

grants, Albert Theodore Schroeder was born near Horicon, Wisconsin, on September 17, 1864. His father was an agnostic, his mother, a Protestant. Theodore left home at fifteen to travel, taking brief odd jobs and eventually visiting every state. He called this time period his "wanderlust years." He attended school during the winter months. He was an avid reader of authors such as Ludwig FEUERBACH, Robert Green INGERSOLL, John Stuart MILL, Herbert SPENCER, VOLTAIRE, and Thomas PAINE. In college at the University of Wisconsin, he was also active in the Sigma Chi fraternity, and earned degrees in civil engineering and law.

Schroeder opened a law office in Salt Lake City, Utah, in 1889. At first he sympathized with the Mormons for what he thought was unfair persecution based on their religious practices, but soon he saw trouble in the close relationship between church and state in Utah and became increasingly anti-Mormon. He wrote several pamphlets challenging the Mormon Church. By the time he left Utah in 1900, he had successfully prosecuted Mormon church leader and politician Brigham H. Roberts, ensuring his ouster from the US House of Representatives. Schroeder's wife of five years, Mary Parkinson, died in 1896; he also lost a young daughter.

In 1900 Schroeder moved to New York City. He still practiced law, but became more interested in research and writing. In New York he met many socialists and anarchists and worked to defend their civil liberties (see SOCIALISM AND UNBELIEF; ANARCHISM AND UNBELIEF). The Free Speech League was formed in 1911 by Leonard D. Abbot, Lincoln Steffens, Bolton Hall, Gilbert E. Roe, and E. B. FOOTE, with Schroeder serving as secretary, as well as writing publications and providing legal assistance. The league was a precursor to the American Civil Liberties Bureau, now the American Civil Liberties Union. Other radicals such as Emma GOLDMAN later became involved. Schroeder also aided in the defense of Moses HARMAN during his 1905 obscenity trial (see SEX RADICALISM AND UNBELIEF). He continued to write and publish articles and books on free speech cases and obscenity laws, such as *Free Speech for Radicals* (1912, 1916) and *Free Speech Bibliography* (1922). He was associate editor of the periodical *Arena* and also wrote for *THE TRUTH SEEKER* and the *American Journal of EUGENICS*.

Schroeder had long been interested in psychology, and by 1901 started to develop a theory that promoted a connection between emotional and intellectual maturity, applying a psychological approach to society's ills. His attacks against religion increased, and in the 1920s he assisted Bishop William Montgomery Brown in a HERESY case brought by the Protestant Episcopal Church. Brown's radical views had increasingly come into conflict with his church, and four years after he published an essay titled "Communism and Christianity," heresy charges were brought against him.

Nancy Sankey-Jones, a libertarian feminist, married

Schroeder in 1908, and they moved to Connecticut, where he died in his sleep on February 10, 1953. After his death, two relatives were successful in preventing the publication of the remainder of his unpublished writings. The case went to court, where the judge ruled that Schroeder's writings "offend religion and extol anti-social ideas."

BIBLIOGRAPHY

- Domayer, Dennis L. "Theodore Schroeder: A Biographical Sketch." In *Theodore Schroeder, A Cold Enthusiast: A Bibliography*, compiled by Ralph E. McCoy. Carbondale: Southern Illinois University Press, 1973.
- Maddaloni, Arnold. *Schroeder—The Public Excuser: A Biographical Outline to Which Are Added Some Published Opinions concerning His Personal Traits*. Stamford, CT: n.p., 1936.
- Stein, Gordon, ed. *The Encyclopedia of Unbelief*. Amherst, NY: Prometheus Books, 1985.
- Schroeder, Theodore. *Free Speech for Radicals*. Enlarged edition. Riverside, CT: Hillacre Bookhouse, 1916.

