

CAMBRIDGE LIBRARY COLLECTION

Books of enduring scholarly value

Physical Sciences

From ancient times, humans have tried to understand the workings of the world around them. The roots of modern physical science go back to the very earliest mechanical devices such as levers and rollers, the mixing of paints and dyes, and the importance of the heavenly bodies in early religious observance and navigation. The physical sciences as we know them today began to emerge as independent academic subjects during the early modern period, in the work of Newton and other 'natural philosophers', and numerous sub-disciplines developed during the centuries that followed. This part of the Cambridge Library Collection is devoted to landmark publications in this area which will be of interest to historians of science concerned with individual scientists, particular discoveries, and advances in scientific method, or with the establishment and development of scientific institutions around the world.

Ether and Reality

Among the widely agreed facts of physics in the late nineteenth century was the existence of luminiferous ether: the medium through which light was thought to travel. Theorised to be a highly rarefied substance, the ether accounted for the movement of light, gravity and even heat across a vacuum. It also had great implications for spiritualism. Where thought was not proven to be a result of chemistry in the brain, the presence of ether allowed for the idea that cognition and emotion might exist independently of a physical body. First published in 1925, this monograph by the eminent physicist and ether advocate Sir Oliver Lodge (1851–1940) was written for the non-scientific reader. With a focus on straightforward explanations rather than mathematical theory, his book still represents a fascinating introduction to the topic today.



Cambridge University Press has long been a pioneer in the reissuing of out-of-print titles from its own backlist, producing digital reprints of books that are still sought after by scholars and students but could not be reprinted economically using traditional technology. The Cambridge Library Collection extends this activity to a wider range of books which are still of importance to researchers and professionals, either for the source material they contain, or as landmarks in the history of their academic discipline.

Drawing from the world-renowned collections in the Cambridge University Library and other partner libraries, and guided by the advice of experts in each subject area, Cambridge University Press is using state-of-the-art scanning machines in its own Printing House to capture the content of each book selected for inclusion. The files are processed to give a consistently clear, crisp image, and the books finished to the high quality standard for which the Press is recognised around the world. The latest print-on-demand technology ensures that the books will remain available indefinitely, and that orders for single or multiple copies can quickly be supplied.

The Cambridge Library Collection brings back to life books of enduring scholarly value (including out-of-copyright works originally issued by other publishers) across a wide range of disciplines in the humanities and social sciences and in science and technology.



Ether and Reality

A Series of Discourses on the Many Functions of the Ether of Space

OLIVER LODGE





CAMBRIDGE UNIVERSITY PRESS

Cambridge, New York, Melbourne, Madrid, Cape Town, Singapore, São Paolo, Delhi, Mexico City

Published in the United States of America by Cambridge University Press, New York

www.cambridge.org
Information on this title: www.cambridge.org/9781108052665

© in this compilation Cambridge University Press 2012

This edition first published 1925 This digitally printed version 2012

ISBN 978-1-108-05266-5 Paperback

This book reproduces the text of the original edition. The content and language reflect the beliefs, practices and terminology of their time, and have not been updated.

Cambridge University Press wishes to make clear that the book, unless originally published by Cambridge, is not being republished by, in association or collaboration with, or with the endorsement or approval of, the original publisher or its successors in title.



Ether and Reality





ETHER & REALITY

A SERIES OF DISCOURSES ON THE MANY FUNCTIONS OF THE ETHER OF SPACE

\mathbf{BY}

SIR OLIVER LODGE

F.R.S.

D.Sc. (Lond.); Hon. D.Sc. (Oxon.); Hon. Sc.D. (Cantab.); Hon. LL.D. (St. Andrews, Aberdeen, Glasgow, Edinburgh); Hon. D.Sc. (Liverpool, Manchester, Sheffield, Adelaide, Toronto); Hon. M.A. (Birmingham); Mem. Inst. Elec. Engineers; Hon. Mem. Lit. Phil. Soc. (Manch.); Corr. Mem. Amer. Phil. Soc. (Philadelphia); Corr. Mem. Accad. Sci. dell' Istituto (Bologna); Corr. Mem. Bataafsch Genoots (Rotterdam); Hon. Mem. Inst. Elec. Engineers; President of the Radio Society; Rumford Medallist of the Royal Society; Albert Medallist of the Royal Society of Arts, as Pioneer in Wireless Telegraphy; Ex-President of the Physical Society; Ex-President of the British Association; Ex-President of the Röntgen Society; Ex-Professor of Physics in the University College of Liverpool; Ex-Principal of the University of Birmingham.

HODDER AND STOUGHTON LIMITED LONDON



First Printed 1925.

PRINTED IN GREAT BRITAIN BY RICHARD CLAY & SONS, LIMITED, BUNGAY, SUFFOLE.



Preface

REALITY is what everyone is keen to know about. No one wants to be deceived; all are eager for trustworthy information, if it be forthcoming, about both the material and the spiritual worlds, which together seem to constitute the Universe. The Ether of Space is the connecting link. In the material world it is the fundamental substantial reality. In the spiritual world the Realities of Existence are other and far higher; but still the Ether is made use of, in ways which at present we can only surmise.

An attempt to set forth in intelligible fashion something of what is known about The Ether and its Functions is made in this book: and although like everything human it is far from infallible, it represents the outcome of a lifetime of study and meditation, and may be acceptable as a guide until something still better is available. The spelling etherial or etheric is here used for the adjective, instead of the more poetic



Preface

ethereal, because the ether is dealt with not as a rarefied essence but as a substance with ascertainable physical properties, to which the ideas usually and properly associated with the word "ethereal" are foreign. It has been impossible to treat all parts of the subject adequately in a small book mainly addressed to the non-expert, but this elementary treatment may prepare the way for a larger and more technical volume later in the year.

OLIVER LODGE.

11th March, 1925.



Contents		
PROLOGUE ON SCIENCE AND PHILOSOPHY With Remarks on the Evasiveness of Reality.		PAGE 11
ı.	THE ETHER AND ITS VIBRATIONS	23
II.	FUNDAMENTAL NOTIONS ABOUT AN ETHER How Matter is held together, and how we see it.	33
III.	ON WAVES	47
IV.	THE ETHER AS TRANSMITTER OF FORCE . And what "Contact" is like.	63
v .	ACTION AT A DISTANCE	77
VI.	ELECTRICITY AND ITS ACTION ACROSS SPACE	89
vII.	MAGNETISM	105
VIII.	ELECTROMAGNETISM	121
IX.	MATTER AS ONE OF THE FORMS OF ETHER ENERGY	135
х.	LIFE AND MIND AND THEIR USE OF THE ETHER	151
EPILO	GUE: THE ULTIMATE PHYSICAL REALITY .	171

ix

В



TO MY FRIENDS

PROF. G. F. FITZGERALD

LATE OF DUBLIN

AND

PROF. SIR JOSEPH LARMOR

OF CAMBRIDGE

WHO KNOW ABOUT THE ETHER MORE THAN MOST