Rembrandt
*Aristotle contemplating a bust of Homer* (1653)
“There is [the] purpose [of the Christian God], then, in what is, and in what happens in Nature.”
Nicolaus Copernicus (1473-1543)
The Ancient System
The Copernican System
Aristotle’s Cosmos
René Descartes
(1596-1650)
Descartes explained magnetism by postulating the effects of microscopic screwlike particles. Left-handed and right-handed screws accounted for polarity.
I perceived it to be possible to arrive at knowledge highly useful in life; and in room of the Speculative Philosophy usually taught in the Schools, to discover a Practical, by means of which, knowing the force and action of fire, water, air, the stars, the heavens, and all the other bodies that surround us, as distinctly as we know the various crafts of our artizans, we might also apply them in the same way to all the uses to which they are adapted, and thus render ourselves the lords and possessors of nature.

—René Descartes, *Discourse on Method* (1637)
Newton’s Theory of Universal Gravitation:

Every particle of matter in the universe attracts every other particle with a force that is proportional to the product of their masses and inversely proportional to the square of the distance between their centers.
What were his raptures then! how pure! how strong!
And what the triumphs of old Greece and Rome,
By his diminish'd, but the pride of boys
In some small fray victorious! when instead
Of shatter'd parcels of this earth usurp'd
By violence unmanly, and sore deeds
Of cruelty and blood, Nature herself
Stood all subdu'd by him, and open laid
Her every latent glory to his view.
Teleology
Explanation of phenomena by the purpose they serve.

Mechanical Philosophy
Matter
Motion
Force
Teleology
Explanation of phenomena by the purpose they serve.

Aristotle

PHYSICS

Newton

Mechanical Philosophy
Matter
Motion
Force
"Nothing yet.... How about you, Newton?"
What are the implications of the mechanical philosophy for biology?

“By now there exists an almost total consensus of informed minds that the essence of life can be explained by the same laws of physics and chemistry that have helped us understand, for example, why apples fall to the ground and why the moon does not, or why water is transformed into gaseous vapor when its boiling point is exceeded.” —Jim Watson

How does God fit into the mechanical philosophy?

“There are people [who] say, well, we’re playing god. And, you know, I have a straightforward answer: if we don’t play god, who will?” —Jim Watson
Matter
Motion
Force
& God?

Sir Isaac Newton (1642-1727)
Napoleon:
“\textit{I see no mention of God in this work.}”

Laplace:
“\textit{Sir, I have no need of that hypothesis.}”
Teleology
Explanation of phenomena by the purpose they serve.

Mechanical Philosophy
Matter
Motion
Force

Aristotle

Newton
“Absolutely no human reason ... can hope to understand the production of even a blade of grass by mere mechanical causes.”—Immanuel Kant

Teleology / n. Explanation of phenomena by the purpose they serve.
William Paley
(1743-1805)
The Argument from Design and the Analogy of the Watch

“This mechanism being observed ... the inference, we think, is inevitable, that the watch must have had a maker: that there must have existed, at some time, and at some place or other, an artificer or artificers who formed it for the purpose which we find it actually to answer; who comprehended its construction, and designed its use.”

“How is it possible, under circumstances of such close affinity, and under the operation of equal evidence, to exclude contrivance from the one; yet to acknowledge the proof of contrivance having been employed, as the plainest and clearest of all propositions, in the others?”
“There cannot be design without a designer; contrivance without a contriver; order without choice; arrangement, without anything capable of arranging; subserviency and relation to a purpose, without that which could intend a purpose; ... Arrangement, disposition of parts, subserviency of means to an end, relation of instrument to use, imply the presence of intelligence and mind.”
Jim Watson Attacks the Argument from Design:

“One often hears the argument: what right do you have to interfere with nature? And, but the nature out there isn’t the product of great design. No one’s written a book. It’s just evolution happening and this evolution depends on random changes in the genetic messages which make some organism better able to survive than others not that able.”

“When I walk down the street and think about my fellow human beings, I see all of them as products of that script, products of several billion years of evolution where the script has become more and more refined so it finally says ‘human being.’ The imperfection is not any grand design. It’s just a mistake.”

“There’s no design. These [unfit] humans have no chance of really competing with most other humans. So what do you do with the unfit?”
St. John’s College, Cambridge University
concludes the *Origin of Species* with a Newtonian Flourish