

Book Symposium: Redeeming Culture: American Religion in an Age of Science, 1925–1962 by James Gilbert

RELIGION AND SCIENCE IN AMERICA:
POPULISM VERSUS ELITISM

by Richard Busse

Abstract. Historian James Gilbert argues that the dialogue between science and religion is an important dynamic in the creation of contemporary American culture. He traces the dialogue not only in the confines of the academic world but also in popular culture. The science-religion dialogue reveals a basic tension between the material and the spiritual that helps define the core of the American psyche: fascination with material progress yet commitment to traditional religious beliefs. Gilbert's cultural narrative traces the dialogue in a unique way because of the attention given to popular renditions of science and religion in evangelical films used by the military, in televised science programs, in science-fiction literature, and at the Seattle World's Fair in 1962. Gilbert suggests that the discussion between science and religion is significant because it is part of the process of creating new cultural structures necessitated by social, scientific, and technological developments. The tensions between religiously informed commonsense science and professional science work to create new cultural forms in a democratic society. Religion and science in dialogue are part of the process of cultural creation. Dogmatism on the part of either scientists or religionists is countered by the democratic process itself.

Keywords: atomic science; commonsense culture; democracy; design (in nature); dispensation; elite; evolution; film; fundamentalism; humanism; mass media; observation; popular science; professional

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science; religious experience; scientific theology; social science; space exploration; traditional religion; unidentified flying objects.

Readers of this journal should find this book engaging—not only because of the fine chapter on Ralph Burhoe and the founding of both the Institute on Religion in an Age of Science and *Zygon*, but also because of historian James Gilbert's perceptive analysis of the impact that the interaction of science and religion has had on American culture. The chapters weave back and forth between narratives of contentious intellectual conference planning and chronicles of film productions such as the Moody (Bible) Institute of Science films used by the United States military for citizenship training. *Zygon* readers may also detect in this book, however, a cautionary tale about the limited "success" of science-and-religion discussions that ignore traditional religious beliefs of American people.

Gilbert relates the story of cultural reverberations that took place between the Scopes trial in 1925 and the Seattle World's Fair in 1962 as a result of various mixtures of science and religion. The book is neither an encyclopedic account of the period nor a prescriptive narrative demonstrating how science and religion should relate. Rather, Gilbert presents pivotal episodes to illustrate the development of this relationship in what he terms "a new religious-scientific dispensation" (p. 4), thus suggesting a new "time" of divine-human relations.

In search of an answer to the question of why religion has persisted in an "age of science," Gilbert concludes that "one of the most creative impulses of American culture is the continuing presence of religion at the heart of scientific civilization" (p. 323). Creativity in responding to science (on the part of liberals, evangelicals, and fundamentalists) is perhaps a key to understanding why religion has not withered from the American cultural scene. Yet Gilbert also relates the other side of the story: the struggle of scientists to explain themselves to Americans who have been always suspicious of elite "priesthoods."

Gilbert begins his narrative by noting that suspicion of a scientific elite is one of the enduring legacies of William Jennings Bryan, the famous Progressive Era politician known as "the Great Commoner" and defender of the literal biblical account of creation at the Scopes trial. Gilbert calls Bryan a scientist—but one who bases science on "commonly understood experience" (p. 24). This assumption about "popular science" is Bryan's other main contribution to the next few decades of the science-religion discussion, when the line was drawn between commonsense science and professional science.

Bryan joined the American Association for the Advancement of Science (AAAS) in 1924 as an "astronomer." His antievolution views were quickly denounced because, according to such notables as biologist

Edward L. Rice of Ohio Wesleyan University, Bryan understood neither scientific method nor Darwin's theory. Yet the significance of Bryan's joining the AAAS was to raise the question of who should speak for science—the professional elite or popular interpreters of science such as himself? He opposed the theory of evolution because he understood science to be hierarchically “classified knowledge” created by God and because Germany had used social Darwinism as a justification for its attempted domination of Europe in World War I. For Bryan evolution threatened democracy—and democracy depended on popular consensus, not on an established elite of bankers, corrupt politicians, and now scientists with esoteric theories of human and natural origins. These two themes—open and public discussion of the relationship between science and religion, and the rift between popular and professional expressions of science—run throughout the remaining chapters.

