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## Isaac Newton on Science and Religion

William H. Austin

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## ISAAC NEWTON ON SCIENCE AND RELIGION

BY WILLIAM H. AUSTIN

In his own time Isaac Newton was known as an acute and learned theologian. Conduitt reports that "Archbishop Tenison offered him, if he would take orders, the Mastership of Trinity College when it was given to Montague, and importuned him to accept any preferment in the Church; saying to him: 'Why will you not? You know more divinity than all of us put together.'" (Newton put him off with the reply that he would "be able to do you more service than if I was in orders.")<sup>1</sup>

His theological reputation faded, not only because theology moved on to other concerns, but also because most of his relevant writings remained unpublished, and because credence was given to Laplace's belief that Newton turned to theology only in his declining years. (This is false: there is manuscript evidence of attention to theological questions as early as 1664, and apparently his most important work was completed by 1690, though he worked it over and over thereafter, as he did with his scientific writings as well.)<sup>2</sup> Renewed attention to his unpublished papers, and the efforts of intellectual historians like Burt and Koyré, have recently brought about a modest resurgence of interest in Newton's theological efforts.

In view of the continuing interest of questions about the relations between theology and science or "the scientific world view," it seems worthwhile to inquire into Newton's own views on the subject. Does he regard his scientific and theological studies as bearing on each other—and, if so, how? Or does he consider them mutually irrelevant—and, if so, why? His interpreters disagree. According to his most authoritative biographer, "Newton's philosophy and religion were two separate things, and he does not seem to have concerned himself with the problem of recoupling them."<sup>3</sup> But R. H. Hurlbutt finds it "clear . . . that Newton's science was intrinsic to practically all of his considerations on theology."<sup>4</sup> R. S. Westfall finds "a complex network of mutual influence" between Newton's religious belief and his scientific work; like all the "Christian virtuosi" of the seventeenth century, he strove for a harmony between the two, though "he went

<sup>1</sup>L. T. More, *Isaac Newton* (New York, 1962), 608.

<sup>2</sup>H. McLachlan, *The Religious Opinions of Milton, Locke and Newton* (Manchester, 1941), 121, 163.

<sup>3</sup>More, 645.

<sup>4</sup>R. H. Hurlbutt, *Hume, Newton, and the Design Argument* (Lincoln, Neb., 1965), 20.

a step beyond the others in forcing Christianity-into conformity with science."<sup>5</sup>

Moreover, Newton himself can be quoted on both sides of the dispute. He concludes a theological passage in the General Scholium to the *Principia*, "And thus much concerning God, to discourse of whom from the appearances of things does certainly belong to natural philosophy."<sup>6</sup> When he wrote the *Principia*, he assures Bentley, he "had an eye upon such principles as might work with considering men for the belief of a Deity."<sup>7</sup> On the other hand, the first of a set of seven "Statements on Religion" found among his papers reads, "That religion and Philosophy are to be preserved distinct. We are not to introduce divine revelations into Philosophy nor philosophical opinions into religion."<sup>8</sup> (Recall that for Newton "Philosophy" includes what we would call natural science.)

Let us call the statement about preserving religion and philosophy distinct "Newton's maxim." Since he does not explain or elaborate upon it, we must look to his practice to judge (1) how the maxim should be interpreted, and (2) whether he abides by it. My suggestions on these points are made in Part III of this paper. The basis for them is laid in two stages. In Part I, I survey his theological writings, with a view to showing what his main theological concerns were, and how he conceived of religion. Given this conception and these concerns, it is not surprising that his theological writings show very little or no trace of influence from his scientific ideas. However, it is not primarily to these writings that interpreters like Hurlbutt and Westfall appeal. Rather, it is in theological excursions in the *Principia*, the *Opticks*, and certain letters that we find Newton's so-called "scientific theism" adumbrated. In Part II, I discuss these passages and their consistency with the *content* of his theological books and papers, leaving the question of their relation to his *maxim* for Part III.

In this essay I consider only the bearing of Newton's science on his theology. Whether there were significant theological influences on his science is a subject I hope to explore in another paper.

I. *Newton's Theological Works.* None of Newton's primarily theological writings were published in his lifetime. The first to appear

<sup>5</sup>R. S. Westfall, *Science and Religion in Seventeenth-century England* (New Haven, 1958), 194.

<sup>6</sup>Sir Isaac Newton, *Mathematical Principles of Natural Philosophy*, ed. Florian Cajori (Berkeley, 1946), 546. (Hereafter cited as *Principles*.)

<sup>7</sup>H. W. Turnbull, ed., *The Correspondence of Isaac Newton*, III (Cambridge, 1961), 233. (Hereafter cited as *Correspondence*.)

<sup>8</sup>H. McLachlan, ed., *Sir Isaac Newton, Theological Manuscripts* (Liverpool, 1950), 58. (Cited hereafter as TM.)

was the *Observations upon the Prophecies of Daniel and the Apocalypse of St. John*, edited by Benjamin Smith (Newton's half-brother's son) and published in 1773. A treatise on the Trinitarian proof texts I John 5:7f and I Timothy 3:16 appeared in 1754 in a mutilated version (passages missing at beginning and end, reconstructed skillfully by an unnamed editor), under the erroneous title, *Two Letters of Sir Isaac Newton to Mr. LeClerc*. LeClerc was the Dutch publisher to whom Locke had forwarded the manuscript in 1690, with a view to its anonymous publication in a free French translation; but Newton decided to suppress it. Bishop Horsley printed the genuine text, under the more descriptive title, *An Historical Account of Two Notable Corruptions of Scripture*, in his 1785 edition of Newton's works. Finally, in 1950, H. McLachlan edited and published a selection of manuscripts from the Portsmouth Collection of Newton's papers under the title *Sir Isaac Newton, Theological Manuscripts*.

These works provide an adequately representative basis for study of Newton's theological interests and opinions.<sup>9</sup> Since they are relatively unfamiliar, I will survey them in section A below. They show that Newton's main theological concerns were the promotion of ecclesiastical peace and correct biblical interpretation, and that he conceived of religion as a set of duties, all of which could be known from biblical revelation and *some* by the light of natural reason. These conclusions are defended in section B, and in section C I argue that his views should not be supposed to be affected by scientific considerations.

