Biography

RALPH WENDELL BURHOE: HIS LIFE AND HIS THOUGHT

I. Perceiving the Problem and Envisioning its Solution, 1911-1954

by David R. Breed

Abstract. This is the first of four installments by the author, presenting an intellectual biography of Ralph Wendell Burhoe. This first segment follows Burhoe from his college years at Harvard through the founding of the Institute on Religion in an Age of Science in 1954. In this period, after his college and seminary study, Burhoe worked at Harvard's Blue Hill Meteorological Observatory and as executive officer of the American Academy of Arts and Sciences. Throughout his early life he had been concerned with how religion could maintain its credibility as a bearer of truth vis-à-vis the sciences, which were displacing religion not only among leading intellectuals, but also in other segments of society. The founding of IRAS provided an important instrument for dealing with this concern.

Keywords: Burhoe; Institute on Religion in an Age of Science; religion; science; American Academy; Coming Great Church.

FORMATIVE YEARS

Ralph Wendell Burhoe was born 21 June 1911, in Somerville, Massachusetts, into a seriously pious family. Many years later, reminiscing upon his early years, he wrote:

David R. Breed is an independent scholar and systems consultant living at 5218 S. Dorchester Avenue, Chicago, Illinois 60615. This article is excerpted from his 1988 Th.D. dissertation at the Lutheran School of Theology at Chicago, "Toward a Credible Faith in an Age of Science: The Life and Work of Ralph Wendell Burhoe."

[*Zygon*, vol. 25, no. 3 (September 1990).]
 ISSN 0591-2385

In my childhood I had readily believed my parents' religious tradition, but already in high school science I began to experience how religious belief tended to be eroded whenever the religious teachings became doubtful in the context of seemingly more reliable truth. Since my Baptist tradition purported to persuade on the basis of reasonable evidence of truth, I was early involved in various attempts to resolve the puzzle of what is truth (Burhoe 1981, 14).

Nevertheless, these puzzles and incongruities of life not only continued but intensified:

I experienced dreams tinged with religious awe and fear concerning my destiny. And struggling with either long spells of sickness or maladaptive social situations, rational and behavioral incongruities taxed my emotional equilibrium, leading to states of despair which were from time to time transcended by joyous mystical insights which gave me new courage and new attitudes and behavior patterns to overcome the otherwise seemingly unbearable conditions. I was at once severely rational and mystical (Burhoe 1964a, 3).

These reminiscences point to the emergence of one central concern for Burhoe: to preserve the credibility of traditional religious wisdom and personal religious experience in the face of a scientific world that threatened to dissolve religious belief with a more reliable truth.

PHILOSOPHY AND THE SCIENCES AT HARVARD

Entering Harvard in 1928 at age seventeen, Burhoe began an intellectually formative period. A survey course in Western philosophy, given by Ralph Barton Perry, made a lasting impression, along with such members of the faculty as W. E. Hocking and Alfred North Whitehead. William James's shadow loomed large in the lecture hall, and the Socratic dialogues and Spinoza impressed him with the power of reason to make sense out of essentially religious problems. But he thought that more recent philosophy was wanting in both its capacity to deal with religious problems and to reveal reality vis-à-vis the sciences.

Burhoe "became convinced that the sciences were our most advanced tools for discovering what was true and [he] studied them widely" (Burhoe 1981, 14). He studied physics with Frederick A. Saunders and Edwin C. Kemble, biology with G. H. Parker, and physical anthropology with E. A. Hooten. Hooten's course was Burhoe's first extensive introduction to theories of human evolution. For explaining why humans evolved, Hooten favored a "triumphant intelligence theory" that emphasized the importance of the brain in evolution. As the following passage shows, Hooten espoused a form of the argument from design.

One cannot conclude a volume of facts, reflections, and speculations concerning the course of human evolution without asking himself if there is any place for a guiding intelligence in this marvelous progression of organic events. That evolution has occurred I have not the slightest doubt. That it is an accidental or chance occurrence I do not believe, although chance probably has often intervened and is an important contributing factor. But if evolution is not mainly a chance process it must be an intelligent or purposeful process. It seems to me quite immaterial whether we believe that the postulated source of intelligence or purposeful causation is a divine being or set of natural "laws." What difference does it make whether God is Nature or Nature is God? The pursuit of natural causes either leads to the deification of nature, or to the recognition of the supernatural, or to a simple admission of ignorance, bewilderment, and awe. It should arouse the feeling of reverence in any one who attempts to grasp the central phenomenon which emerges from the vast assemblage of organic facts. . . . Whether man arose from the apes or was made from mud, he is in a sense a divine product. Organic evolution is an achievement not unworthy of any God and not incompatible with the loftiest conception of religion. . . . Theories of origin and causation are often transient and evanescent; life itself can never fail to command the interest and evoke the inquiry of human minds (Hooten 1931, 604–5).

The kind of ideas exemplified in this passage bear a striking similarity to ideas that Burhoe later developed: the importance of the brain in human evolution; the equivalence of God and nature; affirmation that the source of evolution is God, conceived in terms of the natural selection of living organisms according to the laws of nature; and the centrality of life.

Following a suggestion that the psychological sciences might be of more interest for religious or value problems than philosophy and the natural sciences, in his sophomore and junior years Burhoe shifted his attention from the physical to the psychological sciences. He studied general psychology under E. G. Boring (of the Titchener School), experimental psychology under J. G. Beebe-Center, and a social psychology course taught by Gordon Allport.

Part of the reading for the latter course was W. B. Cannon's newly published *Wisdom of the Body*, and Cannon also chose the title of the 1923 Harvey Oration of E. H. Sterling, to express conviction in the great value of the experimental method for the solution of biological problems. According to Cannon, "Only by understanding the wisdom of the body . . . shall we attain that 'mastery of disease and pain which will enable us to relieve the burden of mankind' " (Cannon 1932, xv). He also coined the term *homeostasis* to designate the coordinated physiological processes that, in highly evolved animals, maintain a fairly stable internal environment through self-righting adjustments that minimize the effects of changes in the

external environment and potentially lethal conditions induced by stress. Developing the concept of homeostasis, Cannon presented research on the relation of the autonomic nervous system to the self-regulation of physiological processes. The concept of homeostasis firmly rooted itself in Burhoe's thought. Throughout his later writings it served as a key integrating notion for understanding the nature of living systems.

During the Harvard years, Burhoe's guiding concern was not social respectability or vocational preparation; rather, it was a quest to construct a solid foundation for meaning and direction in life, "since the supports undergirding the sacred meaning of my life had crumbled under me by their rational and ontological insufficiency." Burhoe viewed himself as a vagabond and prier into the realms of learning, an intellectual maverick. Of his third year at Harvard he remarked,

> I vagabonded, as the Harvard Crimson then called it, almost as many courses as I took officially, ranging from Alfred North Whitehead, with his high-pitched voice which I did not very well appreciate then, to a course that visited industrial-chemical plants. . . . But as fascinating as the university was in opening doors on new systems of rationality and empirically validated understanding, I was disenchanted because I did not find a clear vision that the intellectual apparatus would add up to anything significant for life. I was not at all concerned with social respectability or a vocation to earn a living (Burhoe 1964a, 4, 7).

Together with the fact that an economic depression wiped out his father's modest fortune and health, and having been persuaded against steaming to Europe as a stowaway to sample the educational situation in a French university and communistic philosophy, Burhoe left Harvard to explore "the nature of people and society in various parts of New England, ostensibly as a salesman of different kinds in different places" (Burhoe 1964a, 7).

Baptist Campus Ministry

During his college years Burhoe had been involved in a Baptist campus ministry group under Newton C. Fetter, who was commissioned by the denomination to work full-time with students in the Boston area. As Burhoe saw it, Fetter was like his father: a moderate, semiliberal Baptist, with strict, old-fashioned moral conviction, who was open to modern knowledge. (One aspect of the ministry was a Sunday evening program, where Burhoe met his first wife.) One of the speakers at Sunday evening meetings, Kirtley F. Mather, impressed Burhoe with his apparent combination of good science and

genuine religious concern. A renowned geologist, Mather had recently testified for evolution at the Scopes "Monkey" Trial. (Almost two decades later Burhoe became the first executive officer of the American Academy of Arts and Sciences, a newly created position resulting from the findings of the Commission on the Present Status and Future of the Academy, chaired by Mather.)

