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978-1-108-06738-6 - Sound: A Course of Eight Lectures Delivered at the Royal Institution of Great Britain

John Tyndall

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Sound

Professor of natural philosophy at the Royal Institution between 1853 and 1887, the British physicist and mountaineer John Tyndall (1820–93) passionately sought to share scientific understanding with the Victorian public. A lucid and highly regarded communicator, he lectured on such topics as heat, light, magnetism and electricity. In this collection of eight lectures, first published in 1867, Tyndall explains numerous acoustic phenomena for a non-specialist audience. Emphasising the practical nature of scientific enquiry, he describes experiments throughout and includes many illustrations of laboratory equipment. The lectures discuss the general properties of sound, how it travels, how noise and music differ, how gas flames can produce musical notes, and much more. Several of Tyndall's other publications, from his work on radiant heat to his exploration of alpine glaciers, are also reissued in this series.

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Chladni.

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S O U N D .

A COURSE OF

EIGHT LECTURES

DELIVERED AT

THE ROYAL INSTITUTION OF GREAT BRITAIN

BY

JOHN TYNDALL, LL.D. F.R.S.

PROFESSOR OF NATURAL PHILOSOPHY IN THE
ROYAL INSTITUTION AND IN THE ROYAL
SCHOOL OF MINES,

LONDON:
LONGMANS, GREEN, AND CO.
1867.

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To the Memory of

MY FRIEND

RICHARD DAWES

LATE DEAN OF HEREFORD

This Book is Dedicated.

1867.

J. T.

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PREFACE.



IN the following pages I have tried to render the science of Acoustics interesting to all intelligent persons, including those who do not possess any special scientific culture.

The subject is treated experimentally throughout, and I have endeavoured so to place each experiment before the reader, that he should realise it as an actual operation. My desire indeed has been to give distinct images of the various phenomena of acoustics, and to cause them to be seen mentally in their true relations.

I have been indebted to the kindness of some of my English friends for a more or less complete examination of the proof sheets of this work. To one celebrated German friend, who has given himself the trouble of reading the proofs from beginning to end, my special thanks are due and tendered.

There is a growing desire for scientific culture throughout the civilised world. The feeling is natural, and, under the circumstances, inevitable. For a power which influences so mightily the intellectual and material action of the age, could not fail to arrest attention and challenge examination. In our schools and universities a movement in favour of science has begun which, no doubt, will end in the recognition of its claims, both as a source of knowledge and as a means of discipline. If by

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showing, however inadequately, the features and the mien of physical science to men of influence who derive their culture from another source, this book should indirectly aid those engaged in the movement referred to, it will not have been written in vain.

I have placed in front of the book a portrait of Chladni, for which, and the autograph underneath it, I am indebted to my eminent friend Professor W. Weber of Gottingen. It was gratifying to me to find my estimate of Chladni confirmed by Professor Weber, who thus writes to me regarding the great acoustician: ‘I knew Chladni personally. From my youth up, he was my leader and model as a man of science, and I cannot too thankfully acknowledge the influence which his stimulating encouragement, during the last years of his life, had upon my own scientific labours.’

Four years ago a work was published by Professor Helmholtz, entitled ‘Die Lehre von den Tonempfindungen, to the scientific portion of which I have given considerable attention. Copious references to it will be found in the following pages; but they fail to give an adequate idea of the thoroughness and excellence of the work. To those especially who wish to pursue the subject into its æsthetic developments, the Third Part of the Tonempfindungen cannot fail to be of the highest interest and use.

Finally, I have ventured to connect this book with the name of a man, who, had he lived, would have been the first to turn it to good account; who blended in his own beautiful character the wisdom of mature years with the spring-like freshness of a boy. When together indeed, we were men and boys by turns. This union of life, love, and wisdom rendered Richard Dawes a great educator of

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the young, in which capacity, and to the incalculable profit of the village children on whom his influence fell, he nobly and beneficently spent his life.

The Illustrations of this work were for the most part drawn for me by Mr. Becker, to whose ability as a mechanician and to whose skill as a draughtsman I am continually indebted. The wood engravings were executed by Mr. Branston, and the portrait of Chladni by Mr. H. Adlard.

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