THE ELEMENTS OF DYNAMICS (MECHANICS) WITH NUMEROUS EXAMPLES AND EXAMINATION QUESTIONS

Published @ 2017 Trieste Publishing Pty Ltd

ISBN 9780649098064

The elements of dynamics (mechanics) with numerous examples and examination questions by James Blaikie

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JAMES BLAIKIE

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ELEMENTS OF DYNAMICS

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ELEMENTS OF DYNAMICS

(MECHANICS)

WITH NUMEROUS EXAMPLES AND EXAMINATION QUESTIONS

BY

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NEW AND ENLARGED EDITION

FORTY-FIRST THOUSAND

EDINBURGH
JAMES THIN, PUBLISHER TO THE UNIVERSITY
1908

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PREFACE TO NEW EDITION

THE object of this treatise is to provide a manual of what has been generally known as the "Elements of Mechanics," but is here, in accordance with the more precise phraseology of recent works, termed "Dynamics."

As the work is primarily intended for beginners, special pains have been taken to establish the necessary propositions by proofs involving no higher mathematics than the geometry of the first two books of Euclid, and algebra as far as simple equations. At the same time, the nomenclature, definitions, and general treatment are in harmony with advanced modern works on the subject.

Examples and examination questions have been introduced into the text, in order to furnish all who make use of the book with the means of testing, as they proceed, whether each portion of the subject has been duly mastered. A selection of examination papers set by the Universities of Oxford, Cambridge, London, Edinburgh, and Glasgow, the Scotch Education Department (Leaving Certificate) and the Science and Art Department, has been added. Most of the general examples which follow each chapter are also taken from actual examinations. Answers are given in all cases, and all points likely to present difficulty to beginners are explained.

Since the first publication of this treatise I have been frequently asked to introduce additional paragraphs required for particular examinations in the English Universities and elsewhere. While complying with this request, I have not felt at liberty to introduce fresh matter into the body of the book, as it has been adopted, in its original form, by various Universities and other bodies as a text-book for Examinations. An Appendix has, however, been added, which will, it is hoped, be found useful by those who desire to continue the study of the subject. Some parts of the Appendix assume a rudimentary knowledge of Trigonometry and Conic Sections.

I gladly take this opportunity of thanking many friends who have aided me. Special acknowledgments are due to the late Professor Balfour Stewart of Owens College, at whose suggestion I undertook the work; to Professor Tait of Edinburgh University, for his ever ready encouragement and advice; and to the Rev. N. M. Ferrers, D.D., Master of Gonville and Caius College, the late Professor Clerk Maxwell of Cambridge, Professor MacGregor of Dalhousie College, Halifax, Nova Scotia, Dr. J. S. Mackay of the Edinburgh Academy, Mr. R. Tucker of University College School, Mr. E. Brook-Smith of King's College School, Professor W. Raitt of the Glasgow and West of Scotland Technical College, Mr. J. B. Clark of Heriot's Hospital School, and other friends, for valuable suggestions and corrections.

CONTENTS

	SECTIONS
CHAPTER I. PRELIMINARY—	
Natural Philosophy and its Subdivisions,	1-2
CHAPTER II. KINEMATICS—	
Velocity Defined and Explained,	3-10
Composition and Resolution of Velocities,	11-19
Change of Velocity, Acceleration,	20-23
CHAPTER III. KINETICS—	
Preliminary, Force,	24-25
First Law of Motion, Inertia, Time, Mass, Momentum,	26-30
Second Law of Motion, Mass and Weight, Falling Bodies, Composition of Forces,	31-39
Third Law of Motion, Work, Conservation of Energy,	40-44
CHAPTER IV. STATICS—	
Forces in Equilibrium, Parallel Forces,	45-51
Centre of Gravity, Kinds of Equilibrium,	52-56
Moments,	57
CHAPTER V. MACHINES—	
Levers, Balances, Wheel and Axle,	58-64
Pulleys, Inclined Plane,	65-71
Friction, Angle of Repose, Machines in Motion,	72-74
CHAPTER VI. HYDROSTATICS—	
Fluids, Liquids and Gases, Density,	75-77
Fluid Pressure,	78-85
Specific Gravity, Floating Bodies, Boyle's Law,	86-90
Barometer, Syphon, Pumps, Bramah's Press,	91-97
APPENDIX—	
Composition, Resolution, Graphic Representation,	98-101
Atwood's Machine, Motion on an Inclined Plane,	102-103
Parabolic Motion, Couples, Forces on a Rigid Body,	104-111
Hodograph, Uniform Circular Motion, Impact,	112-116
Kinetic Energy, Centre of Pressure, Hydrometer, Metacentre,	117-120

EXAMINATION QUESTIONS follow Sections 2, 8, 14, 23, 29, 39, 44, 50, 54, 57, 64, 71, 74, 80, 85, 89, 97, 120.

GENERAL EXAMPLES follow each Chapter and the Appendix.

EXAMINATION PAPERS—

PAGE

I. Cambridge—General Examination for B.A. Degree, . 157
II. Oxford—Second Examination for B.A. Degree, . 158
III. Edinburgh—Preliminary Examination for Medical Degrees (Two Papers), ... 159
IV. London—Matriculation Examination, . . 161
V. Glasgow—Preliminary Examination for Medical Degrees, ... 162
VI. Cambridge—Local Examination, . . . 162
VII. Oxford and Cambridge Schools Examination Board—(1) Statics and Dynamics, (2) Natural Philosophy, . 163
VIII. Edinburgh—Degree of M.A. (Two Papers), . . 165
IX. Science and Art Department, South Kensington—Theoretical Mechanics, (1) Elementary, (2) Advanced, 167

ANSWERS, ... 171

EXAMINATION PAPERS *continued*—

X. Edinburgh and St. Andrews—Preliminary Examination for Degrees in Arts and Science, . . 207
XI. London—Matriculation, ... 208
XII. Glasgow—Preliminary Examination for Degrees in Arts and Science, ... 209
XIII. Scotch Education Department—Leaving Certificate, (1) Elementary, (2) Higher, . . . 211
XIV. Science and Art Department—Elementary, (1) Solids, (2) Fluids, ... 213
XV. Additional (Two Papers), ... 217
SOLUTIONS TO EXAMINATION PAPERS X. to XV., . . 219

INDEX, ... 230