Burhoe attributed his passion for religious problems to emotional sensitivity and empathy with the suffering he saw around him, which aroused the desire to understand its sources. From early childhood, he said, he had been impressed by the widespread discontents, confusions, and sufferings of acquaintances. Reflecting on his attempts to understand the factors underlying emotional discontent and disturbances, he wrote:

> I was sometimes a bum among bums in a flophouse, sometimes a bum riding in a car with a stranger where self revelations can outstrip the psychiatrist's couch, sometimes a house-to-house salesman of silk stockings, encyclopedias, or insurance talking alone with a frustrated or injured soul, where I found myself far more interested in understanding the person's problems than with making a sale to earn my way through college. . . . I saw the sources of divorce, murder, theft, and all manner of personal and social injustice; of bitterness, alcoholism, and insanity. These forms of derangement and suffering seemed to me far vaster and more important than the First World War, which had not affected me very much directly; moreover, I saw in these kinds of states in the minds of men the very sources of the collective disruptions of war. This extended survey of the intimate feelings, attitudes, and thinking of a broad sample of human beings . . . was perhaps my most persistent area of study and the richest source of understanding. I have never found from reading the second-hand artistic portrayals of all this such a sense of truth of the human predicament (Burhoe 1964a, 6).

His empathy with suffering humanity and the desire to understand its underlying factors were important for Burhoe, for it is on behalf of this human predicament that a sound and effective religion must offer hope for salvation. Burhoe's interpretation of religion was developed as an answer to what he later came to see as the fundamental problem underlying human suffering: loss of credibility and confidence in religion has deprived many humans of attitudes and beliefs that are essential for moral guidance, meaning, motivation, and a healthy and fulfilling life.

"On a honeymoon hike over the Presidential Range of the White Mountains we [Burhoe and wife] decided I should go back to college and perhaps prepare for the ministry" (Burhoe 1964a, 8). With Frances's support, he took more courses in psychology and anthropology at Harvard, but financial conditions made it seem impossible to make up the "lost" courses he needed for the degree.

ANDOVER-NEWTON THEOLOGICAL SCHOOL

Burhoe's great-uncle had been a Baptist preacher, and Burhoe's father had hoped that his son might follow in the uncle's footsteps; so he encouraged his son to consider the ministry. In the summer of 1932 Burhoe's father arranged a luncheon with Harry Emerson Fosdick, who happened to be in Boston, to persuade Burhoe to go to theological school. His father found financial support, and young Burhoe was able to bypass requirements for a bachelor's degree and enter Andover-Newton Theological School in the fall. He recalled: "My burning question was 'What ails religion and how do you make something out of it in this intellectual climate?' " (Burhoe 1985, conversation with Breed). Evidently, he was not able to find sufficient support to sustain his interest, for he later wrote: "In spite of some good men on the faculty, I found the school . . . out of touch with what I thought were the realities of the intellect and the world." Because the economic depression continued and his wife lost her job, he quit school in November to look for work but found nothing. After they sold his car (for $50), they "withdrew from civilization to meditate upon [their situation], hibernating in a log cabin on the side of Mount Washington." Returning to Boston in the spring, they lived on a boat tied up between the slums of the North End and the Navy Yard (Burhoe 1964a, 8).

They attended Community Church (under Clarence Skinner) and later First Church (under Charles Edward Park), and at First Church Burhoe worked with a youth group, which persuaded him to give theological education another try. He returned to Andover-Newton in February 1935 "to explore my prime concern: to find a way to interpret religion credibly in the light of the sciences" (Burhoe 1964a, 14). Among his teachers were Amos Wilder, in New Testament, and Richard Cabot, head of medicine at Massachusetts General Hospital, who had been his adviser when Burhoe was a freshman at Harvard. Reflecting on this second—and last—attempt, Burhoe wrote:

> I was basically sympathetic with the general aims and functions of religion, and my attitude was to explore more tolerantly or patiently what wisdom and practices might be there. There was good liberal scholarship on the Bible, and pioneering work on relationships with psychiatry and the social sciences with laboratory visits to various kinds of institutions. Dwight Bradley impressed me as a liberal intellect who believed the social ethics he taught. Although his theology led him to dub me a genius Anti-Christ, he loved me and I worked with him in his rich suburban Congregational church and later in a church in the growing slums of Boston's South End which was dying as it was trying to integrate racial groups. I had started exploring

relations of this religion to the sciences, on my own, but could get no response of significance from faculty or students. Neo-orthodoxy was dawning. My own unorthodoxy did not encourage financial support from the school, and after experience as a summertime pastor in a Universalist-Congregational Church in New Hampshire, in the fall of 1936 my family of two children forced me to quit studies and go to work (Burhoe 1964a, 9–10).

Again for financial but also for other reasons, including dissatisfaction with himself and with traditional religious forms that were not clearly related to scientific understanding, Burhoe was thwarted in his desire to become a religious professional. However, he was more disturbed with his inadequacies, discovered in his theological education and practice in pastoral ministry, than with the function of the religious ministry. Among his limitations he listed his health and his responsibility for supporting his pregnant wife and year-old son—but more important for him was his incapacity to communicate clearly and credibly to his teachers, fellow students, and congregations, and to be taken seriously by them when he tried to confirm religious truth by its proper translation into scientific concepts. His diary for 1935–36 shows that his major goal in returning to theological school had been to make clear the relevance and authenticity of religion in the context of the sciences. He felt that religious truth needed to be confirmed by the sciences and that this confirmation was essential to turn around what seemed to be the decay or impotence of religious faith in an increasingly scientific and technologically dominated culture. If that trend was not reversed, it would result in a sharp decline of moral behavior (Burhoe 1987, memo to Breed).

Among Burhoe's experiences during studies at Andover-Newton (from January 1935 to October 1936), his participation in the Oxford Group movement (which some called the Buchmanite movement) confirmed his belief that religion needed to be made credible to avoid a decline in moral behavior. The spiritual force of this movement was Frank Buchman, a pietistic Lutheran pastor who had served as visiting lecturer in personal evangelism for the Hartford Seminary Foundation. After a conversion experience Buchman heeded a calling to regenerate the moral fabric of society by concentrating on college campuses.[1] The movement, which eschewed theology, reaffirmed a fundamentalistic evangelical biblical faith upon which it based a restatement of an individualistic moral code in a vocabulary that was thought to be modern, attractive, and effective (see Eister 1950, 209; Clark 1951). The strategy was to get persons, commonly through small-group meetings called house parties, to surrender their will to God-control so that they could listen for divine guidance and perform God's will. Great emphasis was placed on personal piety as

governed by the four moral absolutes: honesty, purity, unselfishness, and love.

Burhoe said that he found the house parties impressive and valuable—those autonomous small-group meetings in which individuals confessed their weaknesses, then helped one another correct those weaknesses and more effectively bring about the will of God to regulate their lives as well as their society. He also said that he often felt the Oxford Group's basic weakness was its lack of persuasive objectivity about the will of God and why it is binding. He believed that if the movement could develop credibility about the objectivity of God's will in terms of traditional theology and the modern sciences, it could have become a reformation movement that would have swept the world toward greater peace and justice and thereby transformed it (Burhoe 1987a, 1987b).

Neither the Oxford Group, nor theological school, nor denominational leaders seemed receptive to Burhoe's view that religion could be made more objective and credible for an age of science by translation into the conceptual scheme of modern science. Indeed, it seemed doubtful that any traditional religious group was ready to hear or support him in what he felt needed to be done. This time, therefore, he abandoned his theological education and religious concerns for a scientific occupation, whose demands gave him little time to contemplate religious problems and the human condition.

