

**THE SCIENCE OF MECHANICS.  
SUPPLEMENT TO THE THIRD  
ENGLISH EDITION, CONTAINING  
THE AUTHOR'S ADDITIONS TO  
THE SEVENTH GERMAN EDITION**

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The science of mechanics. Supplement to the Third English Edition, containing the author's additions to the Seventh German Edition by Ernst Mach

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**ERNST MACH**

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*Isaac Newton.*

Physics  
Mech.  
M.

# THE SCIENCE OF MECHANICS

A CRITICAL AND HISTORICAL  
ACCOUNT OF ITS DEVELOPMENT

BY

ERNST MACH

EMERITUS PROFESSOR OF THE HISTORY AND THEORY OF  
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## SUPPLEMENT TO THE THIRD ENGLISH EDITION

CONTAINING THE AUTHOR'S ADDITIONS TO THE  
SEVENTH GERMAN EDITION

TRANSLATED AND ANNOTATED BY

PHILIP E. B. JOURDAIN

M.A.(Cantab.)

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## PUBLISHERS' PREFACE TO THE SUPPLEMENTARY VOLUME

THE first edition of the English translation by Mr M'Cormack of Mach's *Mechanics* was published in 1893, and was carefully revised by Professor Mach himself. Since then two other editions of this translation have appeared, in which the alterations contained in the successive German editions have been embodied in the form of appendices. In the seventh German edition, however, which appeared at Leipsic (F. A. Brockhaus) in 1912, there have been more profound modifications in the plan of Professor Mach's work, which are shortly referred to in the preface to that edition. Many things are added and some things are omitted. Among the parts omitted are the prefaces to all of the German editions except the first, and a new preface to the seventh edition has been added. The most extensive additions relate to recent historical researches on the work of Galileo's precursors and the early work of Galileo himself; and the book is dedicated to the late Emil Wohlwill, of whose researches much use has been made.



In the present English edition, after much thought and consultation with Professor Mach and at the suggestion of Mr Philip E. B. Jourdain, we have adopted a different plan. Mr Jourdain has assumed the responsibility of a revision of the *Mechanics* on the basis of the seventh German edition, and has signified the alterations to text and appendix in the appendix printed here. The only other addition to the seventh German edition is a portrait of Newton after Kneller's well-known picture. This very welcome addition—no portrait of the greatest of mechanical inquirers having adorned previous editions of the *Mechanics*—is also given as the frontispiece of the present volume. The reader who possesses the third English edition of the *Mechanics*<sup>1</sup> as well as this volume has a complete picture of the various stages through which Mach's *Mechanics* has passed.

And this retention of the successive alterations and additions seems almost to be necessary. Indeed, Mach's work is to be regarded not only as a contribution to the enlightenment of so many points in the history and the principles of mechanics, but also as a foundation-stone of science, which is of the greatest historical interest in itself. The slow but sure progress of digestion of Mach's ideas—which

<sup>1</sup> *The Science of Mechanics: A Critical and Historical Account of its Development*, translated by T. J. M'Cormack, third edition; Chicago and London: The Open Court Publishing Company, 1907.

must have seemed so revolutionary to most of our modern schoolmen—and the ever-growing influence of these ideas on teaching are both reflected in these prefaces. And where Mach's historical knowledge has grown—and grown, it is to be observed, in consequence of the researches of others who were often inspired by Mach's own work,—it is surely of absorbing interest still to be able to read the original form of Mach's work and compare it with the later emendations.

At the end of these appendices, Mr Jourdain has added some notes of his own which Professor Mach has commended in his preface to the seventh German edition. Any other notes which have been added to the text of Mach's appendix for the purpose of completing or correcting references, or of referring to more generally accessible editions or translations of the works cited by the author, are enclosed in square brackets.

In spite of many obstacles and inconveniences, occasioned mainly by the inability to use his right hand, Professor Mach has most kindly revised the entire work of Mr Jourdain, including all additions and alterations.

