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Skeptical Inquirer

THE MAGAZINE FOR SCIENCE AND REASON

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Critical Thinking on a Critical Issue

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A SKEPTIC'S GUIDE TO RACISM

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Committee for Skeptical Inquiry
"... promotes scientific inquiry, critical investigation, and the use of reason in examining controversial and extraordinary claims."

[FROM THE EDITOR

Critical Thinking about Racism

Racial issues continue to plague us. After every new incident (the deadly neo-Nazi march and confrontations with protestors in Charlottesville this past August a blatant example), we rehash all the arguments for how best to combat racism and racial division. In his introduction to our special section in this issue, Deputy Editor Benjamin Radford notes, "One thing that is missing from the debate is evidenced-based guidance on what psychology and sociology can teach us about what's effective in reducing racism and prejudice." Psychologists Craig A. Foster (with Steven M. Samuels), Stuart Vyse, and Terence Hines attempt to rectify that situation. They contribute short essays describing what research shows are the most effective—and least effective—ways to deal with racism. The research offers no guarantees but does give some hope that personal engagement and other innovative approaches can, sometimes, change some people's minds.

We follow that with an article on the important research by Stanford University psychology professor and MacArthur Fellow Jennifer Eberhardt into subconscious racial bias. She doesn't just carry out ground-breaking (and troubling) psychological experiments into how we perceive race. She works directly with local metropolitan police departments in sharing lessons learned and preparing strategies to avert conflicts and misunderstandings. As an assistant chief of the Oakland Police Department says, Eberhardt is almost embedded, attending staff meetings, giving feedback, tracking data, and providing training. Eberhardt's research may be deeply disturbing in showing how prevalent unconscious bias is in almost all of us and how it seeps into almost everything. But she now focuses less on delineating the problem and more on finding solutions. "People need to have hope," she says.

One key to her training struck me as especially constructive. It treats bias as a common human condition to be recognized and managed, rather than as a deeply offensive personal sin, and this makes police and others less defensive. Another police chief says her work "has really helped advance the discussions and put it in the framework of science, which takes a lot of the emotion out of it."

In other contributions on related issues of science and society, Science Watch columnist Kenneth W. Krause looks at the problems of statues currently embroiled in controversies about racial injustice and calls for fewer, not more, icons. Science of Science Communication columnist Matthew Nisbet examines the roots of antagonism toward scientific expertise in the United States and describes analyses showing that disparities related to income, education, and race play a more important role than traditional left-right ideological differences. And Stuart Vyse devotes his Behavior & Belief column to "Yes, We Do Need Experts," a strong recommendation of the book *The Death of Expertise* and a resounding repudiation of the populist tendency to demean experts and pretend that expert knowledge has little importance in our democracy. Will the pendulum swing back from that regressive view and toward reason? The stakes are very high.

—Kendrick Frazier

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Chapman Survey 2017: Advanced Ancient Civilizations, Spirits, Alien Visits Remain Top Paranormal Beliefs

The 2017 Chapman University Survey of American Fears came out in October with its annual in-depth examination into the fears of average Americans. A random sample of 1,207 adults from across the United States were asked their level of fear about eighty different fears across a wide variety of topics.

The top ten fears of 2017 were corruption of government officials (74 percent); American Healthcare Act/Trumpcare (55 percent); pollution of oceans, rivers, and lakes (53 percent); pollution of drinking water (50 percent); not having enough money for the future (50 percent); high medical bills (48 percent); the United States will be involved in another world war (48 percent); global warming and climate change (48 percent); North Korea using nuclear weapons (48 percent); and air pollution (45 percent).

We're not going to comment much about that except to note that this is the first time the survey has had fears of another world war and North Korea using nuclear weapons in the top ten. The survey notes that the concerns were much different at this year's survey time (May 2017) than those identified one year earlier, when terrorism, ObamaCare, and several other fears had greater prominence.

What interests us about the survey is that it also included a battery of items asking about paranormal beliefs. It asked respondents about seven such beliefs. The results show that the most common belief is that ancient advanced civilizations such as Atlantis once existed (55 percent). Next was that places can be haunted by spirits (52 percent), aliens have visited Earth in our ancient past (35 percent), aliens have come to Earth in modern times (26 percent), some people can move objects with their minds (25 percent), fortune tellers and psychics can survey the future (19 percent), and Bigfoot is a real creature (16 percent). Only one-fourth of respondents didn't hold at least one of these beliefs.

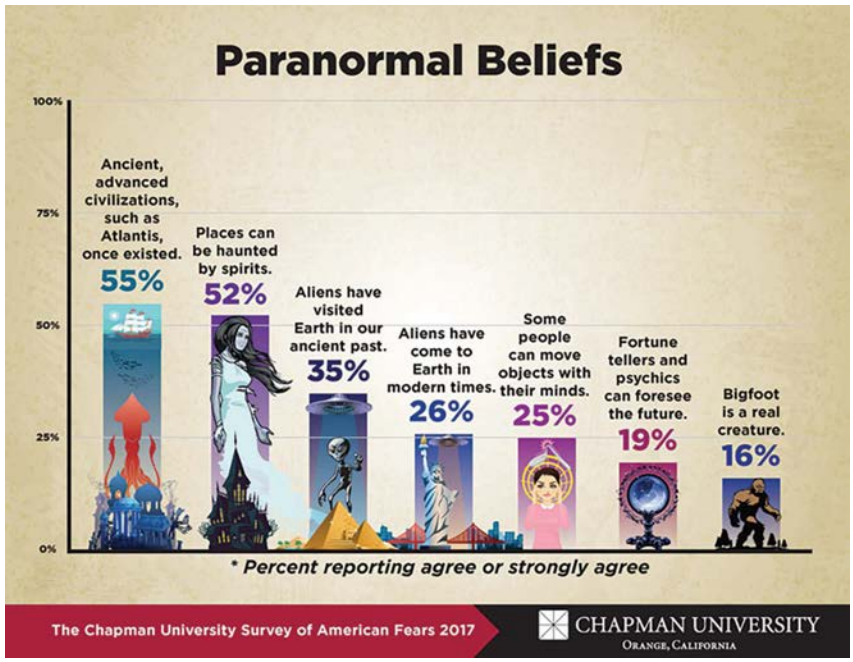
The accompanying graphic, published with the survey, displays those results. They don't appear to differ much from those of other, similar surveys or last year's Chapman survey (SI, January/February 2017), except that this year belief in ancient advanced civilizations supplanted haunting by spirits as the top paranormal belief.

What interests us about the survey is that it also included a battery of items asking about paranormal beliefs.

Perhaps of slightly more interest, the survey examined the extent to which fifteen personal characteristics (such as age, gender, biblical literalism, political preference, religious tradition, etc.) were related to holding paranormal beliefs.