BLUE HILL YEARS: BURHOE'S SCIENTIFIC PERIOD, 1936–46

Burhoe found employment at the Blue Hill Meteorological Observatory of Harvard University, where he had studied meteorology and climatology as an undergraduate. (He was fondly referred to as "general factotum" by the director, Charles F. Brooks.) After serving as secretary to Brooks, because he was the only one who could type and take shorthand, Burhoe became assistant to the director, helping to manage the staff and ameliorating misunderstandings among one of the most friendly groups with which, he said, he had ever worked. His other duties included librarian, meteorological observation (including occasional night work), and assisting in developing new instrumentation and programs of data collection. One-third of his time was spent in assisting the staff of the American Meteorological Society (Brooks 1937, 14). Although involved mainly with administrative matters, he made a few minor technical contributions, one of which was a technique for measuring average snowfall (Burhoe 1945, 341–42).

The Blue Hill Meteorological Observatory was conceived and con-

structed by Abbott Lawrence Rotch. "At midnight on 31 January 1885, fireworks were set off, and Rotch commenced a weather observation program that has continued uninterrupted" (see Conover 1985, 30–37). Rotch, who was world-renowned, embarked on a systematic acquisition of meteorological books, research papers, and data, and by the time of his death in 1912, when the observatory was bequeathed to Harvard, Blue Hill had achieved international recognition for its unique climatological record and the most complete meteorological library in the United States outside Washington, D.C.

In addition to its data-collection and instrumentation-development programs, the observatory continued Rotch's acquisition of meteorological and climatological records from around the world, including periodicals, texts, treatises, and monographs. Burhoe served as assistant to librarian Robert Stone, who shortly after joining the staff (in 1934) became interested in the library and started restoration by cataloging, arranging exchanges, and binding accumulated serials. Monthly lists of new meteorological literature, gleaned from journals that arrived at Blue Hill from all over the world, were prepared and published in the *Bulletin of the American Meteorological Society,* which was edited by Brooks. The lists generated interest, and a loan program was set up to service Society members. During the war years, when there was a strong demand for library files, Burhoe observed that by collating military and government requests he could tell where in the world military operations would be taking place.

When Brooks became director at Blue Hill in 1931, he brought with him the headquarters of the American Meteorological Society, which he had been instrumental in founding in 1919. As Brooks's secretary, Burhoe soon became involved in helping run the Society, and through his work as librarian he became acquainted with the international literature—particularly European literature—on meteorology and climatology. From worldwide inquiries for information during World War II, Burhoe saw the need for communication about the extent of this literature (Burhoe 1941, 357–61). He helped establish *Meteorological Abstracts,* which first appeared in the *Bulletin* as a regular bibliography section, and in 1950, on his proposal, became a separate periodical. At first he did most of the abstracting work, struggling to master enough of the foreign languages and journals to communicate their substance in English.

At the spring meeting in 1941, Burhoe made a special note of the rapid increase of meteorological literature. He proposed that the meeting "make a resolution to the effect that it recommends to the various meteorological

institutions and scholars of America, that they cooperate toward establishment of an adequate bibliographic service for this science in this country." A resolution to this effect was adopted by the AMS and AGU [American Geophysical Union]. This was another step toward the eventual publication of the Society's *Meteorological Abstracts and Bibliography.* Two years later, Burhoe organized the publication in Spanish, of a Latin-American section of the *Bulletin* (Conover 1985, 34).

While Brooks was consulting for the military and various committees, and developing teaching programs, Burhoe helped put out extra publications to service the training needs of the military and the U.S. Weather Bureau.

During the war years membership in the Society rapidly grew, from about 1,200 in 1937 to 2,850 in 1946. Due to lack of space at the observatory, most of the office work for the Society was done at the Burhoe residence, where a small clerical staff, supervised by Burhoe's wife, was employed. With the appointment of Spengler, the new director, in 1946, the office was moved to new headquarters, and in 1947 the Burhoes resigned (Burhoe 1947, 388–90).

When the war was over and demands for information had subsided, Burhoe's interest in religion and the problems of the human condition seemed to reemerge. In a poignant autobiographical paragraph, Burhoe reflects:

> From time to time I gazed out of the observatory parapet nearly 700 feet above the city of Boston. The city on a winter morn was often blotted out by what seemed to be an ink pot black smog collected under the atmospheric temperature inversion, above which we had a clear visibility to Mt. Monadnock in New Hampshire. There was symbolism in this for me, for on these occasions, whether the smog was there or not, I was not so much concerned about the meteorological phenomena or man's pollution of the air he breathes as I was about what I knew to be the widespread frustration and anguished hearts permeating the two million people, rich and poor alike, who lived in the houses and worked in the shops and offices where cruelties and misunderstandings and lack of a meaningful and viable perspective on life gave rise to the faithlessness, treachery, and despair in their hearts and visible on their faces in the subways. I knew about racial and other social underdogs, some of whom we employed. I understood the threats to life that could result from the misuse by such populations of the many new technological powers from psychological to atomic. What use is scientific and technological advance for a man whose untutored wants or passions can use it only to blot out the highest values of his life?
>
> Such thoughts pressed upon me in the years right after the war, and led to exploring the possibility for a career more fitting to the pressing needs. I began to read again outside of my field of specialization. I revived my earlier thinking and writing towards a theology, an interpretation of the sense, meaning, duty, and hope of life grounded in the realities of which I was aware existentially and intellectually (Burhoe 1964a, 10–11).

In another autobiographical passage he reflects on the impact the war, and especially the atom bomb, had on his renewal of interest in religious matters:

> But my renewed concern for religious belief and the church came not from what any churches offered but from what I thought they should offer. I was moved by the plight of the world and a revelation from the sciences. The combination of the war that launched the atom bomb and grave forebodings from my first-hand observations of a wide spectrum of human society in the Boston area led me to conclude that the world at large and locally needed something with the alleged powers of the traditional religions, something to give man a new backbone of duty and hope, which had been melted or broken by the disordering forces of science and circumstance (Burhoe 1967, 2).

With the return of his old interests, Burhoe and his wife turned to the religious needs of the family. They had not been attending church for about ten years, and they searched for a Unitarian church with a good religious education program for their children. They became active in the Arlington Street Church in Boston, where Dana McLean Greeley was the minister, and Greeley became an important supporter of Burhoe's efforts to integrate religion and science.

In the 1930s Harvard had collaborated with the Massachusetts Institute of Technology on development of meteorology in Cambridge. Although Blue Hill had pioneered in upper-air observation by kites and balloons, the two institutions decided that M.I.T. should be the place where the new European trends in meteorological science would be developed. Meanwhile, in 1946, Burhoe had submitted his intention to resign, without having a definite new job. After considering a number of prospects, including representing a manufacturer of high-altitude balloons to South American meteorologists and being a manager for a new plastics firm, he was contacted by the American Academy of Arts and Sciences to fill a newly created position of executive officer. Burhoe's experience in administration at the observatory and for the Society, his involvement in the scientific community, his concern for communication, and his growing experience in editing and managing publications were no doubt seen as important qualifications for the kind of work he was to do for the Academy.

Academy Years: Testing and Instituting the Vision, 1947–64

The American Academy of Arts and Sciences was granted its charter of incorporation 4 May 1780 by an act of the legislature of Massachusetts. The charter read in part:

The stated end and design of the institution of the said academy is to promote and encourage the knowledge of the antiquities of America, and of the natural history of the country, and to determine the uses to which the various natural productions of the country may be applied; to promote and encourage medical discoveries; mathematical disquisitions; philosophical enquiries and experiments; astronomical, meteorological, and geographical observations; and improvements in agriculture, arts, manufactures and commerce; and, in fine, to cultivate every art and science which may tend to advance the interest, honor, dignity, and happiness of a free, independent, and virtuous people.

Modeled upon European scientific societies, the Academy was a conspicuous center for learning and intellectual leadership in the northeastern United States during most of the nineteenth century. However, with the development of modern research universities and independent research centers in the latter part of the century, the Academy became increasingly inactive and more or less an honorary society. Its initial purposes, to promote and encourage the sciences and the arts, had in large part been achieved. With the division of knowledge, specialized societies and departments were formed to promote and encourage specific areas of investigation.

