



**HAL**  
open science

# Newton and religion: some reflections on Koyré's interpretation of Newton's philosophy and theology

Scott Mandelbrote

► **To cite this version:**

Scott Mandelbrote. Newton and religion: some reflections on Koyré's interpretation of Newton's philosophy and theology. *La Lettre de la Maison Française d'Oxford*, 2001, 13, pp.53-63. hal-02537336

**HAL Id: hal-02537336**

**<https://hal.science/hal-02537336>**

Submitted on 20 Apr 2020

**HAL** is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

## **NEWTON AND RELIGION : SOME REFLECTIONS ON KOYRE'S INTERPRETATION OF NEWTON'S PHILOSOPHY AND THEOLOGY**

---

Scott Mandelbrote<sup>1</sup>

‘**H**e is a professional scientist, and though science, at that time, had not yet accomplished its disastrous divorce from philosophy, and though physics was still not only designated, but also thought of, as "natural philosophy", it is nevertheless true that his primary interests are in the field of "science", and not of "philosophy". He deals, therefore, with metaphysics not *ex professo*, but only insofar as he needs it to establish the foundations of his intentionally empirical and allegedly positivistic mathematical investigation of nature. Thus the metaphysical pronouncements of Newton are not very numerous and, Newton being a very cautious and secretive person as well as a very careful writer, they are rather reticent and reserved. And yet they are sufficiently clear so as not to be misunderstood by his contemporaries.’

This extraordinary passage, which occurs just over half way through Alexandre Koyré's *From the Closed World to the Infinite Universe* (pp. 159-60) and which introduces an extensive study of the metaphysical suggestions to be found in the *Principia*, including the General Scholium, and in the queries to the *Opticks*, as well as their reception among some of Newton's contemporaries, seems a good launching point for reconsidering Koyré's influential interpretation of Newton's concept of God and its role in his system of the world. For Koyré expresses here a number of the critical assumptions that govern his approach to Newton's ideas, both with regard to Newton's texts themselves and to the interpretations of them that were being offered by Koyré's own contemporaries.

Firstly, this passage illustrates the dialectic between ‘philosophy’ and (often empirically formulated) ‘science’ that had been so prominent in

---

<sup>1</sup>Peterhouse, Cambridge and All Souls College, Oxford

Koyré's writing from the 1930s, both in his studies of Galileo and in the wider work that developed from them. It brings out both his long-held conviction that a priori reasoning linked together the chain of the development of human thought over time and his more recent determination that the transformative effects of Platonist metaphysics and mathematics gave unity to the apparently disparate discoveries of the scientific revolution. It is thus evidence of his belief both that the essence of human thought has been the same everywhere and that changes or maturations of thought (or *mentalité*) are nevertheless possible. These were the ideas that Koyré had developed during his long and eclectic education in the Ukraine, in Göttingen, and in Paris, and which drew on his knowledge of neo-Hegelian and phenomenological thinking; his acquaintance with the teachings of Edmund Husserl, Adolf Reinach, and Emile Meyerson; his interest in the anthropology of Lucien Lévy-Bruhl and friendship with Lucien Febvre, and, above all, on his own long study of the mystical (and in some senses the Platonic) tradition of the sixteenth and seventeenth centuries themselves.

Secondly, Koyré's opening remarks about Newton indicate the importance for him of a method of close textual study that might reveal to the modern reader what a careful author had concealed in his writings, which might have seemed familiar to his contemporaries but which would otherwise baffle the hasty eye and befuddled mind of one equipped only with the concepts and conceits of the twentieth century. This was the method that Koyré applied diligently to Newton, with it revolutionising the study of the *Principia*, the *Opticks*, and, perhaps above all, the correspondence that Newton sponsored between his disciple and friend, Samuel Clarke, and Leibniz (the subject not only of a chapter in *From the Closed World to the Infinite Universe* but also of exemplary pieces of close reading, compiled with the help of I. Bernard Cohen, and published in *Isis* [volume 52 (1961), 555-66] and in *Archives internationales d'histoire des sciences* [volume 15 (1962), 63-126]). Koyré's method, which was to prove highly influential on the new discipline of the history of science both in the United States and in Britain, had as one of its consequences the rejection of what he elsewhere called 'the current positivistic interpretation of Newton's thought' [*Newtonian Studies*, ed. I. Bernard Cohen (Cambridge, Mass., 1965), reprinting a passage first published in 1956]. For the overturning of positivism, and with it of a naively empirical view of science and a simplistically developmental interpretation of history, was a decisive step along the high road that might establish or reestablish the importance of

philosophy in the history of science and of *mentalité* in the practice of history.