The survey found that people with the highest levels of paranormal belief tend to have or be: lower income, highly religious, attend religious services infrequently, female, conservative, living in a rural area, and a West Coast resident.

"Simply put," says the survey announcement, "the person with the highest number of paranormal beliefs in the United States as of 2017 will tend to be a lower income female living in a rural area in the Western states. She tends to be politically conservative and claims to be highly religious, although she actually attends religious services infrequently."



DNA Test: Dalí Not Father of Spanish Psychic

Benjamin Radford

A DNA test confirmed that Maria Pilar Abel, a Spanish psychic and tarot card reader, is not the daughter of Salvador Dalí, despite her claims to the contrary. Abel managed to convince a Spanish judge to allow the July 2017 exhumation of the famous Surrealist painter's remains. She claimed that her mother, who had worked as a maid for Dalí and his wife/muse Gala in the 1950s, had an affair with him.

On September 6, 2017, the Dalí Foundation issued a statement that read, in part:

> … after analysing the biological samples of Pilar Abel Martínez and those obtained in the exhumation of the remains of Salvador Dalí, it concludes that the results obtained "permits the exclusion of Salvador Dalí as the biological father of María Pilar Abel Martínez." This conclusion comes as no surprise to the Foundation, since at no time has there been any evidence of the veracity of an alleged paternity. … The Foundation is pleased that this report puts an end to an absurd and artificial controversy, and that the figure of Salvador Dalí remains definitively excluded from totally groundless claims.

Abel had claimed for years that Dalí was her real father—spurred, she claimed, by assurances from her mother and grandmother that it was true. It seems that not only were they mistaken (or lying), but Abel's psychic powers seem to have led her astray as well.

If her claim had been true, Abel would have been entitled to a quarter of Dalí's estate, worth tens of millions of dollars. Dalí died in 1989 and was (re)buried in Figueres, Spain. Abel has not offered a public statement, explanation, or apology since the test results were released.

Benjamin Radford is the deputy editor of the Skeptical Inquirer.

Oceans of Data: New Ways to Measure Global Warming

David Morrison

Although scientists understand that the record of Earth's surface and atmospheric temperatures over the past century show a signature of warming correlated with rising carbon dioxide levels, there remain many doubters and deniers. One problem is that the land and atmosphere temperature data contain many sources of "noise" such as solar variability, El Niño cycles, and weather. This noise must be identified and corrected to clearly reveal the warming signal. A new, alternative approach to analyzing the data has recently been described by a team of international climate scientists led by Lijing Cheng. Their paper appears in the September 2017 issue of *EOS*, published by the American Geophysical Union. This alternative is based on measurements of the ocean.

Most of the additional heat associated with global warming is deposited in the ocean. The very large mass and heat capacity of the ocean also minimizes external "noise." These scientists suggest two ways to measure the heating of the ocean. The first uses data available since 2006 on ocean temperatures, using the Argo autonomous floats that measure temperature of the top 2 km of water. The second measures long-term changes in sea level from satellite altimetry, which has been possible since the early 1990s. Both of these data sets show clear signatures of heat deposition in the ocean, from the temperature changes in the top 2 km of water and from the expansion of the ocean water due to heating. These two measures are less noisy than land and atmospheric temperatures.

What time interval is necessary to show a statistically sound signature of global warming? They find that the warming signal is clear from just three to four years of data on either ocean temperatures or sea level, while the same significance requires more than two decades of surface and atmosphere temperatures. In addition, there is the advantage that it is ocean changes that currently dominate discussion of the hazards of global warming. Sea level rise is directly connected to coastal flooding from storm surges, and water temperatures are also implicated in the strength of tropical storms. Warmer water evaporates more quickly and deposits more energy into tropical storms forming over water. At a time when storm damage and flooding are in the headlines, using direct measurements of the ocean itself may inform and influence the broader political discussions of the hazards of climate change.

David Morrison is a NASA planetary scientist and an SI contributing editor.

'Science Wars' Veteran Latour Now Wants to Help Rebuild Trust in Science

Kendrick Frazier

Bruno Latour, the French sociologist who was a prime provocateur during the "Science Wars" of the 1980s and '90s, said in an interview in *Science* that he now wants to help rebuild trust in science.

He first disputes the term science "war," saying it was a "dispute" caused by social scientists studying how science is done and being critical of this process.

But he says things are different now. He acknowledges that those criticisms of science created a basis for antiscientific thinking that paved the way for denial of climate change. He wants to help rebuild trust in science.

"We're in a totally different situation now. We are indeed at war. This is a war run by a mix of big corporations and some scientists who deny climate change."

Said Latour, "We will have to regain some of the authority of science. That is the complete opposite from where we started doing science studies."

His big turnaround came in 2009 at a cocktail party when a famous climate scientist came up to him and asked for help against the "unfair" ideological campaign against climate science. "People who had never really understood what we science studies scholars were doing suddenly realized they needed us," Latour said in the interview in the October 13, 2017, *Science*. "They were not equipped, intellectually, politically, and philosophically, to resist the attack of colleagues accusing them of being nothing more than a lobby."

Said Latour, "We will have to regain some of the authority of science. That is the complete opposite from where we started doing science studies." In the end, he said, "we need a more realistic image of scientific knowledge," one that explicitly acknowledges uncertainties and controversies. "But the uncertainty is no legitimate reason to block or postpone policy. And certainly it is no reason to defund research. That is the real crime: defunding research which might produce unwelcome results."

Kendrick Frazier is editor of the Skeptical Inquirer.

'Blue Whale' Game Suicide Conspiracy Surfaces

Benjamin Radford

Early in 2017, scary warnings circulated on social media asking parents, teachers, and police to beware of a hidden threat to children: a sinister online "game" that can lead to death. A typical message dated May 16 warned:

> The Blue Whale "suicide game" is believed to be a hidden online social media group which its main aim is to encourage our children to kill themselves. Within the group daily tasks are assigned to members [who] have to do different tasks for 50 days. They include self-harming, watching horror movies and waking up at unusual hours, but these gradually get more extreme. But on the 50th day, the controlling manipulators behind the game reportedly instruct the youngsters to commit suicide. Please share and warn all other parents of the dangers of this game. We do not want any deaths related to the game within the UK. (see https://tinyurl.com/ydfmld92)

Debunking website Snopes traced the story back to a May 2016 article on a Russian news site that "reported dozens of suicides of children in Russia during a six-month span, asserting that some of the people who had taken their lives were part of the same online game community." While it appears to be true that some of the teens used the same social media gaming sites, it does not logically imply that there's any link between the deaths or that the site caused them. It's more likely that depressed teens may be drawn to certain websites than it is that those websites caused their users to become depressed and/or suicidal. And, of course, on any wildly popular social media site (including Instagram, Facebook, or Pogo) a small subset of users will share common characteristics, including mental illness, simply by random chance.