Shortly after he was elected president of the Academy in 1939, astronomer Harlow Shapley and physiological psychologist Hudson Hoagland, secretary of the Academy, began a series of discussions "devoted to the consideration of the ways in which learning derived from the systematic study of Arts and Sciences can profitably influence the reorganization of civilization in the future beyond the war" (Whitehead 1942, 1). On 8 October 1941 the first address was delivered by Alfred North Whitehead, on "Statesmanship and Specialized Learning." The discussions continued for a short time, but soon petered out (Burhoe 1964b). When literary critic Howard Mumford Jones followed Shapley as president in 1944, he revived the custom of an inaugural address and chose "to speak of the present status and possible future of the American Academy of Arts and Sciences" (Jones 1944, 131–39). He traced the history of academies to expose the roots of the problems facing American society and the Academy. The theme of his address was that the division of knowledge and the multiplication of specialties had created a new opportunity for the Academy: "The multiplication of specialities has forced the specialists to come together, to exchange ideas, to study each other's techniques, even—what is anathema to the old-fashioned, hard-boiled, realistic investigator—to discuss the philosophy of what they were doing" (Jones 1944, 134–35).

Jones did not see that the search for a common language among specialists (as became the focus of the Conferences on Science,

Philosophy, and Religion at Columbia University) was practicable, for it was a

> call to retreat up the stream of time to simpler eras. . . . I think the problem is wrongly phrased. I should myself put it this way: that our problem is not whether a common language can be artificially reinstituted among learned men, but whether this Academy is not charged with the duty of creating a common climate of opinion. My observation is that the research spirit does not depend upon vocabulary but upon an exciting philosophy of values (Jones 1944, 137).

He ended with the recommendation that a special commission be appointed "to review and re-examine the whole structure of this ancient institution" and to propose directions for "some positive program to link together the interests of the learned and the problems of society in the years immediately to come" (Jones 1944, 138–39).

In the winter of 1945 the Academy formed a committee to study its structure and operation, with Kirtley F. Mather as chair. On 13 November 1946 the Academy met as a committee of the whole to consider recommendations of the Report of the Commission on the Present Status and Future of the Academy:

> In brief, it was the thesis of the Commission that the focus of an inclusive learned society today cannot be so much on the advancement of research and knowledge in each of the many specialized disciplines as on the "humanization" of knowledge—the revealing of the significance of knowledge for the life of man. It proposed that capital should be made of the diversity of areas of scholarship represented in the Academy membership, as well as its high level, in an attempt to synthesize knowledge for the welfare of the community, particularly the New England community.

Among the recommendations of the commission was establishment of the position of executive officer to expand the Academy's activity. Reflecting on this new position, which he was selected to fill, Burhoe wrote:

> In 1947, I found one of the most ideal positions possible for my concerns. . . . Its [the Academy's] officers and Council wanted me to assist committees of the Fellows of the Academy to accomplish various goals under an extension of its 1780 charter, "to cultivate every art and science, which may tend to advance the interest . . . of a . . . people." A prime goal was to update our "philosophical, moral, and political foundations" to adapt them to the conditions of a new century and of a whole world of people made interdependent by scientific technology. I was given a wonderful opportunity to work with some of the best minds in many disciplines, in programs to make sense of various human problems (Burhoe 1981, 14–15).

Although the scientists and intellectuals in the Academy were mostly secularists, they were deeply concerned with the implications

of the academic syllabus for human welfare. Burhoe shared the thought, in the "smoothly rounded phrases" of the Academy's charter and early documents, "that the spirit, purpose and essential logical and instrumental methodology of science can be applied more or less readily and successfully to any and every form and aspect of human knowledge" (Burhoe 1964b, 7). He also shared the idea, expressed by Jones, that the research spirit depends upon an exciting philosophy of values. In addition, Burhoe was convinced that any discussion of values necessarily involved religion and that a climate of opinion that did not seriously consider religion would be an incomplete development. He was also convinced that religion could be shown to be essential in shaping the values of a culture and that the contemporary problem of religion was largely of an intellectual nature. He felt strongly the need of an intellectual breakthrough so that educated persons could appreciate religion and its traditional wisdom vis-à-vis ultimate values. He wrote: "Discussions with these groups of scientists more than the church became for me the center of what I call my religious and theological life. Here were ideas about reality and man that were accepted by the scientific community and which at the same time illuminated the problems of human values" (Burhoe 1949, G-8).

During his seventeen-year tenure with the Academy (1947 to 1964), Burhoe's theological ideas began to be characterized by its potent scientific and intellectual climate. He began to articulate his interpretation of religion, testing it in front of these secular and humanistically oriented intellectuals.

Thus 1947 marked an important transition in the life of Ralph Wendell Burhoe. His primary concern, to integrate religion into a secular intellectual culture, dominated by science and technology, clawed its way to the surface after years of hibernation in Blue Hill—and he found support and encouragement in the Academy for working out his vision of religion in the light of the sciences. In his work with the Academy, Burhoe became familiar with the scientific and intellectual currents of thought, and he began to articulate his theological perspective in the Academy's terms. Indeed, his years of working with the Academy may be described as the fulfillment of his education, which had been disrupted during the Depression and the war years. Working with widely recognized leaders on the development of conferences, meetings, seminars, and publications, on a wide range of topics, gave breadth and depth to Burhoe that few, if any, graduate programs could match. This rare opportunity is reflected in the range and depth of issues that Burhoe addressed in developing his scientific theology.

Although Burhoe became immersed in managing the Academy, in 1948, in accord with new directions for its publications program, he began to edit a new *Bulletin* to communicate announcements and summaries of routine affairs of the Academy. *Proceedings* was gradually transformed into *Dædalus,* which, after experiments with a new philosophy, title, and format between 1955 and 1956, became a widely distributed quarterly under the editorship of Gerald Holton in 1957. In addition to this work, Burhoe administered a burgeoning program of committees, meetings, conferences, and seminars that implemented the vision of the Mather Report. A paragraph from his 1964 "Review and Farewell" address to the Academy indicates the scope and influence of these activities:

> An inspection of what the Academy has been doing during the last couple of decades bears testimony to the fruitfulness of this vision of the Academy's role in contemporary civilization. More than a hundred special committees have brought interdisciplinary and inter-institutional, interstate, and international scholars and men of affairs together to survey, examine, evaluate, and publish their findings and recommendations in the light of their considered studies. These have ranged over the whole spectrum of intellectual and human problems, from the nature of knowledge to the prevention of atomic catastrophe. All of them have stimulated widespread developments outside the Academy, and some of them have had recognizable impact on the well-being of the people. Notable has been the impact of about ten different committees of the Academy on national and international understanding and control of nuclear arms. In Washington and London as well as in Boston I have heard the testimony of outsiders on the impact of the studies, conferences, and publications of the Academy on the climate of opinion. In Chicago a knowledgeable outsider recently volunteered that our late Fellow, John F. Kennedy, had been assisted in no small measure by the work of these Academy committees to sign an agreement with the Soviets to limit atmospheric testing of nuclear weapons (Burhoe 1964b, 7–8).

Two of many activities in his work with committees and conferences at the Academy need to be pointed out. The atom bomb and nuclear energy raised serious moral and social problems that few outside the scientific community comprehended; so "we established numerous committees to study or act in various ways to try to provide some practical salvation. We supported the nascent *Bulletin of the Atomic Scientists* in its efforts to make the governments and other leaders of the world aware of the implications of atomic energy" (Burhoe 1967, 6). However, Burhoe was not fully convinced that such deliberations, which did not take religion into account, would contribute significantly to world peace. He took seriously the problems related to nuclear war; however, he was searching for ways

of approaching the problems that pondered the resources of religion.

