

About God in Newton's correspondence with Richard Bentley and Queries in *Opticks*

Nicolae Sfetcu

February 13, 2019

Sfetcu, Nicolae, "About God in Newton's correspondence with Richard Bentley and Queries in Opticks", SetThings (February 13, 2019), MultiMedia Publishing (ed.), DOI: 10.13140/RG.2.2.16732.44162, URL = <https://www.telework.ro/en/about-god-in-newtons-correspondence-with-richard-bentley-and-queries-in-opticks/>

Email: nicolae@sfetcu.com



This article is licensed under a Creative Commons Attribution-NoDerivatives 4.0 International. To view a copy of this license, visit <http://creativecommons.org/licenses/by-nd/4.0/>.

Excerpt from:

Sfetcu, Nicolae, "*Isaac Newton on the action at a distance in gravity: With or without God?*", MultiMedia Publishing (2019), DOI: 10.13140/RG.2.2.25823.92320, ISBN: 978-606-033-201-5, URL = <https://www.telework.ro/en/e-books/isaac-newton-on-the-action-at-a-distance-in-gravity-with-or-without-god/>

Correspondence with Richard Bentley

In Newton's correspondence with Richard Bentley, Newton rejected the possibility of remote action, even though he accepted it in the *Principia*. On February 25, 1692/93, in the third letter addressed to Bentley, Newton wrote:

"It is inconceivable that inanimate brute matter should, without the mediation of something else, which is not material, operate upon, and affect other matter without mutual contact; as it must do, if gravitation, in the sense of Epicurus, be essential and inherent in it. And this is the reason why I desired you would not ascribe innate gravity to me. That gravity should be innate, inherent, and essential to matter, so that one body may act upon another at a distance through a vacuum, without the mediation of anything else, by and through which their action and force may be conveyed from one to another, is to me so great an absurdity, that I believe no man who has in philosophical matters a competent faculty of thinking, can ever fall into it. Gravity must be caused by an agent acting constantly according to certain laws; but whether this agent be material or immaterial, I have left to the consideration of my readers." (Cohen 1978)

Andrew Janiak asserts that Newton *rejected robust action* (without material or immaterial medium) at a distance because he had the familiar view that a substance cannot act where it is not and considered non-local action to be simply unthinkable. (Janiak 2008) In my opinion, and in line with John Henry's commentary on the letter to Bentley, (Henry 2011) Newton only **disagrees with gravity as an inherent property of matter** that would act "without anyone else's mediation" (Epicurean attraction), but God can add gravity to matter. Even though Hylarie Kochiras agrees in this case with Janiak, (Kochiras 2009) claiming that such involvement of God does not fit with Newton's empirical spirit, Eric Schliesser furthermore argues (in favor of God's involvement) that in the letter Newton is considering influencing his readers to accept the idea of a universe governed by divine laws. (Schliesser 2011)

Both Kochiras and Janiak interpret this fragment of Newton's letter as a clear affirmation of an immaterial agent. In addition, Kochiras denies Newton's intention to involve God here because he does not clearly introduce God, rather speaking of "mediating someone else who is not material". But such immaterial mediation could only be of divine origin. I also argue this

point with a fragment of Newton's first letter to Bentley (December 10, 1692), in which he emphasized that the ordinary planetary movement is "the effect of Counsel." (Cohen 1978) In the second letter (January 17, 1692/93) emphasized that "gravity may put the planets into motion but without the divine power it could never put them into such a Circulating motion as they have about the Sun, & therefore for this as well as other reasons I am compelled to ascribe the frame of this Systeme to an intelligent agent." (Cohen 1978) Newton officially accepts the idea that God is the primary cause but does not act directly, but "through His agents" (the secondary cause), thus trying to eliminate the possibility of accepting atheism by accepting direct action at a distance.

Henry's comment on this passage (Henry 1994) confirms my opinion expressed above, stating that Newton just wants to make sure that the observed reality of remote action can be used to prove God's existence even at the risk of sacrifices.

Queries in *Opticks*

Practically, Newton's natural philosophy is indissolubly linked to his conception of God. The knowledge of God seems to be essentially immutable, unlike the laws of nature that can be subjected to refining, revision and rejection procedures.