Koyré's study of the transformation of human views of the universe must therefore be seen as part of a personal intellectual history, not just as a contribution to the history of ideas. As such it raises a number of questions about how one should write history, not all of which it can satisfactorily answer. The most serious of those questions relate to issues that are fundamental to any form of history, namely chronology and the study of the contexts in which events (or, in this case, ideas) took place. They thus concern the problem of whether particular philosophical, and in this case metaphysical, arguments should be thought to determine the history of scientific development, and, for Newton, also of theological and religious change. For Koyré's choice of both texts to exemplify and contexts to embody Newton's thinking was shaped by his desire to assert the primacy of a metaphysical reading of Newton's religious thought that is not so easy to assert in the face of a broader range of Newton's writing on, say, the history of religion.

For example, it would be wrong to assume that the definitions of God that Newton gave in the General Scholium and that became such an important part of the debate in the Leibniz-Clarke correspondence were formulated simply in the context of consideration of the problem of order within the new-found regions of absolute space. Indeed, the study of Newton's theological manuscripts and of the ideas expressed there of the dominion and lordship of God the Father in history as well as in nature point to an interesting and essential problem of chronology for Koyré's account of Newton. Neither the concept of absolute space nor the metaphysical ideas that were later used to support it were straightforward developments in Newton's philosophy. Koyré's concentration on Newton's published works indeed gives an air of decisiveness to Newton's conclusions that both Newton and those later writers who focussed on the almost miraculous achievements of the young natural philosopher in the 1660s perhaps meant to imply, but which the uncertainties, reworkings, and indecision of Newton's papers and of his plans for their publication in fact belie. Thus scholars now suspect that Newton's decisive move away from Cartesian concepts of relative space occurred much later than the 1660s, although Newton was already critical of some of Descartes' ideas during that decade. It seems similarly that the problem of finding an explanation and ideally a cause for the operation of gravity within a vacuist system not only confused Newton continually following the publication of the first

edition of the *Principia* but also baffled most of his friends and contemporaries. Both the difficulties that bothered Newton and some of the solutions with which he toyed were part of long philosophical traditions; however, these were as much atomist, stoic, even Aristotelian or scholastic, as they were Platonic.

Newton's early and wide reading in the classical tradition and his training in the scholastic reasoning of authors like Robert Sanderson provided an eclectic but not always revolutionary basis for his reasoning in natural philosophy that was broadened by his study of Christian history and the writings of the Fathers. But such eclecticism may also have complemented the fear of being discovered to hold heterodox beliefs that perhaps helped to ensure the suppression of the 'classical scholia' that Newton wrote for the *Principia* during the 1690s. In the end, Newton found the problem of the cause of gravity intractable, and left it unsolved, despite the suggestions made in the preface to the second edition (1713) of the *Principia* by Roger Cotes and those to be found in the queries to the *Opticks*. What Newton did do, however, was to rule out both mechanical causes for gravity such as those suggested by Christiaan Huygens or Nicolas Fatio de Duillier and the notion that gravity was simply a property of matter itself, as was suggested by some deist writers, for example John Toland, and argued by many later natural philosophers.