A. Some of the materials in McLachlan's collection have to do with the interpretation of prophetic-apocalyptic writings, others present anti-Trinitarian polemics of various kinds, and the rest consist of short schemes of true religion, connected with irenic and latitudinarian proposals as to church policy. Thus Newton's theological writings fall into three classes, and our first order of business will be to survey them briefly in turn.

The details of Newton's interpretations of Daniel and the Apocalypse are no longer of interest. What do concern us are his method and purposes.

As to method, he operated from a clearcut premise that there is a special, unique, and distinct "Mystical (i.e., allegorical) language," known to and used by all the prophets.<sup>10</sup>

<sup>9</sup>They are so regarded by the intellectual historian Frank Manuel and the theologian Klaus-Dietwardt Buchholtz, who have seen the still-unpublished manuscripts. Cf. Manuel, *Isaac Newton, Historian* (Cambridge, Mass., 1963) and Buchholtz, *Isaac Newton als Theologe* (Witten, 1965). Also, nothing in the *Catalogue of the Portsmouth Collection of Books and Papers written by or belonging to Sir Isaac Newton* (Cambridge, n.d.) suggests writings of a significantly different character.

<sup>10</sup>TM, 119.

This language . . . was as certain and definite in its signification as is the vulgar language of any nation whatsoever, so that it is only through want of skill therein that Interpreters so frequently turn the Prophetic types and phrases to signify whatever their fancies and hypotheses lead them to.

The code is to be broken by an inductive study of the prophetic texts:

The Rule I have followed has been to compare the several mystical places of scripture where the same prophetic phrase or type is used, and to fix such a signification to that phrase as agrees best with all the places . . . and, when I had found the necessary significations, to reject all others as the offspring of luxuriant fancy, for no more significations are to be admitted for true ones than can be proved.

The great governing principle is an analogy between the natural realm (whence the prophets draw their symbols) and the political and ecclesiastical realm (which they are really talking about). The sun stands for a King or for Kings as such, the moon for "the body of the common people considered as the King's wife," darkening of celestial luminaries for the downfall of a body politic, dens and rocks in mountains for temples in cities, etc., etc. Newton fills pages with such keys, extending an already highly developed tradition.

What does he do with his method? In the *Observations* he traces out, in great detail, the sequence of historical events predicted in Daniel and Revelation, insofar as they have been thus far fulfilled. He does *not* try to predict the future, and explicitly denies that that is a legitimate aim in the interpretation of prophecy. Concerning the book of Revelation he says:<sup>11</sup>

The folly of Interpreters has been, to foretell times and things by this Prophecy, as if God designed to make them Prophets. By this rashness they have not only exposed themselves, but brought the Prophecy also into contempt. The design of God was much otherwise. He gave this, and the Prophecies of the Old Testament, not to gratify men's curiosities by enabling them to foreknow things, but that after they might be interpreted by the event, and his own Providence, not the Interpreters, be then manifested thereby to the world. For the event of things predicted many ages before, will then be a convincing argument that the world is governed by providence.

Nevertheless he points out that several passages in the Apocalypse say that they will not be understood until the times of the end, and then only gradually; since great strides have been made in their interpretation in recent years, we may conclude that the end is not too far off. Had he been disposed to fix a date, one is almost forced upon him by his interpretation. He identifies the eleventh horn of the fourth beast

<sup>11</sup>Isaac Newton, *Observations upon the Prophecies of Daniel, and the Apocalypse of St. John* (London, 1733), 251.

in Daniel 7 with the whore and Beast of the Apocalypse, which stands for the Church of Rome (there is nothing novel in all this). Since he dates the emergence of the Church as a political power (in the sense fitting Daniel) in the latter half of the eighth century, and reckons its reign at 1260 years, its demise and the end of the world may be expected shortly after 2000 A. D.<sup>12</sup> But he does not draw the inference; he is not writing to predict; he is simply interpreting the scriptures, in accordance with an inherited and elaborated-upon method and purpose, then quite customary.

Thus his primary purpose is to vindicate divine providence by showing that God revealed the future course of events to his prophets, and a subsidiary purpose is to discredit the Roman Church. Curiously, though, he does not *develop* the vindication-of-providence theme, nor does it provide a principle of organization for his book. After a rather perfunctory statement of the argument, he simply interprets the texts, indulges in long historical digressions, undertakes to calculate the year of the Passion (34 A. D.) and works in some anti-Roman polemics.

He attacked orthodox trinitarian doctrine on several fronts. The trinitarian proof texts in the *Textus Receptus* are neither authentic nor exegetically coherent with their contexts;<sup>13</sup> the doctrine was unlawfully imposed upon the church by Athanasius, who was a scoundrel, opportunist, and heretic; and it is unintelligible, an illegitimate intrusion of metaphysics into Christian belief. Woven into Newton's elaborations of all these themes is the charge that the doctrine is part and parcel of the Papist corruption of the faith.

The treatise on "Two Notable Corruptions" demonstrates the spuriousness of the AV readings in I John 5:7f ("For there are three that bear witness in heaven, the Father, the Word, and the Holy Ghost: and these three are one) and I Timothy 3:16 ("And without controversy, great is the mystery of godliness: God was manifest in the flesh, justified in the Spirit, seen of angels, preached unto the Gentiles, believed on in the world, received up into glory.")

The discussion of the passage in I John is the longer and more important. Newton proves that the verse as it stands in the Vulgate and the AV (along with the Greek *Textus Receptus* underlying the latter) is an outright fraud. The correct reading is: "There are three witnesses, the Spirit, the water, and the blood; and these three agree" (or "are one"). Newton carefully constructs an airtight case: the disputed reading is not in any of the ancient Greek manuscripts, nor in any of the early translations (e.g., into Syriac, Ethiopic, Egyptian Arabic, and the pre-Vulgate Latin), nor in any of the writings of the Fathers. It is particularly noteworthy, and Newton presses home the

<sup>12</sup>*Ibid.*, 74, 113f.