In 1960 Hudson Hoagland was instrumental in obtaining a Carnegie Corporation grant of $150,000 to develop conferences and publications under the broad category "Life, Liberty and the Pursuit of Meaning" (Burhoe 1964b, 2).[2] At a time of renewed interest in evolutionary theory because of the centennial of the publication of Darwin's *Origin of Species,* Hoagland and Burhoe organized three conferences in the fall of 1960 on "Evolutionary Theory and Human Progress." The conferences focused on long-range trends in human evolution and sought to relate cultural to genetic evolution.

> Because of their special knowledge, scientists and scholars may be in a position to see some of the future consequences and costs of current social practices before they become evident to decision makers, either in large enterprises like governments or small enterprises like families. Few have either the time or the talent to become informed about long-range implications arising from advances in science and technology. And yet in the twentieth century, as compared with previous centuries, the impact of science and technology upon our ways of living and our destiny has become paramount (Burhoe and Hoagland 1962, 1).

In 1975, reflecting on the significance of these conferences, Burhoe wrote:

> My own efforts to translate religious beliefs into scientific language began when I was a preacher in 1935. Because of the lack of any audience ready to hear of such notions until I began to work with some first-rate scientists on problems of science and human values in the American Academy after World War II, I did little and published nothing until the mid 1950s. . . . In 1960, Hudson Hoagland and I sought to evoke some new thinking on the relation of cultural to biological evolution which had been an academically taboo area for a half-century. . . . These symposia were influential in a renaissance of thought and research concerning sociocultural evolution in relation to biological evolution and provided me with much critical information (Burhoe 1975, 371).

These conferences gave Burhoe encouragement and conceptual resources for the development of his evolutionary interpretation of religion. In addition, they placed his developing theory within the larger perspective of a renaissance of research into the relationship between biological and sociocultural evolution.

Three other relationships warrant discussion: Philipp Frank and the Institute for the Unity of Science, the Committee on Science and Values, and the Society for the Scientific Study of Religion—all of which began within a year or two of Burhoe's work with the Academy. The first two activities were related to the Academy with a substantial overlap of personnel, in whom Burhoe found kindred spirits concerned with ideals and seeking (in the spirit intended by

Whitehead in his 1941 paper) "to apply the large generalizations of the sciences for sociological reconstruction" (Burhoe 1967, 7). The Institute for the Unity of Science sought to bridge the sciences and the humanities by a transformed philosophy of science, but it did not have a positive outlook on religious traditions. The Society for the Scientific Study of Religion (first organized as the Committee for the Scientific Study of Religion) was oriented to the psychosocial sciences and, in general, did not accept the ideas of the physical and biological sciences. The Academy's Committee on Science and Values embraced all the sciences for shedding light on the question of human values. Several members of this committee became involved in a new Institute on Religion in an Age of Science, which became the embodiment of Burhoe's vision for the revitalization of religion in the light of the sciences.

PHILIPP FRANK AND THE INSTITUTE FOR THE UNITY OF SCIENCE

Philipp Frank, a physicist whose chief interest was the philosophy of science, was one of the three most active members of a discussion group that began about 1907 in Vienna. "I used to associate with a group of students who assembled every Thursday night in one of the old Viennese coffee houses. We stayed until midnight and even later, discussing problems of science and philosophy" (Frank 1950, 1). The other two were the mathematician Hans Hahn, and the economist Otto Neurath. The problem that concerned the group was association of the failure of mechanistic physics with belief that the scientific method had failed. So intimately connected was mechanistic physics with metaphysics and the ideal of progress in science that abandonment of the nineteenth-century optimism that mechanistic physics could embrace all observations led to a number of alternatives. One could retain a commonsense metaphysics, give up faith in the scientific method, and see contemporary physics as a threat to common understanding. Or one could reject mechanistic explanations and retrieve an organismic metaphysics from the Greeks. Or one could abandon metaphysics, whether organismic or mechanistic. The latter approach was adopted by what came to be called the Vienna Circle.

> The whole original Vienna group was convinced that the elimination of metaphysics not only was a question of a better logic but was of great relevance for the social and cultural life. They were also convinced that the elimination of metaphysics would deprive the groups that we call today totalitarian of their scientific and philosophic basis and would lay bare the fact that these groups were actually fighting for special interests of some kind (Frank 1950, 34).

In 1922 Hahn was instrumental in the appointment of the physicist and philosopher, Moritz Schlick, at Vienna, and in 1926 Schlick persuaded Rudolf Carnap to move to Vienna. Schlick and Carnap expanded the new positivism, which combined Ernst Mach's empiricism and symbolic logic into a general, logical basis for thought. This synthesis gave the Vienna Circle its distinctive programmatic basis for building a new philosophy. The primary philosophical problem that occupied the Vienna Circle was the relationship between the conceptual language in scientific description and the observations of empirical experience that those concepts claimed to organize, upon which their validity depended.

Growing out of the work of the Vienna Circle was a movement for a unified science (see Joergensen 1951, 76). Otto Neurath, who introduced the expression *unity of science* into logical empiricism (Joergensen 1951, 76), agreed with Rudolf Carnap that unification of the sciences should come about through formation of a universal language of science. In the 1930s a number of international congresses and publications were devoted to the examination and development of such a universal scientific language, and in 1938 the *International Encyclopedia of Unified Science* began publication (Joergensen 1951, 40–48), although the outbreak of World War II slowed progress. The Institute for the Unity of Science was founded in 1947, following the war, "to encourage the integration of knowledge by scientific methods, to conduct research in the psychological and sociological backgrounds of science" (Frank 1951, 6). The Institute was furnished quarters by the Academy, and in 1949 the Institute was incorporated as owner and director of the *Encyclopedia,* with Philipp Frank as president of the board of trustees (Joergensen 1951, 100). In the same year the Academy appointed a Committee on the Unity of Science, composed of Percy W. Bridgman (chair), Horace S. Ford and Philipp Frank, to administer a Rockefeller Foundation grant "in support of activities aimed at making more sound and effective the interrelationships between the various branches of the natural sciences, the social sciences, and the humanities"—in cooperation with the Institute. Thus at the beginning of his tenure as executive officer of the Academy, Burhoe became closely associated with Frank and the work of the Institute.

This association greatly influenced Burhoe's philosophy of science and his conviction that its universal language should be that in which religious doctrine should be reformulated, thereby leading to a universal interpretation of religion as a natural phenomenon. An important aspect of Burhoe's program of scientific theology was translation of traditional religious concepts and doctrines into the

language of science (see Burhoe 1973, 438; 1975, 330, 351). (Compare this idea with Joergensen's description of Neurath's program for the unity of science.)

Carnap and Neurath soon agreed that it would be more expedient to use a physicalistic language than an egocentric, phenomenological one.

> The task then became to formulate the rules of formation and of transformation of such language so that all concepts and sentences can be expressed in it, if necessary, by suitable translation and so that all scientific theories can by means of it be reduced to as few deductive systems as possible, preferably to a single one (Joergensen 1951, 77).

The motivation for a physicalistic language is best explained by Frank:

> What we call in a vague way "common sense" is actually an older system of science which was dropped because new discoveries demanded a new conceptual scheme, a new language of science. Therefore the attempt to interpret scientific principles by "common sense" means actually an attempt to formulate our actual science by a conceptual scheme that was adequate to an older stage of science, now abandoned (Frank 1950, 301).

Thus one understands why Burhoe insisted that religion be interpreted in terms of the current scientific conception of the world, not the other way around, for to interpret science in terms of traditional religious concepts is to attempt to formulate scientific concepts in terms of an older, abandoned conceptual scheme that is no longer adequate.

The focus of the Institute was on developing the philosophy of science as a way toward the integration of science, philosophy, and the humanities. In the words of Philipp Frank, the philosophy of science is "the missing link between science and philosophy": To understand not only science but the place

> of science in our civilization, its relation to ethics, politics, and religion, we need a coherent system of concepts and laws within which the natural sciences, as well as philosophy and the humanities have their place. Such a system may be called philosophy of science," [sic] it would be the "missing link" between the sciences and the humanities without introducing any perennial philosophy that could only be upheld by authorities (Frank 1957, xv).

