

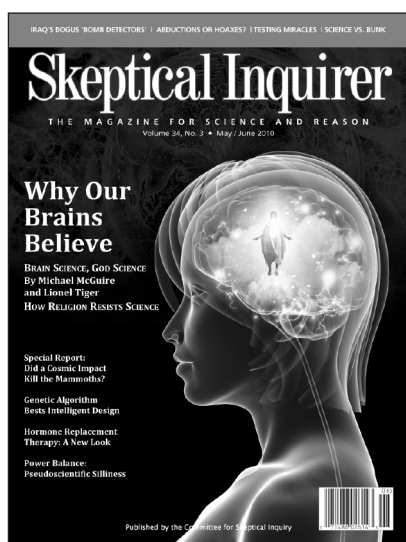
you really know you're the lone exception, the only one who just happens to be right? That's exactly the question posed by *The Christian Delusion*, a new book from Prometheus Books edited by John Loftus (and to which I contributed two chapters), which came out just in time for *The Nature of Existence* to prove its point: you have to seriously question whether you are that exception or just another human in error. And you can't answer that by simply asking experts what they think because they all think

something different. You thus need a method that can tell the difference, and you need to apply it. Nygard doesn't do that. He just puts a mirror up to humanity and reveals the problem. Hence it's a movie I would feel comfortable recommending to religious friends and family. They won't be put off by it. They'll even like it. Yet it will haunt them for years.

After I saw the film, I asked Nygard why *The Nature of Existence* didn't ask the question I kept asking as I watched it: *why*

do they believe that? I know he has answers in the can (he has several hundred hours of footage that include answers to that very question). There is some additional footage available on the film's Web site (www.thenatureofexistence.com), which may become extras in the eventual DVD release. But the movie doesn't tackle the *why*. Nygard says that if this film is successful, a sequel will explore that next level. For now, *The Nature of Existence* just looks in the window to see what's there. □

LETTERS TO THE EDITOR



Our Brains and Beliefs

I enjoyed the interesting but poorly argued piece by Michael McGuire and Lionel Tiger on why religion endures (“Brain Science, God Science,” *SI*, May/June 2010). (I leave aside their speculations as evolutionary psychologists regarding both the origin of religion and the nature of the brain.) According to them, religion will endure “as long as life generates problems” because religion provides answers and relief to problems. This would make sense only if there were some problems that must be resolved and if religion were the only way to resolve them. The only problems the authors discuss that seem remotely related to the category of “problems that must be resolved” are what they call “the malady of nothingness” and the problem of living with uncertainty. The only unique thing religion offers as a solution to these problems is the promise of an afterlife.

The authors don't prove that the promise of an afterlife is the only way to resolve these problems. How could they? There are dozens

of ways that humans have found to deal with the uncertainties of life. Hope for an afterlife is just one of those ways. Furthermore, nothingness isn't a malady but a solution to a problem for many people: the problem of living a few more years without hope of recovery from the torments of injury, disease, or the ravages of old age. There is no reason to believe that religion's promise of an afterlife won't one day be seen as an obstacle to solving the most pressing problem humans have ever faced: the problem of living in a body for dozens of years beyond the point where life can be said to have any meaning.

The part of the article I found interesting was the part that discussed the various physiological effects of positive socialization. Again, however, the authors fail to establish any necessary connection between these effects and religion.

Bob Carroll
Davis, California

I agree with the authors' basic notion that the success of religion is closely related to the organization and chemistry of the human brain. But I take issue with the notion that religion is the result of the fear of death and the desire for an afterlife.

Many western classical religions such as those of the Greeks and Romans, and even Middle Eastern religions such as ancient Judaism, did not emphasize the afterlife. To them the dead descended into Tartarus or she'ol and lived a dreary, uneventful existence—not something that anyone would desire. Nor did early forms of these religions promise the average person a rewarding life after death. These ideas developed toward the height of the Roman Empire and got their greatest impetus with the birth of Christianity.

The original purpose of superstition and religious ritual was to ensure survival in this

life. It was to promote the abundance of game, survival from illness, human fertility, and later the fertility of the fields and the cooperation of the weather. In times when men lived at the mercy of nature, these things were more important than what happens after death. Indeed, many primitive people have rituals to insure that the dead stay dead.

