BURHOE AND SHAPLEY: A COMPLEMENTARITY OF SCIENCE AND RELIGION

by James Gilbert

Abstract. The development of Ralph Wendell Burhoe's philosophy of religion and science occurred in the shadow of the continuing dialogue about the place of science in American society. Like his friend and mentor, Harvard astronomer Harlow Shapley, Burhoe was distressed and intrigued by the troubled postwar relations between science and religion. Unlike Shapley, however, Burhoe sought to create a new modernism, a blend of religion and science that would allow each to develop and complement the other.

Keywords: Ralph Burhoe; cosmology; evolutionary theory; IRAS; science and religion; Harlow Shapley.

Ralph Wendell Burhoe's efforts to integrate science and religion can be understood as an informed and creative response to a distinctly American experience of the relation between these two modes of organizing reality. He drew on the currents of his time, of course, and on what had gone before. To grasp the import of Burhoe's work, therefore, it is necessary to trace the development of the religion-science interface in the past century.

There is probably no time in modern American history when relations between religion and science have lacked the spark of controversy or the anxious attention of thinking women and men. Yet there is no simple, universal explanation for the shape of this persistent competition. Different factors appear to operate at different times, so one can characterize this dialogue by highlighting certain important moments: for instance, the Progressive era with its predominant modernist and scientific social religion, or the fundamentalist backlash of the mid-1920s. To these I would add the age of atomic energy following World War II and its attendant growing

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doubts about the scientific endeavor (see, e.g., Graebner 1991). Looked at in an international cultural context, none of these encounters appears to be inevitable, nor did any of them occur elsewhere. There is, in other words, something very American about this history that requires explanation in terms of American culture and society.

As they have matured, science and religion in American culture have made different sorts of claims to organize reality and to provide intellectual, moral, and empirical models for social reconstruction. That they compete is perhaps inevitable; how they compete, however, relates to the historical context and the personalities who articulate the principal ideas of each (see Holton and Blanpied 1976).[1]

ANTECEDENTS

The problem of science and religion in American culture depends partly upon historical antecedents and recurrent notions. The late Renaissance accommodation of science and religion in England (bequeathed to America), during which Sir Francis Bacon and the Royal Society of London agreed upon the mutual support and agreement of religion and science, lasted well into the nineteenth century. In the United States, this intellectual arrangement was bolstered by Scottish common sense philosophy and a tradition of amateurism that made science (theoretically) accessible to the democratic public. In the early nineteenth century, popular museums and local scientific societies were organized to display and categorize scientific knowledge and explore the remarkable natural world of the North American continent. That there was no distinction between an orderly nature and a world organized by God as lawgiver and historical actor was a common, if usually unexamined, assumption. There were occasional squabbles around the edges of this ideological edifice, primarily among scientists, but no danger that it would fall, yet. God created and spoke through the Bible; scientific humanity discovered and worshiped through scientific discoveries that described the order of Nature.

That Darwin's theories of evolution disrupted this symbiosis is certainly well known. How this explosion occurred and what it meant culturally, however, are sometimes misunderstood. It is true that the theory of evolution attacked the alliance of science and religion at the point of Creation. It forced a linguistic retreat by Christians into metaphoric reinterpretations, not only of Genesis but of other traditional understandings as well. As modernists at the turn of the century avidly did, one could reinterpret the Bible in a variety of

nonliteral ways. For example, they suggested, the Creation stories, while substantially true, reflected the primitive scientific thinking of the early Hebrews, something one could update and revise. One could also interpret the days of the Creation story as aeons, or personified actions of the Deity as impersonal processes. In other words, Protestant modernists could and did commit themselves to a process of continuously interpreting the Bible and Christianity itself to accommodate new scientific, psychological, and social scientific theories. As a result, the borders of science and religion were constantly in flux, with territorial claims continually under attack. Some, who found the uncertainty of this process too dark and its potential outcomes terrifying, gradually organized and elaborated a theology and a movement of Fundamentalism.

