

SCIENCE

A WEEKLY JOURNAL DEVOTED TO THE ADVANCEMENT OF SCIENCE, PUBLISHING THE
OFFICIAL NOTICES AND PROCEEDINGS OF THE AMERICAN ASSOCIATION
FOR THE ADVANCEMENT OF SCIENCE.

FRIDAY, JANUARY 29, 1909

CONTENTS

<i>The Influence of the Material of Wind-instruments on the Tone Quality:</i> PROFESSOR DAYTON C. MILLER	161
<i>Report of Committee on Standards of American Universities</i>	171
<i>The Seventh International Congress of Applied Chemistry</i>	174
<i>Darwin Anniversary Committee</i>	176
<i>Columbia University Darwin Lectures</i>	177
<i>Scientific Notes and News</i>	177
<i>University and Educational News</i>	181
<i>Discussion and Correspondence:—</i>	
<i>Convocation Week:</i> PROFESSOR WM. TRELEASE. <i>Gray's New Manual of Botany:</i> PROFESSOR HENRY L. BOLLEY. <i>Distribution of the Nobel Prize:</i> PROFESSOR WALTER F. WILLCOX	182
<i>Quotations:—</i>	
<i>Harvard University and the Massachusetts Institute of Technology</i>	184
<i>Scientific Books:—</i>	
<i>Church's Mechanics of Engineering:</i> PROFESSOR H. T. EDDY. <i>Allen's Commercial Organic Analysis:</i> PROFESSOR ALFRED HOFFMAN. <i>Pittier's Las Plantas Usuales de Costa Rica:</i> W. E. SAFFORD. <i>Snyder's Human Foods and their Nutritive Value:</i> PROFESSOR ELLEN H. RICHARDS	185
<i>Scientific Journals and Articles</i>	188
<i>Botanical Notes:—</i>	
<i>Two Recent Papers on Algæ; Papers on Fungi; Connecticut Mosswords:</i> PROFESSOR CHARLES E. BESSEY	189
<i>Anthropology at the British Association:</i> H. 90	
<i>Special Articles:—</i>	
<i>The Presence of Water Vapor in the Atmosphere of Mars demonstrated by Quantitative Measurements:</i> DR. FRANK W. VERY. <i>The Selachians admitted as a Distinct Class:</i> DR. THEO. GILL	191
<i>Seventh Annual Meeting of the Society of Vertebrate Paleontologists:</i> DR. W. D. MATTHEW	194
<i>Societies and Academies:—</i>	
<i>The Geological Society of Washington:</i> DR. RALPH ARNOLD. <i>The Society of Experimental Biology and Medicine:</i> DR. WM. J. GIES. <i>The New York Section of the American Chemical Society:</i> C. M. JOYCE	198

THE INFLUENCE OF THE MATERIAL OF WIND-INSTRUMENTS ON THE TONE QUALITY¹

SOUND is the sensation resulting from the action of an external stimulus on the sensitive nerve apparatus of the ear; it is a species of reaction against this external stimulus, peculiar to the ear, excitable in no other organ of the body, and completely distinct from the sensations of any other sense.

Atmospheric vibration is the normal and usual means of excitement for the ear, this vibration being produced directly in some instruments, called wind-instruments, and indirectly through the vibration of elastic bodies in others, such as string and percussion instruments; and often the vibration originates in bodies not especially designed for producing sounds.

Physics is mainly concerned with the nature of the external stimulus, and the word sound is often restricted to refer only to these external stimuli. But the purely mechanical properties of these stimuli often differ among themselves differently than do the auditory effects. Our interest is largely in relation to musical sounds and hence for the present investigation we are concerned with the properties of the sounds of mechanical physics only in so far as they affect the ear, or produce sensation. We may, therefore, define sound substantially in the words of Helmholtz, as already given, and proceed

¹ Address of the vice-president and chairman of Section B, American Association for the Advancement of Science, delivered December 29, 1908.

Science

29 (735)

Science 29 (735), 161-200.

ARTICLE TOOLS

<http://science.sciencemag.org/content/29/735.citation>

PERMISSIONS

<http://www.sciencemag.org/help/reprints-and-permissions>

Use of this article is subject to the [Terms of Service](#)

Science (print ISSN 0036-8075; online ISSN 1095-9203) is published by the American Association for the Advancement of Science, 1200 New York Avenue NW, Washington, DC 20005. The title *Science* is a registered trademark of AAAS.

Copyright © 1909 The Authors, some rights reserved; exclusive licensee American Association for the Advancement of Science. No claim to original U.S. Government Works.