The historically new religions such as Christianity and Islam used the idea of the afterlife as a recruitment tool. Only the adherents had a chance at a rewarding afterlife; all others were to be punished in Hell. At the same time, Judaism also adopted some of these ideas, although the Jewish religion does not condemn all nonbelievers to Hell or reserve Heaven for believers alone.

Jerry Hershberg
Torrance, California

McGuire and Tiger summarized the evolutionary pressures that maintain religious belief in the absence of empirical evidence. However, they also unwittingly illustrated the primacy of belief over rationality in their failure to apply this reasoning to their preferred religious belief, atheism. As they noted, evidence of belief in deities and an afterlife dates back at least 70,000 years. Far from being comforting, however, the anthropological record suggests that those beliefs were an oppressive system for enforcing cultural mores through irrational fear of powerful gods and the uncertainty of a terrifying afterlife. Tribal people throughout Asia, Africa, the Americas, and the Pacific feared punishment from the gods or spirits of the dead.

To free humans from that fear and oppression, the Greek philosopher Epicurus promulgated a contrary religious belief, atheism, based on the materialism of Democritus. Lucretius described Epicurus as a benefactor of humanity who freed us from fear of gods

and an afterlife by reassuring us of benign annihilation at death. Wishful thinking and intolerance of ambiguity led the Greeks to embrace materialism and atheism, which reduced nature to comfortingly inanimate chemical reactions.

Embracing either theism or atheism in the absence of empirical evidence is equally the result of our fear of ambiguity and uncertainty and is an emotional rather than rational choice.

Bruce Greyson
Carlson Prof. of Psychiatry and
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“Brain Science, God Science” leaves me, ahem, skeptical. The authors suggest that religion is inevitable because it has necessary stress-reducing properties. But some features of a pseudoscientific approach appear in the development of the theory, which is not presented as what it is: speculation about a vaguely defined question. Positive statements (“like it or not, the brain will continue to secrete religion as long as life generates problems”) suggest a level of certainty inappropriate for this more or less “sitting-around-the-cider-barrel” discussion. The generality of the conclusion is in no way supported by the loose connections made among seeing familiar faces at services, oxytocin, “the factor of predictability,” and the persistence of religious belief. Scientific élan is added with liberal discussion of brain physiology, hormones, and archaeological data, none of which can be tied to the premise by any experimental results.

In fact, it could be argued that religious belief and its attendant practice are often causes of stress, as when there are persecutions or a particular cult or sect makes unusual demands on its followers—a concept that the article fails to address. I wish the authors had adopted a lighter tone.

Paul Bedard
Port Huron, Michigan

While the authors tried to hit the subject ball out of the park, I would call it only a double. First of all, they seem to believe that the brain instinctively creates God or an equivalent. This is close to Dean Hamer’s concept of a “God Gene.” However, he admits that some of the most spiritual people he interviewed didn’t believe in a deity at all. As a

psychologist and the author of a book on evolutionary psychology, I think McGuire and Tiger have missed the point on what our brain does. We have evolved a symbolic brain that produces symbolic models to understand ourselves and the world we live in . . . now and thousands of years ago. Evolution has seen fit to tie our beliefs to our emotions and our emotions to our bodily functions. That’s why the placebo and nocebo effects influenced our health even before modern medicine arrived. This was just as important as lessening our anxiety. Religion certainly played and still plays an important role in our lives since medicine can’t control death and our models are not sufficient to understand it. But we keep trying!

Herman Kagan
Ventura, California

I found the article “Brain Science, God Science” by Michael McGuire and Lionel Tiger fascinating.

The part that I question is the statement, “a god or some equivalent is a product of the normal human brain.” I can only infer from this that my brain is not “normal.” I suppose I can take solace in the fact that nearly 94 percent of those who do the heavy lifting in the brains department, the National Academy of Sciences, are also missing a normal brain. Perhaps a study of these “abnormal” brains and why they function as they do might be productive.

Charlie Sitzes
Bloomington, Indiana

The May/June 2010 SKEPTICAL INQUIRER discusses the pervasiveness of belief in a god. This should not surprise us. Generations ago, Kurt Gödel used mathematical symbols to demonstrate that every coherent system of statements relies on at least one unprovable assumption.