One reason for Newton's decisions may well have been his strong sense of the freedom of God's will to act in the material world. Koyré rightly identified a number of possible challenges to a Newtonian natural philosophy dependent on the continual supervision of a God of dominion. These certainly included the criticisms of Leibniz and of Cartesian natural philosophers or the opposition of Berkeley and others to hypothetical elements in Newton's work; more surprisingly, they ought also to include the attacks of many followers of John Locke on innate ideas and in particular on the scholastic reasoning deployed by Newton's ally, Clarke. Koyré was perhaps too eager in granting the field to Newton and his allies, as well as unwilling to recognise the multiplicity of sources on which Newton drew for his metaphysics. In this context, it is interesting to note that, in seminars that he gave in the *Ve section (Sciences religieuses)* of the *École pratique des hautes études* in 1950, Koyré commented briefly on the theological relationship of Newton and Locke and on the Arianism of Newton's theological manuscripts and its possible implications for his natural philosophy. Yet even here there is no sign of awareness either of the complexity of the relationships of the followers of Newton and Locke or of the potential importance of theological arguments, derived from Arian and

Socinian authors, for the understanding of Newton's God of dominion. Thus, the chronology of the development of Newton's ideas and of their acceptance is distorted and metaphysical reasoning can be given pride of place over other potential contexts for Newton's theology.

It is to those contexts that I wish to turn in more detail for the remainder of this paper. I will begin with a topic whose importance is assumed by Koyré but which has never been the subject of extensive scrutiny. This is the question of Newton's reading and the possible sources that may be found in his library or among books from which he is known to have taken notes for the ideas that are expressed in his printed works. One manuscript of Newton's theological reading which might support some aspects of Koyré's argument has been studied. This contains the notes that Newton made on the Cambridge Platonist, Ralph Cudworth's *True Intellectual System of the Universe* (1678). But other books provide evidence of less obvious intellectual contacts and the influence that they may have had on the formulation of Newton's ideas. Thus, the presence in Newton's library of Samuel Crell's *Initium Evangelii S. Joannis Apostoli* ([Amsterdam], 1726), taken together with a letter of that year from Crell to Newton, demonstrates Newton's continuing interest in and financial support for the writings of openly Socinian authors, even at the end of his life. Other, earlier Socinian works, including the publications of Samuel Crell's grandfather, Johann, were available to Newton either in his own library or that of Trinity College, Cambridge, beneath which Newton had his own rooms for a period during his Fellowship. These authors and their writings may have provided models both for the description of God's attributes that Newton advanced in the General Scholium and for the reclusive life of one who must keep his true religious views hidden away from others that Newton himself led.

The theological studies in which Newton engaged from the early 1670s may have played a greater role in his personal and intellectual formation than has usually been allowed. Indeed, it has recently been argued by Michael Ben-Chaim that the forms of demonstration used in Newton's first publication, the paper on light and colours that appeared in 1672, were derived from the literary style of contemporary Puritan preaching. This insight might be extended. There was a growing stress in post-Restoration biblical commentary on the value of the narrative and historical passages of the Bible, as demonstrations of the moral teachings of a divine providence that acts in the world. Parallel to this might be the reliance on narrative accounts as demonstrations of the veracity of experiments, giving evidence of the ordering of created nature. The stories

of eye-witnesses provided proof of God's special providence and power in the working of miracles; similar eye-witness accounts might seem the best form of support for unlikely suppositions about the material world as ordered by general providence. Equally, it might be supposed that the structure of the biblical commentaries may have had as much influence on the ordering of Newton's philosophical arguments as the structure of mathematical texts clearly had on that of his theological manuscripts, especially those relating to the interpretation of prophecy. Thus, both the *Principia* and the *Opticks* contain passages of commentary and speculation, much like those to be found in editions of biblical texts or historical chronologies.

It may therefore be possible to construct theological sources for some of Newton's writings. One can also suggest ways in which the personal contacts that Newton made because of his theological beliefs shaped the presentation and reception of his ideas. The notion that Newton's religion was a purely private affair is one that has appealed to many of his biographers, ever since the second edition (1855) of Sir David Brewster's memoir first made plain the impossibility of recruiting him for the ranks of the whole-heartedly orthodox. The impression of Newton's determined pursuit of an exclusive and personal religious quest that emerges even from the work of Richard S. Westfall and other authors of the last two decades also indicates the scholarly longevity of at least one aspect of Frank E. Manuel's psycho-analytical portrait of Newton, first published in 1968. But the recognition that Newton sought to conceal his true beliefs from most of his contemporaries at most points during his life need not imply that those beliefs were developed in near-complete isolation, nor that they remained uncommunicated, nor that the manner of their communication had no effect on the presentation of Newtonian philosophy.