Gilbert regards this dynamic tension between materialistic and idealistic interpretations of life as a significant factor in the creation of contemporary American culture. Even though Bryan, the literal interpretation of Genesis, and the rural folks of Dayton, Tennessee, were all ridiculed by urbane and sophisticated Clarence Darrow at the Scopes trial, popular suspicion of secret knowledge persisted. Evolution was, for the most part, not taught in public schools until after the Russians launched Sputnik in 1957 (much later than that in some states). Yet Gilbert does not propose that the new “dispensation” hinted at in the opening pages is some kind of resolution to the materialist-idealist tension. Rather, it is a description of how religion has functioned in the contemporary scientific era.

Popular resistance to scientific dominance of culture is unpacked in the next chapter, “The Republic of Science.” The phrase refers to the attempt, mainly by atomic scientists after World War II, to initiate a movement for world government based on the cooperative and truth-seeking values of scientific inquiry.

The suggestion that science could provide the model for a unified culture and solve social problems came from scientists confident of their method and basking in public acclamation of scientific accomplishments from the 1930s to the 1950s. However, confidence in “material come alive,” as Karl Löwith has described the cultural milieu of mid-nineteenth-century Europe, met with both political and religious opposition on American soil. It is not surprising that although scientists gained prestige with the accomplishment of the Manhattan Project, many people became wary of the power of the split atom. Senate committee hearings in 1946, conducted by politicians skeptical of totally free scientific inquiry, raised questions about the viability of scientific freedom in the totalitarian political system of the Soviet Union. Scientists at the hearings bridled at military and governmental control

of their research, but the emerging Cold War mentality trumped their dream of a “republic of science.” The laws establishing the Atomic Energy Commission and the National Science Foundation set in place some political control over scientific research and funding.

At the 1946 Senate hearings, a representative of the United Council of Church Women voiced religious concerns related to atomic fission: releasing such power was meddling “with forces heretofore reserved to the Almighty” (p. 41). The women’s group said that science needed religion as a mentor. The National Council of Churches as a body and representatives of the Roman Catholic Church protested the use of nuclear energy for war, further challenging the scientific dominance of culture. Jacques Maritain and Archbishop Richard J. Cushing wrote articles for the *Bulletin of the Atomic Scientists*, arguing that science needed religion for moral guidance. The *Bulletin* also published Reinhold Niebuhr’s strident critique of positivist science, devoid of religion, as a formula for destruction. Evangelicals saw apocalyptic signs in the Cold War nuclear-armament race.

The attempt to organize and reform society on the basis of such scientific values as “absolute honesty, fearless search for truth, and universal proclamation of its results” (p. 42) underestimated the political and religious reaction to the fruits of science as expressed at Hiroshima and Nagasaki.

The endeavor by atomic scientists to popularize their message through the mass media also backfired. Scientists approached Metro-Goldwyn-Mayer with the idea of making a film about the Manhattan project. The result was a production entitled *The Beginning or the End?* (1947), which obscured the scientific message by emphasizing the religious implications and dire threat of atomic science. At the same time, the 1950s science-fiction monster films appeared. These films depicted unthinking and inept scientists as unleashing uncontrollable forces that threatened civilization. Thus, the attempt to popularize the benefits of science for human welfare failed in the media of popular culture.