<sup>13</sup>Buchholtz, 39.

point, that none of the anti-Arian writers appeals to the text in question though they cite many passages which are much less obviously to the point. To the suggestion that the Arians may have tampered with the texts Newton responds with a burst of sarcasm:

Yes truly, those Arrians were crafty knaves, that could conspire so cunningly and slyly all the world over at once (as at the command of a Mithridates) in the latter end of the reign of Constantius to get all men's books in their hands, and correct them without being perceived: ay, and conjurors too, without leaving any blot or chasm in their books, whereby the knavery might be suspected and discovered; and to wipe the memory of it out of all men's brains; so that neither Athanasius, nor anybody else, could afterwards remember, that they had ever seen it in their books before. . . .<sup>14</sup>

He also answers the objection that Cyprian read the text as in the *Textus Receptus* by pointing out that all Cyprian actually *quotes* are the words "these three are one," which occur in all texts. But the "three" in the original were Spirit, Water, and Blood. The context shows that Cyprian meant Father, Son, and Holy Ghost; but Newton establishes that Cyprian and his mentor Tertullian<sup>15</sup> must have interpreted "Spirit, Water, and Blood" allegorically to mean "Father, Son, and Holy Ghost," as various later writers did.

Having nailed down his case, Newton proceeds to trace how the false reading found its way into the received Greek text, through assimilation to the Vulgate and through marginal glosses with the allegorical interpretation being copied into the text by subsequent scribes. No ancient Greek manuscripts with the disputed reading have been produced; Erasmus had the correct reading in the first two editions of his text, but came under such attack that he agreed to print the Vulgate's version if one Greek codex could be found to support it. An Englishman named Lee promptly claimed to have one, and Erasmus (who had no more desire for the martyr's crown than Sir Isaac had) made no further inquiries. The only other alleged authority is that used by Cardinal Ximenes in his edition of 1515, and Newton makes a good case for supposing that the real authority there is Thomas Aquinas.

Now to make Thomas, thus, in a few words, do all the work, was very artificial, and in Spain, where Thomas is of apostolical authority, might pass

<sup>14</sup>Isaac Newton, *Two Letters to Mr. LeClerc* (London, 1754), 32.

<sup>15</sup>Newton does not fail to take advantage of the polemical opportunity afforded him by the fact that Tertullian went over to the Montanists, a heretical sect of moral-ascetic rigorists and "enthusiasts" (i.e., claimers of spirit-possession and new revelations, not too different from a number of seventeenth-century English sects that so horrified Newton, the other "virtuosi" of the Royal Society, and good sound Anglicans in general). "It is most likely that so corrupt and forced an interpretation had its rise among a sect of men, accustomed to make bold with the scriptures."



for a very judicious and substantial defence of the printed Greek. But to us, Thomas Aquinas is no Apostle. We are seeking for the authority of Greek manuscripts.<sup>16</sup>

We have here, then, a very effective piece of polemic, carefully researched and argued, showing a thorough acquaintance with the ancient texts and versions (or with reliable authorities on them) and the writings of the Fathers.

Another sort of antitrinitarian polemic comprises a major share of the previously unpublished material brought out in 1950 by McLachlan. Newton's papers include many drafts of a much labored-over piece called "Paradoxical Questions Concerning the Morals and Actions of Athanasius and his Followers." The questions are all answered in such wise as to make those morals and actions look very dubious indeed. Again we see Newton presenting an effectively researched, skillfully marshalled, pungently phrased case, in the spirit of a prosecuting attorney rather than a judicious weigher of evidence.

Without attempting to describe and assess Newton's arguments in detail, I want to call attention to two which seem particularly revealing of his own outlook. One shows how far he was from a rationalist-skeptical frame of mind: he holds that an allegedly Athanasian story, according to which a Bishop Macarius prays (successfully) for the miserable death of Arius, must be a lie, "Because the prayer of Macarius is contrary to the temper and spirit of true Christianity, and it is not likely that God would hear a wicked prayer."<sup>17</sup> The other revealing point is that the alleged "persecution" of the Athanasians is, according to Newton, only their due punishment for resisting the rightful authority of the State. Despite his heterodoxy, Newton was an Establishment man in that he valued ecclesiastical peace almost above all else, and thought the State had the right and duty of upholding it. He had seen enough religious strife.

Other features of Newton's outlook come out clearly in a short series of (rhetorical) "Queries Regarding the Word 'Homoousios'," the first of which speaks for itself:<sup>18</sup> "Whether Christ sent his apostles to teach metaphysics to the unlearned common people, and to their wives and children?" Trinitarian metaphysical speculations are not what religion is all about. Most of the "queries" are devoted to driving home two points: (1) that the word *homoousios* is an unscriptural innovation, which caused great uneasiness at Nicaea and thereafter, and (2) that the originators and defenders of the word were "Papists," and Rome had unlawfully usurped authority.

Besides the dubious character of its proponents, there are for Newton two main objections to the word *homoousios*: it is "contrary

<sup>16</sup>Newton, *Two Letters*, 59.

<sup>17</sup>TM, 65.

<sup>18</sup>*Ibid.*, 44.

to the Apostles' rule of holding fast the form of sound words"<sup>19</sup> (i.e., introduces articles for belief that are not contained in the scriptures) and "is unintelligible. 'Twas not understood in the Council of Nice . . . nor ever since. What cannot be understood is no object of belief."<sup>20</sup> For Newton these are not two conflicting principles. The latter does not mean that the Bible is dispensable, and human reason and experience are an adequate autonomous source of religious knowledge. It does reflect a confidence that the Bible is intelligible (without need for any special illumination). Some parts of it are clearer than others; the clear parts are to be used to interpret the obscure. Commenting on the famous verse in I John, he says:<sup>21</sup>

If it be said, that we are not to determine what is scripture, and what not by our private judgement, I confess it in places not controverted; but in disputable places, I love to take up with what I can best understand. It is the temper of the hot and superstitious part of mankind, in matters of religion, ever to be fond of misteries (*sic*), and for that reason, to like best, what they understand the least. Such men may use the Apostle St. John, as they please; but I have that honour for him, as to believe, that he wrote good sense; and therefore take that sense to be *His*, which is the best.

Here the immediate issue is which of disputed readings makes the best sense in the context; but the application to general problems of interpretation is clear.