There is little evidence that the game has actually caused suicides or that it even exists. Moral panics such as the Blue Whale Game are part of a very old tradition. These scary media stories are very popular because they are fueled by parents' fears and wanting to know what their kids are up to. Indeed, the Blue Whale Game has all the hallmarks of a classic moral panic. Familiar elements and themes include: modern technology and seemingly benign personal devices as posing hidden dangers to children and teens; in classic "Stranger Danger" fashion, the threat is some influential evil stranger who manipulates the innocent; and there is an element of conspiracy theory to these stories—it's always a "hidden world" of anonymous evil people who apparently have nothing better to do than ask teens to do things for fifty days before (somehow) compelling them to commit suicide. (Parents have a hard enough time getting their teenagers to follow their rules one day at a time, so getting them to diligently follow a stranger's increasingly bizarre and destructive instructions

daily for nearly two months would be a remarkable feat indeed.)

Police, teachers, and others have issued statements to address rumors but often ended up legitimizing the stories and making them more credible. People take a "better safe than sorry" approach to sharing these stories, and it ends up doing more harm than good if there is no underlying threat, as is the case here. It's also common for journalists and others—even when a threat is recognized as bogus—to spin the panic into a "teachable moment" in which to remind kids about the dangers of peer influence, the perils of online predators, bullying, and so on.

It's also common for journalists and others—even when a threat is recognized as bogus—to spin the panic into a "teachable moment."

In July, several news outlets reported what were claimed to be the first two victims in the United States. The first was a July 11 *Washington Post* article by Amber Ferguson and Kyle Swenson titled "Texas family says teen killed himself in macabre 'Blue Whale' online challenge that's alarming schools." It involved the hanging suicide of fifteen-year-old Isaiah Gonzales, who was discovered by his father Jorge in their San Antonio home. A cellphone was propped up to record or live stream the teen's death—one of many known cases of social media–mediated suicide. Despite the fact that the San Antonio Police Department report on the suicide made no mention of any role that the Blue Whale Game played in the death of Isaiah, his father (for reasons that are unclear) concluded that the teen's death was related to the terrifying new trend. With so many alarmist news stories circulating, it's no wonder that Gonzales might attribute his son's death to the game despite a lack of any credible evidence.

News stories about a second Blue Whale victim appeared at about the same time, reported by CNN. An anonymous sixteen-year-old girl from Atlanta, Georgia (dubbed "Nadia" in the news story), allegedly killed herself in May, leaving behind—as all suicides do—questions. Like Jorge Gonzales, Nadia's family combed through her personal effects, journals, notes, artwork, poetry, and social media contacts to see if there was any connection to the sinister game. They found what they interpreted as references in her artwork—images of whales specifically.

If the specifics of the Blue Whale Game are true, determining whether or not Nadia was a victim of it should be easily enough established by a competent, trained investigator. Either Nadia's digital footprint includes instructions from some unknown person directing her to complete fifty daily challenges, or it does not; either she was doing increasingly bizarre and harmful tasks on each of the forty-nine days leading up to her death (the date is not revealed in the CNN piece), or she wasn't, and so on.

Assuming that a troubled young woman did in fact kill herself, there seems to be little or no evidence that she did so because of the Blue Whale suicide game. She was likely aware of it—as most teens on social media are, not from personal experience but from dire warnings about it from parents, teachers, peers, and others—but did not participate.

Anyone combing through the thousands of Nadia's (or any other teen's) drawings, notes, texts, emails, social media photographs, and so on will be able to find some that are troubling or appear to be a cry for help—perhaps a reference to death, or despair, or just a photo of legs dangling over a roof. It seems likely that Nadia knew about the Blue Whale Game and, in a suicidal depression, embraced the game in a phenomenon that folklorists call "ostension." Ostension is often harmless and occurs, for example, when ghost hunters seek out spirits in a reputedly haunted location or when teen girls perform the Bloody Mary ritual, calling out the name in a test of nerves.

To be clear, that does not necessarily make the Blue Whale Game genuine or validate the unsubstantiated claims about it. For example, in May 2014, two twelve-year-old Wisconsin girls stabbed and nearly killed a friend of theirs in order to appease a fictional social media–generated, urban-legend inspired character named "Slenderman." Following one of several popular online narratives about Slenderman, Morgan Weier and Anissa Geyser believed they could join the villain by proving their devotion to him in killing the girl. Slenderman need not exist in order for troubled teens to do violence to themselves or others as part of a fantasy world, and similarly the Blue Whale Game need not be real for some teens to adopt it or reference it in their suicides. In fact, given the high prevalence of suicide among teens and the widespread publicity and warnings about the Blue Whale Game in schools and online, it would be surprising if there was *not* one or more references to the sinister story in the digital trail left in the wake of many teen suicides.

As with the Isaiah Gonzales death, the CNN article about Nadia repeatedly references the family's own personal search for answers but little or nothing about what the police or FBI found. There's a reason that trained professionals investigate deaths instead of family members. Conclusions must follow established facts, not the other way around, and especially when dealing with extraordinary claims of conspiracies and online death cults, it's too easy for grief and moral panic to override critical thinking. The evidence for the Blue Whale Game in Nadia's death, like that of Isaiah Gonzales's, is built largely on rumor and conjecture instead of solid evidence. This is only the latest in a long series of similar moral panics and outrages shared on social media and aided by sensationalist news media. Often the best antidote to the Blue Whale Game and other moral panics is a healthy dose of skepticism. ■

Why Pseudoscience Should Be Taught in College

ALEJANDRO BORGO

The academic community doesn't seem to take the spread of pseudoscience seriously. This is a serious problem that skeptics must face.

Three facts made me aware of the necessity of teaching pseudoscience at colleges and universities. The first was the visit of a doctor—a friend of the family—who, when I started to debunk pseudoscience, replied: "There are good and bad homeopaths." No, sir, you are wrong.

The second was when my father went to a doctor who suggested he take Bach Flower Remedies. My father told his doctor: "Look, my son is a skeptic about this treatment," and the doctor answered: "Come on Mr. Borgo, we must be updated." *Updated on pseudoscience!*

The third was when I went to the Medical Association of Argentina (AMA) with a video of a charlatan who claimed that people should abandon conventional medication against AIDS and other diseases. This was back in 1998. The president of the AMA, Elías Hurado Hoyos, told me: "You cannot deny that there are people with paranormal powers."

I understood immediately that only a few physicians knew what pseudoscience is about. Why? Because in the Faculty of Medicine they don't teach you why "alternative medicines" (homeopathy, Reiki, chiropractic, "photonic tunnel therapy," etc.) don't have a scientific basis.