Before sketching further, and perhaps more successful, attempts by scientists to present a positive image to the public, Gilbert detours into the academic world to chart the beginnings of formal dialogues among scientists, philosophers, and theologians. In the chapter called “A World without John Dewey,” Gilbert explains why Dewey’s views were not a factor in the emerging science-and-religion discussion. Dewey’s combination of positivism and pragmatism denied that religion could play any role in democratic society. Religion’s appeal, after all, is to an external authority that remains beyond the realm of “experience.” Religion, for Dewey, was frankly antidemocratic. As a result, says Gilbert, “Dewey’s forces remained impotent in a culture permeated with religion” (p. 84). Mortimer J. Adler

and John Maynard Hutchins joined with Rabbi Louis Finkelstein to counter Dewey. They perceived a “spiritual crisis” in America and Europe caused by the denigration of faith and tradition in theories of social reform based on positivist-pragmatic science. Finkelstein, an administrator and then president of the Jewish Theological Seminary in New York, sought to bring Conservative Judaism into the mainstream of American life by proposing that both science and democracy flourished on the soil of the “Judeo-Christian tradition.” Finkelstein introduced that phrase into cultural parlance as a result of his leadership in organizing the yearly Conference on Science, Philosophy, and Religion in Their Relation to the Democratic Way of Life, beginning in 1939 and continuing for several decades. Finkelstein successfully brought together prominent scientists, social scientists, and Protestant, Catholic, and Jewish theologians to discuss the similarities and differences among scientific and religious ways of knowing and acting. No agreement ever resulted on how to relate the disciplines, but a general consensus emerged that “science and religion were both necessary to democratic culture” (p. 92). Thus the dialogue began on whether culture could survive without a religious or spiritual basis for ethics, politics, and the scientific endeavor itself. Dewey thought the basic question was flawed and refused to attend the conferences.

The government responded to the post–World War II spiritual malaise with a military program for “Character Guidance.” Gilbert tells the amazing story, in the next two chapters, of “churching American soldiers.” Military leaders became concerned about the low morale of the troops. Citing the negativism and paganism of postwar literature and also the high incidence of venereal disease in the armed forces, military leaders in conjunction with President Harry S Truman proposed a program of “universal military training” (UMT) for all eighteen-year-old males. The UMT program—which intended to present the military as an extension of home, community, and church, and incorporate religious instruction into a general program of citizenship training—met with much congressional opposition and was never instituted, but the idea that spiritual and moral training was necessary for soldiers survived. The chaplaincy program was expanded through the efforts of Major General Charles Carpenter, Chief of the Armed Forces Chaplains Board. Religious instruction was provided for all recruits in a bid to “save the American youth of today for American manhood of tomorrow” (p. 119). For Carpenter, the military mission was nothing less than to “make Americans idealists, and moralists, and believers in God.” In the effort to provide “modern” citizenship training, the military felt science and technology must be incorporated into religious belief. This set the stage for the Moody Institute of Science films that

were shown to hundreds of thousands of American soldiers from the late 1940s into the early 1960s.

The Moody science films (with such titles as *God of Creation*, *God of the Atom*, and *Voice of the Deep*), were the brainchild of the Reverend Irwin Moon, who continued the legacy of Bryan but with the intent of showing the compatibility, not opposition, of religion and science. Moon's films, demonstrations, and lectures argued that close observation of the laws and patterns of nature revealed a design and thus a designer—a reworking of William Paley's *Natural Theology*. Using state-of-the-art technology such as time-lapse photography, Moon's films "demonstrated" how science illustrated the work of God in nature. The films were backed by scientists from the American Scientific Affiliation and were funded, in part, by the military after it began using Moon's lectures and films in the Character-Guidance initiative. The films were reworked and evolved into "Sermons from Science," which used "laboratories" and microscopic-projection techniques to link religion and science with "wholesome" living.

By the early 1960s the influence of the Moody Institute in the military gave way to that of the Roman Catholic Church (which began producing its own films for the military) and to Warner Brothers (which produced Character Guidance films). The American Civil Liberties Union challenged the use of government funds for religious purposes. By the mid-1960s the Moody films and Sermons from Science provoked snickers and even booing when shown on military bases. However, for about ten years, the Moody Institute of Science and the military combined energies to "update" conventional religion in a nonthreatening, popular format. Bryan's legacy won the day, as commonsense science, not professional science, received a religious interpretation. The Moody films and sermons "helped infuse American mass culture with religious sentiment; they challenged the viewpoint that religion and science clashed" (p. 145). This position was feasible as long as science was interpreted chiefly by evangelical Protestantism.

