

Descartes's *horror vacui*: Rohault on the Void and Pascal's Cartesian Critique Daniel Collette (University of South Florida)

A central point for Descartes's project in the *Regulea* and *Discourse on Method* was to build a natural philosophy detached from obscure judgments based on ancient and scholastic authorities.¹ He reiterates this in the first pages of the *Passions of the Soul*. In the *Meditations* and *Principles*, he makes this critique implicitly, but obtains the same goal through methodological doubt: reject natural philosophy built upon tradition instead of sound reason.² This becomes an important methodological concern for some early Cartesians, including two especially trusted by Clerselier, Jacques Rohault (who was Regis's teacher) and Blaise Pascal.³ In several works by Pascal including *Préface pour un Traité du vide* and *De L'esprit Géométrique* as well as Rohault's *Traite de physique*, this methodological concern is evident. They both pick up Descartes' project, attributing the failure of natural philosophy to the Scholastic use of authority and the subsequent obscure definitions that result from appeals to tradition and not experimentation.

The use of this method becomes especially interesting when looking at their interpretation of results from experiments on the vacuum. Pascal's famous Puy-de-Dôme experiment was replicated many times, including by Rohault. After conducting his experiment, Pascal concludes that it demonstrated the existence of a vacuum. Rohault, however, sides with Descartes and believes that the experiment is consistent with plenism. In my paper, I explore how two Cartesian philosophers who seem to share the same method for natural philosophy arrive at such different interpretations of these experiments. I argue that Rohault so closely follows the writings of Descartes that he captures their philosophical content but not their intention – he begins his *Traite de physique* by assuming a set of “self evident” axioms drawn from Descartes, such as that *nothing has no properties*. From these axioms, he directly draws the conclusion that there can be no void before experimentation, though he conducts Pascal's experiments anyway. Thus, though he follows Descartes, he deviates from Descartes's method by looking no further than a set of axioms in his epistemic foundation, assuming them to be perfectly clear and certain. This is in contrast with Pascal who also clearly rejects the use of authority to obtain scientific knowledge. In the *Préface pour un Traité du vide* and other writings on the void, Pascal attacks the concept that nature abhors a vacuum as obscure, that it uncritically personifies nature as having feelings. Thus, while Rohault's axioms do not allow him the possibility of interpreting the vacuum experiments in any way other than against the void, Pascal's embrace of Cartesian method allows him to undermine arguments based on authority. For Pascal, he is willing to push against and reject the

¹ See the *Regulea* Rule 3; AT X 366-368 and the *Discourse on Method*

² That Descartes intends doubt as a means to undermine Aristotle's philosophy is made explicit in his January 28, 1641 letter to Mersenne: “And I hope that those who read them will accustom themselves insensibly to my principles, and will recognize the truth before noticing that they destroy those of Aristotle.” (AT III, 298; All translation of Descartes from Ariew, Roger. *Philosophical Essays and Correspondence*. Hackett: Indianapolis, IN, 2000.)

³ Although the paper is not designed to defend Pascal's Cartesianism as others have done, his access to Descartes's writings on the Eucharist and the *Regulea* would put him in the inner most trusted circle of Cartesians.

assumed axioms themselves to find a truly certain foundation for his natural philosophy. Thus, although Rohault adheres more closely to the scientific writings of Descartes, Pascal's use of Descartes's method to natural philosophy allows him to question whether the axioms themselves really are self-evident and certain. In doing so, Pascal shows his true Cartesianism in rejecting Descartes's plenism.