Not many reliable studies exist that attempt to measure the attitudes of leading scientists on the questions of the existence of God and the possibility of an afterlife. Two important surveys have been taken on these questions, however, one at the beginning of the 20th century, and one at its end. Comparing the two reveals several problems of interpretation, as well as some puzzling reporting in the press. A third study, the 2015 Pew Research Survey on “science and religion,” takes the discussion into 21st century polling and reveals a growing gap between the general population and the scientific community, with nearly six-in-ten adults (59%) expressing the view that science and religion often conflict, particularly on the question of evolution.

The first survey I am interested in was conducted in 1914 by the psychologist James H. Leuba. Readers of The Varieties of Religious Experience will remember Leuba as William James’s alter ego in chapter 20. Time after time James tiptoed up to the question of “truthiness,” as Stephen Colbert called it, only to postpone an answer, or to offer a problematic pragmatist criterion of truth. Leuba, as James quoted him, vigorously maintained that if God proves “useful,” the religious consciousness asks for no more than that. “Does God really exist? How does he exist? What is he? are so many irrelevant questions. Not God, but life, more life, a larger, richer, more satisfying life, is, in the last
analysis the end of religion. The love of life, at any and every level of development, is the religious impulse.”

Not content with vindicating the subjective utility of religion in this manner, Leuba set out to bring some precision to measuring beliefs within the American scientific community on the two cardinal beliefs of mainstream Christianity: the existence of a deity “to whom one may pray in expectation of receiving an answer,” and belief in immortality. Published in 1916, Leuba’s pioneering study shocked the nation with the finding that only 41.8% of scientists believed in a supreme being and 58% of 1,000 randomly selected U.S. scientists expressed disbelief or doubt in the existence of God. This figure rose to nearly 70% among the so-called “greater” scientists within his sample. Leuba predicted that such ungodliness would spread as education improved. Indeed, when he repeated his survey in somewhat different form in 1933, he found that the percentages of unbelieving or doubting scientists had increased to 67% and 87%, respectively.

Eighty years later, it appeared that better and more widespread education had not destroyed religious faith among scientists. Edward Larson, an historian at the University of Georgia, and religion writer Larry Witham replicated Leuba’s surveys as exactly as possible in 1996 and published two separate analyses in the science journal *Nature*. The tension between the title of the first report in 1997 and the second in 1998 suggests

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certain interpretative challenges: “Scientists Are Still Keeping the Faith”\(^3\) and “Leading Scientists Still Reject God.”\(^4\)

The discrepancy can be explained by looking at the delineation between “lesser” and “greater” scientists. Larson and Witham found little change from 1914 for American scientists generally, with 60.7% expressing doubt or disbelief. Two years later, they closely imitated the second phase of Leuba’s survey to gauge belief among “greater” scientists and found the rate of belief lower than ever—a mere 7% of respondents. But if a positive spin is put on the question, it could be said that nearly 40% (it had declined slightly to 39.3%) of respondents affirmed belief “in a God in intellectual and affective communication with humankind.” This was still comparable to Leuba’s finding that four in ten scientists affirmed a belief in God. In both surveys, roughly 45 percent disbelieved and 15 percent were doubters/agnostics. Somewhat more, about 50 percent, believed in an afterlife in Leuba’s day, but now, according to Larson and Witham, that figure was also 40 percent. Referring to this as “the 40-percent solution” ringing down through eight decades, Larson and Witham could thus declare that scientists are keeping the faith and that Leuba’s prediction that disbelief would increase fails. This message appeared benign enough to reassure anxious believers that the “acids of modernity” had not eaten further into the fabric of faith by century’s end.

However, press reports at the time echoed the misleading conclusion that the rate of religious belief among scientists over the previous eighty years had remained relatively

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constant. It was misleading even on the face of it (60 percent, a clear majority, were
either disbelievers or agnostics) but especially so in light of the second round of follow-
up surveys on the part of Leuba in 1933 and Larson and Witham themselves in 1998.
Here the distinction between “lesser” and “greater” scientists became crucial. Leuba
randomly polled scientists listed in American Men of Science (AMS), a standard
reference work that designated the “great scientists” with asterisks in their entries. The
AMS no longer makes these designations, so Larson and Witham chose as their “greater”
scientists members of the National Academy of Sciences (NAS), perhaps the nation’s
most eminent scientific organization. They found that disbelief among NAS members
who responded to the 1998 survey (slightly over 50 percent return rate) exceeded 90
percent. Disbelief in God and immortality among NAS biological scientists was 65.2%
and 69.0%, respectively, and among NAS physical scientists it was 79.0% and 76.3%.
“Most of the rest were agnostics on both issues, with few believers,” according to Larson
and Witham. They found the highest percentage of belief among NAS mathematicians
(14.3% in God, 15.0% in immortality). Biological scientists had the lowest rate of belief
(5.5% in God, 7.1% in immortality), with physicists and astronomers slightly higher
(7.5% in God, 7.5% in immortality). Among the so-called scientific elite, then, Leuba’s
prediction that disbelief would increase stood vindicated. Nevertheless, over the years a
spate of Templeton-driven studies reiterated the claim that most religions have no conflict
with evolution and that many scientists are religious. Taking up this theme, NAS
president Bruce Alberts tried to position his organization outside the contentious religion-
science debates by offering the calming statement in 1998 that “There are many
outstanding members of this academy who are very religious people, people who believe
in evolution, many of them biologists.” Yet Larson and Witham’s data suggests otherwise and should be used to temper such statements.

