AN ELEMENTARY TREATISE ON MECHANICS

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An Elementary Treatise on Mechanics by I. W. Jackson

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ON

MECHANICS.

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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 Bouchariat: occasional use has also been made of those of Earnshaw, Potter, Saurt, and Puissant.

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

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DYNAMICS.

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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.