Besides antitrinitarian polemic and apocalyptic interpretation, there is a third major class of Newton's theological writings, in which he draws up brief sets of "articles of religion," with particular attention to questions of church polity. Here Newton is seeking an end to religious strife through agreement on a common body of belief. This does not mean that he was looking for a common essence of all world religions, nor even that he proceeded by trying to find a lowest common denominator of belief among the extant Protestant communions. Rather his position was that no doctrine, or form of church government, should be regarded as binding if it is not explicitly enjoined, in a clearly understandable way, in the Bible. It is clear that he regarded all Biblical religion as fundamentally the same. In "A Short Scheme of the True Religion" he finds that everything "fundamental and immutable" in true religion can be set out under two headings: "our duty towards God and our duty towards man."<sup>22</sup> "Thou shalt love the Lord thy God . . . thou shalt love thy neighbor as thyself": this "love" means, in fact, simply obeying the injunctions of the Decalogue. One's duty to God is to eschew atheism (which almost all men have

<sup>19</sup>*Ibid.*

<sup>20</sup>Quoted in More, 642.

<sup>21</sup>Newton, *Two Letters*, 76f.

<sup>22</sup>TM, 48.

been led to repudiate, because of such wonders of design as the eye) and idolatry (which includes trust in riches, a form of worshipping the creation instead of the Creator).

We are therefore to acknowledge one God, infinite, eternal, omnipresent, omniscient, and omnipotent, the creator of all things, most wise, most just, most good, most holy, and to have no other gods but him. We must love him, fear him, honour him, hallow his name, obey his commandments, and set times apart for his service. . . .

This always was, and always will be the religion of all God's people from the beginning to the end of the world.

There is nothing in Newton's statement about the role of Christ, nothing about sin or grace. The fundamental content of religion was known to the earliest men. When they drifted away from it, Moses gave it in the form of the Law. Prophets repeated and interpreted the Law, and now the last and greatest of the prophets has taught it still more clearly. The only new doctrine added by the New Testament is that Jesus was the Messiah. What Newton could have made of Saint Paul is hard to say. Perhaps he would regard the passages in Romans and Galatians about Law and Grace as among the hard and obscure portions of the Bible, to be interpreted by the clearer parts. In any case, the "drama of salvation" has quietly disappeared.

In other places Newton does speak of Christ in traditional sounding terms, referring to him as "God" and affirming that he "redeemed man with his blood." But such statements are given ingenious reinterpretations: the term "God" is applied in Old Testament usage to all who receive the word of God, and the atonement consists in Christ's obedience so pleasing the Father as to move him to pardon the sins of those Christ chooses as subjects in his kingdom.<sup>23</sup> Now the latter of these explanations, in particular, is not a simple piece of humanizing reductionism. It echoes some features of the "forensic" theories of the atonement current in certain staunchly Calvinistic circles (while, of course, differing therefrom in important ways, e.g., in eliminating, without replacing, their reason *why* Christ's obedience should be sufficient to satisfy the Father's justice). What has happened is that the Bible makes such statements about the work of Christ so Newton has to give some account of it, but it is a detail, off to the side of his thought. His understanding of what religion *is* is not affected by the theme of sin and redemption.

We have still to consider the second half of Newton's "Short Scheme,"—duty toward man. Be charitable and "do unto others . . ." is the gist of it. *Quod tibi fieri non vis alteri nec fieri* is

<sup>23</sup>Cf. Westfall, 210f.

the Ethics, or good manners, taught the first ages by Noah and his sons . . . the heathens by Socrates, Confucius and other philosophers, the Israelites by Moses and the Prophets and the Christians more fully by Christ and his Apostles. . . . Thus you see there is but one law for all nations, the law of righteousness and charity dictated to the Christians by Christ, to the Jews by Moses, and to all mankind by the light of reason, and by this law all men are to be judged in the last day. Romans ii.

Has Newton abandoned scripture as the source of religious knowledge? No, the citation from Romans is to be taken seriously, and supports what Newton says; but of course he leaves out the immediately following chapters of Romans, and the radical demands of the “fuller teaching” in Matthew 5–7. Newton acknowledges that the rationally knowable law is only part of Christianity, but it is an important part and not to be despised. He closes with a string of citations to prove the importance of righteousness and good works.

B. We have seen something of the content and tenor of Newton’s religious writings. We are now in a position to answer the questions: what were his particular theological concerns?—and what was his conception of religion?

If one concern were to be singled out as the dominant one, it would have to be Newton’s desire to promote ecclesiastical harmony and comprehension by isolating the true core of Christianity, the “religion of all God’s people from the beginning to the end of the world.” Several of the manuscripts containing various short schemes of true religion bear the title “Irenicum.” Any attempt to impose requirements of doctrine or practice, beyond what is contained in the simple core, is unwarrantable—unbiblical, contrary to the doctrine of the primitive church, and a form of salvation by works.<sup>24</sup> Hence his antitrinitarian and anti-Roman polemics. Only his labors at the interpretation of apocalyptic writings seem relatively independent of the main concern, and even they tend to vindicate the authority of the Bible and destroy that of Catholic tradition. (It might be added that a great deal of effort in his *Chronology of Ancient Kingdoms*, a primarily historical work, goes into vindicating the biblical chronology.)

It is important to recognize that desire for peace and a concern for correct biblical interpretation (as clearly genuine as it was controlled by preconceptions) were the interrelated motives for his search for “the essence of true religion.” Nothing in his writings suggests that acceptability to the “modern man” of his time, or harmony with a scientific world view, was an important consideration for him. To read in such motives seems gratuitous. Locke might endeavor to

<sup>24</sup>TM, 42.

demonstrate the reasonableness of Christianity, and Boyle to harmonize Christian theology with experimental science, but Newton (though he presumably sympathized with their convictions) did not address himself to either task.

Further, if the drive toward a simple religion of the two Great Commandments were an effect of a "scientific world-view" or simple common-sense rationalism, we should expect Newton to reject miracles, a Second Coming of Christ, and the resurrection of the body. In fact he accepts them all quite literally. "Miracles of good credit," he writes to Locke, "continued in the Church for about two or three hundred years."<sup>25</sup> And he speculates that worlds "above the clouds" may be the habitations of the blessed.<sup>26</sup>

As we have seen, for Newton religion is essentially a matter of duties and obligations, including the obligation to hold certain simple beliefs; the themes of sin and grace almost drop out. But it is an exaggeration to interpret Newton, as Westfall does, as "embracing natural religion as the whole of Christianity."<sup>27</sup> He continues:

The original and pure religion, Newton maintained, was the moral religion which was plain to all men, love of God and love of neighbor. The natural product of human reason, it prevailed among the uncorrupted men of the world's youth. . . . Christianity does not differ from the natural religion known to all rational men.