Overall comparison figures for the 1914, 1933, and 1998 surveys appear in Table 1.

<table>
<thead>
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<th>Table 1 Comparison of survey answers among “greater” scientists</th>
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<td>Belief in personal God</td>
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<td>Doubt or agnosticism</td>
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Figures are percentages.

In sharp contrast to “greater scientists,” some 90 per cent of Americans in general claim to be religious in one sense or another. The gap between American elite scientists and American non-scientists is therefore also significant, measured by belief in a God who communicates with humans and belief in immortality.

More study is needed of the notable differences among the scientific disciplines. What is the significance of the patterns of belief among scientists when specific disciplines are considered? Why are mathematicians most inclined to believe in God, and

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5 Edward Larson, “Scientists and Religion in America,” Scientific American (September 1999), 91.

6 From Larson and Witham (1998), 313.
biologists least disposed, according to Larson and Witham? One reason for the
discrepancy may be that traditional religious dogma suits the mathematically inclined
mind or those who are looking for definitive answers, whereas life sciences draw in
people who are more comfortable dealing with ambiguities. What mathematician has not
marveled at the amazing appropriateness of the language of mathematics for the
formulation of the laws of nature? Is it any wonder that Pythagoras in the fifth century
BCE could believe that numbers were gods, and that one through ten were represented in
the Greek pantheons? For Newton, as for Kepler and Galileo, the language required for
expressing the laws of motion and the fundamental laws of physics was mathematics.
Always at least half-disposed to Platonism, mathematicians can behold the beautifully
ordered forms of the human mind as mirroring the order of a divine Mind. Biologists, on
the other hand, must confront the sheer enormity of disorder, waste, loss, suffering, dead-
endedness, and extinction that the evolutionary process has thrown up. This record is
evidence, too, and it points in the opposite direction.

What can we learn about believing scientists in America from the most recent
Pew Research Survey? Released in October 2015, the “science and religion” portion of
the survey conducted in August 2014 found that of the areas of conflict between religion
and science, the most common centered around evolution and teachings about the
creation of the universe. No specific polling question in the Pew Research Survey asked
scientists what they believed. However, three in ten American adults said that their own
religious beliefs conflicted with science. The survey was notable for the generality of its
questions across a broad base of Americans. As its first survey since 2009, the 2015 Pew
survey showed that a majority of the public said that science and religion do conflict, up
slightly from 55% in 2009. It also found that the least religiously observant Americans (as measured by frequency of attendance at worship services) were most likely to say that science and religion are often in conflict. Not surprisingly, 68% of Americans perceived no conflict between their own religious beliefs and science, but for the 30% who did see a conflict, beliefs about evolution and the creation of the universe constituted the most common source of disagreement.

Specifically, Pew found that 65% (or 2/3) of Americans believe that humans evolved over time. However, because of the popularity of various forms of “theistic evolution,” a position which maintains that evolution and religious faith are compatible, it is important to ask the additional question about presumed causes. On this question, about 35% think that humans evolved through natural processes; and about 24% say that human evolution occurred with the guidance of a “supreme being.” In other words, about 24% of 65% of Americans qualify as “theistic evolutionists” (a topic to be considered in another aspect of my research). That leaves 31-34% of Americans who believe that humans and other living things did not evolve but have “always existed in their present form,” indicative of a significant gap between this population and the vast majority of the scientists that Larson and Witham surveyed.

The most interesting aspect of the report released in October 2015 by the Pew Research Center concerned the perceptions that Americans have of scientists’ views of science and religion. Two thirds (66%) of the general public said scientists generally agree that humans evolved over time, while 29% said scientists generally do not agree about this. A majority of most major religious groups said scientists generally agree that humans have evolved. Church attendance also was related to perceptions of scientific
consensus; 72% of less-frequent churchgoers said scientists generally agree that humans have evolved, compared with 54% of more frequent churchgoers.\footnote{It should be noted that the Pew Research Center 2016 Report also contains data that recognizes there are multiple influences on people’s attitudes and beliefs about science topics. Public attitudes and beliefs about science topics are sometimes connected with political and ideological divides, while other differences in people’s views are connected with generational divides, educational attainment and knowledge about science, gender, race and ethnicity and, at times, religious factors. I am concerned here only with what Pew has reported about the general public’s views on evolution, and their perceptions of scientists’ views on science and religion, compared to the views that scientists themselves hold about evolution and religious faith. Consistent with past surveys on this topic, the recent Pew data showed wide differences among religious groups when it comes to beliefs about evolution.}