JULIE HERRADA

SCIENTISTS, UNBELIEF AMONG. Science and religion are not necessarily at loggerheads, and the results of scientific inquiry do not necessarily controvert religious belief; nevertheless, there are clear tensions between scientific and religious knowledge systems (see RELIGION IN CONFLICT WITH SCIENCE). Scientists employ "methodological NATURALISM," the normative concept that scientific investigations use only natural law and its consequences, and deal only with objects or claims that have testable consequences in the natural world. Methodological naturalism is different from "philosophical naturalism," the ontological conviction that nothing exists beyond natural law and effect. While scientists are necessarily methodological naturalists, they are not necessarily philosophical naturalists and therefore not necessarily unbelievers.

The theologian Ian Barbour has developed several models to describe the interaction between (naturalistic) science and (supernaturalistic) religion. Adopting one of these models, Stephen Jay GOULD prominently argued that science and religion are not incompatible, that they occupy what he termed "nonoverlapping magisteria," or separate teaching authorities; his claim received largely negative attention from scientists and theologians alike. For example, as John Lynch has noted, Gould defined religion precisely to ensure the success of his proposal. He thus presented a theology with jurisdiction solely over ethics and morals, and stripped religion of most of its traditional meaning and power: in Gould's religion, there is no discussion of origins, design, progress, purpose, guided process, or a personal deity. By so defining

religion, Gould could easily claim no overlap or conflict—science retains its power and prestige, while religion is redefined so as not to distress the scientific mind.

Two Conflicts between Science and Religion. While Gould may be right in principle, science has made claims about matters religious and religion about matters scientific since before the dawn of modern science. Two scientific theories in particular, heliocentrism and EVOLUTION, have caused significant conflict. The heliocentric theory of Nicolaus Copernicus presented a profound challenge to the church, which believed that the earth was the center of the universe. A generation or so after Copernicus, Giordano BRUNO speculated that the universe was infinite and the stars were suns like ours. Bruno subscribed to a theory of nonoverlapping magisteria and maintained that the Bible should be read for its moral but not scientific value; partly for this HERESY he was burned at the stake in 1600. For his support of Copernicus's ideas, Galileo GALILEI ran into trouble with the church and spent his last decade under house arrest. The trials of Galileo and Bruno set the stage, at least within the popular imagination, for the clash between modern science and certain doctrinaire religious beliefs. Nowhere did this clash become more apparent than in the rise of evolutionary thought (see DARWINISM AND UNBELIEF).

Evolution was in the air when Charles DARWIN and Alfred Russel WALLACE independently developed their theory of natural selection. Darwin's grandfather, Erasmus DARWIN, had proposed a vague teleological theory of evolution, and Jean-Baptiste de LAMARCK in the early 1800s devised a theory of inheritance of acquired characteristics. The explanatory power of geologist Charles Lyell's actualism—the principle that only forces operating today can be used to explain occurrences in the past—and his uniformitarianism—the principle that geological forces have operated at a constant rate and strength throughout time—proved great enough to finally unseat the biblical account. However, as evidence for an earth much older than the age calculated from biblical genealogies was accumulating, a number of "scriptural geologists" denounced the emerging discipline of professional geology, which they rightly saw as undermining literalist beliefs. Many Victorian geologists, however, remained believers and maintained strong evangelical credentials when faced with scientific findings.

Darwin himself may have postponed publishing *On the Origin of Species* (1859) for fear of the religious establishment. Later in life he became an agnostic (see AGNOSTICISM), partly because of the death of his ten-year-old daughter, Annie. Darwin's eventual lack of belief was thus ultimately for moral (rather than scientific) reasons, and indeed the theory of evolution does not necessarily militate against belief. Asa Gray, a scientist contemporary with Darwin, for example, accepted evolution while remaining a devout Christian. But Darwin's ferocious popularizer, the skeptic Thomas H. HUXLEY, perceived Darwin's naturalistic theory as a way to sepa-

rate science from the old order. His famous debate with Bishop Samuel Wilberforce, in which he is said to have trounced Wilberforce, helped foster the perception that science and religion are antagonists. This view was promulgated in the United States by the writings of both John W. DRAPER and Andrew Dickson WHITE, and later by Richard Dawkins and Daniel Dennett.