Gilbert picks up this last point in the next chapter, on the formation in 1941, and early history of, the American Scientific Affiliation (ASA). Organized under the auspices of the Moody Bible Institute, the ASA quickly took a direction different from Moody's mass approach and restricted its evangelizing to professional scientists. Its mission was "to correlate the facts of Science and the Holy Scriptures" (p. 148). The main question with which the ASA struggled in its initial conferences and *Journal* was how a scientist could maintain belief in a literal and inerrant Bible. It did not seriously question scientific views of reality. Thus, the ASA pulled away from the Bryan legacy in forming a professional organization of religious, and for the most part evangelical, scientists. Its first

president, F. Alton Everest, an electrical engineer from Oregon State University, attempted to chart a course between the beliefs of many members who accepted theistic evolution and those of the young-earth, “flood deluge” creationists, who were strident anti-Darwinians. Reconciling evolution and the Genesis account of creation remained an elusive goal, and the creationists finally split from the ASA in 1961 to form the Creation Research Society under the leadership of Henry Morris and Duane Gish. The creationists were upset over the publication in 1959 by Eerdmans of the ASA-sponsored *Evolution and Christian Thought Today* to commemorate the centennial of Darwin’s *The Origin of Species*. The volume did not attack Darwin, as the creationists hoped it would, but accepted a long time-frame for evolution and set forth versions of theistically guided evolution. This volume indicated the ambiguous position of the ASA in American culture—it appealed neither to mainstream scientists nor to creationists, nor to a general audience. Although it attempted to be professional, the ASA never gained admission to the AAAS because of its religious commitments. The ASA settled in as an organization of evangelical scientists, basically preaching to the choir.

Gilbert elaborates on the theme of popular versus professional science in a chapter on the controversy over Immanuel Velikovsky’s book *Worlds in Collision*, published in 1950 by Macmillan. The book combined astronomy, myth, history, and anthropology to explain how, “in fact,” the Red Sea parted during the Exodus, how manna fell from heaven, and how the earth stood still when commanded to do so by Joshua in Israel’s battle with the Amorites. The underlying message of the book was support for the existence of Israel after the Holocaust and the Zionist movement in Palestine: these events echoed the history of Israel, born and sustained through catastrophe. Gilbert contrasts the responses to the book by “two men of science” and thus revisits the turf traversed in the Scopes trial. The issue, once again, was, Who should speak for science—the priest or the lay interpreter? The priest in this instance was Harlow Shapley, head of the Harvard Observatory, who heard Velikovsky explain his basic thesis that the biblical miracles could be explained as “natural history” and refused to read the book because it had “nothing in common with science” (p.179). The lay interpreter was Horace Kallan, a humanist philosopher, defender of Dewey and William James, and professor at the New School for Social Research in New York City. Kallan argued, on the basis of Jamesian pluralism and Dewey’s democratic faith, that the community, not just specialists, could make judgments about truth. He invoked again the heritage of Bryan an uncommon alliance of humanism and fundamentalism. Velikovsky’s book received enthusiastic popular reception through favorable reviews in major newspapers, and through excerpts in *Reader’s Digest* and *Collier’s* and even intellectual periodicals such as

Harper's. The scientific community condemned the book as pseudoscience in its journals. After much negotiation as to whether a discussion of Velikovsky's views should be on the program, the book was also condemned at a session of the AAAS.

Gilbert assesses the Velikovsky affair as an important "barometer" of the science-religion discussion at midcentury. The book tapped into the deep-seated religious feeling of the country and interestingly touched a wide populism from fundamentalists to cultural pluralists such as Kallan. Shapley stood for the elite: only scientists could make judgments about scientific theories, not the culture at large. Like the Scopes trial, the Velikovsky situation evidenced a rupture between commonsense science and professional science. The conflict between science and religion seemed as real as ever.