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\textbf{Processes Guiding Human Evolution}

% of U.S. adults saying that humans and other living things have evolved over time...

\begin{figure}[h]
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\caption{Processes Guiding Human Evolution}
\end{figure}

\textit{Data taken from Pew Research Center surveys conducted between 2009 and 2014. Data values for those unsure how evolution occurred are not shown. Other responses are not shown.}

\textbf{PEW RESEARCH CENTER}
II

Flipping the phrase “believing scientists,” we run into another question: Why should we believe scientists about the science? Polls show that many Americans are in fact unpersuaded by scientific knowledge. A Gallop survey in November 2004 found that one-third of Americans believe the Bible is the actual word of God that should be taken literally. That the figures cited above about incidence of belief in natural selection were so low can be read equally as a triumph for religious authority or as an indictment of the state of education in America today.

The best answer as to why we should believe what scientists say about the human genome, for example, or the age of the earth, or the great expansion of the universe in which we live, is that science provides not just descriptions but explanations of natural phenomena. Are these the “best” explanations? A case can be made for their being the only explanations we have, recognizing there are limitations on the certainty of scientific explanations. In the absence of any alternative explanations, “best” would have no comparison. What does it mean to explain something? The answer science gives is that we explain a physical principle when we show that it can be deduced from a more fundamental physical principle. Science may never be able to explain why our most fundamental scientific principles are what they are, rather than something else. Perhaps this is why some theologians have thought that science does not provide “ultimate” explanations to “why” questions. But by this reasoning nothing else does either. One does not need to embrace “scientism” in order to agree with the perfectly modest claim Freud stated in the last lines of The Future of an Illusion: “No, our science is no illusion. But an illusion it would be to suppose that what science cannot give us we can get elsewhere.”
Carefully weighed, Freud’s claim amounted simply to the affirmation that there is no other source of knowledge of the universe but the intellectual manipulation of carefully verified observations. When we speak of distinct “ways of knowing” and emphasize the plurality of those ways, we mean that history and the humanities, just as much as biology and chemistry, offer different perspectives from which to undertake investigations, involving the same values of questioning, evidence, discovery, selection, and judgment.

Thus, we do not believe in evolution; rather, we believe it. To “believe in evolution” implies faith, like believing in the spaghetti monster. We believe the scientific theory of evolution because overwhelming data supports it, and we will do so until data say otherwise. Contrary to what many contributors to the science and religion discussion now argue, science is not another form of faith, alongside religion. Indeed, both have been wrong in their conclusions, and both have a history of inhumane, vile, and meretricious moral consequences, but functionally there is no analogy that makes religion and science look convincingly similar when it comes to knowledge, evidence, and testability. Science requires testable hypotheses and not merely analogies. In order for religious ideas to meet certain plausibility conditions, we would need some suggestions for how they can be rendered coherent with the rest of our understanding of natural phenomena. The opposite formula does not work, however; by and large, we do not ask how scientific ideas can be rendered coherent with our understanding of religious phenomena.

Therefore, when we wonder today why the figure of 40 percent believing scientists in America is so high, we are asking, more specifically, how some biologists, who as a group are more likely to be religious skeptics, can reconcile their Christian
belief in a creator god with their acceptance of evolutionary theory, but we are not
evaluating the biology on the basis of the religious beliefs.

III

Academic researchers have learned to be skeptical of polling methods, questions, and conclusions, even as we cite them. Numerical tools have become a necessary part of the work of making proper generalizations. But scholars of religion, in particular, have reason to beware of clear-cut conclusions about such fuzzy intentional objects as gods and creators, and people’s perceptions of other people’s beliefs. The very terms “religion” and “science” and questions about their potential “conflict” risk essentialization. Which science? Whose religion? Moreover, making inferences from polling data has always been hazardous. Are non-religious people drawn to science, or does the study of science make Americans less religious? At best, the surveys cited here establish correlation, not causation. Observers of religion in America have long expressed skepticism about the reliability of polling and its ability to catch all the diversity, nuance, and shifting tides of something so complex and elusive as religiosity. As polls about religion came under increased scrutiny in the new millennium, it has become even harder to know how to think about the results. Problems of low response rates, the high incidence of telephone fatigue, inadvertent white norming, and other problems have introduced new forms of bias. Pointing to the most serious limitation of polling, Robert Wuthnow, in his recent study *Inventing American Religion: Polls, Surveys, and the Tenuous Quest for a Nation’s Faith*, sums up the history of American religion as numerically interpreted by saying:

Whatever else it may do, polling considers the individual person as the appropriate unit for investigation. The fact that religion is practiced in
congregations and among friends and families in everyday life is missed. Those social aspects of religion could be examined in polls. But the polling industry prefers to imagine its results generalizing about individual citizens—usually the ones who expect to vote. Where does one learn about the relationships among like-minded believers and how their practices are connected with clergy, experiences in worship, and the taken-for-granted norms of congregations and communities? Not from polls.⁸