checked against the original document or publication cited, all but a handful of them being available in the splendid collections of the Widener and Houghton Libraries of Harvard University.

With regard to the spelling of names and places appearing in the text, I have relied chiefly on the *Oxford Classical Dictionary* for the antique period. Elsewhere I have leaned heavily on J.C. Poggendorff's *Biographisch-Literarisches Handwörterbuch*. In documentary references, however, I have followed the orthography of the library catalogue listing, or else that of the title page itself. Dates following proper names are derived, when possible, from the *Oxford Classical Dictionary*, Poggendorff, or G. Sarton's *Introduction to the History of Science*. In quoted material, square brackets enclose explanatory material supplied from context by me or the translator; ordinary parentheses within quotations belong to the material quoted.

F.V.H.

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