

**AN ELEMENTARY
TREATISE
ON MECHANICS**

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An Elementary Treatise on Mechanics by I. W. Jackson

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I. W. JACKSON

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TREATISE
ON MECHANICS**

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ELEMENTARY TREATISE
ON
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ADVERTISEMENT.

THE following exposition of the elementary principles of rational mechanics, is intended to be sufficiently brief and free from difficulties to be thoroughly mastered by students of ordinary capacity, in the time usually allotted to the subject, and yet comprehensive enough to be made the basis of a course of general physics and practical mechanics. It has no claims to originality; the methods employed being generally those which have been long in use, and which may be found in many of the best treatises on the same subject.

Of the works consulted in the preparation of this volume, most assistance has been derived from those of POISSON and BOUCHARLAT: occasional use has also been made of those of EARNshaw, POTTER, SAURET, and PUISSANT.

In the present edition, the subject of solids only is considered. The few sections on fluids, necessary to complete the plan, will soon be published.

TABLE OF CONTENTS.

INTRODUCTION.

Definitions,	1
Laws of motion,	2

PART FIRST.

STATICS.

Definitions,	6
Parallelogram of forces,	10
Methods of determining the position of a point,	13
Of forces situated in the same plane, and applied at the same point, 18	
Of forces applied at the same point, and situated in different planes, 22	
Of parallel forces,	25
Of oblique forces, applied at different points, and situated in the same plane,	37
Of forces applied at different points, and situated in different planes, 48	
Centre of gravity,	52
Machines,	69
The rope machine,	69
The lever,	72
The inclined plane,	74
The pulley,	75
The wheel and axle,	79
The screw,	81
The wedge,	84
General principle of equilibrium in machines,	86
Friction,	90

PART SECOND.

DYNAMICS.

Of the rectilinear motion of a material point, - - -	1
Of the motion of bodies upon inclined planes, - - -	11
Of the motion of a material point on a given curve, - -	16
Of the simple pendulum, - - - - -	19
Of central forces, - - - - -	25
Of projectiles, - - - - -	34
Measure of forces, - - - - -	40
Principle of D'Alembert, - - - - -	46
Moment of inertia, - - - - -	49
The compound pendulum, - - - - -	57
Of the collision of bodies, - - - - -	65
Gravitation, - - - - -	80

ELEMENTS OF MECHANICS.

INTRODUCTION.

1. WHEN a body occupies successively different positions in space, it is said to be in motion.

2. Whatever produces, or tends to produce motion, is called *force*. The action of a force, whatever its origin, may be conceived to consist in communicating to the body on which it acts, impulses, either finite, or infinitely small. The body is, in all cases, supposed to be entirely inert, and subject only to the influence of forces exterior to itself.*

3. It can readily be conceived that two or more forces may be so applied to a body, that their effects shall counteract each other, and no motion shall ensue: in this case the forces are said to be in *equilibrium*.

4. Mechanics is the science which treats of equilibrium and of motion. It is divided into two parts, **STATICS** and **DYNAMICS**.

*Abstraction is thus made of vitality, and certain properties inherent in matter, as gravity, and the chemical and electrical attractions, etc. etc. When the effects of these are to be determined, they are regarded as extraneous forces.