
Book Review

N. M. J. Woodhouse, *Introduction to Analytical Dynamics*. Clarendon Press, Oxford. vii + 169 pages. \$39.95

In this slim volume, Woodhouse, who earlier wrote the treatise *Geometric Quantization*, escorts the undergraduate physics or mathematics student up the royal road from Newton's equations of motion, through Lagrange's equations, Hamilton's principle, and Hamilton's equations, to the Hamilton–Jacobi equation. The treatment is contemporary in flavor without actually requiring modern differential geometry.

The mathematics is annotated at just the ticklish places. There are exercises, taken mostly from Oxford examinations. This work should be considered for a first course in dynamics, especially for mathematics students. It presupposes matrix algebra and a certain tolerance for mathematical language.

We might express one reservation, though it would not be easy to find a text that escapes it. Mechanics texts today ought to tell the student from the start that the classical mechanical world view is inadequate, and make room for newer views. While Woodhouse gives the student useful mathematical background for what is to come, he deliberately takes the physical viewpoint of nineteenth century mechanics; the title might as well be "Introduction to Whittaker." Many students who swallow the mechanical world view will develop allergies to quantum theory and relativity.

Ontogeny need not recapitulate phylogeny so ruthlessly. Malus' law is more accessible to beginning students than is Newton's, and already conveys the essence of quantum theory. Elementary texts in classical mechanics should at least carry warning stickers: "Dangerous if taken internally." The better the book, the greater the risk; and this is a good book.