Frank Capra, the acclaimed Hollywood director, took it upon himself to resolve this tension between popular and professional science by agreeing to direct a series of television science films for Bell Laboratories. Why Capra? Trained as a chemical engineer at California Institute of Technology and a devout Catholic, Capra seized the opportunity to popularize his vision of religion in an age of science: "Man is born with an insatiable desire to know what's on the other side of the hill—to know the unknown. . . . Why? Because man wants to know himself, his universe, his God" (p. 201). Further, "Science is just another facet of man's quest for God—a seeking of the ultimate answer through studying nature's physical laws" (p. 203). For Capra, doing science was a kind of spiritual exercise. Faith and reason were complementary paths to God.

Thirteen films were planned for the Bell science series, but only four finally aired between 1953 and 1963: *Our Mr. Sun*, *Hemo the Magnificent* (on blood), *The Strange Laws of Cosmic Rays*, and *Unchained Goddess* (on the weather). The reason for the cutback was that each production involved intense conflicts between Capra's religious vision for the films and the views of the science advisors hired by Bell's advertising agency to make sure the films were scientifically competent. Some scientists were skeptical of looking for traces of God in nature and resisted personifying the forces of nature, although a few advisors had no objections to the religious overtones of the scripts. Capra's films used cartoon characters, puppets, and scientific experts in combinations that finally satisfied both Capra and the science advisors. Their compromise presented science as not *opposed* to religion. For example, *Our Mr. Sun* opened with a sunrise, Beethoven's Ninth Symphony on the soundtrack, and the words "The heavens declare the glory of God: Psalms." The film closed with a version of Saint Francis of Assisi's prayer of gratitude to Brother Sun, with the intervening story of "our sun" meeting scientific standards.

The effect of the Capra films was widespread. They drew large television audiences, won awards, and were subsequently used by schools, reaching an estimated 200 million viewers. Despite the scientific and intellectual objections to mixing science and religion (as brought out in the Velikovsky affair or by Bell Laboratory science advisors), Capra successfully tapped into popular sentiment, which saw little conflict between science and religion. According to Gilbert, Capra was able to bring together professional science, commonsense science based on practical observation, and religious intuitions because such a combination already existed in people's minds. Thus, the "conflict" between science and religion seemed to be more of a problem for academics than for the general public.

Gilbert explores next the religious meaning of the UFO (unidentified flying objects) movement and the science-fiction films and literature of the 1950s. Again, commonsense observation and professional scientific explanation came into conflict, especially between those who credited reported UFO sightings and professional debunkers of such accounts. The publicity given the fiftieth anniversary of the supposed crash of a flying disc near Roswell, New Mexico (1 July 1947); the popularity of such television series as "Star Trek" and "The X-Files"; the perennial appeal of science-fiction adventure films such as the *Star Wars* trilogy; and the media's concentration on religious commentary about "life on Mars": all suggest that the UFO and science-fiction genres still provide an important forum for sorting out the science-religion relationship. Gilbert asks two leading questions in the chapter "Transgressing the Heavens": Has science gone too far in the attempt to master space? and If extraterrestrial life exists, what does that mean for understanding the place of human beings in the grand evolutionary scheme of things?

Donald Menzel, a Harvard astronomer and a Bell Laboratory advisor on Capra's films (Capra used Menzel's book *Our Sun*) became a principal scientific interpreter of the shortcomings of belief in UFO sightings. He noticed a movement from science to religion in the thousands of reported sightings, articles, and books that appeared in the 1950s and 1960s. They sought to give a religious interpretation to the UFO phenomena in terms of predictions from the Bible or evidence of the Second Coming. Menzel sought to explain to popular culture, through magazine articles and even his own science-fiction books at first, that no scientific evidence supported the existence of UFOs. Further, he said that the religious interpretations showed that "religions have failed to keep up with the growth of human knowledge" (p. 234). Menzel represented the professional opposition to the mystification of science. This very opposition, however, seemed to further the growth of pro-UFO articles, literature, and films such as *A Canticle for Liebowitz* and *The Day the Earth Stood Still*, which

predicted disaster as a result of scientific hubris. The place of human beings in the cosmos remained ambiguous.