There is another aspect of Darwinian theory, beyond this well-known story, that worked insidiously to corrupt the old ties between religion and science. The problem began with Darwin's revision of humanity's position in nature. He was cautious and circumspect about this issue, and often spoke in an acceptable, elite vernacular of hierarchies and lower and higher species. Such language certainly accommodated Protestant assumptions as well as Thomist certainties about classifications and the order of beings. But just as surely as Darwin's work had undermined Biblical verities, it also undercut foundational beliefs regarding humans' place in nature. He rendered species as processes rather than final fixed things, thereby making change, not fixity, the essential characteristic of life. More important, he placed human beings well within the operation of the natural processes he described. By implication there was no special creation and no special human privilege over the rest of nature.

The decentering of humankind through scientific discovery had been at the heart of the great medieval and Renaissance struggles between scientists and the Roman Catholic Church. Each major new astronomical discovery diminished the traditional views of humans, the earth, the sun, and the solar system. The implications of Darwin's theories reinforced this movement and could be interpreted as a blow to the essential Christian assumption of human dominion over nature. Not surprisingly, this disruptive power of Darwinian theory persisted in exactly this guise into the twentieth century. Evolution presented a dramatic problem that cried out for an answer: Where was the place of humankind in the universe?

There is yet another quality of Darwin's thinking that weakened the splice between nineteenth-century religion and science in America. Like many of the most important scientific theories, evolution has counterintuitive elements that reinforce its opponents' arguments

that it is only a theory. It is happening everywhere, but it is almost impossible to visualize. Common sense tells us that evolution does not occur—especially random development—and that the animate world is stable. This counterintuitive quality of scientific theories is true of other areas of twentieth-century science—of quantum theory, for example—and Darwin's ideas share with them the essential difficulty of pratical demonstration (Wolpert 1993). As scientific theories in the modern period became more and more complex as well as counter-intuitive, they were inevitably less accessible to the public. Professionalism in science pushed amateurs even further from the center of things. If anything, this was the lesson of the Scopes trial in 1925, where commonsense philosophy and amateur science were equated with scientific illiteracy and social and cultural lag.

The parallel processes of professionalization and growing complexity of theory, plus the "decentering of mankind," continued apace in the twentieth century and formed an important background to Burhoe's endeavors to recreate a complementarity of science and religion. One of Burhoe's closest associates and mentors participated as a major player in this process of discovery and alienation. Harlow Shapley, Harvard astronomer and public advocate for science, in 1918 confirmed through observations and calculations that the solar system was merely a small sun with constellations occupying one of the reaches of the galaxy (Shapley 1969). It made him, Shapley anguished, feel "like Copernicus." This allusion was Shapley's dramatic way of saying that his scientific discoveries had contributed to diminishing humankind and to the erosion of Christian faith. For much of the astronomer's subsequent life, he participated as an iconoclastic seeker of faith through a variety of religion-and-science organizations. He divided time among the Conference on Science, Philosophy and Religion (founded in 1939); discussion groups at Harvard; and religion-and-science endeavors at the American Academy of Arts and Sciences in Boston, of which Burhoe was executive secretary, and the Institute of Religion in an Age of Science (IRAS), which both men helped to organize. In all of these he was a major figure. In one letter to Shapley, Burhoe addressed the scientist as "Moses" and signed it "Scribe Burhoe" (Shapley papers).[2] While Shapley was a jocular but intense public figure, as well known in the 1940s and 1950s as any scientist save Oppenheimer or Einstein, Burhoe worked slowly, steadily, and basically in private during this era. Moreover, Shapley invited controversy and gave back in kind what he received from right-wing politicians including Sen. Joseph R. McCarthy. These were not Burhoe's fights, however.