Newton's conception of the relation between natural and revealed religion is doubtless not very satisfactory, but he is far from wishing to dispense with revelation altogether. It is "the law" which is "dictated to all mankind by the light of reason," as well as to "the first ages by Noah. . . . the heathens by Socrates, Confucius and other philosophers, the Israelites by Moses and the Prophets and the Christians more fully by Christ and his Apostles."<sup>28</sup> Newton's point about the "ancient religion . . . of purity and righteousness" is that

we may lawfully proselyte heathens to it . . . and ought to value and love those who profess and practice it, even though they do not yet believe in Christ, for it is the true religion of Christians as well as heathens, *though not all of the true Christian religion.*<sup>29</sup>

In the paragraph just quoted from, Westfall says that Christ "added nothing to the true religion except the belief that He rose from the dead and that because of His obedience He can prevail upon God to forgive sinners." Newton would accept this characterization of his

<sup>25</sup>More, 369; cf. TM, 54f.

<sup>26</sup>Sir David Brewster, *Memoirs of the Life, Writings, and Discoveries of Sir Isaac Newton II*, (Edinburgh, 1855), 354.

<sup>27</sup>Westfall, 207.

<sup>28</sup>TM, 52.

<sup>29</sup>*Ibid.*, 53. Emphasis supplied.

views, except that he would stress the point that Jesus was (and taught that he was) the Messiah. These are not insignificant additions. To be sure, Newton does not have much to *say* about these points in which Christianity differs from natural religion, but it does not follow that he regarded them as minor. The simple statement of these points belongs, he says, to the milk of the gospel, their elaboration and explanation to the meat.<sup>30</sup> But where the author of Hebrews was deploring the fact that his readers still needed milk when they should have graduated to meat, Newton's point is that only milk should be required, and meat left for those who wish and are able to receive it. He does not seem to include himself in the latter group. But that does not affect the essential point, that Newton thinks Christianity comprises more than natural religion, and for all the overlap between them, the proper basis and criterion for the whole of Christianity is revelation:

The first principles of the Christian religion are founded, not on disputable conclusions, or human sanctions, opinions, or conjectures, but on the express words of Christ and his Apostles.<sup>31</sup>

C. Nowhere in his theological works does Newton discuss the relation between science and religion, save in the statement we have called "Newton's maxim." "Religion and philosophy are to be preserved distinct. We are not to introduce divine revelations into Philosophy nor philosophical opinions into religion." He does not explain why they should be "preserved distinct," though we have seen that he thinks *metaphysical* speculation has, in the case of the doctrine of the Trinity, introduced confusion and unnecessary controversy. Given his understanding of religion, and his theological interests, he had no reason to introduce natural philosophy either. The important thing is to know one's duties (including what one is duty-bound to believe), and revelation tells us all we need to know. Part of this *can* be known by natural reason, but even for this scientific discoveries are unnecessary; common knowledge is quite sufficient. In his theological papers he once or twice alludes to the design argument, but makes no appeal to scientific theories; he uses the argument as it was known in ancient times.

He had no reason to introduce natural philosophy, and he did not. Though in some respects heterodox, his theological works are traditional. They could have been written by any able unitarian-leaning theologian, innocent of scientific knowledge.

Can a more subtle influence be detected? One might claim that his drive toward simplicity in theology, his rejection of mysteries and

<sup>30</sup>*Ibid.*, 32.

<sup>31</sup>*Ibid.*, 34.

of "enthusiasm," his insistence on intelligibility (to the plain un-metaphysical and un-"illuminated" understanding) as an essential criterion for the assessment of doctrines and biblical interpretations—all can be traced to the influence of scientific *method* on his ways of thinking or his ideal of knowledge.<sup>32</sup> In the nature of the case we can hardly prove that there was no such influence. But neither is there any positive evidence for it. And there is available a plausible alternative explanation of his predilection for simplicity and intelligibility in religion.

For such predilections had, independently of scientific concerns, characterized a strand of Reformation thought from the beginning. More than a century of theological strife and the construction of ever-more-elaborate confessional statements had conspicuously failed to promote peace or agreement, even among Protestants. Equally unhelpful were the "enthusiasts" with their claims of special spiritual gifts and knowledge; we have seen what Newton and his friends thought of them. As a result, by Newton's time the simplicity-and-clarity line of thought had very great support among both nonconformists and latitudinarian Anglican divines; and it is just such groups among whom he grew up, and with whom he associated at Cambridge. In short, he stands in a theological line of development which can be understood without reference to scientific influences.

It remains to take note of the one possible exception to our statement that Newton's scientific ideas did not affect his theology. In a series of twelve (unmistakably Unitarian) articles on God appears this one: "The Father is immovable, no place being capable of becoming emptier or fuller of him than it is by the eternal necessity of nature. All other beings are movable from place to place."<sup>33</sup> So far as I know, no previous theological tradition had seen any reason to assign just this particular attribute to God (or, if you like, to spell out this particular inference from the general doctrine of God's immutability). Newton *might* have arrived at it by arguing that an absolute, immovable space requires that the God who "constitutes" it be immovable. But even here it is hard to say which way the influence ran. Koyré has argued that Newton probably got this whole set of ideas from his friend Henry More, who developed them in the course of a controversy with Cartesianism, in which theological, metaphysical, and scientific considerations all figured.<sup>34</sup>

II. *Newton's "Scientific Theism."* The thesis that Newton held a "scientific theism"—i.e., that his theological views were based, in

<sup>32</sup>Cf. Buchholtz, 39.

<sup>33</sup>TM, 56.

<sup>34</sup>A. Koyré, *From the Closed World to the Infinite Universe* (New York, 1958), chs. V-VII.

significant measure, on scientific considerations—receives no support from the writings we have considered. On the contrary, if the thesis is true, it is most remarkable that these writings show so very little evidence for it.

