

PREFACE.

THE present work on Analytic Mechanics or Dynamics is designed as a text book for the students of Scientific Schools and Colleges, who have received training in the elements of Analytic Geometry and the Calculus.

Dynamics is here used in its true sense as the science of *force*. The tendency among the best and most logical writers of the present day appears to be to use this term for the science of Analytic Mechanics, while the branch formerly called Dynamics is now termed Kinetics.

The treatise is intended especially for beginners in this branch of science. It involves the use of Analytic Geometry and the Calculus. The analytic method has been chiefly adhered to, as being better adapted to the treatment of the subject, more general in its application and more fruitful in results than the geometric method; and yet where a geometric proof seemed preferable it has been introduced.

The aim has been to make every principle clear and intelligible, to develop the different theories with simplicity, and to explain fully the meaning and use of the various analytic expressions in which the principles are embodied.

The book consists of three parts. Part I, with the exception of a preliminary chapter devoted to definitions and fundamental principles, is entirely given to *Statics*.

Part II is occupied with Kinematics, and the principles of this important branch of mathematics are so treated that the student may enter upon the study of Kinetics with clear notions of motion, velocity and acceleration. Part III treats of the Kinetics of a particle and of rigid bodies.