

THE MECHANICAL PHILOSOPHY

Analysis

The Mechanism of Descartes

Descartes' version of mechanism exhibits the following three hallmarks which are appropriated by later mechanical philosophers in varying degrees:

- the nature/machine analogy
- a 'mechanical' or 'mathematical' approach to scientific demonstration
- a geometrical metaphysical foundation.

"The Cartesian bundle is undone" [2]

Animals as Machines

Within post-Cartesian physiological explanations there is less confusion over true mechanical demonstrations and hypothetical structural explanations, thus giving a clearer view of what was mechanistic, rather than atomistic or corpuscularian, in a seventeenth century context. Descartes' mechanistic physiology was developed in the following three ways:

- preserving the first two Cartesian hallmarks and sacrificing the third (Perrault and Borelli)
- preserving the third Cartesian hallmark and weakening the first into an abstract metaphor (Rouhault)
- trying to reintegrate all three Cartesian hallmarks (Régis)

English Experimentalism and Mechanism

On English soil Cartesianism had to compete with the prevailing philosophical and religious preconceptions, including a commitment to Baconian experimentalism. Where experimental observations conflicted with Cartesian principles, experimentalism was given primacy, resulting in a combination which rejected key features of both Cartesian Mechanism and Baconian Experimentalism.

By characterizing mechanism as a 'hypothesis' Boyle and Locke changed the way Descartes' mechanical philosophy was seen. The term 'hypothesis' could be taken to mean many things, but most importantly, they were based on experience. When considered as a hypothesis in this sense, mechanism is limited to structural explanations. Problems do arise from merely defending mechanism as the best hypothesis, such as:

- the precise deliniation of primary and secondary qualities
- the use of texture

These problems did not prevent the English modifications of mechanism from taking hold as the compromise worked to fruitfully lead scientific inquiry thanks to Boyle's optimism without destroying the skepticism inherent in British empiricism.

Conclusion

Although we have yet to achieve a comprehensive account of the mechanical philosophy, by examining its origins in Descartes and its modification by later thinkers we have made progress toward a deeper understanding of the complex historical phenomenon known as the mechanical philosophy. Our research suggests that rather than creating a rigid, uncompromising characterization of mechanism, it is more fruitful to examine the changing dynamic of what it meant to be a mechanical philosopher as the seventeenth century progressed and as the philosophy was transplanted into different intellectual climates. There remains the possibility that further research into individual mechanical philosophies will bring to light a set of unifying characteristics common to its many variations.

References:

1. Anstey 2000: 12.
 2. Des Chene 2005: 251.
- Background: Robert Boyle's Air Pump, New Experiments touching the Spring of Air

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Introduction

The great variety of characterizations of mechanical philosophy (both historical and modern) makes it difficult to build a consistent list of early modern mechanical philosophies. If mechanical philosophy is considered to include various subcategories, such as strict and loose mechanism, the proper demarcation of the subcategories becomes unclear. If it requires a specific metaphysical matter theory, philosophers who considered themselves part of the mechanical tradition are excluded. The aim of our research is to bring together and analyze the various characterizations so as to begin the process of creating a comprehensive and consistent characterization of mechanistic philosophy.

This is of interest because of the complexities involved in untangling the core definition of mechanism from the individual instances of mechanical philosophies. Current scholarship fails to resolve this issue as it either accepts the historical Boylean definition which permits a great variety of

views to be considered as mechanical or insists that mechanism is tied to a specific metaphysical matter theory.

Background

Varying Characterizations of Mechanism

- roots in the atomist works of Democritus and Epicurus
- requiring a reductive matter theory
- using structural explanations and analogies
- excluding forces from the essence of matter
- adamant rejection of 'occult qualities'
- roots in the explanations of mathematical practitioners
- a method
- a program of justification or legitimization

These characterizations, as well as various combinations of them, depend on Boyle's characterization of the "Corpuscular or Mechanical philosophy" [1] as their starting point. This approach is flawed in that mechanical philosophy preceded Boyle, so using his characterization as a starting point fails to take into account the elements of early mechanism and their development over time.