Interpreting the above passage as in *De Gravitatione*, Janiak asserts that, since God is not removed from any object at any time, and may even be the "immaterial medium," from the Newton's point of view of (Janiak 2008, 38) God never acts at a distance from any object, a similar interpretation to Hylarie Kochiras (a substance must be present where it acts). (Kochiras 2011, 275) A wrong idea, in my opinion, if "immaterial medium" considers the secondary cause expressed by Newton on other occasions.

Newton has suggested, over time, several types of ether that could mediate remote action. But consistently with his idea of not producing hypotheses that are not based on experimental evidence, he has never promoted these suggestions to scientific hypotheses. He had to reconcile mechanics, so he went on the idea of an ether of particles so fine that the mass was negligible (basically an immaterial ether).

Based on the 1717 *Opticks* assertion that invokes repellent forces that act at a distance between etheric particles, Janiak attempts to cancel out the idea that ether can be the physical medium (the cause of gravity) that acts directly at the local level, suggesting that the particles of this medium could have their own physical medium, perhaps in another medium. (Janiak 2008, 79) Kochiras confirms my view that Newton **oscillated between accepting and rejecting the direct action at a distance**, arguing that while Query 21 asserts a direct (immediate) action at a distance, Query 31 involves an **immaterial medium**.

The medium that Newton introduced in Query 21 consists of extremely small corpuscles that are spatially separated on the one hand and the **non-mechanical active principle** that produces and mediates the repulsive forces between these bodies on the other. In Query 28 he clearly stated that a **mechanical environment must be rejected**. (Newton 1979, 399) Ether passes through bodies, so it is immaterial. Thus, the gravitational attraction of the earth can be explained by the continuous condensation of another type of etheric spirit, not of the main body of the phlegmatic ether, but of a very thin and subtle thing diffused through it, perhaps of a gummy, tenacious and elastic nature. (Newton 1979, 181)

Janiak, Kochiras and Ducheyne consider that Newton speaks of an immaterial ether. For Janiak, "the ether could not be mechanical in Newton's sense, but would have to flow through material bodies, interacting somehow with their masses." (Janiak 2008, 78) Kochiras states that

Newton introduced a non-mechanical ether in Query 21. (Kochiras 2009) Ducheyne believes that the environment that Newton introduced in Query 21 involves remote non-mechanical actions. The use of Newton in queries can be explained by what we would call "non-mechanic mediated action at a distance".

Ducheyne states, unlike Henry when he speaks about queries, Kochiras about Query 21 and Schliesser about *De mundi systemati*, that Newton never accepted a direct unmediated action, arguing that although Newton identified a **non-mechanical ether** as the cause of gravity in Queries, he never explained how it works on matter. In my opinion, Ducheyne is wrong in this case. Newton explained the functioning of the ether, but the explanation was quite unconvincing, precisely because Newton also believed in the possibility of direct action at a distance, but he refrained from promoting this idea for theological reasons to exclude the possibility of atheistic interpretation of direct action at distance.

Also, in Query 28, Newton argued that a mechanical environment must be rejected: "And therefore to make way for the regular and lasting Motions of the Planets and Comets, it's necessary to empty the Heavens of all Matter, except perhaps some very thin Vapours, Steams, or Effluvia, arising from the Atmospheres of the Earth, Planets, and Comets, and from such an exceedingly rare Æthereal Medium as we described above [ie in Query 21]. A **dense Fluid** can be of no use for explaining the Phænomena of Nature, the Motions of the Planets and Comets being better explain'd without it. It serves only to disturb and retard the Motions of those great Bodies, and make the Frame of Nature languish: And in the Pores of Bodies, it serves only to stop the vibrating Motions of their Parts, wherein their Heat and Activity consists. And as it is of no use, and hinders the Operations of Nature, and makes her languish, so there is no evidence for its Existence, and therefore it **ought to be rejected.**" (Newton 1979, 368) In view of the above

context, it is clear that, according to Newton, a mechanical ether is a material one, acting through direct contact, and that a non-mechanical ether is an immaterial one.

