

Philosophy 167: Science Before Newton's PRINCIPIA

Assignment for November 4

Huygens and the Beginnings of Rational Mechanics

Reading:

Huygens, Christiaan, "On the Motion of Bodies Resulting from Impact," pp. 1-22.

-----, "On Centrifugal Force," pp. 1-22.

-----, Excerpts from Horologium Oscillatorium sive De Motu Pendulorum, pp. 33, 40-46, 105-118, 118-129 (skimming), 134-141 (skimming), 141-145, 155-157, 162-172.

Leibniz, "A Brief Demonstration of a Notable Error of Descartes and Others Concerning a Natural Law," pp. 296-298.

Questions to Focus On:

1. What fundamental claims does Huygens adopt as axiomatic in his theory of the motion of bodies under impact? Which, if any, of these departs significantly from any claims made by Galileo or Descartes?
2. What does Huygens mean by 'centrifugal force', and what questions is his theory of it intended to address? Which, if any, of the fundamental claims that he takes to be axiomatic in this theory are drawn from Galileo or Descartes?
3. What evidence does Huygens provide for his theory of motion of bodies under impact and his theory of centrifugal force? What, if any, telling experiments might be brought to bear on each of these theories?
4. What question or questions does Huygens intend his theory of the center of oscillation to be addressing? Does this theory require any axioms beyond those of the other theories?
5. What exactly is the issue between Leibniz and Descartes, and what empirical evidence does Leibniz offer for his position?
6. In what senses, if any, do the mechanical theories put forward in the four assigned papers deserve the appellation, "rational"?