What did unite the two figures was an interest in cosmology. Shapley believed that astronomical theory entitled the scientist to edge up to the spiritual secrets of the universe, until he, Shapley, pulled the plug on such theories, Sometimes he fancied himself a pantheist of sorts—at least Burhoe called him that. What this meant was that God was (perhaps) a force behind or pulling from beyond nature and the universe. This was certainly not a personal God, and the only religious energy it might generate was as cold as starlight, Yet Shapley continued to entertain such possibilities and to hover around organizations that would give him a hearing—and allow him, humorously, to don his "Copernicus" hat. Burhoe's theology, of course, went beyond the materialist boundary behind which Shapley usually retreated, although there were initial similarities. Burhoe attempted to integrate cosmology with evolutionary theory, giving it explicitly religious dimensions. Thus the Shapley–Burhoe intellectual relationship was, in part, a strategic friendship, through which Burhoe hoped to create a permanent dialogue relating science and religion.

MIDCENTURY DEVELOPMENTS

To anyone looking closely at evolution in the period after World War II, there were two broad avenues to follow. One, along the road of microevolution, led to genetics, mutation theories, comparative DNA studies, and, ultimately, to measuring the distinction of humans from the rest of nature at the subcell level, in terms of almost imperceptible parts of parts. To the scientist, these findings might explain the mechanics of evolution; to the philosopher or religionist, however, they raised new contortions of the mind-body problem. They also posed questions of human-animal continuities in ways that might have offended even Darwin.

The path of macroevolution, however, offered a different set of problems and opportunities, and these Ralph Wendell Burhoe addressed. In doing so he placed human beings once more before God's eye, as a significant part of a long evolutionary process that included intellectual, cultural, and spiritual dimensions. His was, in effect, a vision that separated distinctly human and "higher" qualities from animalistic continuities. Burhoe did not disparage physical evolution; he simply emphasized those spiritual and cultural elements that appeared directed toward purpose and the fulfillment of the meaningful evolution of the universe.

The Decline of Scientific Modernism. There also were other reasons at midcentury to redefine relations between science and

religion. These impulses played through Burhoe's writings and career just as surely as they helped to shape a number of popular movements that similarly tried to reconcile religion and science.

Perhaps the most important change was the continuing slow decline of scientific modernism stemming from the Progressive period and measurable in the waning popularity of John Dewey's models of social reconstruction. It made sense in 1925, after the Scopes trial, to pronounce the triumph of the scientific social model in American cultural life. There was strong evidence to support such a move: progressive education, behaviorism, rising secularism, and the immense popularity of social science and scientists all testified to the impact of pragmatic philosophy and scientific realism. While far from universal acceptance, Dewey's model of social reconstruction and the pursuit of democratic means of social change seemed to many to be far stronger than traditional, religion-based notions of social organization. Mainline theologians and churches at this time were heavily influenced by this pragmatic ethos. In fact, however, there existed only a thin, brittle layer of Deweyan pragmatism, confined primarily to specific cultural and intellectual institutions—schools, universities, government agencies, and foundations—which made up only one stratum in the thick, multilayered cross-section of American culture.

During the 1930s Dewey came under attack, from the left for his defense of Russian revolutionary Leon Trotsky and his distaste for the Soviet Union, from the right for his rejection of traditional theology. Particularly interesting and bruising were his intellectual scuffles with Robert Maynard Hutchins and Mortimer Adler of the University of Chicago, the first a pioneering educator who promoted the canon of the humanities, the second an agnostic neo-Thomist. In 1939, the Conference on Science, Philosophy and Religion was founded, in part, as a challenge to Dewey's thought. Even though it was convened at Columbia University in New York, where Dewey then taught, Dewey did not attend. Instead he helped organize a counterconference at the Ethical Culture Society: the Conference on the Scientific Spirit and Democratic Faith. The former conference included a large cross-section of American intellectuals, including Shapley (one of its organizers), while Dewey's group represented an embattled remnant of humanists. After World War II, the Deweyan model had even less currency.