The *loci classici* for Newton's "scientific theism" are the General Scholium to the *Principia*, passages in Queries 28 and 31 appended to the *Opticks*, and letters to Richard Bentley and Thomas Burnet.<sup>35</sup> Neither the General Scholium nor the Queries in question appeared in the first editions of their respective treatises; they were added only after Newton's science had come under attack for alleged atheistic implications, and can plausibly be read as defensive in character. Moreover, the letters were written only in response to solicitations from Bentley and Burnet, and Newton could ill afford to appear uncooperative when theologians asked his help. Thus, there is a *prima facie* case for Hurlbutt's view that "Newton would rather have kept his science and his theology separate" but his desire was "dashed for the simple reason that his opponents did not wish to do so, and . . . attacked him on theological grounds."<sup>36</sup> If these writings are thus defensive, they may not be fully reliable as expressions of his actual theological views. However, there is manuscript evidence that their principal themes—the elaboration of a design argument from scientific evidences, the relation of God to gravity and to absolute space and time, creation and cosmogony, and the interpretation of scriptural passages which might seem to conflict with the new science—occupied Newton throughout his career.<sup>37</sup> Thus, while specific criticisms (e.g., by Leibniz and Berkeley) helped determine the specific content of Newton's brief and fragmentary excursions into "scientific theism," it cannot be said that without them he would not have entered upon such subjects. It *may* be, though this is difficult to judge, that he was led to discuss them by criticisms and objections that he *anticipated*.

A brief consideration of the content of Newton's "scientific theism" is now in order.

A. When Bentley inaugurated the Boyle lectures in 1692, he under-

<sup>35</sup>I shall discuss only Newton's own writings. To consider such sources as the Leibniz-Clarke correspondence would complicate the discussion without affecting my argument.

<sup>36</sup>Hurlbutt, 5.

<sup>37</sup>*Cf.* A. Rupert Hall and Marie Boas Hall (ed.), *Unpublished Scientific Papers of Isaac Newton* (Cambridge, 1962), esp. "De Gravitatione et aequipondio fluidorum." This early anti-Cartesian essay is analyzed by Alexandre Koyré, *Newtonian Studies* (Chicago, 1968), 82ff. Traces of theology have been found in the first edition of the *Principia* by I. Bernard Cohen, "Isaac Newton's *Principia*, the Scriptures, and the Divine Providence," in *Philosophy, Science, and Method* (ed. Sidney Morgenbesser et al.; New York, 1969), 523-48. Also J. E. McGuire, "Body and Void and Newton's *De Mundi Systemate*: Some New Sources," *Archive for History of Exact Sciences*, 3 (1966-67), 206-48.



took to base a teleological argument for the existence of God on the "system of the world" recently published by Newton. He wrote to ask for Newton's comments on some lines of argument he proposed to use, and Newton responded—sometimes with approbation, sometimes with gentle discouragement, sometimes with suggested arguments—in a series of four letters.<sup>38</sup>

Typical of Newton's contributions is the idea that the concentric planetary orbits could not have arisen fortuitously; the excentric orbits of the comets, inclined every which way to the planetary plane, show what could be expected from chance.<sup>39</sup> Here he is arguing that a contrast between a perceived regularity and a perceived irregularity implies purposiveness behind the regularity—which would seem to leave him in the dubious position (for a creationist) of denying any voluntary agency behind the irregular motions. The trap is not inescapable, but the escape routes are not likely to appeal to anyone who does not hold to a purposive divine creation already.

At the end of the first letter he mentions another argument, but is unwilling to give it "till the principles on which it is grounded are better received." It is not quite clear what he had in mind, but it may have been some sort of argument from such phenomena as gravitational attraction and the coherence (which implies some strong force) of "homogeneous hard bodies." Neither ancient atomism nor the modern (Cartesian) mechanism can explain such phenomena. These points are treated in the *Queries* and (in the case of gravity) in the letters to Bentley.

As to gravitation, the Cartesian medium is to be rejected as a "feigned hypothesis" (and full of difficulties anyway), and Newton is *not* willing (as he urgently impresses upon Bentley) to regard gravity as an inherent property of matter.<sup>40</sup> Interpreters differ as to whether Newton meant to ascribe gravitational attraction to the direct action of God, as some of his theological disciples and expositors took him to mean. No doubt, ultimately God is the cause of gravity, but is there a mediate cause? "The cause of gravity," he continues, "is what I do not know, and therefore would take more time to consider of it." In the next letter, he agrees with Bentley that "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," so if the void exists an immaterial agent must be involved. But he concludes, "Gravity must be caused by an agent

<sup>38</sup>For evidence that Newton may have had a hand in the selection of Bentley, and suggested his theme, see Henry Guerlac and M. C. Jacob, "Bentley, Newton, and Providence," this *Journal* 30 (1969), 307–18.

<sup>39</sup>*Correspondence*, III, 234f.

<sup>40</sup>*Ibid.*, 240

acting constantly according to certain laws, but whether this agent be material or immaterial I have left to the consideration of my readers."<sup>41</sup>

Actually, Newton's opinions as to the cause of gravity seem to have wavered and shifted. At various times he seems to have inclined toward (1) an ether theory, (2) the view that God's immediate action is required, (3) attribution of gravity to low-grade spiritual agencies akin to the "plastick nature" of More and Cudworth.<sup>42</sup> Whichever view he favored at a given time, he was prepared to argue that it undercut atheism (at least of the Epicurean variety and the sort he thought implicit in Cartesianism, and these were the only varieties he worried about). The third view is incompatible with Epicureanism and Cartesianism, and a mechanistic ether theory would yield an argument of the familiar sort for divine contrivance. His shifting preferences seem to have been governed by scientific considerations rather than the theological utility of the various theories.

In Query 31, Newton appeals also to the powerful attractive forces that must exist to hold atoms together in homogeneous bodies (he has no patience with hooked atoms, nor with Descartes's "rest" theory),<sup>43</sup> and to the need for replenishment of the universe's energy: imperfectly elastic bodies lose part of their motion on contact, so some sort of active principles "such as . . . the cause of gravity . . . and the cause of fermentation" are needed to keep things from grinding to a halt.<sup>44</sup> He seems here to be leaning toward the third of the above theories, but he expresses himself cautiously and keeps his options open.

