

BOOK REVIEWS

Irving Louis Horowitz

*Isaac Newton's Papers and Letters on Natural
Philosophy and Related Documents*

Edited by I. BERNARD COHEN

(Cambridge: Harvard University Press, 1958.) Pp. 501.

Science and Religion in Seventeenth Century England

By RICHARD S. WESTFALL

(New Haven, Conn.: Yale University Press, 1958.) Pp. 235.

It is a great pleasure to report the publication of two such fine complementary volumes. It should be immediately said that they are of fundamental importance in the comprehension of Newton and his century. Their precise common virtue is to continue the work of Herbert Butterfield, G. N. Clark, Robert Merton, and B. Hessen in focusing attention on the tangled web of intelligence and ideology such as it existed in

seventeenth-century England. Both the Westfall dissertation and the essays in *Newton's Papers* by I. Bernard Cohen, Thomas S. Kuhn, Marie Boas, Perry Miller, Robert Schofield, and, above all, the brilliant paper of Charles C. Gillispie of Fontenelle's biography of Newton serve as healthy antidotes to the anthropomorphism that riddles much work on Newton.

Whether Newton was *ultimately* the leading figure in the struggle be-

Book Reviews

tween science and religion or *ultimately* the conservative showing how belief in natural religion inspires the direction of physical research is an interesting puzzle. However, such a perspective tells us more about twentieth-century attitudes than the actual context in which Newton operated. The divide between history and metaphysics has been transgressed in this sphere more than is either necessary or desirable. Of Newton it might well be said that the poets praised him, the scientists prized him, while the philosophers of English Anglicanism made a mystery of him.

Westfall's study of the virtuosi (those Englishmen who had both a general interest in science and a specific area of empirical pursuit) and Cohen's general introduction to *Newton's Papers* show an essential dualism throughout the century between the empirical requirements of natural science and the social and psychological attachments for revealed religion. What marks Newton off from the rest of the virtuosi is the fact that, although he was son to the great dualism, he was no less father to the Enlightenment efforts to cope with and overcome this split between matter and spirit.

The worth of the Westfall volume largely resides in its examination of the constituent parts of this dualism. The virtuosi (John Ray, Thomas Sprat, Robert Boyle, Walter Charleton, Joseph Glanvill, Robert Hooke, and Isaac Newton) inherited the religious attitude of wonder toward na-

ture and yet worked mightily to explain and thus remove wonder from nature. They had a shared indebtedness to Epicurean atomism and yet had to deny the Epicurean ethical and social teachings that made the ancient a unified theorist. They insisted that scientific reason was the surest proof of religious belief and yet remained reticent to allow revealed religion to stand in judgment of natural science. All believed in an omnipotent God and then assigned him to impotence by making him a mechanical force. Tradition adds a wry note, since it was even whispered that God was really to be found in the propositions of Newton's *Principia*. These polarities underscore the shakiness of the union of rationalistic faith and empirical discovery.

These volumes call attention to the essentially conservative social views of the virtuosi. The more shaky the theoretical pinnings, the more desperate the statements of dedication to theism. This is apparent even in the titles of the virtuosi non-scientific works: Charleton's *The Darkness of Atheism Dispelled by the Light of Nature*, Boyle's *The Excellency of Theology*, and Glanvill's *A Blow at Modern Sadducism*. Even Newton gave open support to Bentley's *A Confutation of Atheism*. To account for the religious bent of leading scientific figures of seventeenth-century England is the task of Westfall's book and of Perry Miller's essay. The answers are roughly along three lines. The first is the essential social mid-

dle-ground position, which led the virtuosi to fear the revolutionary potential of the “enthusiasts” no less than the “atheists.” The rational religion, like the rational science, was to be thoughtful and reflective. Religious pietism was to entail social quietism. The second factor was the Anglican upbringing which informed the ideology of the life of the scientist gentleman. The third, and perhaps the decisive, element is the forebodings the knowing virtuosi must have had as to the consequences of mechanical science. Would the next age approach science as self-sufficient and ignore the teleological proofs or providential rule? As Westfall indicates, the virtuosi “wrote to refute atheism, but where were the atheists? The virtuosi nourished the atheists within their own minds. Atheism was the vague feeling of uncertainty which their studies had raised, not uncertainty of their own convictions so much as uncertainty of the ultimate conclusions that might lie hidden in the principles of natural science.”