The gradual decline of Dewey's progressive social scientific model can be read, in tandem with other intellectual changes, as a sign that public faith in progress and science was shifting. The new view was, if anything, more susceptible than ever to violent swings between

optimism and pessimism. There were many reasons why this was so. Science and technology, as they became more complex and intricate (and as public understanding of them lessened), seemed to promise more and threaten more at the same time. Of course, the atomic bomb and atomic energy epitomized this Janus-faced science, but other discoveries in physics, astronomy, and biology and new developments in communications, medicine, and transportation wore both promising and menacing masks as well.

Two examples from abroad, above all, demonstrated the corruptibility of science and uncovered the potential for treachery by scientists against their own philosophy and method. During the late 1930s in Nazi Germany, scientists were increasingly persuaded or forced to work for Hitler's war machine. Some engaged in grotesque experiments using humans as subjects; others developed weapons of mass destruction. The Soviet Union exploited scientists in a somewhat different although equally corrupt way. Scientists had to conform ideologically to the latest swerves of policy—and even then some perished in pogroms aimed at intellectuals. The triumph of Lysenkoism in genetics in the early 1950s revived Lamarckism[3] in evolutionary theory and almost completely discredited Soviet biological science. The United States victory in the war protected American scientists from most serious accusations of wrongdoing in developing the atomic bomb but did not quiet anxieties about the terrible potential of atomic science. Nor did the advent of the Cold War improve the reputation of scientists, who were in some quarters suspect for passing secrets to the Soviets and in others lionized for the military usefulness of their discoveries.

None of this uncertainty meant that science had become less important; the reverse was true. Even Fundamentalists did not ignore the growing centrality of science and its impact on modern society. A sign of this acknowledgment was the foundation in 1941 of the American Scientific Affiliation, a group of scientists who at the outset doubted evolutionary theory and maintained close ties to the Moody Bible Institute. Their purpose at that time was to use science to prove the literal truth of the Bible. Other groups, too, painted the patina of scientific method on their essentially theological endeavors.

If the landscape of confrontation between science and religion was in upheaval after World War II, it was also confusing. With the decline of Deweyan liberalism, there remained no dominant modernist paradigm for reconciling religion and science. No doubt a good many Americans continued to believe, as they had for decades, that there was no controversy, that the distinction between religion and science remained unbreached. The papal statement

announcing a policy of noninterference with the sciences during the mid-1950s might have been considered an evidence of this accord. But for many others, the growing complexity and sophistication of both science and religion demanded a new sort of dispensation. Science was increasing in importance in American life; therefore, the need to discover new intersections between science and religion was all the more compelling.

TWO CULTURES AND A THIRD

It was this uncertain but fruitful potential that attracted Burhoe in the 1940s and 1950s and led him to push for the high-powered discussions that led to his efforts to inject scientific sophistication into the education of the Protestant clergy and eventually to the founding of *Zygon*. Facing what novelist-scientist C.P. Snow called the "two cultures" crisis in the late 1950s, Burhoe called for a third culture—a synthesis of twentieth-century science and religion, bound together in a grand cosmology of universal evolution.

Burhoe thus continued and updated one particular theme in the long dialogue of science and religion that has continued since the rise of science in the seventeenth century. His thinking was, however, just as much based upon developments in the United States in the postwar world. Like a good many others, he sought a reconciliation of science and religion in a society that cared deeply about their harmony, that valued science and religion for different, but equally important, reasons. His resolutions of this dialogue never questioned the validity of the scientific endeavor nor its usefulness in articulating what he believed was the the ultimate religious bias of the universe. What he sought, in other words, was another and different modernism that extended the first phase of this important theological development which had occurred at the turn of the century. Science, he insisted, should be brought into the very center of religion, to join the palace guard of its most important temples. This was his solution to the problem that Shapley—and, through him, modern science—had posed.

NOTES

1. Holton and Blanpied's volume contains several essays that examine the various relations of science to society in the post-World War II era.
2. Shapley referred to Burhoe as "Dear Slave-Driver" in another letter. The addresses were playful but suggest something of the relationship between the two men.
3. Both Lysenkoism and Lamarckism stressed the heritability of traits acquired through experience.

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