Years later, I found that my daughter, who was studying English at her school, was given a book containing a chapter dedicated to UFOs, the Bermuda Triangle, and other subjects that had no scientific basis. The approach was wholly uncritical, asserting these subjects as real.

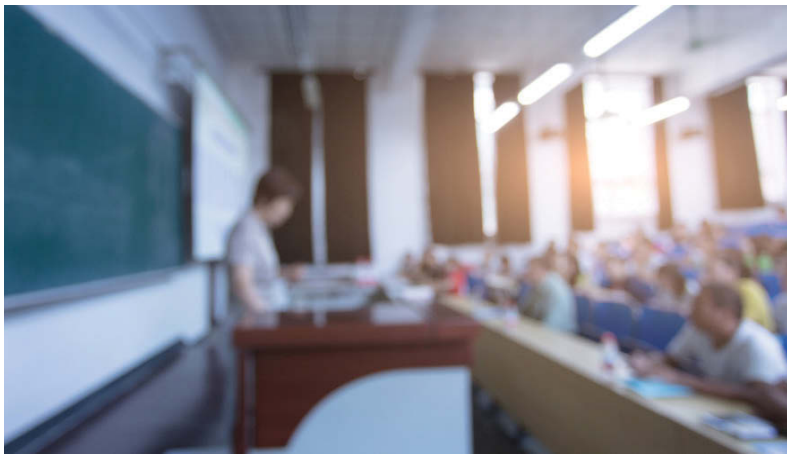
At that time, I was a member of the Auxiliary Parents Commission at her school. The school received some money—from the government of the City of Buenos Aires—to paint some parts of the building (windows, doors, and so on). We proposed a light yellow, as the current color was an ugly dark green. The teachers' reaction was unanimous: they refused the new color we proposed claiming that yellow *affected children's behavior in a negative way!*

I was astonished at the teachers' scientific illiteracy. What scientific study supported that claim? None. I had the feeling that if someone with a degree, mentioning he or she had graduated from a university, brought in a machine called "Success Learning Materializing Device" and presented it to the teachers, they would probably gladly implement it.

The problem is this: Very few teachers and professionals know what pseudoscience is. And the reason for this ignorance is that they are not taught to distinguish good science from bad.

Try it yourself: Ask some physicians what the main premises of homeopathy are. You will find that most of them don't know anything about it. And of course they wouldn't unless they study it themselves, since homeopathy is (quite rightly) not taught in medical school. With the exception of a few professionals, university professors don't know anything about it either. I have met physicians and neuroscientists who have a good background on this issue, but they teach it in their classes through personal initiative, not because it is part of a university program.

It's remarkable that pseudoscience is practiced not only by charlatans without a university degree but also by some professionals. That's why a physician may give a course on "Past Lives Therapy" and why many psychologists trust in psychoanalysis,



Rorschach tests, and "therapies" such as Reiki, "family constellation therapy," and a huge number of other bogus therapies and treatments.

What Should We Do?

We must propose a new study program at colleges and universities. It is necessary, useful, and will prevent a lot of personal and social harm. In every specific subject—let's say physics, medicine, psychology, or whatever is taught at the university—we should adopt this simple program:

- What is pseudoscience?
- Why is some specific discipline a false science?
- How to recognize a pseudoscience
- Revealing investigations (e.g., Jacques Benveniste's claims of "memory of water")
- What are the dangers of pseudoscience?

Sadly, the academic community seems not to be worried about pseudoscience. There are only a few members committed in the fight against pseudoscience, and many of them are affiliated with skeptical organizations. We must change this situation. As a journalist, I had to debate several homeopaths on radio and television because physicians did not go to the debates to educate the public. This is a vital role that skeptics and all responsible scientists should help fill. Don't complain if you don't do anything to stop the growing of pseudoscience.

I've been investigating pseudoscientific claims for more than thirty-five years, and I still see that there is so much work to do.

Acknowledgment

I wish to thank Benjamin Radford for his help.

Alejandro Borgo is director of the Center for Inquiry Argentina and a journalist, writer, and musician. He has written two books about pseudoscience and critical thinking. He was editor of *Pensar* magazine (see http://archives.centerforinquiry.net/pensar/) and has been a speaker at several skeptics congresses and conferences.

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Joe Nickell, PhD, author of numerous books, including *Entities* and *Tracking the Man-Beasts*, is a skeptical cryptozoologist.

The Giant Panda: Discovered in the Land of Myth

Its immense popularity today belies the fact that the panda was once among the world's most obscure creatures, "as mythical and elusive as Bigfoot" (Edwards 2009). Bigfooters are prone to emphasizing such creatures that were only discovered comparatively recently—for example a giraffe relative, the okapi (1901), and a "living fossil" fish, the coelacanth (1938)—because they "symbolize the search for Bigfoot is not over" (Edwards 2009). Inspired by my encounter with pandas during a trip to China in 2010 as a visiting scholar (see Figure 1), I have since looked into their fascinating history.

Legendary Creature

In ancient China, the panda was an exotic creature—rare, even mythic (like the dragon). Texts from very ancient times describe a lumbering, black-and-white animal believed to have been a panda.

The Dowager Empress Bo was reportedly interred in her tomb (ca. 170 BCE) with a panda skull—whether as treasure or talisman, or both, is unclear (Schaller 1994, 61–62). Also, ancient poetry tells of the gift of a pelt that may well have been from a panda ("Pandas" 2017). Such pelts' distinctive appearance and rarity gave them great value—not to mention alleged magical properties. According to the earliest Chinese "encyclopedia" (or reference book), *Erya*, dating from the Qin dynasty (221–207 BCE), sleeping on panda fur supposedly regulated a woman's menstrual cycle. The later poet Bai Juyi (772–846 CE) attributed to the pelts both curative properties and the power to exorcise evil spirits.

A record from 210 CE reports an emperor in the ancient capital of Xian keeping several of the remarkable creatures as pets. Later, in the Tang dynasty (618–907 CE), China sent a goodwill gift to the Japanese emperor, consisting of a pair of pandas in addition to panda pelts.

Again, in ancient times, lack of familiarity with the rather placid creatures caused many Chinese people to fear them, thinking they were monsters. They were described as black-and-white "tapirs" (herbivorous mammals with short legs). The *Erya* and other ancient books said the animals had a propensity for eating metal—copper and iron. (However, this may have been due to pandas sometimes entering villages where they would lick and chew tasty cooking pots. Their powerful jaws enable them to crunch metal pots, and one panda that munched on its water pan later defecated aluminum bits) (Olesen 2014; Schaller 1994, 61).