Newton’s relation to this tradition was the crowning contradiction. He made it easier for the Enlightenment to exclaim of the virtuosi natural theology: “Look, the king has no throne.” Westfall and Miller do much to dispel the myth of Newton’s mysticism by citing the texts to show that Newton did not join the other virtuosi in their anti-atheistic clamor. He left the all-important issue of material or immaterial “agents” open

to individual judgment. Indeed, Newton noted that “contradictious phrases” may be due to actual paradoxes in nature and that the search for metaphysical certainty was a moral rather than a scientific requirement. In this, Newton was closer to Hume than to theism.

Thus whether the world harmonies postulated by theology were or were not original sources for the general theory of gravity pales in significance next to the fact that the actual consequence of Newtonian science was materialistic—verifying the private fears of the virtuosi and the exclamations of the outright enemies of natural philosophy. It is a historical truth that Newton’s broadening-out of Christianity into natural religion was but a moment in time away from a frank avowal of naturalism without religion. This is the transformation effected by Voltaire and French deism. Neither the original documents nor the critical analysis lead to any other conclusion.

The most serious shortcoming in this edition of *Newton’s Papers* is the disastrous consequences of a facsimile edition. We are confronted with a mélange of types. Some of the type faces are difficult enough to read in the original, but, given the natural “bleeding” effect of offset photography, examining the manuscripts becomes a formidable effort for even a hardened bibliophile. When we have innumerable editions, as in the Shakespeare works, then a facsimile edition for collectors has meaning.

Book Reviews

But what justification can be found in this case, where the Newton papers are gathered for the first time, is beyond the reviewer's comprehension. Library sponsorship for this volume should not have necessitated fossilized attitudes. Finally, if so many pages can be given over to selections from Bentley's *A Confutation of Atheism*, then at least one of the lesser-known drafts of Newton's own work on religion, *Irenicum*, might have been included. Nonetheless, this volume is sure to take its place beside the *Principia* and the *Optiks* as a guide to understanding the scope of Newton's efforts.

The objection to the Westfall study is of mere consequential nature. It involves the difference between competence and creation. The total spectrum of religious-philosophic thought involves not only the Anglican orthodoxy and the virtuosi heresy but the atheist perspective as well. Specifically, it must include the relation of the virtuosi to Thomas Hobbes. Westfall's statements on this score are paradoxical. His stated reasons for not dealing with Hobbes are unconvincing. Neither the singularity of Hobbes's views nor the idea that "he would require a volume by himself" can be seriously defended, since the first objection is precisely what makes Hobbes interesting, and the latter objection characterizes nearly all the virtuosi. Nor does the fail-

ure of the Royal Society to propose him for membership rule out Hobbes, since, contrary to Westfall's statements on an absence of concern for the activities of the Royal Society, Hobbes did indeed evince great concern—as evidenced by the frequency with which he submitted scientific papers and demonstrations. The Royal Society's failure to consider him for membership was unquestionably a cause in Hobbes's disdain for a scientific society that gave little attention to the fundamental theory of motion and too much time to artifacts and contraptions. Westfall is compelled to violate his reasoning on several occasions in order to explain the heat with which many of the virtuosi attacked atheism. It was not so much their feelings of guilt as a response to the threat of the "Hobbits," whom the virtuosi assured everyone were as evil as atheists and Sadducees. The examination of Hobbes's role in relation to the scientific and religious currents of the seventeenth century remains a work to be done. We can, as a result of Westfall's study, at least see what the other operative philosophies included and excluded. What alterations would be made necessary in his thesis about the religious consciousness of the virtuosi involves the further investigation of a naturalistic alternative in the midst of an attempt at a theistic-scientific synthesis.