Burhoe's primary concern, however, was to interpret religion by using the methods and conceptual tools of the sciences. If Burhoe had been concerned with a theology of science or with establishing theology as one of the sciences, the problems engaged by a philosophy of science would no doubt have been more prominent in his thought.

His intention, however, was theoretical construction, in the spirit of the sciences, of an interpretation of religion and not of science.

THE SOCIETY FOR THE SCIENTIFIC STUDY OF RELIGION

In addition to associating with Frank and his work with the Academy, Burhoe became involved with a group of social scientists who were concerned about the scientific study of religion. In 1949, J. Paul Williams (in the Department of Religion at Mount Holyoke) and Walter H. Clark (in the Department of Psychology at Middlebury College, Vermont) formed the Committee for the Social Scientific Study of Religion with the purpose of getting social scientists and religious persons together to talk about problems of religious study and to encourage research in the field. Soon joined by Prentice Pemberton (staff member of the Student Christian Movement), they gathered a number of interested scholars. Horace Kallen, Gorden Allport, James Luther Adams, Paul Tillich, Pitirim Sorokin, Talcott Parsons, Allan Eister, Lauris Whitman, and Ralph Burhoe were among the participants in the early meetings (Newman 1974, 137–51). The scientific study of religion from sociological and psychological perspectives fit with Burhoe's concern for rendering religion credible on scientific grounds.

In the early 1950s he participated in the working group with Williams, Pemberton, Clark, Kallen, Eister, and Whitman and the organization of the fledgling Society. He served as the first chair of the Committee on Research Endorsements, established in 1954, and helped organize a Midwest regional group, chaired by James Luther Adams (then of Meadville Theological School), which became a regional association of the newly named Society for the Scientific Study of Religion (the SSSR) in 1955. In 1956 he proposed that a journal be started, and he was active in the preliminary work that led to establishment of the *Journal for the Scientific Study of Religion* in 1961. He continued to be active in the affairs of the Society through the 1960s, and in 1984 Burhoe was the first recipient of the Society's Distinguished Career Achievement Award. In his remarks during its presentation, Charles Glock noted a divergence of the SSSR's perspective from that of Burhoe, whose "training is in the natural sciences and it was his hope that our Society would include a natural scientific component and involve natural scientists working alongside social scientists in the study of religion and from a perspective which would include his theoretical stance. Our Society did not move in these directions. Then and now, it would be more accurate probably to call ourselves the Society for the Social Scientific Study of Religion" (Glock 1984).

Burhoe was an occasional contributor to the deliberations of the SSSR, and in 1951 he presented a paper, "A Scientific Theory of Soul," in which he first put forth his trinitarian idea of soul. The soul has a biological component, the genotype; a cultural component (which he later called the culturetype); and a cosmic or environmental component, to which he later referred as the cosmotype. Over a lifetime, the dynamic interaction of these components produce the living phenotypic expression in a human (Burhoe 1951b, 1). In other papers, he brought his conception of the relation of science and religion into play on the topic at hand, often distinguishing his perspective from the general thrust of scholarship in the SSSR. In a 1984 paper he outlined four areas in which he diverged from the SSSR: (1) inclusion of all fields of scholarship, with a unique role for the natural sciences—rather than the more narrow focus of the SSSR on sociology and psychology; (2) appreciation for and enhancement of religion, scientifically grounded in a theory of the function of religion in biocultural evolution; (3) a paradigmatic concept of an evolving, continuous, and connected hierarchy of events in the cosmos, from atoms to human cultures, in which religion plays an important role in human evolution; and (4) reasons for eliminating the intellectual separation between scientific facts and religious values (Burhoe 1984a, 3–7).

In an article on the study of the sociology of religion, Robert Friedrichs argued that the discipline had lost its theological dimension, which he attributed to the demise of the détente between theology and the sciences that had been in effect for the past two to three generations (Friedrichs 1974, 113–27). If this is an accurate assessment, Friedrichs points to a significant divergence of the goals of the SSSR from the initial purposes that attracted Burhoe, who had always pressed for not only a scientific interpretation of religion but for its *enhancement*—the practical fruit that this interpretation would undoubtedly bear. That is to say, Burhoe has always had a theological as well as a practical interest in the scientific study of religion. Because the SSSR did not develop along these lines, Burhoe developed other options. "In any case," Glock says, "acknowledging the legitimacy of how our Society was evolving but recognizing that it was not going to satisfy fully his own aspirations for it, Burhoe decided to create institutional arrangements which would serve his purposes more effectively" (Glock 1984).

The Committee on Science and Values

In his first year with the Academy, Burhoe discovered a group of scientists who shared his concerns about religion and science,

although they considered religion (if at all) in the context of what they thought were the larger problem of human values. "To my delight, I found among the Academy Fellows a number of scientists and other scholars in diverse disciplines who were interested in understanding the nature of human values" (Burhoe 1981, 15). In 1948 Burhoe helped revive the discussions that Hudson Hoagland and Harlow Shapley had initiated in 1940 on contributions that the sciences might make to the reorganization of civilization after the war. A new group began to meet, as the Seminar on Science and Values, and in 1950 it petitioned the Academy Council to establish a Committee on Science and Values.

A statement by several Fellows petitioning for the establishment of this committee said, in part: "We believe that the sudden changing of man's physical and mental climate brought about by science and technology in the last century has rendered inadequate ancient institutional structures and educational forms, and that the survival of human society depends on a reformulation of man's world-view and ethics, by grounding them in the revelations of modern science as well as on tradition and intuition. . . . We propose, therefore, that a Committee on Science and Values be established to encourage the study of basic individual and social needs, especially to discover what light an integrated world-view of the sciences, arts and humanities can shed upon the present historical scene. We believe this to be a crucial problem of our times and that the Academy can and should provide initiative, because it is an institution whose membership encompasses outstanding leaders in the wide range of professions concerned, because its quality is respected, and because it can afford to consider long-range and fundamental problems. Moreover, we believe that the integration and application of the departments of knowledge in this fashion to the problems of society is a most fitting interpretation for the year 1950 of the terms of our Charter of 1780 which made it plain that the purpose of the Academy was not the cultivation of knowledge for its own sake but to advance the interests of the people" (Burhoe 1951a, 4).

Academy Fellows on the new committee (which was approved and installed) included C. J. Ducasse (philosophy, Brown University), Philipp Frank (physics and philosophy, Harvard), Roy G. Hoskins (neuroendocrinology, Harvard), Henry Alexander Murray (clinical psychology, Harvard), H. B. Phillips (mathematics, M.I.T.), Laszlo Tisza (thermodynamics, M.I.T.), Robert Ulich (philosophy, Harvard University School of Education), and George Wald (biology, Harvard). The committee, because it had overlapping interests and personnel, often cooperated with the Institute for the Unity of Science in sponsoring seminars and meetings.

In 1952 this committee began a series of events that eventuated in establishing the Institute on Religion in an Age of Science (IRAS):

At a meeting on 8 May 1952 under the chairmanship of biochemist George Wald, committee members agreed, "because of the importance of religion to our social structure," we should share some of the newer and better interpretations of the implications of the sciences for religion with clergy who expressed an interest (Burhoe 1981, 15).[3]

Earlier—probably in 1951—the committee had received a compilation, "Questions to the Scientist from the Clergy" by Dana McLean Greeley, Burhoe's minister at Arlington Street Church, that expressed the interest of a number of clergy in a dialogue with scientists (see Greeley 1971).