The notorious charge that Newton assigns God the undignified role of cosmic plumber, brought by Leibniz in his exchange with Clarke and often repeated since, is based in large part on the supposition that Newton really meant to say that God's direct action is required to replenish the universe's supply of energy. But he did not say it, and it seems wiser not to make the imputation. However, toward the end of Query 31 he concedes that the "wonderful uniformity in the planetary system" is subject to "some inconsiderable irregularities . . . which may have risen from the mutual actions of comets and planets upon one another, and which will be apt to increase until this

<sup>41</sup>*Ibid.*, 243f.

<sup>42</sup>On these matters, see Henry Guerlac, *Newton et Epicure* (Conférence donnée au Palais de la Découverte, Paris, 1963), and "Francis Hauksbee: expérimentateur au profit de Newton," *Archives internationales d'histoire des sciences*, 16 (1963), 113-28; and David Kubrin, "Newton and the Cyclical Cosmos: Providence and the Mechanical Philosophy," this *Journal* 28 (1967), 325-45.

<sup>43</sup>Isaac Newton, *Opticks* (New York, 1952), 388.

<sup>44</sup>*Ibid.*, 399.

system wants a reformation." God, being omnipresent and "very well skilled in mechanics and geometry," is well able to do the reforming.<sup>45</sup> The suggestion is made only briefly and without emphasis. Contrary to what is often said, the context shows that the suggestion is made *neither* by way of invoking God to solve a scientific difficulty, *nor* in order to give God a continuing job to do in the world. Rather, Newton is trying to block any objection, based on the "inconsiderable irregularities" which might be brought against his claim that the uniformity of the system shows the contrivance of a Designer.

In the General Scholium added to the *Principia* in its second edition (1713), Newton is clearly on the defensive, and that on several fronts—scientific, theological, and metaphysical. He begins by pointing up grave difficulties in the Cartesian vortex theory. Vortices disposed of, he is free to state the design argument from the regularity of celestial motions. Then, somewhat abruptly, comes a concise but wide-ranging theological disquisition to which we must return in a moment. Newton continues with a well-known argument to the effect that his failure to establish the cause of gravity does not (as continental critics had charged) detract from the scientific achievements accomplished with the aid of that notion, and concludes with some cryptic remarks concerning the "certain most subtle spirit" about which he had speculated at greater length in the Queries.

Though it concludes with the affirmation that "to discourse of [God] from the appearances of things does certainly belong to natural philosophy," the aforementioned "theological disquisition" is based on the Bible and the classical theological tradition, not (with the doubtful exception of a sentence or two) on natural philosophy. Previous speculations of Newton's on the omnipresence and eternity of God as establishing absolute space and time had led to the charge that he was reviving the pantheistic doctrine of God as the "soul of the world." This doctrine he flatly rejects. Anyone who knows what the word "God" means (and for this Newton turns to the Bible) knows that it essentially connotes dominion over servants. Much of the discussion is apparently directed against Bishop Berkeley, who had complained that acceptance of absolute space forces us into the dilemma of thinking either that real space is God, or else that there is something beside God which is eternal, infinite, indivisible, immutable. Both of which may justly be thought pernicious and absurd notions.<sup>46</sup>

Newton argues that "eternity" and "infinity" as attributed to God have an entirely different force from "eternity" and "infinity" as

<sup>45</sup>*Ibid.*, 402; cf. *Correspondence*, III, 235.

<sup>46</sup>George Berkeley, *The Principles of Human Knowledge*, par. 117.

attributed to space—simply because God is a sentient being, and the Lord of all things. I think Newton, understanding by “God” the God of the Bible, must have had some trouble getting the point of Berkeley’s criticism. He does point out that space and time are divisible, as God is not. But what is striking is the way in which he simply appeals to the Bible and the classical theological tradition, and ignores (or fails to grasp?) the suggestion that his speculations might be hard to reconcile therewith.

One more Newtonian text must be considered. In 1680, Thomas Burnet published his *Sacred Theory of the Earth*, in which he outlined a speculative geological theory of the origin and early history of our planet, and tried ingeniously to harmonize it with the Genesis story. (The earth originally was nicely spherical and smooth, but geological forces, at work from the beginning, produced a catastrophic crash—precisely timed to coincide with the Fall of Adam—whence come our present mountains, ravines, and other evidences of wrack and ruin.) He asked Newton’s opinion and got an interesting reply, which Newton carefully characterized as quite speculative: “I have not set down anything I have well considered or will undertake to defend.”<sup>47</sup> He ignores Adam’s Fall, and we need not concern ourselves with the details of his geological and cosmogonical suggestions. Of more interest is his approach to the problem of reconciling scientific accounts with Moses’s. A full answer “would require comment upon Moses, whom I dare not pretend to understand,” but the main point is that “Moses, accommodating his words to the gross conceptions of the vulgar, describes things much after the manner as one of the vulgar would have been inclined to do had he lived and seen the whole series of what Moses describes.”<sup>48</sup> The Genesis account is neither a scientifically accurate description—that “would have made the narration tedious and confused . . . and become a philosopher more than a prophet”—nor a piece of poetry or metaphysics. Rather it is as close an approximation to a literal description of what happened as could be set out in a narrative at once succinct and comprehensible to the general run of mankind.

B. As we have seen, Newton’s “scientific theism” is fragmentary and undeveloped. He nowhere attempts to integrate the theme, that from scientific evidences we can infer a Designer, with his primary theological concerns. We must now ask (1) why he makes no such attempt, and (2) whether his “scientific theism” *conflicts* with the positions taken in his primarily theological writings.

<sup>47</sup>*Correspondence*, II, 334.

<sup>48</sup>*Ibid.*, 333. According to Cohen (524ff) Newton makes a similar statement (unrecognized because of Cajori’s mistranslation) in the *Principia*.

An obvious answer to the first question would be that he adhered, after a fashion, to his own maxim to keep religion and philosophy distinct: he had to protect himself against attack, and against any suggestion of unwillingness to help theological apologists in their efforts, but he regarded the arguments elaborated for defensive purposes as no proper part of his theological position. This answer may be correct, and if so would support a strong interpretation of the maxim; but it is inconclusive, because another explanation is possible. Newton's theological interests were not systematic. He would pursue puzzles that intrigued him (as in the interpretation of prophetic writings), and would deal in detail with what he regarded as threats to true religion (e.g., Catholicism and antilatitudinarianism), but he had no interest in working his theological thoughts into a system. In particular, he would have seen no reason to relate his teleological arguments to his other theological writings.