Wernher von Braun, the noted German rocket scientist who came to the United States at the end of World War II, took a different approach. Somewhat in line with Capra's Catholic vision, von Braun stated in 1952 that scientific research "is still motivated by divine curiosity . . . We may be very certain that our star-ward strivings fit somehow into God's plan" (p. 246). Von Braun appealed to popular culture to get across his message that God approves of space travel. In conjunction with author and screenwriter Willy Ley, in magazine articles, in planetarium exhibits, in work on the development of Disney's first theme park, and in advising director George Pal on his film *The Conquest of Space* (1955), von Braun helped spread the word that space exploration is acceptable in the divine scheme of things. This mixture of science, religion, and popular culture was later expressed by Frank Borman, who exclaimed "This must be what God sees" while orbiting the moon on an Apollo mission in 1968.

From his foray into science fiction and discussion of UFOs Gilbert concludes that religious renditions of the meaning of space travel remain anchored in the consciousness of Americans. Despite the effort of professional scientists to discount the importance of religion, it has continually found new modes of expression through literature and films.

Returning to the academic world in the final chapters, Gilbert outlines three types of science-and-religion discussions. The first two pertain to the relationship between religion and the social sciences. The Society for the Scientific Study of Religion (SSSR) was founded in 1949, after an interdisciplinary conference at Mount Holyoke College, with two purposes in mind: the social scientific study of religion and the use of that study to promote religious organizations. Yet, in the effort to professionalize the study of religion, practical application gave way to academic study. The *Journal of the SSSR* was finally established in 1961, and its first articles noted the change in direction. Sociologist William Kolb argued that only the Judeo-Christian image of humanity as free, in contrast to a deterministic-positivistic view, could lead to fruitful social science. Talcott Parsons objected to such a limitation and attempted to vindicate secular sociology. The concern for the "objective" study of religion won the day, as the SSSR refused to affiliate with religious-oriented research groups and eventually was granted acceptance into the AAAS in 1964. The hope of combining science and religion, the objective and the subjective, in the study of religious experience proved fruitless. Sociologists and religionists ultimately could agree neither on basic definitions of religion nor on the nature of religious experience.

Second, the Religious Research Association (RRA), founded in 1951, was an organization that concentrated on using social scientific research

methods for the enhancement of religious groups. Research, in effect, was a means to the end of evangelization. Interestingly, although cross-membership in the SSSR and the RRA was common, the two groups never officially affiliated—a fact that highlights the problems of mingling social science and religion in the 1950s. On one hand, the study of religion led to explaining it away in functional terms. On the other hand, many sociologists were committed to the idea that religion per se was necessary for healthy individuals in a sound society. This conflict led W. Widick Schroeder, editor of RRA's *Review of Religious Research*, to resign in 1967; although dedicated to the practical application of religious research, he could not find enough high-quality manuscripts to publish. The conflict was underlined by such well-known social scientists as Peter Berger and Robert Bellah, who used their research to make prophetic critiques of a despiritualized, secular American society.

Gilbert denotes a third type of discussion: “the religion of science.” Ralph Wendell Burhoe was an active member of both the SSSR and the RRA. However, he felt that the conflict between science and religion could not be resolved by either group of social scientists. Instead, he insisted on moving beyond the social sciences and practical applications to include the biological and physical sciences in an overall evolutionary cosmology. Burhoe's vision of “viewing religion in light of the sciences” had to take shape through other organizations—those of his own making.

The life and work of Burhoe should be familiar to readers of *Zygon* because as founding editor (1966), he published many of his seminal articles here. In addition, the initial appearance of David Breed's book, *Yoking Science and Religion: The Life and Thought of Ralph Wendell Burhoe* (1992), upon which Gilbert draws heavily for his chapter on the founding and early years of the Institute on Religion in an Age of Science (IRAS), was serialized in these pages in 1990–91. Shapley re-enters Gilbert's cultural narrative as principal mentor for Burhoe's attempt to revitalize American religion on the basis of science as a response to the general post-war cultural despondency. Burhoe's association with Shapley (first at Harvard's Blue Hill Observatory, then in arranging conferences when Burhoe was executive officer of the American Academy of Arts and Sciences, and through the founding years of IRAS) indicates the different direction that Burhoe's project took. Science became the primary inspiration for the “new dispensation,” a spiritualized interpretation of cosmic evolution, a rational religion whereby religion was thoroughly informed and even defined by science, a “scientific theology.” For Burhoe religion was a cultural product that “allow[ed] men to adapt to [the] total environment so as to realize values,” and was thus “the most all-embracing and fundamental integration of ideas and attitudes that move man to behavior that

makes life possible” (p. 290). Only science could reveal the creator God of the vast universe of orderly design and certain natural law.