Moreover, for us rational humans to make sense of the world, we need to make that assumption—it is a requirement. The religious among us call that assumption “God.”

Geoffrey Milos
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Michael McGuire and Lionel Tiger respond:

We are grateful for the thoughtful, often angular, and always appropriate responses to our article. In fairness, the zest and variety of comments compel a reply longer than the original,

which it is not our place to try to produce here.

However, it is precisely this range and intensity that provide us a sense of justification for the approach we took in “Brain Science, God Science.” This approach was to suggest a way of understanding an array of religious and religious-like behavior grounded in new neurophysiological data and the possible interpretations these data may support.

The answers proposed will never cause contented stillness in the chapel or evaporation of the chapels themselves. But at least there may be a sturdier-than-ever factual basis for approaching such a massive and influential matter as what people and societies conclude about the limits of reality, the geography of mortality, and what the organic brain does amid all this. It’s neither easy nor necessary to take sides in favor of one or another facet of an intricate prism, and we didn’t want to do that. However, sacred buildings and stories and their doubtful and irritated critics all exist and even co-exist colorfully, often with massive impact. Of this we sought to be accountants, not judges.

Comets and Mammoths

I wish to expand on David Morrison’s excellent special report (SI, May/June 2010) on the widely publicized claim that a huge broken-up comet collided with Earth just 13,000 years ago, wiping out mammoths, Clovis culture, and so on. As he explains, this poorly supported, speculative scenario is built upon an earlier pseudoscientific trade book by the lead author of the original *Proceedings of the National Academy of Sciences* paper.

I wish to add that PBS televised, in spring 2009, an hour-long episode of NOVA supporting this incredible hypothesis. Shockingly, this program has since been awarded the top prize for a TV science documentary by the American Association for the Advancement of Science (AAAS) at its annual meeting in February 2010. Mark Boslough, whose sidebar accompanies Morrison’s article, appears on the NOVA program as the lone skeptic. Most of this flashy show touts the untenable arguments described by Morrison and purports to show that new evidence from Greenland supports the story.

The normal course of science didn’t lead to Greenland. Instead, NOVA actually funded the expedition to Greenland, a questionable journalistic practice. I have seen a manuscript submitted to the AAAS journal, *Science*, which the authors hoped would be published simultaneously with the NOVA broadcast. Indeed, the NOVA producer coauthored the would-be *Science* paper, seemingly inconsis-

tent with requirements that coauthors actually are researchers. The article never appeared in *Science*, perhaps because it was submitted too late for the usual refereeing and publication processes to meet NOVA's broadcast schedule. Nor has the Greenland paper been published in *any* peer-reviewed scientific journal during the subsequent year.

It is a travesty that the AAAS has given this unpublished work such a prestigious award. Such august scientific institutions as NOVA, AAAS, and the National Academy have been drawn into a race to the bottom that has been a trend for some time on cable channels and other popular science media. It is sensational, controversial, and increasingly pseudoscientific topics that raise the ratings and readerships. Whether the hyped research is likely to be correct, was done by unimpeachable researchers, was critically evaluated before publication by other experts, and was actually published in a reputable journal all fall by the wayside.

Though I am a fellow of the AAAS, my complaint about a process that could make such an award was ignored until I insisted on an answer. The relevant AAAS official then replied that the award is made by strictly independent committees of scientists and journalists. The AAAS plays no role. Yet some entity must appoint the committees and establish criteria. As newspapers, magazines, and TV networks increasingly sideline many of the best science journalists in the nation, one wonders if enough remain to serve on such a committee.

I fear that we are entering a Dark Age in the reporting and communication of rational science, which bodes ill for scientific literacy of the next generation of Americans. This is not news to readers of *SI*, but the AAAS award to NOVA's portrayal of the putative Younger Dryas comet impact shows that the trend is accelerating and has penetrated some of the most respected institutions of science.

Clark R. Chapman
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I read with interest David Morrison's discussion of the YD impact hypothesis but did stumble a bit over one computation. In commenting on Richard Firestone's suggestion that the Carolina Bays formation might have been created by a Tunguska-like event, Morrison writes, "But calculation of average

impact frequency suggested that only about one super-Tunguska could be expected to hit Earth in the past 13,000 years. The chance of two such extremely unlikely swarm impacts happening within the past few thousand years is worse than negligible."