Except for one anomalous statement, the content of his "scientific theism" seems compatible enough with the content of his theological works, whatever we may think of its consistency with his *maxim*. Even in the case of that statement, the conflict is probably only apparent. In the General Scholium he says of God, "We know him only by his most wise and excellent contrivances of things and final causes."<sup>49</sup> Taken out of context, this incautiously-worded statement might well (because of the "only") suggest a stark Deism and denial of revelation. But the emphasis of the preceding discussion is on the unknowability of God's nature and manner of operation; as with any substance, we can know only his attributes. And our statement is part of a nicely-balanced rhetorical sentence:

We know him only by his most wise and excellent contrivances of things and final causes; we admire him for his perfections, but we reverence and adore him on account of his dominion, for we adore him as his servants; and a god without dominion, providence, and final causes is nothing else but Fate and Nature.

The pleasures of rhetorical brevity may have led Newton here into a misleading overstatement. It is, however, just possible that Newton thinks we *know* of God only what the design argument permits us to infer, and revelation tells us rather what we *ought to believe*. It is also possible that by "know" he tacitly means "know naturally." But it is more likely that the "contrivances" in question include not only arrangements in nature but also the management of historical events so as to fulfill prophecy—Newton's principal ground, we recall, for confidence in the veracity of scripture.

<sup>49</sup>*Principles*, 546.

III. *Newton's Maxim and his Practice.* As we have seen, Newton's main theological writings conform to the maxim—keep religion and philosophy (including science) distinct. But some passages about God in letters and physical treatises seem to violate it. The maxim occurs in Newton's papers without interpretation or elaboration. We are therefore free to seek interpretations of the maxim which would accord with Newton's practice. Three such "weak" interpretations will be considered in section A below; each allows some sort of bearing of science on some sort of theology. Newton's practice is compatible with two of the interpretations, but not with the third.

If we accept what I shall call the "strong" interpretation of Newton's maxim, i.e., that science properly has no bearing on theology at all, he will stand convicted of inconsistency (though perhaps with extenuating circumstances), and we will want to know why he fell into this crime. A suggestion on this point will be offered in section B.

A. The first interpretation I want to suggest is this: when Newton says "we are not to introduce . . . philosophical opinions into religion" he means merely that such opinions, and theological conclusions drawn from them, are not to be put forward as *essential articles of belief*. This interpretation assumes a sharp distinction between the essentials of religion—beliefs that can be properly required for church membership—and nonessential theological speculations. We saw in Part I that Newton was inclined to make such a distinction. While he himself was mainly interested in the essential beliefs, he did not object in principle to speculative elaborations. Thus one would be free to try to harmonize religious doctrines with scientific theories, as Newton did (cautiously) in the letter to Burnet, and one is free even to draw theological conclusions from scientific premises, as he did in the letters to Bentley and elsewhere. What one is not free to do is treat the resultant theological opinions as essentials of belief—and this Newton did not do. (The existence and providence of God are essential doctrines, of course, but they are known as such from revelation.)

The second interpretation assumes a distinction between apologetics and theology proper (i.e., the attempt to systematize and speculate upon the essential beliefs in order to gain the fullest possible understanding of them). On this interpretation, philosophical opinions are not to be introduced into theology proper; but since people invoke scientific and other philosophical arguments against religion, it is legitimate to turn their own weapons upon them. This interpretation also fits Newton's practice, though perhaps the letter to Burnet is a doubtful case. (On the face of it, it *could* have been meant as a modest contribution either to apologetics or to theology proper.)

The third interpretation involves no distinction between types or

parts of theology; rather, the distinction is between two senses in which science could bear on theology. One might take Newton's maxim to mean that scientific theories cannot provide *arguments for* theological conclusions: you cannot deduce the latter from the former, nor even argue that a theologoumenon's harmony with science is a point in its favor. A scientific theory might still *suggest* a theological proposition, which perhaps would not be thought of otherwise, but which would (of course) have to be evaluated on strictly theological grounds. Newton might well accept this interpretation of his maxim, but it would not save him from the charge of inconsistency, for he clearly does *argue* from scientific evidences of design to the existence of a Designer.

B. Suppose Newton meant his maxim to be taken in the strong sense, or in the third of the senses just discussed. There is still a way in which one might try to argue that his practice does not violate his admonition. Perhaps not all talk about God is theological. A metaphysician or a natural philosopher might have reason to postulate the existence of a God and ascribe properties and activities to him, without these properties and activities having any *religious* interest or relevance. I shall not discuss the general merits of this idea. It seems unpromising as a defense of Newton, because in the General Scholium and elsewhere bits of "scientific theism" are thoroughly intermingled with revelation-based statements about God and how we must conceive him.

We must conclude that, unless one of the first two interpretations of his maxim given above is correct, Newton fell into inconsistency. Or perhaps we should say he was pushed, if it is true that the offending statements were made in response (1) to charges that his "system of the world" promoted atheism, or (2) to theologians' requests for aid.

Still, why did he defend himself by advancing (albeit fragmentarily) a "scientific theism"? If he thought that science had no bearing on theology, positive or negative, why didn't he reply to his critics by saying so? The answer to this question can only be speculative. It seems likely that such an argument would have been ill-received; it would have sounded too much like what Hobbes and other skeptics had said. Moreover, it could, unless elaborated very carefully, have suggested that religious truths are of a special, mysterious, "higher" sort—just the kind of "enthusiasm" Newton deplored. Thus, had he argued for the irrelevance of natural philosophy to theology, he would very likely have been deeply embroiled in controversy. The avoidance of such embroilments was a cardinal aim of Newton's life, and in particular he had (as we have seen) good reason to want his theological

views not to come under public scrutiny. On the other hand, the course he took (on the interpretation now being considered) was the standard one among the “Virtuosi” of the Royal Society, and well-received by theologians. So, in short, he took the easy way out: a little inconsistency was not too high a price to pay for peace.

Rice University.