Gilbert suggests that Burhoe, in effect, proposed a new American religion. The reformation of religion became the focus of a Unitarian group that met on Star Island, New Hampshire, and in 1950 designated itself the conference on “the Coming Great Church.” Burhoe persuaded the group to have a special science-religion conference on Star Island in 1954, inviting prominent scientists including psychologist B. F. Skinner, physicist Philipp Frank, Shapley, and others. IRAS was born from this meeting. Realizing that the American public might not be quite ready for scientific religion, the IRAS Council strategized to carry on specialized conversations among scientists, theologians, and philosophers—not only annually at Star Island but also at prominent universities and seminaries. This proposal met with little institutional response over the years except that Burhoe was appointed, in 1964, to a unique theological position at Meadville Seminary in Chicago (Unitarian). There he remained until his retirement in 1974. He received the Templeton Prize for Progress in Religion in 1980—a significant sign that, although a new American religion had not materialized, the conversation was far from over. In the 1950s and 1960s Burhoe’s “religion of science” failed to tap the spiritual roots of the culture at large but became the “faith” perhaps of a few hundred scientists, liberal theologians, and intellectual laypeople who were dissatisfied with traditional religion. Gilbert considers this journal, *Zygon*, to be one of the most significant outcomes of the Burhoe-Shapley efforts.

Gilbert’s last chapter spotlights the science-and-religion exhibits at the 1962 Seattle World’s Fair, using these as an emblem of popular attitudes. The stated general purpose of the fair was to promote the accomplishments of science and technology in American culture. The “heyday” of big science was over, and many people feared science as the creator of the atomic bomb. Nuclear war was a real possibility—especially in light of the extreme tension between Washington and Moscow, as epitomized in the Cuban missile crisis. Another widespread fear concerned the population explosion. Scientists and the defense industry—including Seattle’s Boeing Corporation—wanted to present an image of science as servant, not destroyer, of humanity. Further, scientists hoped that the science exhibits would inspire young people to pursue careers in science.

Donald Menzel, a well-known science advisor, was hired as principal consultant for the science exhibits. His goal was to advance science literacy and show people the necessity of support for pure science as a resource for applied science and technology. He chose space science as the focus, thus emphasizing America’s competition with Russia, which was then leading the way in space technology. Menzel proposed cooperating with the Russians on exhibits, hoping to depict scientists as an international

society that could cooperate and work for the good of humanity—a goal similar to that of atomic scientists after World War II. This idea was rejected by the State Department. Menzel further proposed an exhibit that included a space rocket and a moon space station. He lost out to the other consulting parties, however: the Boeing Corporation, the Commerce Department, and the Fine Arts Production Company of Hollywood (which proposed a film, *A Journey to the Stars*, to be shown in 360-degree cinematography at the main space exhibit). As in the conflicts around the Capra films, Menzel felt that he was prevented from presenting the facts of science and relegated to producing a Hollywood version of a science “show.” Again, scientists could not determine how their work would be popularized.

Yet the overall effect of the science exhibit was positive; 7 million of the fair’s 10 million tourists visited the pavilion. The architecture was magnificent, with the Space Needle’s revolving restaurant suggesting a flying saucer hovering over the fair and the “space gothic” arches in front of the science pavilion suggesting a cathedral-like atmosphere. Exit surveys indicated, however, that people felt the various displays were “too complicated.”