For example, Newton's opposition to the philosophies of Hobbes and Descartes, which had matured by the 1680s, had also, by then, been paralleled by a rejection of the Platonism of Henry More which may owe much to Newton's private disagreements, reported in correspondence, with More over the interpretation of prophecy and the history of the Christian Church. At the very least, More's letter to John Sharp of 16th August 1680 indicates that at that point Newton was willing to discuss both mathematics and theology openly and to have his ideas reported to others. Although the older Newton became more careful in his conversation, he nevertheless continued to be influenced by and to disseminate his ideas through a circle of acquaintances. He profited from the friendship and patronage of several prominent Whig politicians, notably the younger John Hampden, who had

encouraged the dissemination of Richard Simon's works of biblical criticism in England; Charles Mordaunt, Earl of Pembroke; and, above all, Charles Montagu, Earl of Halifax, who became Newton's most prominent acquaintance in early eighteenth-century London society. These men, who encouraged Newton in his career of public service after 1689, were prominent supporters of freedom of conscience for Protestant dissenters. Unlike that of some radical Whigs, however, Newton's own religious politics did not embrace the toleration of raillery or scepticism (accusations of which were levelled at Hampden, in particular), nor to any sympathy for the consciences of Roman Catholics. Yet for Newton the religious settlement of 1689 was less than ideal, in particular in its failure to grant a greater measure of inclusion within the established Church to Protestant nonconformists, as Hampden and others had originally proposed. Although he moved in public life after 1689, the boundaries of publicly-acceptable belief remained more rigid than Newton might have hoped in the heady days following the revolution of 1688.

Despite his heresies, Newton was able to maintain a prominent position as an officer of the state, in part because of the protection and patronage of Whig politicians that he enjoyed. By the time of the exchange of letters between Leibniz and Clarke, one of the problems that Leibniz posed to Newton was that he represented a competitor for the favour of Princess Caroline, the consort of the future George II, whose support protected a number of Newton's closest allies in the Church, in particular Samuel Clarke. In 1715, Newton was eager to ensure the loyalty of his friends to the Hanoverian regime for reasons of religious as well as philosophical gain. In a letter of 8th November, he thus instructed Roger Cotes to demonstrate his commitment to the new king. The success of Newton and his supporters at Court helped to draw some of Newton's theological writing into the light of day. In particular, *the Chronology of Ancient Kingdoms Amended* (1728), which he was preparing for the press at the time of his death, was the object of Caroline's curiosity. Yet even in the 1720s, when political circumstances perhaps most favoured his allies, Newton was unwilling to allow too much of what he really believed to come to light. There is evidence, for example, that in 1722 he backed away from an approach to publish his clearly Arian letters on two notable corruptions of scripture, whose printing he had considered and eventually rejected in both 1691 and 1709. Whereas the composition and dissemination of much of Newton's most controversial writing in theology occurred at times when religious liberty was in danger or under scrutiny, no such threat existed in the 1720s. Nevertheless, Newton's posthumous



publications did generate attacks from clerical critics, well aware of his heterodoxy and, in some cases, fearful of its implications for the acceptability of his natural philosophy.

From the early 1690s, Newton shared his religious as well as his philosophical ideas with a number of younger men, as well as with his older friend, John Locke. Most of these younger men were indebted to Newton for institutional as well as intellectual patronage. Nevertheless, several of them fell out with Newton and subsequently hinted at, or in the case of William Whiston openly published evidence of, his true theological beliefs. In addition to Whiston, those who knew something of Newton's theology through conversation and in some cases had access to his manuscripts, included Clarke, David Gregory, Hopton Haynes, Richard Bentley, and Nicolas Fatio de Duillier. Of these, Clarke, Whiston, and Haynes published anti-trinitarian works which helped to raise speculation about Newton's beliefs, particularly after his death. Bentley shared Newton's doubts about the authenticity of the verses that gave scriptural authority to the doctrine of the Trinity, although expressing his views within the compass of orthodoxy. These were also the men who helped to establish Newton's natural philosophy and whose arguments about the natural world generated much of the controversy that in fact greeted Newtonian ideas. Newton publicly rejected two of them, Whiston and Fatio, whose religious and intellectual positions came closest to introducing the concepts of enthusiasm and imagination into theology and philosophy. It was Newton's belief that corruption of the imagination and the enthusiasm to which it led was one of the principal causes of the decay of religion in the early Christian Church.