War between Science and Religion in the United States. The tensions between science and religion are stronger in the United States than in Europe and are strongest among Protestants. These tensions may have begun in their modern form during the furor that followed after Ezra Cornell and White in 1865 founded Cornell University as a nonsectarian university that put the sciences on an equal footing with other studies. Draper thought the fight was between science and religion in general, whereas White came to believe that it was between science and dogmatic religion.

The Scopes trial, wherein John T. Scopes was convicted of teaching evolution in 1925, was a skirmish in the war, but its repercussions are felt to this day as biblical literalists oppose teaching evolution and support a "scientific creationism" that denies the great age of the earth and the common ancestry of living things. Modern opponents of evolution see themselves as oppressed by a scientific, naturalistic hegemony. A few of these opponents hold scientific credentials but refuse to allow their science to influence their (often literalist) religious beliefs. When scientific creationism was literally thrown out of court in the Supreme Court's 1987 decision *Edwards v. Aguillard*, it was replaced by intelligent design creationism (see INTELLIGENT DESIGN THEORY). This variation of the argument from design claims that living organisms are too complex to have evolved by natural mechanisms; therefore, an intelligence must have guided evolution. Though it tries to appear scientific, intelligent design creationism undermines science, for example, by ruling naturalistic explanations out of bounds for certain phenomena such as the origin of complex molecular systems. Indeed, Phillip Johnson, a retired Berkeley law professor and a leader of the movement, erases the critical distinction between methodological and philosophical naturalism and admits that his intention is to defeat naturalism. Intelligent design creationism, like scientific creationism, is a frontal attack on science in the service of a religious agenda. It thus profits from the public image of scientists as disbelievers, and helps to maintain that image. But is that image borne out by the data?

Measuring Unbelief among Scientists (1914 and 1933). In the years surrounding the Scopes trial, the psychologist James H. LEUBA surveyed a large number of US scientists in order to learn their beliefs about God and immortality. In both polls, disbelievers (not including doubters or agnostics) represented a plurality over believers and doubters (see table 1). Further, the least likely to be believers were psychologists, followed by sociologists, biologists, and physicists, in that order. The order

stood firm across the years. Distinguished scientists (as identified by *American Men of Science*) exhibited a substantially greater rate of disbelief than "lesser" scientists.

Table 1. Rates of disbelief among scientists, percent.

Survey	All Scientists		Greater Scientists	
	God	Immortality	God	Immortality
Leuba, 1914	42	20	53	25
Leuba, 1933	56	41	68	53
Larson, 1996-98	45	47	73	73

Leuba's poll was, however, not without problems. First, because the United States was almost monolithically Christian, Leuba formulated two questions that asked, in essence, whether respondents believed in a particular Christian conception of God. Asking his questions in that way militated against getting positive responses from, for example, pantheists such as Robert Millikan and Albert Einstein, who associated God with the universe and its laws and thus did not revere, in Leuba's words, "the God of our Churches." Leuba asked respondents whether they believed in "a God to whom one may pray in the expectation of receiving an answer" (a question specifically defined to exclude psychological or subjective consequences of prayer), disbelieved in such a God, or had no definite belief. Second, several questionnaires were returned with remarks intended to justify the respondents' refusals to answer the questions. According to Leuba, most of these were from disbelievers; hence, he concluded, the percentage of disbelievers may have been understated in his poll.

Scientists are more educated than the general population, and Leuba, a religious humanist, thought that increasing education would decrease rates of belief in God. To test his hypothesis, he surveyed college students at two unidentified colleges: a high-ranking college that was divided among the major Protestant denominations and a college that was "radical" in its leanings. In both colleges, the number of believers in both God and immortality decreased with age or academic advancement (freshman through senior years). Leuba also cited a decrease in belief at one of the colleges between 1914 and 1933, as well as similar results found at Syracuse University in 1926. Leuba, a professor at Bryn Mawr College outside Philadelphia, did not identify the two colleges in his study, but they were probably in the northeast, if not the Philadelphia area. If the major Protestant denominations means the mainline Protestant churches, then Leuba's studies of college students may not be representative, inasmuch as they omitted students affiliated with churches not heavily represented in the northeast. Oddly, Leuba did not mention the Roman Catholic Church.