Newton **denies the movement inherent of matter, this requiring divinely governed secondary causes.** In Query 31,

"It seems to me farther, that these Particles have not only a *Vis inertiae*, accompanied with such passive Laws of Motion as naturally result from that Force, but also that they are moved by certain active Principles, such as is that of Gravity, and that which causes Fermentation, and the Cohesion of Bodies."(Newton 1979)

In fact, as Henry confirms and recognizes both Ducheyne and Kochiras, Newton was prepared to accept a direct action at a distance to take account of various optical processes in the context of the **non-mechanical ether**. In Question 31, Newton asks, " Have not the small Particles of Bodies certain Powers, Virtues, or Forces, by which they act at a distance...For it's well known, that Bodies act one upon another by the Attractions of Gravity, Magnetism, and Electricity; and these Instances shew the Tenor and Course of Nature, and make it not improbable but that there may be more attractive Powers than these," and in the Scholium, in Section XI of Book I of the *Principia*, he underlined the following:

"How these Attractions may be perform'd, I do not here consider. What I call Attraction may be perform'd by impulse, or by some other means unknown to me. I use that Word here to signify only in general any Force by which Bodies tend towards one another, whatsoever be the Cause. For we must learn from the Phaenomena of Nature what Bodies attract one another, and what are the Laws and Properties of the attraction, before we enquire the Cause by which the Attraction is perform'd." (Newton 1999)

Newton did not introduce a cause of gravity into queries, he admitted that he **does not know what this ether is**,(Newton 1979) but he has speculated that **gravity is produced by non-mechanical and divinely-mediated active principles**. Thus, he broke the methodological neutrality that he supported in a demonstrative context, but did not present his ethereal speculations as demonstrations, but as queries.

As Newton later states in Query 31 of *Opticks*, the cause of gravity is an **active principle** in matter,

"It seems to me farther, that these Particles have not only a *Vis inertiae*, accompanied with such passive Laws of Motion as naturally result from that Force, but also that they are moved by certain active Principles, such as is that of Gravity... But to derive two or three general Principles of Motion from Phænomena, and afterwards to tell us how the Properties and Actions of all corporeal Things follow from those manifest Principles, would be a very great step in Philosophy, though the Causes of those Principles were not yet discover'd: And therefore I scruple not to propose the Principles of Motion above-mention'd, they being of very general Extent, and leave their Causes to be found out." (Newton 1979, 400–401)

but this active principle is not an essential aspect of matter, but something that must have been **added to matter by God**, arguing in the same Query even the need for divine intervention.

Bibliografie

- Cohen, I. Bernard, ed. 1978. *Isaac Newton's Papers & Letters on Natural Philosophy and Related Documents*. Reprint 2014 ed. edition. Harvard University Press.
- Henry, John. 1994. "'Pray Do Not Ascribe That Notion to Me': God and Newton's Gravity." In *The Books of Nature and Scripture: Recent Essays on Natural Philosophy, Theology and Biblical Criticism in the Netherlands of Spinoza's Time and the British Isles of Newton's Time*, edited by James E. Force and Richard H. Popkin, 123–47. International Archives of the History of Ideas / Archives Internationales D'Histoire Des Idées. Dordrecht: Springer Netherlands. https://doi.org/10.1007/978-94-017-3249-9_8.
- . 2011. "Gravity and De Gravitatione: The Development of Newton's Ideas on Action at a Distance." *Studies in History and Philosophy of Science Part A* 42 (1): 11–27. <https://doi.org/10.1016/j.shpsa.2010.11.025>.
- Janiak, Andrew. 2008. "Newton as Philosopher by Andrew Janiak." Cambridge Core. July 2008. <https://doi.org/10.1017/CBO9780511481512>.
- Kochiras, Hylarie. 2009. "Gravity and Newton's Substance Counting Problem." *Studies in History and Philosophy of Science Part A* 40 (3): 267–80. <https://doi.org/10.1016/j.shpsa.2009.07.003>.
- . 2011. "Gravity's Cause and Substance Counting: Contextualizing the Problems." *Studies in History and Philosophy of Science Part A* 42 (1): 167–84. <https://doi.org/10.1016/j.shpsa.2010.11.005>.
- Newton, Isaac. 1979. *Opticks, Or, A Treatise of the Reflections, Refractions, Inflections & Colours of Light*. Courier Corporation.
- . 1999. *The Principia: Mathematical Principles of Natural Philosophy*. University of California Press.
- Schliesser, Eric. 2011. "Newton's Substance Monism, Distant Action, and the Nature of Newton's Empiricism: Discussion of H. Kochiras 'Gravity and Newton's Substance

Nicolae Sfetcu: *About God in Newton's correspondence with Richard Bentley*

Counting Problem.”” *Studies in History and Philosophy of Science Part A* 42 (1): 160–66.
<https://doi.org/10.1016/j.shpsa.2010.11.004>.