

metry which are now its pride, was also the person who made Mechanics analytical; I mean Euler. He began his execution of this task in various memoirs which appeared in the *Transactions of the Academy of Sciences at St. Petersburg*, commencing with its earliest volumes; and in 1736, he published there his *Mechanics, or the Science of Motion analytically expounded; in the way of a Supplement to the Transactions of the Imperial Academy of Sciences*. In the preface to this work, he says, that though the solutions of problems by Newton and Hermann were quite satisfactory, yet he found that he had a difficulty in applying them to new problems, differing little from theirs; and that, therefore, he thought it would be useful to extract an analysis out of their synthesis.

3. *Mechanical Problems*.—In reality, however, Euler has done much more than merely give analytical methods, which may be applied to mechanical problems: he has himself applied such methods to an immense number of cases. His transcendent mathematical powers, his long and studious life, and the interest with which he pursued the subject, led him to solve an almost inconceivable number and variety of mechanical problems. Such problems suggested themselves to him on all occasions. One of his memoirs begins, by stating that, happening to think of the line of Virgil,

Anchora de prorà jacitur stant litore puppes ;
The anchor drops, the rushing keel is staid ;

he could not help inquiring what would be the nature of the ship's motion under the circumstances here described. And in the last few days of his life, after his mortal illness had begun, having seen in the newspapers some statements respecting balloons, he proceeded to calculate their motions; and performed a difficult integration, in which this undertaking engaged him. His Memoirs occupy a very large portion of the *Petropolitan Transactions* during his life, from 1728 to 1783; and he declared that he should leave papers which might enrich the publications of the Academy of Petersburg for twenty years after his death;—a promise which has been more than fulfilled; for, up to 1818, the volumes usually contain several Memoirs of his. He and his contemporaries may be said to have exhausted the subject; for there are few mechanical problems which have been since treated, which they have not in some manner touched upon.

I do not dwell upon the details of such problems; for the next great step in Analytical Mechanics, the publication of D'Alembert's Prin-