Measuring Unbelief among Scientists (1990s). In 1996 and 1998, Edward J. Larson and Larry Witham replicated Leuba's surveys. For consistency, they did not

edit Leuba's questions, despite the cultural changes that had occurred in eighty years. Additionally, *American Men and Women of Science* no longer highlights eminent scientists, so Larson and Witham derived their "greater" scientists from the membership of the National Academy of Sciences; comparison with Leuba's "greater" scientists is therefore problematic, because the NAS probably contains substantially more-eminent scientists than the highlighted scientists of the earlier surveys.

Larson and Witham found that nearly 50 percent of the scientists and nearly 75 percent of the "greater" scientists surveyed disbelieve in both God and immortality. An additional 15 to 20 percent are doubters. It is hard to make much of a series of three numbers, but during the century the percentage of disbelievers increased monotonically in every category, except for a peak in the percent of scientists who disbelieved in 1933. Disbelief in immortality more than doubled among scientists in general and nearly tripled among "greater" scientists. It is thus hard to credit Larson and Witham's claim that belief among scientists has remained more or less steady for eighty years.

C. Mackenzie Brown has analyzed Leuba's data and also suggested that demographics may make comparison between Leuba's and Larson and Witham's surveys difficult. For example, more scientists now are women, and women (though not necessarily women scientists) are statistically more likely to be religious than men. This factor could reduce the number of disbelievers in the later surveys and possibly disconfirms Larson and Witham's conclusion that scientists' religious beliefs have not changed much since 1914. Brown has similarly noted that applied scientists are underrepresented among the greater scientists and adds dryly that their underrepresentation may be relevant to any discussion of the beliefs of eminent scientists.

In 1998 Laurence Iannacone and his colleagues examined existing data gathered between 1972 and 1990, and tried to assess the prevalence of scientists' belief in God. They found that 19 percent of "professors/scientists" have "no religion" and 11 to 21 percent "oppose religion" (see table 2). It is hard to compare these figures with those of Leuba and Larson, but arguably between 27 and 40 percent of professors/scientists may be doubters or disbelievers. The study broke the data down further by discipline and found a hierarchy similar to that found by Leuba: Social scientists, at 36 percent, were most likely to have no religion, followed by physical scientists and mathematicians (27 percent) and life scientists (25 percent). Among the social scientists, sociologists (35 percent), psychologists (48 percent), and anthropologists (57 percent) were most likely to have no religion. According to a 2003 Harris poll, by contrast, 90 percent of all adults believe in God and 84 percent in survival of the soul after death; that is, 10 percent disbelieve in God or are doubters, and 16 percent disbelieve in immortality or are doubters.

Table 2. Rates of disbelief or doubt among professor/scientists, percent

Survey	Has no religion	Opposes religion	Immortality
Iannaconne, 1972-90	19	^a	34 ^b
Math, Physics, Life Sciences	~25	11	
Social Sciences	36	13	
Psychology	48	21	
Anthropology	57	19	

^a Not given.

^b That is, 66 percent believe in afterlife.

Interpreting the Data. Leuba speculated whether scientists become disbelievers or whether independent thinkers willing to confront reigning orthodoxies become scientists. The greater scientists are presumably on average more-independent thinkers than the lesser; the fact could account for the increase of disbelief among greater scientists. That conclusion is supported by a study by Fred Thalheimer, who concluded that religious beliefs are frequently set during high school or college and that nonreligious students may choose more intellectual or theoretical endeavors.

Scientists who study biology, psychology, and sociology and anthropology are more likely to disbelieve in God and immortality than physical and applied scientists. Leuba speculated that physicists and engineers see a creator in the lawfulness of the physical and engineering worlds. Social and biological scientists may be less likely to see lawfulness in their studies, and Brown asks, further, whether social and biological scientists are perhaps influenced by the suffering that they see and physical scientists do not see. Thus, the question may be why biological and social scientists are more likely to disbelieve, rather than why physical scientists and engineers are less likely. Arguably, then, science leads to disbelief, at least among those already inclined to be independent thinkers.