Despite all such mentions, however, the absence of depictions of pandas in Chinese art before the twentieth century seems to confirm their relative obscurity throughout the country's long history (Schaller 1994, 10–11, 61–62;

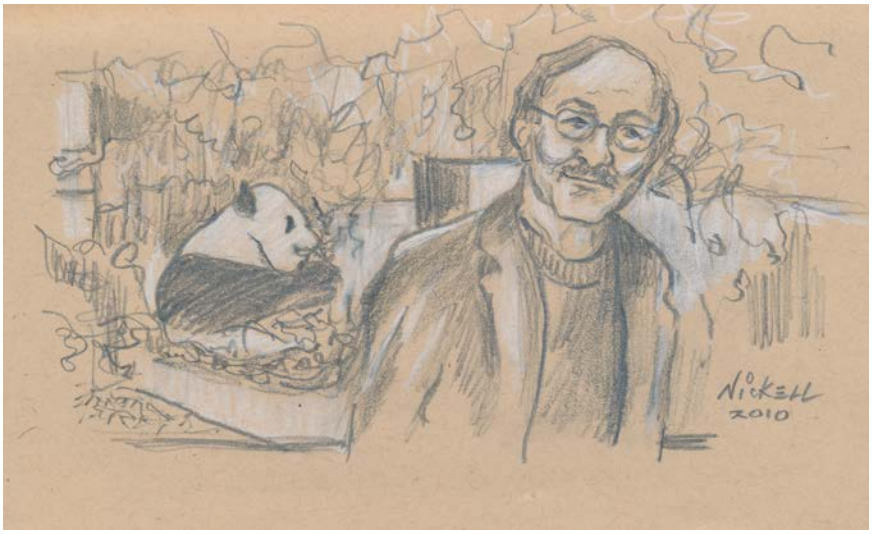

Figure 1. "Self-portrait with panda" at Giant Panda House, Beijing Zoo, 2010. (Author's sketch)

"Giant panda" 2017; Olesen 2014; "Pandas" 2017).

Quest for a Live Panda

The obscurity was even greater in the West, and scientists had no sure knowledge of pandas. Then, between 1865 and 1869, the French missionary and naturalist Armand David (1826–1900) crossed eastern Asia. On March 11 of the latter year—having already discovered two new mammals (a species of deer and a "snow monkey")—he made his third major discovery. While taking tea with a wealthy Sichuan landowner, he noticed a fur pelt he recognized as that of a legendary animal he had previously heard of, "the famous black-and-white bear." (His story is told by Bernard Heuvelmans [1972, 14–16], who is known as "the father of cryptozoology" [Nickell 2016, 35–36].)

David was now persuaded that it was a real creature, and he commissioned hunters to bring him one. In just twelve days they did, actually capturing a young one, but having to kill it in order to transport it. Thus, the naturalist became the first westerner to secure a specimen fur of what is now known as the giant panda. Subsequently the hunters brought him an adult's skin and skeleton and a few days later a specimen of an already known creature: the kitten-sized red panda (Heuvelmans 1972, 14–17).

It was not until 1914—almost half a century after David's discovery of the giant panda for science—that a westerner actually saw a live panda in the wild. That honor fell to German zoologist Hugo Weingold, and soon museums launched expeditions seeking specimens for their collections (Coleman and Clark 1999, 92).

President Theodore Roosevelt's sons, Theodore Jr. and Kermit, became the first to collect a panda specimen for an American museum, Chicago's Field Museum of Natural History. On two expeditions, in 1925 and 1928, the Roosevelts, accompanied by trained naturalists, obtained thousands of specimens of birds, reptiles, and mammals. Reportedly the brothers simultaneously shot their panda out of a tree. Its skin and a second one obtained by a local hunter were expertly stuffed and displayed in the museum's new Asian Hall in 1929. I saw them in a beautiful diorama there in 1982 ("Field Museum" N.d.).

It remained for the first live giant panda to be captured and brought out of its mountain lair. An expedition to accomplish that was led by adventurer William H. Harkness in 1933–1934, but it failed due to the politics of obtaining a permit as well as instability in the region. After Harkness died in Shanghai in February 1936, his widow, Ruth Harkness (1900–1947), traveled to China by boat and in July took over the expedition. Luckily, she discovered a cub in the Wassu region. Assisted by the expedition's Yang Di Lin and the later Yeti hunter W.M. "Gerald" Russell, she transported "Su-Lin" to the Brookfield Zoo in Chicago in 1937. (On a subsequent expedition, she brought back two additional giant pandas [Coleman and Clark 1999, 104–105, 209].)

The poet Bai Juyi attributed to the pelts both curative properties and the power to exorcise evil spirits.

There is more to the story of Su-Lin. According to Heuvelmans (1972, 29), Mrs. Harkness had found the cub in a hollow tree. "It was crying as if its heart was fit to break. She picked up this child of her husband's dreams and nursed it in her arms." In December 1936, having "fallen in love as she bottle-fed Su-Lin," reports *National Geographic*, she boarded a ship at Shanghai for her return voyage, carrying a wicker basket. No doubt remembering her husband's trouble getting an export permit, she proffered one that read, "One dog, $20.00." Thus, Ruth Harkness—erstwhile socialite and clothing designer, turned adventurer with a can-do attitude—brought to the modern world a living panda (Holland 2017).[1]

Pandamania

It is not true, as one source reports ("Pandas" 2017), that "The word *pandemonium* was coined in 1936 to describe the reception a panda [Su-Lin] received when it was first shown in the West." *Pandemonium* was in fact first used by the poet John Milton in his 1667 *Paradise Lost:*

> A solemn Council forthwith
> To be held at Pandaemonium,
> The high capital of Satan and
> his Peers.

Milton coupled the Greek pan ("all") with the existing Latin word demonium ("abode of demons," i.e., hell); thus *pandemonium* is "the place of demons."

Nonetheless, on the arrival of Su-Lin at Brookfield in 1936, what is now well described as *pandamania* first occurred. On opening day of the exhibit, over 53,000 visitors appeared. The mania has continued. In what has become known as "panda diplomacy," the Chinese government revived a policy that dates back to the previously mentioned gift to the Japanese emperor.

During the years 1958 to 1982, the People's Republic of China gave a total of twenty-three of the beloved creatures to nine countries (but by 1984 had amended offerings to ten-year loans). After President Nixon's historic visit to the country in 1972, China gave a pair of pandas, Ling-Ling and Hsing-Hsing, to the United States—again with a tremendous reaction. First Lady Pat Nixon held a welcoming ceremony at the National Zoo, drawing more than 20,000 visitors. During the first year, the pandas drew an estimated 1.1 million viewers (Holland 2017; "Panda Diplomacy" 2017).

But What Is a Panda?

Having gotten a panda, science had considerable trouble knowing what to do with it—in terms of classification, that is.