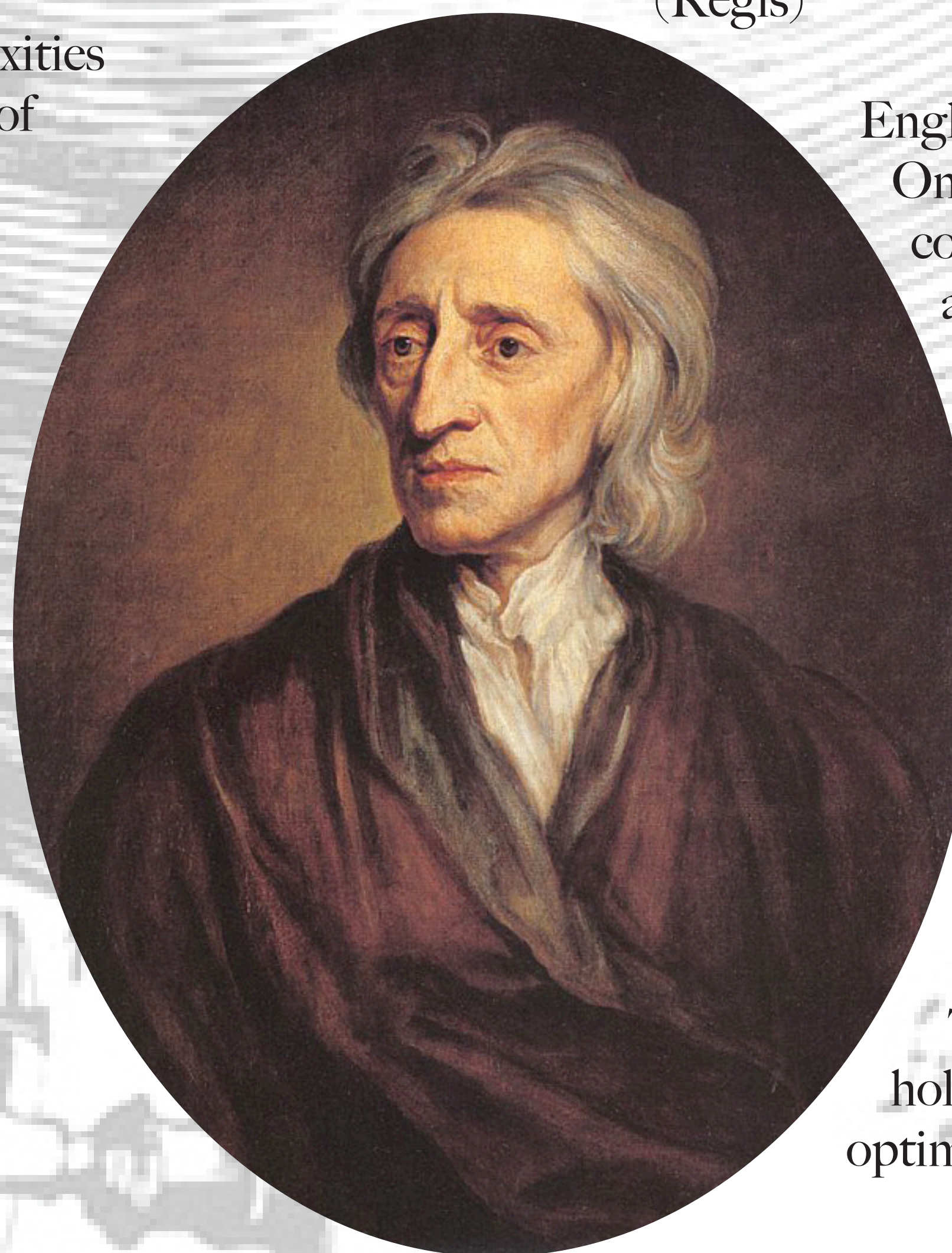
Method

In order to build a cohesive and coherent characterization of seventeenth century mechanical philosophy the following steps were taken:

- 1) General background reading on the mechanical philosophy.
- 2) In depth reading of secondary literature defining mechanism.
- 3) Synthesis of the gathered information focused on developing a new characterization of mechanism.



Portrait of Robert Boyle, by Johann Kerseboom, c.1689.



Portrait of John Locke, by Sir Godfrey Kneller, 1697.



Portrait of René Descartes, by Frans Hals, 1649.