Religion maintained a prominent position at the fair but was by no means a dominant feature. Nine hundred thousand people visited the Christian Witness display, located directly across from the science pavilion, and the Moody science film exhibit ranked fourteenth in popularity. Initial plans for a Hall of Religion featuring the five major world religions fell through mainly because of local opposition by the Christian Witness consortium of Seattle, which saw the fair as an opportunity for evangelization and wanted no competition. The Christian Witness film *Redeemed* proved controversial. It presented in dark and abstract images a message of Christian hope in contrast to the scientific and technological achievements of humankind. During the fair, a pamphlet was created to explain the film to viewers because many people found it bleak. Religious events and symposiums took place throughout the fair, however: Bible Week, Liturgical Week, a visit by Billy Graham, and a conclave on “Space-Age Christianity,” the speakers warning that science could not become a substitute for religion. The fair’s celebration of science thus included a religious, albeit exclusively Christian, presence. For Gilbert, a science fair with a religious guest depicted the cultural status of science and religion in 1962.

To end the book, Gilbert reflects on the Apple Computer logo (an apple with a bite/byte taken out of it) as a symbol for the knowledge of two cultures: “science and religion, Newton and the Garden of Eden, the liberating spirit of science shadowed by the temptation of hubris” (p. 322). For Gilbert the dialogue between science and religion, delineated in

various forms throughout the book, is nothing less than an idiom for “essential ideas and deep-seated structures of culture.” He does not think that science and religion can ever be reconciled, nor perhaps should they be, because the perpetual interchange is an important factor in processing cultural change.

Gilbert’s book is important because it places the current science-and-religion dialogue in historical context and expands the horizon of the exchange into popular culture. One hopes that he may continue with a second volume, tracing developments in the last third of this century. Religion has not diminished in American culture, nor has the science-religion dialogue abated. In fact, the dialogue shows signs of moving from the elite confines of “centers” and “conferences” into the general culture, especially with the current Templeton Foundation program to encourage teaching of science-and-religion classes, the efforts of mainline denominations to sensitize clergy and church members to science-and-religion issues, and Pope John Paul II’s declaration that evolution does not conflict with Catholic doctrine. Yet the Bryan legacy continues, as state legislatures pass laws allowing the teaching of creation science in biology classes, only to be challenged by outraged science educators and civil libertarians concerned with the issue of church-state conflict. One might have expected more from Gilbert on this last point, since antievolution cases were emerging in the late 1950s and early 1960s; but he promised only an episodic, not a comprehensive, telling of the story.

Gilbert’s account emphasizes the democratic tradition in American culture. Popular consensus, Bryan’s suspicion of cultural “nobility,” and the notion of “one person, one vote”—all work against professional scientists or theologians purporting exclusive explanations of how the world works or its ultimate destiny. That is only half the story, however. The libertarian tradition of free thought and speech, with the other inalienable rights encoded in the Bill of Rights, perhaps explains why there will always be a minority “elite” expressing its hopes, dreams, and visions for the future. Gilbert has outlined some of the conflicts between professional and popular science, and has shown how efforts to popularize the professional have rarely been successful. Burhoe’s “trickle down” strategy has yet to come to fruition: science-and-religion centers around the country formulate big plans, apply for grants, and receive limited institutional and public support. If the science-religion dialogue is, in fact, a “new dispensation,” it seems that its realization is yet to come.

Further, the basic tension described by Gilbert between idealists and materialists survives to this day: Is religion necessary for cultural life, or is it an outmoded way of thinking and acting? Cultural evolution is a slow process. It may take generations to determine whether religion is necessary for cultural life. By that time, if it turns out that the transmission of

values through religion is necessary for survival, it may be too late. At present one might surmise that the culture is healthy to the degree that religion persists and engages science with proposals for living. It may be the case that both religion and science are necessary for democratic culture. That recommendation from the elite may work its way into mass culture, or it may eventually die on the chopping block of history. Gilbert's cautionary tale may assert that neither professional science nor academic religion is secure from the vagaries of mass culture. Gilbert has shown how the dynamic interchange between science and religion has helped chart the course of contemporary American culture in the middle third of this century. One suspects that the same can be said of the latter third of the twentieth century, but that story has yet to be told.

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