Early references to the creature were scant. Armand David had called it, obviously after others, "the famous black-and-white bear." It had also been termed the "bamboo-bear," while some, with reference to the missionary himself, now called it "Pére [Father] David's bear."

However, when mammalogist Alphonse Milne-Edwards examined a skeleton and studied the animal's dentition and bone structure, he realized, says Heuvelmans (1972, 16), "with a touch of genius that it was related to the Procyonidae, the raccoons," and gave it the name of *Ailuropoda melanoleucus*, "the black-and-white cat-foot."[2] (Its traditional Chinese name is "big bear cat.")

In fact, the giant panda (so-called to distinguish it from the previously known "panda," the red panda, only a very distant relative), shares features with both raccoons and bears. But molecular genetic studies of bears (the family Ursidae) now show that the giant panda is, after all, a true bear, although early in history it branched from the bear family tree. So those of us who were once corrected for using the name "panda bear" may now do so freely (Fergus 2005).

As a Cryptid

But was the panda bear ever "as mythical and elusive as Bigfoot," as quoted at the beginning of this report? Not quite. As a Listverse site acknowledges, "The existence of the giant panda has never been disputed by the scientific community"—not as a whole, that is.[3] Thus, the comparison of the panda with Bigfoot is erroneous in that respect, since Bigfoot's existence is nearly universally doubted by scientists and science-based investigators.

However, the Listverse site goes on to add that, "therefore, it [the giant panda] has never been a true cryptid" ("Top 10 Cryptids" 2010). But that is a mistaken interpretation of what it means to be a cryptid. As Coleman and Clark (1999, 15) observe:

> Heuvelmans prefers "hidden" to the "unknown" because to those people who live near them, the animals are not unfamiliar; if they were, there would be no native accounts, and we would never have heard of them. They are, however, undetected by those who would formally recognize and catalogue them.

So like Bigfoot, "the famous black-and-white bear" was indeed a cryptid, according to cryptozoologists' use of the term.

On the other hand, there are important differences between the panda and Bigfoot as to cryptid status. So far as we know, no one ever gave a pair of Bigfoot or Yeti creatures as a gift. Their pelts were not obtained and used as magical objects. (Some alleged "Yeti fur" turned out to have belonged to the rare Tibetan blue bear, and a "Yeti scalp" came from the serow, a goatlike animal [Nickell 2011, 61].) Naturalist missionary David obtained a panda specimen just days after learning of it, and other specimens—complete skins, skeletons, and, in time, taxidermied then living animals—were eventually displayed. Yet Bigfoot-type creatures still lack any credible evidence since 1811 when a track (almost certainly a grizzly's) was reportedly seen in the Alberta Rockies. There were few if any panda hoaxes, but Bigfoot ones are common, including Roger Patterson's 1967 film of "Bigsuit" (Nickell 2011, 66–73).

Most importantly there is the matter of fossil evidence. The skull of a "pigmy-sized" giant panda—the latter's earliest-known ancestor, some two million years old—was discovered in a south China cave ("Remains" 2007). Fossil evidence shows that—while the panda bear is now found only in a limited region—it once was widespread in China (Fergus 2005). In contrast, no fossil evidence in North America or elsewhere has been found for the legendary man-beast. Yet, often imitated by an upright-standing bear, it has taken on a life, so to speak, of its own—though never really *real*, like the "black-and-white bear" the world has come to love.

Acknowledgments

In addition to the Center for Inquiry, I am grateful to the Chinese Research Institute for Science Popularization (CRISP), especially Zhang Yunjing and Hu Junping, for being such wonderful hosts in 2010.

Notes

1. I have been unable to confirm a rumor that Mrs. Harkness actually purchased the cub from a hunter, who acted for a rival would-be museum supplier ("Pandas" 2017). Indeed, Harkness seems supported by the evidence (Schaller 1994, 49). See also Croke 2006.

2. The name is from Greek *ailouros* ("domestic cat") and *poda* ("foot") together with ancient Greek *melano* ("black") and *leukos* ("white").

3. In his book, *All the Presidents' Children*, Doug Wead (2003, 199) briefly mentions the "many naturalists who had doubted [the giant panda's] existence."

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NOTES ON A STRANGE WORLD] MASSIMO POLIDORO
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Myths and Secrets of the Colosseum

The Flavian Amphitheater, better known as the "Colosseum," is the largest and most majestic amphitheater of ancient times. It is the second most visited monument in the world (after the Great Wall of China), and in 2007 was included among the new seven wonders of the modern world.

However, as much as it is known and is considered one of the symbols of Western civilization, there still are myths and legends that surround it, along with some little-known facts that shed an interesting light on its history.

By the Numbers

The Colosseum was built by Emperor Vespasian. The work started in 71 CE and nine years later, it was inaugurated by his son, Tito, with 100 days of games, where 2,000 gladiators fought and 9,000 animals were killed. The work was completed by Tito's brother Domitian in 96 CE.

It has an elliptical shape, with a perimeter of 1,728 feet. It's 170 feet tall (not counting the twenty feet underground), 616 feet long, and 511 feet wide. At the far end of the main axis was the Triumphalis Gate (west), where gladiators and musicians entered, and the Libitian Gate (east), from where the dead fighters were taken away. On the minor axis there was the entrance of the emperor (south) and that of the authorities (north).

It could hold 50,000 seated people and up to 73,000 if those on the highest stairs stood, though it took just three minutes to empty completely. The arrangement provided the best seats at the bottom, closer to the arena. It was the *Ima cavea*, where the emperor, the

senators and their families, and the vestals sat. Going upward was the *Maenianum primum*, reserved for the exponents of the equestrian order; the *Maenianum secundum imum* and the *secundum summum*, reserved for the plebeians; and finally, the *Maenianum summum in ligneis*, wooden steps reserved for foreigners, slaves, and women.

The last fights between gladiators took place in 435 CE, the last fights between animals in 523 CE. The Colosseum remained in operation for a total of 443 years. And now, here are ten myths and secrets about the Colosseum.