Religious ideas were, then, in part responsible for Newton's friendships and for the identity of those who spread his philosophical ideas to a wider audience. But whereas this aspect of the theological context for Newtonianism has received some scholarly discussion, very little attention has been paid to the possible causes of Newton's religious heterodoxy. Here again, the argument that Newton's heresies were either the natural or the perverted results of deep private study has tended to predominate, despite the fact that most contemporary scholars who had access to anti-trinitarian literature or who knew the history of the early Church, including Newton's mentor, Isaac Barrow, used their skills in defence of orthodoxy. Although much of Newton's theological writing is concerned with the question of religious freedom, in particular freedom from set forms in the Church, Newton was not strictly speaking a tolerant author. Much of what he wrote would have chimed well with earlier Puritan or contemporary Calvinist thought, and it was among early eighteenth-century Presbyterians that

Arianism spread most quickly as a doctrine. Yet Newton's initial concern with the establishment of the fundamental beliefs of a true Christianity, apparent in his earliest Church histories, hints at a possible cause for some of his heterodox ideas other than a Puritan up-bringing.

When Newton arrived at Trinity College, Cambridge, as an undergraduate in June 1661, the College was in turmoil as a result of the return of those who had been deprived during the Civil Wars and Interregnum, and, more especially, as a consequence of their attempts to reimpose the liturgy of the Church of England on public worship in chapel. 'In this pious work *Trinity College* was not the earliest, being overawed and opprest by such who were bottomed on another Interest, and could not consent to the restoring of this Kingdom and Church, since they lived and thrived upon their ruines.' [James Fawket, *An Account of the late Reverend and Worthy Dr. George Seignior* (London, 1681), p. 9] As early as 26th September 1660, one of the Fellows, the naturalist John Ray, had complained that 'They have brought all things heer as they were 1641 viz. service morning & evening, surplice sundayes & holy dayes & their eves, Organs, bowing, going bare, fasting nights...' [letter to Peter Courthope, East Sussex Record Office, Lewes, Ms. Dan. 346] After much soul-searching, Ray eventually decided that he could not take the oath of uniformity that was imposed in August 1662. He was the only Fellow of Trinity to follow that course, which he justified out of solidarity with stout country clergymen who felt that they could not conform and because 'I have already taken so many oathes & subscriptions as have taught me to disgust such pills...' [letter to Courthope, 24th July 1662, Ms. Dan. 357] Although there is no evidence to suggest that Newton was intimate with Ray, he is unlikely to have been utterly unaware of the upheavals in his College. At home in the country in the summer of 1662, Newton himself compiled a notebook that listed his sins and omissions, including his failure to observe a proper form of worship. Westfall and others have argued that this was a representation of Newton's Puritan conscience and in accord with the statutes governing the conduct of undergraduates at the University. Yet it seems to me that the young Newton may have been a more sophisticated observer of religious change than this, and that his disgust with himself and with his inattention at worship may indicate the origins of his later rejection of set forms, horror at the unnecessary imposition of oaths, and sympathy with those whom the Church had persecuted.

Despite its eventual metaphysical expression and the erudition which went into its formulation, Newton's own religion was grounded on simple propositions that he argued had been known to the practitioners of