If he meant, as it seems, that given that Tunguska indeed happened, the chance that another such event happened (to form the Carolina Bays) within geologically recent history is therefore *really* small, then I must take issue. Assuming that the impact probabilities in two different years are independent, the probability of two such events in a few thousand years is indeed very, very low, but the probability of two such events—given that one event (Tunguska) occurs in that period—is about the same as the unconditional probability of a single event. That is, Tunguska does not "protect" us from immediate future impacts.

Paul Hilfinger
Department of Electrical
Engineering and Computer
Sciences
University of California, Berkeley

David Morrison responds:

Clark Chapman's account of the AAAS prize given to a NOVA documentary that provided uncritical support for the speculative YD impact hypothesis is indeed disturbing. As for the NOVA show itself, it is consistent with a trend in all media to emphasize form over function, even when discussing scientific discoveries. Considered drama, the show was highly successful, illustrating science in action in the spectacular environment of the Greenland icecap. The scientists brave cold and potential danger to collect data, and when the lead scientist finds what he was looking for, he tears up on camera. In effect, this is "reality TV" brought to a science program. Such a documentary may well increase public interest in science and inspire students to seek science careers. The only thing wrong was the science itself, which was at best problematic and probably simply wrong.

Paul Hilfinger correctly criticizes my condensed discussion of impact probabilities. The point I intended to make was that a Tunguska-type event is seen on Earth only once every few centuries, and a super-Tunguska (large enough to form a shallow crater) is expected no more than once in the past 13,000 years. In contrast, these authors suggest one and perhaps two multiple impact events (the Carolina Bays and the YD impact), each of them involving tens of thousands of super-Tunguskas. Such huge swarms of super-Tunguska impacts are inconsistent with

what astronomers know about our planet's cosmic environment or geologists' understanding of Earth's recent impact history. This is not just improbable; in common usage we would have to call it impossible.

A new twist on the YD impact story is a paper published in Geophysical Research Letters by Andrew Scott and colleagues suggesting an alternative explanation for the tiny carbonaceous spherules that have been cited as evidence for the YD impact. Scott's team found that these spherules from the YD boundary are indistinguishable from lightly charred fungal sclerota and "fecal pellets, probably from termites." This hypothesis is described by Richard Kerr in Science (June 17, 2010) under the headline "Mammoth-Killer Nothing More Than Fungus and Bug Poop." Of course, this interpretation has not been independently verified, but it does appear in a peer-reviewed journal.

When Scientists Change Their Minds

Regarding my short piece "When Scientists Actually Change Their Minds," accompanying David Morrison's special report on cosmic impacts and mammoths (*SI*, May/June 2010):

Another significant new development has caused Wallace Broecker to rethink his position . . . again. A recent paper in the journal *Nature* reports evidence for the late ice-age flood of meltwater he had postulated as the Younger Dryas trigger event. Broecker didn't see evidence when he flew over the area because he was looking in the wrong place. The floodwaters appear to have gone the opposite direction from what he had expected. Instead of pouring down the St. Lawrence River into the North Atlantic, the new evidence suggests that the flood followed the Mackenzie River into the Arctic. Broecker is quoted in a *Nature* news story as saying that the flood "would solve a big problem if it actually happened." The best scientists follow the evidence wherever it leads them, and sometimes it turns out to be back where they started.

Mark Boslough
Albuquerque, New Mexico

Winter of Our Discontent

Opening the May/June 2010 issue of *SI*, I was astounded to find the following statement concerning global warming in Kendrick Frazier's otherwise informative "From

the Editor" column: "Globally 2009 was . . . only a fraction of a percent cooler than the warmest year, 2005."

Expressing a temperature change as a percentage is of course completely without meaning—the value of the percentage change corresponding to a given temperature change will depend on the zero of the temperature scale in use (Celsius or Fahrenheit, for example). Self-styled global warming skeptics might legitimately point out that on the Kelvin scale of temperature (i.e., relative to *absolute zero*, the only really meaningful zero in such matters) the global change of some 0.6 degrees C over the last thirty to thirty-five years is itself only a fraction of a percent of 288 K, the mean temperature of the planet.