1. Is There a Reason the Colosseum Was Built Where It Was?

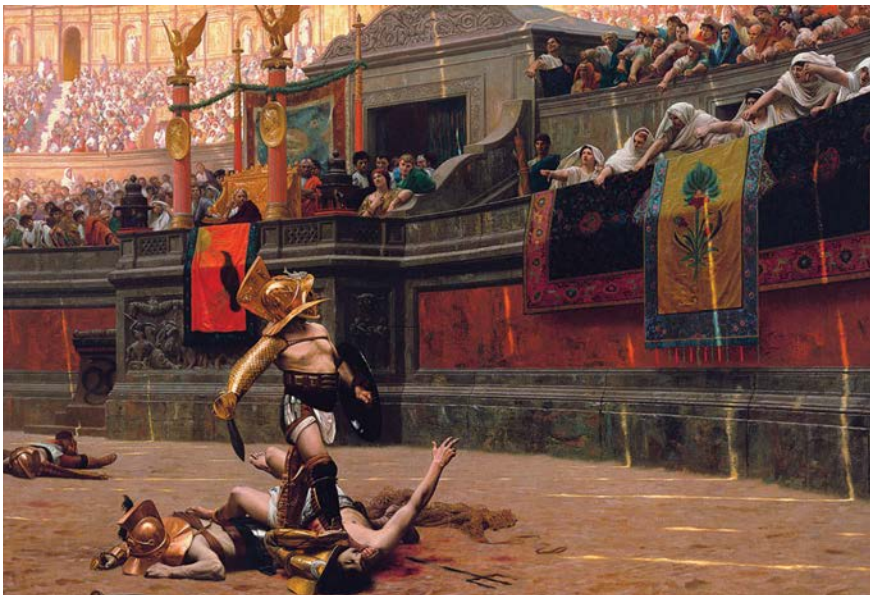
Yes: that's the exact spot where Nero built a pond for his *Domus Aurea*. He had taken possession of the area after a fire destroyed part of Rome in 64 CE. When Nero died, Vespasian chose to build the amphitheater right there, as a political move to show that he was giving back to the people what Nero had taken. However, there was also a practical reason: choosing that basin meant saving more than half of the work needed to dig the foundations of the building. It meant carrying a fifth of the land that should have to be excavated on a level surface. It was a smart way to save on work, money, and bureaucracy.

2. Was the Architect Who Built It a Christian Who Ended Up Killed in the Arena?

No, that's a legend. It was the guides of the 1960s who stated that the Colosseum's architect was a man named Gaudenzio, a noble Roman convert to Christianity, who ended up martyred in the arena he had built. In reality, the architect's name is lost to time. This should not be surprising, since the names of those who built most of the Roman monuments are unknown. At that time, what counted was only the emperor of the moment, and the architect was treated as a worker whose name could never obscure that of his client. However, it is unquestionable that the construction of the Colosseum required an intelligence and originality that springs from every detail—a talent that has to be seen as a testimony to one of the greatest unknown geniuses of antiquity.

3. Were There Ever Women Gladiators?

There is little historical evidence in favor of the presence of women gladiators in the arena, but some exists and confirms that fighting women were a reality. Tacitus states with disdain that "many high ranking women and many senators have fallen for the arena." Gladiators were, in fact, not slaves or poor citizens forced to grab arms in order to earn something. It was often a free choice that women chose in order to emulate men—a choice dictated by the desire for glory or, as Giovenale's malice insinuated, by the possibility of being alongside so many studs. There is an art relief found in Halicarnassus, in today's Turkey, now kept at the British Museum in London, that shows two fighters who face themselves: that they are two women is guessed only by their art names, Achillia and Amazon.



4. Did the Gladiators Always Say Before a Fight: "*Ave, Caesar, morituri te salutant*," Meaning They Expected to Die?

Svetonio tells that during the reign of Claudio, in 52 CE, in order to celebrate the completion of the canal of Lake Fucino, a *naumachia* (a battleship) was organized, the largest ever documented. Nineteen thousand rowers and soldiers would clash on triremes and squares, divided between a fleet that would have played the role of Rhodes and one playing that of Sicily. At which point, before the battle began, the fighters greeted Claudio with the phrase: "*Ave, Caesar, morituri te salutant*," meaning "Hi Caesar, those who are going to die salute you." Every emperor was called Caesar, as this was a title of honor after Julius Caesar. Claudio's response unleashed the confusion. It seems that he said: "*Avete, vos*!" meaning: "Hi to you," which in Latin, however, can also mean: "You are saved." And the fighters, believing that in those words the emperor meant to say that they were no longer condemned and wanted to save them, they refused to fight. Claudio was forced to threaten, promise rewards, and finally plead for the fighters to start the battle. Eventually, they did and, after a lot of bloodshed, Claudio freed the criminals who survived. However, that episode is the only known time, throughout the history of Rome, where the fighters turned to the Emperor presenting themselves as *morituri*.

5. Could the Basement Be Filled with Water in Order to Replicate Ships Battling?

This probably happened only during the inauguration, for very soon the basin of the arena was filled with rooms and corridors for all the people needed in order to put on the show. This was the real backstage, where technicians and workers operated, the scenes were hidden, the animals caged, and all the maneuvering facilities and apparatus were maneuvered in order to create

spectacular effects. Here the gladiators waited for their turn to get on stage and those condemned to death spent their last few minutes before meeting their fate. Today, the Colosseum's undergrounds are open and visible, but they do not differ greatly from how they appeared when the Roman Empire fell, since they had been buried until their rediscovery in the late 1800s.

6. Is It True That the Colosseum Was Free?

Those who organized the games usually distributed official invitations to public figures, senators, priests, and their families, then reserved some places for themselves and influential friends and instructed locals to sell the rest. The vast majority of tickets, therefore, were distributed through the "clientele" system. The aristocrats, that is, had a large number of tickets available to their friends and clients. It was a system that, in addition to enhancing customer relations, distributed the streams of spectators in the various sectors of the Amphitheater, avoiding crowding some of them. In the end, only the foreigners were left to pay for the ticket, since they came to town only to watch the games and, living elsewhere, they could not prove politically useful to the game organizer. Such incomes did not nearly cover the huge costs, but they at least reduced the inevitable losses.

7. Does "Thumbs Up" Mean Life and "Thumbs Down" Death?

In Latin texts, the gesture made by the emperor to demand death is a thumb or *pollicem vertere*, thumb down. But the meaning is controversial. A thumb protruding from a hand could be symbolic of a swaddled sword and, therefore, thought to symbolize death. It is true, in fact, that the *pollicem premere* indication, where the thumb is held inside the fist, like a refined sword, means that the defeated was spared. The idea that the thumb upward corresponds to a grace and a thumb down to a condemnation was born in the nineteenth century, through the paintings recalling the fights in the Colosseum.

8. Is It True That the Colosseum Was the Place of Christian Martyrdom?

There is no evidence of this, as the narratives of martyrs all date to the fifth century CE, by which time the Colosseum had fallen into disuse. Christianity had already become the religion of state and the *Acta Martyrum*, the records of proceedings and deaths of martyrs, were essentially novels with educational purposes and made references to conflicts between Christians and authorities that occurred centuries earlier. In the sixteenth century, the *Acta* started to be treated as a historical source, and the idea of the Colosseum as a place of martyrdom was born. Today the Church, as well as Catholic historians, is reluctant to argue that some well-known martyrs had indeed found death in the Colosseum. This does not preclude the possibility that it may have happened, although it seems unlikely, since it is well-known that, compared to other provinces and especially Africa, Rome never saw the worst excesses of persecutions. Furthermore, in Rome, Christians were usually executed in the public place of execution, which was on the Esquiline hill and not at the Colosseum.