the primitive faith of the first human societies. 'For the seven Precepts of the Noachides were originally the moral Law of all nations; & the first of them was to have but one supreme Lord God & not to alienate his worship...' [manuscript addendum to p. 382 of the *Opticks*, printed as plate 10 in MANUEL, F.E., *Isaac Newton. Historian* (Cambridge, 1963)] The corruption of those precepts had been the product of the tendency of ordinary people to understand things only in relative, human terms. The same tendency had later helped to pervert the Christian religion, distracting attention from the absolute power and dominion of God the Father. It also stood in the way of a true natural philosophy: 'Quantitates autem absolutas et relativas ab invicem sedulò distinguere necesse fuit eò quod phaenomena omnia pendeant ab absolutis, vulgus autem qui cogitationes a sensibus abstrahere nesciunt semper loquuntur de relativis, usq[ue] adeo ut absurdum foret vel sapientibus vel etiam Prophetis apud hos aliter loqui.' [WHITESIDE, D.T. (ed.), *The Mathematical Papers of Isaac Newton*, 8 vols. (Cambridge, 1967-81), vi, p. 192; this might be translated: 'It was necessary, however, carefully to distinguish absolute and relative quantities from one another, because, while all phenomena depend on absolute quantities, ordinary people, who do not know how to tell thoughts from sense experiences, always speak about relative quantities, to such an extent that it would have been absurd for the sages or even the prophets to speak otherwise to them.'] Newton seems to have believed that the Bible itself was an aid to human beings to overcome the weaknesses that had led to a succession of falls from grace. Despite his strong sense of the power of God, Newton seems always to have held an Arminian belief in the ability of people to choose their own salvation. This surprising element of humanity in Newton's religious beliefs somewhat belies the sense of the absolute nature of God to be found in both his published and unpublished work.

It seems best to close with that paradox which draws attention again to the need to find particular contexts for each aspect of Newton's thinking. Although such contexts will not prevent one from regarding Newton as a frequent exception to the patterns of his contemporaries' behaviour, they may make us look for explanations that tie Newton to those contemporaries rather than isolating him from them. They may also help to explain how he came to think in the manner that he did, and how his ideas were communicated to others. Although that may make the development of Newton's thought a more complicated process than Koyré and others imagined, it should also allow it to seem more human and more real.

### Select Bibliography.

I cannot attempt here to list the manuscripts by Newton that have helped me to formulate my opinion of his activities. However, in addition to the works cited in the body of the text, the following may be found useful by the reader:

- BAILLON, Jean-François, 'Les manuscrits religieux de Newton et leur occultation', *Dix-huitième siècle*, 28 (1996), 337-51
- BEN-CHAIM, Michael, 'Doctrine and Use: Newton's "Gift of Preaching"', *History of Science*, 36 (1998), 269-98
- FORCE, James E. and POPKIN, Richard H., *Essays on the Context, Nature, and Influence of Isaac Newton's Theology* (Dordrecht, 1990), which prints 'Newton's *Out of Cudworth*' as an appendix
- HARRISON, John, *The Library of Isaac Newton* (Cambridge, 1978)
- ILIFFE, Rob, 'A "connected system"? The Snare of a Beautiful Hand and the Unity of Newton's Archive', in HUNTER, Michael(ed.), *Archives of the Scientific Revolution* (Woodbridge, 1998), pp. 137-57
- KOYRE, Alexandre, *De la mystique à la science. Cours, conférences et documents 1922-1962*, ed. Pietro Redondi (Paris, 1986)
- McGUIRE, J.E. and TAMNY, Martin(eds.), *Certain Philosophical Questions: Newton's Trinity Notebook* (Cambridge, 1983)
- HOPE NICOLSON, Marjorie(ed.), *The Conway Letters* (New Haven, 1930)
- REDONDI, Pietro(ed.), *Science. The Renaissance of a History [History and Technology*, 4 (1987)]
- SNOBELEN, Stephen D., 'Isaac Newton, Heretic: the Strategies of a Nicodemite', *British Journal of the History of Science*, 32 (1999), 381-419
- TAYLOR, Stephen, 'Queen Caroline and the Church of England', in TAYLOR, Stephen, CONNORS, Richard, and JONES, Clyve (eds.) *Hanoverian Britain and Empire* (Woodbridge, 1998), pp. 82-101
- WESTFALL, Richard S. , *Never at Rest. A Biography of Isaac Newton* (Cambridge, 1980)
- WILES, Maurice , *Archetypal Heresy* (Oxford, 1996)
- YOUNG, B. W. , *Religion and Enlightenment in Eighteenth-Century England* (Oxford, 1998)