This is not a trivial distinction; it is fundamental to all informed understanding of climate change. On the very day I received the issue in question I came across Georg Hoffmann's demolition of Claude Allègre's *The Climate Imposture* on www.realclimate.org. In this book the former French minister demonstrates to his own satisfaction that anthropogenic global warming is hogwash. Among his numberless absurdities, Allègre ridicules the claim that in a certain period ". . . the global mean temperature rose by 0.6%."

Hoffmann politely lets this go as a typo; after all, Allègre may have meant the 0.6 degrees C figure mentioned above. True believers in the Big Bad Global Warming Conspiracy are not so polite and will not hesitate to jump on similar errors in publications like SI, especially in cases like this where the word *percent* was actually spelled out.

John Eades
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Kendrick Frazier responds:

Touché. I should have said fraction of a degree—although I picked up that "fraction of a percent" phrase from the text of a NASA podcast about data then just released by NASA's Goddard Institute for Space Studies, "2009 Global Temperature Package: Year Tied as Second Hottest," January 28, 2010.

Here, from an online paper at that same time, is how noted NASA-GISS climate scientist James Hansen and four colleagues put the matter:

Figure 1a shows 2009 as the second warmest year, but it is so close to 1998, 2002, 2003, 2006, and 2007 that we must declare these years as being in a virtual tie as the second warmest year. The maximum difference among these in the GISS analysis is -0.03°C (2009 being the warmest among those years and 2006 the coolest). This range is approximately equal to our 1-sigma uncertainty of

-0.025°C , which is the reason for stating that these five years are tied for second warmest.

By the way, data show that 2010 is well on its way to becoming even warmer than 2009 (and 1998 and any of those other years mentioned).

Bogus Bomb Detectors

The dowsing-rod-like bomb detectors used in Iraq and elsewhere (News and Comment, SI, May/June 2010) do work to a certain extent, or they did until they were "exposed." Remember, the horse Clever Hans really could correctly answer some arithmetical questions. You noted that the devices are "sensitive to the subconscious hand movements of the operator." Operators could be responding subconsciously to body-language cues of nervousness of those carrying bombs and fearful of detection. There is another possible mechanism: operators could be responding quite consciously and deliberately by pointing the device at those they believe to be carrying bombs, perhaps with good cause, and yet still fend off accusations of bias or profiling by attributing the response to the device. And a device costing tens of thousands of dollars is more believed in, and therefore works better, than a tree branch.

Howard J. Wilk
Philadelphia, Pennsylvania

Faith and the 9/11 Perpetrators

Much has been studied and said of September 11, including "Bill Maher: Crank and Comic" (SI, November/December 2009) and George Anhang's letter ("Maher's Ludicrous Comment," SI, May/June 2010).

Sam Harris firmly posits: "The men who committed the atrocities of September 11 were certainly not 'cowards,' as they were repeatedly described in the Western media, nor were they lunatics in any ordinary sense. They were men of faith—perfect faith, as it turns out—and this, it must finally be acknowledged, is a terrible thing to be" (*The End of Faith: Religion, Terror, and the Future of Reason*, 2004, p. 67).

David W. Alspaugh
Three Lakes, Wisconsin

The SKEPTICAL INQUIRER sometimes rewards us with articles that are then illustrated in a

letter to the editor. In the May/June 2010 issue, Ilkka Pyysiäinen's article, "How Religion Resists the Challenge of Science," identifies three cultural biases that keep us believing. George Anhang's letter concerning "Maher's Ludicrous Comment" illustrates two of those three biases. Maher, referring to 9/11 and our retaliation, claimed lobbing missiles from 2,000 miles away was cowardly; staying in the plane as it hit the building was not. These are "un-American" sentiments and thus condemned by *conformist* bias. ABC cancelling Maher is a perfect case of "*punishing for fear of being punished for not punishing*." Stripped of "us versus them" context, Maher is correct. No courage is required to launch a missile. We do not praise Wernher von Braun's courage for raining V-2's on London. The whole purpose of Maher's show was to get us beyond the politically correct words to see the reality of the human condition. In this case he simply overstepped by skewering two cows that American *conformist bias* holds absolutely sacred: the evil of the 9/11 perpetrators and the bravery of all American troops, no matter what they might be doing.

Thanks to Ilkka Pyysiäinen we can see clearly the cultural mechanisms at work.

Robert D. Veitch
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Skeptical Inquirer

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