Leuba predicted that increasing scientific knowledge would lead to increasing disbelief. That prediction is apparently (at least partly) correct. He further predicted that the religions would adapt to the best scientific insights and "replace their specific method of seeking the welfare of humanity by appeal to, and reliance upon, divine Beings, by methods free from a discredited supernaturalism." That prediction, at least so far, is largely incorrect.

BIBLIOGRAPHY

- Barbour, Ian G. *Religion in an Age of Science*. San Francisco: HarperSanFrancisco, 1990.
- Brown, C. Mackenzie. "The Conflict between Religion and Science in Light of the Patterns of Religious Beliefs among Scientists." *Zygon* 38, no. 3 (2003).
- Bruce, Steve. *God Is Dead: Secularization in the West*.

Malden, MA: Blackwell, 2002.

Forrest, Barbara. "Methodological Naturalism and Philosophical Naturalism: Clarifying the Connection." *Philo* 3, no. 2 (2000).

Gould, Stephen Jay. *Rocks of Ages: Science and Religion in the Fullness of Life*. New York: Ballantine, 1999.

"Harris Poll: The Religious and Other Beliefs of Americans 2003." *Skeptical Inquirer*, July-August 2003.

Iannaconne, Laurence, Rodney Stark, and Roger Finke. "Rationality and the 'Religious Mind'" *Economic Inquiry* 36, no. 3 (1998).

Keynes, Randal. *Darwin, His Daughter and Human Evolution*. New York: Riverhead, 2001.

Larson, Edward J., and Larry Witham. "Leading Scientists Still Reject God." *Nature* 394 (1998).

———. "Scientists Are Still Keeping the Faith." *Nature* 386 (1997).

———. "Scientists and Religion in America." *Scientific American* 281, no. 3 (September 1999).

Leuba, James H. *Belief in God and Immortality*. Boston: Sherman, French, 1916.

———. "Religious Beliefs of American Scientists." *Harper's Monthly*, August 1934.

Lynch, John M. "Review: Gould, *Rocks of Ages*." *Journal of the History of Biology* 33 (2000).

———. "'Scriptural Geology,' Vestiges of the Natural History of Creation and Contested Authority in Nineteenth-Century British Science." In *Repositioning Victorian Sciences?* edited by D. Clifford, E. Wadge, A. Warwick, and M. Willis. London: Anthem, 2006.

Stenger, Victor. *Has Science Found God?* Amherst, NY: Prometheus Books, 2003.

Thalheimer, Fred. "Religiosity and Secularization in the Academic Professions." *Sociology of Education* 46 (1973).

Young, Matt. *No Sense of Obligation: Science and Religion in an Impersonal Universe*. Bloomington, IN: First Books Library, 2001.

MATT YOUNG AND JOHN LYNCH

SCOTT, THOMAS (1808-1878), English freethought pamphleteer. Thomas Scott was born into a wealthy family. His early life is rather obscure, but it is known that he was a page in the court of Charles X, a noted fisherman and hunter, and a world traveler. He is also known to have spent some time with Native Americans.

Between the years of 1850 and 1860, Scott became a rationalist (see RATIONALISM) and began publishing what we know today as the Scott Pamphlets. Scott used his own fortune to publish works that were heterodox in thought. Beginning in 1862, Scott published well over 250 of these tracts from his home in Ramsgate (about thirty kilometers southeast of London).

The authors of these works included rationalists, atheists (see ATHEISM), freethinkers (see FREETHOUGHT), and also Anglican clergy, Unitarians, and others as well.

The New
Encyclopedia of
UNBELIEF

Edited by
TOM FLYNN

Foreword by
RICHARD DAWKINS

Publisher
PAUL KURTZ



Prometheus Books

59 John Glenn Drive
Amherst, New York 14228-2119