THE COMING GREAT CHURCH CONFERENCES

Greeley had suggested that Burhoe attend a conference, on "The Coming Great Church," in the summer of 1952. The conference, which had been meeting since 1950 at Star Island in the Isles of Shoals off Portsmouth, New Hampshire, was "dedicated to the proposition that an opportunity should be provided for religious leaders to lift their discussion above the narrow boundaries of creed, dogma, or denomination into the realm of common understanding" (Rutledge 1951, ix). In his recollections on "Adventures in Ecumenicity," Greeley described the origin and nature of the conference:

> The Reverend Lyman V. Rutledge had the idea first, I guess. He was joined by the Reverend Robert Illingworth—that meant a Unitarian and a Congregationalist—and they enrolled Professor Edwin Prince Booth, a very liberal Methodist, and me in the effort to create a new conference on "The Coming Greater Church." This had to do with the vision of a united or nonsectarian inclusive church, or with what would be called today truly ecumenical dialogue and fellowship. Conferences were held for four summers, after which they evolved under the same management into a second emphasis in a subsequent series of conferences, "Religion in an Age of Science." And from the latter were born both a denominational commission of the Unitarian Universalist Association and finally a department of the Meadville Theological School of Chicago. The initiation of the conference on "The Coming Greater Church" was surely an adventure in ecumenicity. It led in a truly pioneering fashion to the presence of representatives not only of many denominations but also of major faiths—Protestantism, Catholicism, Judaism, and Hinduism—in one hallowed spot, with daily Catholic masses as well as the traditional liberal candlelight services being held in the little two-century-old chapel (Greeley 1971, 200).

Booth, who had studied under Adolf von Harnack and was professor of historical theology at Boston University, spoke on the intent of the conferences in his chapel talks:

Most of us recognize that a greater church must come if the church is to endure. In this recognition we have no disloyalty to the past. Nor do we show any lack of allegiance to the present organizations in which we hold our memberships. We simply recognize that a new world situation surrounds us in every avenue of life. For the meeting of this mighty challenge the church must adapt herself. It is *coming*. It will be *great*. And it will still be the *church*. Therefore, we commit ourselves to consider the Coming Great Church. . . . It is my main thesis that we have come to such a point historically in all lines of endeavor that no organization we have inherited from the past is equal to the direction of the present or the charting of the future. . . . The present church, I think, is inadequate for the task required of the religious spirit. [Because its present, fragmented structure is] modeled upon the historical framework of long ago. . . . The Christian church must be prepared to lose its present life in order to gain a true spiritual life. . . . It is a Christian Theistic Humanism for which I call. Its basic affirmation is that God is the creator of this and all other universe, that He is revealed to us in history under the highest form of life we know—personal! (Booth 1951, 1, 6, 9, 50).

Earlier in the same talk, Booth had called for "the Coming Great Church":

Upon a universalized basis which admits the presence of the living God in non-Christian religions as well as in Christian; upon a basis of truth for which the teachings of science are the guide; upon the centrality of the Jesus of history in interpreting the purposes of God; upon the affirmation that God has new light for each succeeding stage in civilization—upon these the Coming Great Church must be built (Booth 1951, 10–11).

Although science was perceived as important for the "Coming Great Church," the deliberations of the conference centered around religious and theological issues, "because the conference involved only the people and the ideas within the religious traditions, and largely overlooked the relevance for religion of the newer interpretations of reality by the light of modern science" (Brown 1963). Booth had said: "The truths discovered by science are of such a nature that they invalidate many of the theological presuppositions of the past, and call for a thorough-going restatement of Christianity" (Booth 1951, 9); therefore Burhoe saw an opening for introducing his concerns for the integration of religion and science. During the 1952 conference he gave an impromptu review of Richard von Mises's recently translated *Positivism: A Study in Human Understanding* (Mises 1951), in which von Mises sought "to show how, in contrast to Wittgenstein, positivism's paradigm could encompass and enlighten our understanding of human values" (Burhoe 1984b). Burhoe suggested to Booth and other leaders of the conference that if they wanted to consider the teachings of science a guide, the involvement of some members of the Academy Committee on Science and Values

could be arranged (Burhoe 1978, 36). Because of this suggestion and the idea that science could shed light on the problems of religion and fundamental human values, and hence lead to a credible and revitalized religion, Burhoe in the fall of 1953 was invited to plan a conference for the summer of 1954 on the theme "Religion in the Age of Science."

Burhoe arranged a program of fifteen papers by scientists, philosophers, and theologians, and some extracts from his report on the conference (for *Science*) give the tenor of the conference:

> Ten scientists explained how they thought scientific and religious knowledge could be integrated. . . . Called in the faith that the understanding of religious "truth and reality" is related to the understanding of scientific "truth and reality," the conference stimulated considerable discussion concerning the nature of scientific "truth." . . . While there were a number of both scientists and clergymen who held that religious truth was hardly susceptible to being approached by scientific methods, except perhaps in the negative sense of being prohibited by scientific beliefs, there was a strong and seemingly growing recognition that today man can increase the scope and validity of his understanding of his destiny and of his relationship to that "in which he lives and moves and has his being," not only by reading ancient texts, but also by building up the science of theology in harmony with other science. . . .
>
> The new strategy, suggested by many from both the camp of science and the camp of religion in this peace conference in the cold war between science and religion, is that theology should no longer stake its claims in the area where science is ignorant, but rather that theology should accept and integrate with developments of the several branches of knowledge represented by the sciences. . . .
>
> The general tone of the conference throughout was one of cooperative cordiality and even elation. . . The clergy and lay members of the conference were deeply impressed with the grand sweep of knowledge about man and his destiny in terms of the scientific view of the universe. . . .
>
> Many came away with a deeper understanding of what Pope Pius XII may have meant when he said to the Pontifical Academy of Science, 22 Nov 1951: "In fact, according to the measure of its progress, and contrary to affirmations advanced in the past, true science discovers God in an ever-increasing degree—as though God were waiting behind every door opened by science." There were suggestions that more specific cooperation should be developed between scientists and theologians. It was proposed that interdisciplinary seminars be established to develop modern moral and religious doctrine in the light of science and that all relevant branches of science should be represented in theological school faculties. There was widespread confidence that the conference had opened a way to an integration of religion and science that would indeed provide a more hopeful basis for cooperation and satisfactory living on the part of man in an age of science (Burhoe 1954).

In the fall of 1954 Burhoe drafted a "Statement of Purpose" for a new Institute on Religion in an Age of Science at the request of a

Steering Committee composed of Carl Bihldorf, Edwin P. Booth, Burhoe, Dana McLean Greeley, and Lyman V. Rutledge, all of whom (except Burhoe) had been organizers of the Coming Great Church Conferences. The statement was carefully written in consultation with the committee and others associated with the Academy Committee on Science and Values. On 9 November 1954 the Coming Great Church Conference Committee voted to "resolve itself into the 'Institute on Religion in an Age of Science' " (Burhoe 1978, 36). The following is the statement of purpose, which served until a constitution was adopted (on 5 May 1956). (Most of the statement was included in Burhoe's report on the 1955 Star Island Conference in *Science*.)[4]

The Institute on Religion in an Age of Science is established to promote creative efforts leading to the formulation, in the light of contemporary knowledge, of more effective doctrines and practices for human salvation. Its immediate function is to provide a broader and more adequate management to carry on the work initiated by the Conference on Religion in an Age of Science, held on Star Island, off Portsmouth, New Hampshire, July 31 to August 6, 1954. The basic purpose of the Institute stems from a recognition of the confusion and inadequacies of the world's many competing religions and philosophies.

The program of the Institute proceeds in the faith that there is no wall isolating any department of human understanding, and that, therefore, any doctrine of human salvation cannot successfully be separated from realities pictured by science. We believe that science provides rich new insights into the problems of human welfare and offers the possibility of a reformulation of the doctrines about the nature of man and about the nature of that in which he lives and moves and has his being. We think any scientifically substantiated notions may command wider acceptance and provide more effective programs of living for both the individual and society. We believe that any department of human knowledge may yield important contributions, including the physical, biological, and psychological sciences, as well as all fields of scholarship and interpretation of human culture.

We suspect that, in this search for a clear and modern statement of human values, much of what has been revealed by the great religious teachers of the past will stand forth in new brightness and detail, although we welcome any clearing away of misunderstandings or inadequate doctrines about the nature of reality and values. Certainly, for our times as for any time in the past, it seems that the first and most important task of man is to discover the highest values of his own nature and to orient himself properly with respect to the requirements placed upon his development by the complex and many-dimensioned cosmos.

