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978-0-521-29295-5 - The Construction of Modern Science: Mechanisms  
and Mechanics

Richard S. Westfall

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# The Construction of Modern Science

*Mechanisms and Mechanics*

RICHARD S. WESTFALL

Indiana University



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**UNIVERSITY PRESS**

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PUBLISHED BY THE PRESS SYNDICATE OF THE UNIVERSITY OF CAMBRIDGE  
The Pitt Building, Trumpington Street, Cambridge, United Kingdom

CAMBRIDGE UNIVERSITY PRESS

The Edinburgh Building, Cambridge CB2 2RU, UK <http://www.cup.cam.ac.uk>

40 West 20th Street, New York, NY 10011-4211, USA <http://www.cup.org>

10 Stamford Road, Oakleigh, Melbourne 3166, Australia

© John Wiley & Sons, Inc. 1971

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First published by John Wiley & Sons, Inc. 1971

First published by Cambridge University Press 1977

Reprinted 1979, 1980, 1981, 1982, 1983, 1984, 1985 (twice), 1986, 1988,  
1989, 1990, 1991, 1992, 1993, 1994 (twice), 1995, 1996 (twice), 1998, 1999

Printed in the United States of America

Typeset in Garamond

*A catalogue record for this book is available from the British Library*

Library of Congress Catalogue card number: 77-084001

ISBN 0-521-29295-6 paperback

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*To Alfred, Jennifer, and Kristin*

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## Series Preface

THE SCIENCES CLAIM an increasingly large share of the intellectual effort of the Western world. Whether pursued for their own sake, in conjunction with religious or philosophical ambitions, or in hopes of technological innovation and new bases for economic enterprise, the sciences have created distinctive conceptual principles, articulated standards for professional training and practice, and brought into being characteristic social organization and institutions for research. The history of the sciences—astronomy; physics and associated mathematical methods; chemistry; geology; biology and various aspects of medicine and the study of man—consequently exhibits both great interest and exceptional complexity and presents numerous difficulties for investigation and interpretation.

For over half a century an international group of scholars have been studying the historical development of the sciences. Such studies have often called for an advanced level of scientific competence on the part of the reader. Furthermore, these scholars have tended to write for a small specialist audience within the history of science. Thus it is paradoxical that the ideas of men who are professionally committed to elucidating the conceptual development and social impact of science are not readily available to the modern educated man who is concerned about science and technology and their place in his life and culture.

The editors and authors of the *History of Science Series* are all dedicated to bringing the history of science to a wider audience. The books comprising the series are written by men who are fully familiar with the scholarly literature of their subject. Their task, and it is not an easy one, is to synthesize the discoveries and conclusions of recent scholarship in history of science and present the general reader with an accurate, short narrative and analysis of the scientific activity of major periods in Western history. While each volume is complete in itself, the several volumes taken together will offer a comprehensive general view of the Western scientific tradition. Each volume, furthermore, includes an extensive critical bibliography of materials pertaining to its topics.

*George Basalla*  
*William Coleman*

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## Preface

FOR THE PAST SEVEN YEARS I have been teaching the history of science in the 17th century. This textbook, addressed to the average undergraduate, gives a summary statement of my understanding of the subject. I realize that my understanding has not reached (or even approached) a final configuration; and I suspect that if I were to rewrite this book five years from now I would devote more space to Renaissance Naturalism (or the Hermetic tradition, as I sometimes call it) and the sociological forms in which the scientific movement clothed itself. Nevertheless, I do not think that the changes would wholly transform the present volume. Instead, they would constitute modifications of a structure that aspires to present a coherent interpretation of the scientific revolution that will have more than ephemeral value.

Inevitably I have acquired numerous obligations. I am grateful to Indiana University and its Department of History and Philosophy of Science for the opportunity to devote myself to the continued study that was necessary to write this book. I thank various libraries, especially those of Cambridge University, Harvard University, and Indiana University for the use of their facilities and service. My students gave me the chance to test ideas against their beneficent skepticism. My colleagues at Indiana University and elsewhere rendered informed counsel and criticism. My family gave me constant support without which none of the opportunities could have had any effect. "And to be specific at last, to my son Alfred I owe the Index."

*Richard S. Westfall*

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Frontmatter

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Frontmatter

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**xii ACKNOWLEDGMENTS**

Reidel Publishing Company from Leibniz, *Philosophical Papers and Letters*, Leroy Loemker, Ed. (Chicago, 1956). The Syndics of the Cambridge University Library have granted permission to quote from Isaac Newton's manuscript "Waste Book" and to reproduce diagrams from it.

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Frontmatter

[More information](#)

## Contents

Introduction	1
I Celestial Dynamics and Terrestrial Mechanics	3
II The Mechanical Philosophy	25
III Mechanical Science	43
IV Mechanical Chemistry	65
V Biology and the Mechanical Philosophy	82
VI Organization of the Scientific Enterprise	105
VII The Science of Mechanics	120
VIII Newtonian Dynamics	139
Suggestions for Further Reading	160
Index	167

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