It is proposed that the Institute operate summer conferences, carrying forward the work of our 1954 Conference on Religion in an Age of Science, and engage in the development of such additional conferences, study groups, seminars, publications, research projects, etc., as may be useful for its purposes. It is proposed that the Institute's program be defined by a Board

of Advisors (limited to 50) and carried out by a Board of Directors or Executive Committee (limited to 9).

It was into this new Institute (IRAS) that Burhoe poured a substantial part of his spare time, for he realized it was a vehicle for the religious and theological angst that had been gnawing at his heart since the 1930s: to revitalize religion in the light of the sciences. Although his primary responsibilities lay with his job at the Academy, and many developments in the Academy are of import for understanding his intellectual development, Burhoe's life from 1954 onward began to blossom, inextricably intertwined with the developments at IRAS, the Institute on Religion in an Age of Science.

NOTES

1. In 1927 Buchman referred to the movement as The First Century Christian Fellowship. In 1928 it assumed the name The Oxford Group, given during a South African evangelism tour. Following a speech by Buchman on 29 May 1938, it became known as the Moral Re-Armament Movement (the MRA). However, many of its detractors referred to it as the Buchmanite movement.

2. Hoagland in Burhoe, 13 May 1964. Burhoe was heavily involved with Hoagland in developing the first of these conferences in 1960, which sought to explore "bridges" between biological and cultural evolution. In 1962 a six-week program at Craigville on Cape Cod, conducted by fourteen representatives of the behavioral sciences concerned with peace research and alternatives to nuclear war in the expression of aggression, led to the publication in June 1964 of *International Conflict and Behavioral Science: The Craigville Papers,* edited by Roger Fisher. The grant also supported conferences and publications on "Utopias" in 1964 and social implications resulting from developments in the behavioral sciences in 1965.

3. It is also of note that a number of persons associated with the Committee on Science and Values, including Hudson Hoagland, Harlow Shapley, and Philipp Frank, had also participated in the Conferences on Science, Philosophy, and Religion initiated in the 1930s by Rabbi Louis Finkelstein of the Jewish Theological Seminary in New York.

4. The first and the last paragraphs are from Burhoe's transcript of the initial draft, dated Boston, 9 November 1954. The middle two paragraphs are from Burhoe 1955.

REFERENCES

Booth, Edwin Prince. 1951. *The Greater Church of the Future.* Boston: Beacon Press.

Brooks, Charles F. 1937. "Secretary's Report, 1936." *Bulletin of the American Meteorological Society* 18: 4.

Brown, Sanborn C. 1963. *Institute on Religion in an age of Science: A Ten-Year View, 1953–1963.* Boston: Institute on Religion in an Age of Science.

Burhoe, R.W. 1941. "Bibliographic Tools for Meteorological Research." Paper read at Washington meeting of the American Meteorological Society, April 1941. In *Bulletin of the American Meteorological Society* 22 (November): 357–61.

———. 1945. "Notes on Finding a Representative Snowfall Measurement." *Bulletin of the American Meteorological Society* 26 (October): 341–42.

———. 1947. "Appendix A: Report of the Retiring Business Manager, Mr. Ralph W. Burhoe." *Bulletin of the American Meteorological Society* 28 (October): 388–90.

———. 1949. "Report of the Executive Officer to the President." *Proceedings of the American Academy of Arts and Sciences* 77: 366–70.
———. 1951a. "Notes." *Bulletin of the American Academy of Arts and Sciences* 4 (May): 4.
———. 1951b. "A Scientific Theory of Soul." Paper presented at a meeting of the Committee on Social Scientific Study of Religion, Emerson Hall, Harvard University, 21 April.
———. 1954. "Religion in an Age of Science." *Science* 120 (October 1): 522–24.
———. 1955. "Religion in an Age of Science." *Science* 122 (December 30): 1277–78.
———. 1964a. "A Theological Autobiography." Paper for Meadville Faculty Seminar, 6 November.
———. 1964b. "A Review and Farewell." Communication presented to the Academy at its 184th Annual Meeting, 13 May. Boston: American Academy of Arts and Sciences.
———. 1967. "Science and World Religious Consensus." Paper for Meadville colloquy, 20 April.
———. 1973. "The Concepts of 'God' and 'Soul' in a Scientific View of Human Purpose." *Zygon: Journal of Religion & Science* 8 (September–December): 412–42.
———. 1975. "The Human Prospect and the 'Lord of History.' " *Zygon: Journal of Religion & Science* 10 (September): 299–375.
———. 1978. "The Institute on Religion in an Age of Science Joins the CSR." *Bulletin of the Council on the Study of Religion* 9 (April): 35–39.
———. 1981. *Toward a Scientific Theology.* Dublin: Christian Journals.
———. 1982. Tape-recorded conversation with David R. Breed, 26 August.
———. 1984a. "War and Peace Viewed from the Biocultural Evolution of Religion." Paper presented at Thirty-fifth Annual Meeting of the Society for Scientific Study of Religion on 28 October in Chicago.
———. 1984b. Memo from Ralph W. Burhoe on purposes of IRAS, 15 November.
———. 1985. Tape-recorded conversation with David R. Breed, 8 January.
———. 1987a. Memo to David R. Breed, 29 July.
———. 1987b. Conversation with David R. Breed, 11 August.
Burhoe, R. W., and Hudson Hoagland, eds. 1962. *Evolution and Man's Progress.* New York: Columbia Univ. Press.
Cannon, Walter B. 1932. *The Wisdom of the Body.* New York: Norton.
Clark, Walter Houston. 1951. *The Oxford Group: Its History and Significance.* New York: Bookman Associates.
Conover, John H. 1985. "Highlights of the History of the Blue Hill Observatory and the Early Days of American Meteorological Association." *Bulletin of the American Meteorological Society* 66 (January): 30–37.
Eister, Allan W. 1950. *Drawing Room Conversion: A Sociological Account of the Oxford Group Movement.* Durham, NC: Duke Univ. Press.
Frank, Philipp, 1950. *Modern Science and Its Philosophy.* Cambridge, MA: Harvard Univ. Press.
———. 1951. "Introductory Remarks" to National Conference of the Institute for the Unity of Science, April 1950, Boston. *Proceedings of the American Academy of Arts and Sciences* 80: 6.
———. 1957. *Philosophy of Science: The Link between Science and Philosophy.* Englewood Cliffs, NJ: Prentice-Hall.
Friedrichs, Robert W. 1974. "Social Research and Theology: End of Detente?" *Review of Religious Research* 15 (Spring): 113–27.
Glock, Charles Y. 1984. Remarks by Charles Y. Glock presenting the Society for the Scientific Study of Religion's Distinguished Career Achievement Award to

Ralph Wendell Burhoe on 27 October 1984, Chicago, during the Society's thirty-fifth annual meeting [copy of typewritten manuscript].

Greeley, Dana McLean. 1971. *25 Beacon Street and Other Recollections.* Boston: Beacon Press.

Hooten, Earnest Albert. 1931. *Up from the Ape.* New York: Macmillan.

Joergensen, Joergen. 1951. *The Development of Logical Empiricism.* Chicago: Univ. of Chicago Press.

Jones, Howard Mumford. 1944. "Presidential Address: The Future of the Academy." *Proceedings of the American Academy of Arts and Sciences* 75 (December): 131–39.

Kuklick, Bruce. 1977. *The Rise of American Philosophy: Cambridge, Massachusetts 1860–1930.* New Haven: Yale Univ. Press.

Mises, Richard von. 1951. *Positivism: A Study in Human Understanding.* Cambridge, MA: Harvard Univ. Press.

Newman, William M. 1974. "The Society for the Scientific Study of Religion: The Development of an Academic Society." *Review of Religious Research* 15 (Spring): 137–51.

Rutledge, Lyman V. 1951. Foreword to *The Greater Church of the Future* by Edwin Prince Booth. Boston: Beacon Press.

Whitehead, A[lfred]. N[orth]. 1942. "Statesmanship and Specialized Learning." *Proceedings of the American Academy of Arts and Sciences* 75: 1–5.