9. Was the Colosseum Doomed to Become a Silk Factory and then a Basilica?

At the end of the sixteenth century, Pope Sisto V intended to transform the Colosseum into a silk factory and home for the workers employed in it, and so he commissioned the architect Domenico Fontana to work on the project. The Church started collecting the huge financial resources needed, but the work never started because in 1590, the pope died. In 1671, Pope Clement X commissioned another great architect, Gian Lorenzo Bernini, to transform the amphitheater into a temple devoted to the martyrs, to preserve it as a sacred place. A shortage of funds, again, ended the project.

10. Why Does the Colosseum Have Its Present Shape?

What gave the Colosseum its asymmetric shape, known worldwide, was sixteen centuries of misadventures. Numerous earthquakes caused the fall of parts of the monument, especially on the southern side (the one now devoid of the two outer rings and the two upper arches) that rises on the alluvial sediments of an ancient tributary of the Tiber, which at that point formed swamps, unlike the northern side, built on more solid volcanic rocks. The rubble was reclaimed and reused to build other buildings, and from the ninth century onward, the Colosseum became a quarry of materials for the new palaces of papal Rome. In 1744, Benedetto XIV declared the Colosseum "sacred soil," and only then did the spoliation end. The two sloping clay spurs were built in the 1800s to give stability to the ruin and prevent further collapses.

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Divided Expectations

Why We Need a New Dialogue about Science, Inequality, and Society

If you are reading this column, you have likely benefited from the scientific and technological advances that have transformed the world's economy. For well-educated professionals who form the core audience for popular science magazines, these innovations have created new wealth and career opportunities. Yet paradoxically, the very success of the science and engineering sector has also created the conditions that have led so many others to distrust experts and the professional class. The same advances that have enriched those at the top of the global knowledge economy have also eliminated millions of jobs among those at the bottom, transforming entire industries and geographic regions, generating public resentment, and seeding political polarization.

When we think about the roots of antagonism toward scientific expertise in the United States, we too often focus on either partisan or religious differences. Yet analyses I have conducted with several colleagues of large-scale national public opinion surveys show that disparities related to income, education, and race play an even more important role in how Americans view the relationship between science and society, with these reservations transcending traditional left-right ideological differences.

When asked generally about the societal impact of scientific advances and technological innovations, those members of the U.S. public who express the strongest optimism tend to be white, hold a college degree or higher, and rank among the top quartile in terms of income. These individuals can justifiably expect that their careers will benefit from scientific innovations and that they will be able to afford new technologies and medical treatments. In contrast, individuals who express the strongest reservations about science and technology tend to hold a high school degree or less, earn less than $50,000 annually, and are more likely to be nonwhite. These individuals may be justifiably concerned about how they will compete in an innovation-based economy, afford access to new technologies or medical advances, and how such advances may reinforce patterns of discrimination and other social disparities (Nisbet and Markowitz 2014).

Perhaps in no area is the potential for public anxiety based on socioeconomic disparities clearer than in relation to driverless cars, automation, and artificial intelligence (AI). These innovations are promoted as boosting the economy, contributing to public safety and environmental protection, and enhancing consumer convenience. They are also likely to eliminate the jobs of millions of truck drivers, taxi operators, retail workers, and professionals. Tech companies risk further public backlash as they seek to fast track the adoption of driverless cars and AI applications, spending millions to avoid regulation (Lloyd 2017).

In a recent Pew survey, when asked to consider a future in which robots and computers can do many human jobs, more than twice as many Americans (72 percent) expressed worry than enthusiasm (33 percent) and a similar proportion expected that economic inequality would become much worse as a result of such advances. Concerns about the negative impact of workplace innovations were strongest among those lacking a four-year college degree (Pew Research Center 2017a).

Americans also express strong reservations about the impact on social inequality of biomedical innovations related to human enhancement. Strong majorities say they are "very" or "somewhat" worried about gene editing, brain chips, and synthetic blood and that these technologies would become available before they were fully understood. Much of their anxiety relates to anticipated disparities: more than 70 percent fear these innovations would exacerbate the divide between "haves" and "have-nots," because they would only be available to the wealthy (Pew Research Center 2017b).

A Different Conversation

Noting broad-based public concern about the use of gene editing for human enhancement, a 2017 report from the U.S. National Academies of Sciences recommended that scientists and policymakers should facilitate ongoing input from the public regarding the benefits and risks of human genome editing and that more research was needed on how to effectively facilitate such a process (National Academies 2017). Studies also show broad-based belief among Americans that scientists should consult the public before pursuing gene editing applications (Scheufele et al. 2017).

Yet if scientists, engineers, university leaders, and CEOs are to address growing concerns about gene editing and other technological innovations, they will need to turn to novel approaches for engaging segments of the public from lower socio-economic backgrounds. Traditional science communication efforts that focus on informally educating the public by way of TV documentaries, popular science books and magazines, and science museums tend to engage the best-educated and highest-earning Americans who on average are the heaviest consumers of these resources, a group that tends to be already enthusiastic, knowledgeable, and optimistic about technological innovations.

A recent Pew survey (2017c), for example, finds that only about 17 percent of Americans are active news consumers, defined as those who seek out and consume science news at least a few times a week. This group tends to be on average better educated, higher wage earners, and predominantly white. In turn, attention to science news along with socio-economic status are the strongest predictors of whether an individual engages in other informal science education activities, such as attending a museum, taking up a science-related hobby, or participating in a citizen science project.

Such disparities in attention present major barriers to addressing public reservations and misconceptions. Consider past communication and outreach efforts related to nanotechnology. Between 2004 and 2007, as hundreds of nanotechnology-related products and applications were introduced into the U.S. marketplace, knowledge of nanotechnology increased substantially among the best educated but declined among the least educated. These disparities in knowledge occurred even as news coverage of nanotech increased and government agencies, science museums, and universities invested considerable resources in informal education and outreach activities.

This "knowledge gap" effect has been tracked by researchers across issues for several decades. As an emerging scientific issue such as nanotech, gene editing, or artificial intelligence gains news attention and is the subject of outreach at museums and other venues, those individuals who hold higher socio-economic status are likely to acquire knowledge at a faster rate than their lower status counterparts, so that the difference in knowledge between these segments will tend to increase rather than decrease.

The reason for these disparities is that better educated individuals tend to absorb new information more efficiently and can rely on their equally well-educated friends and family members to discuss and follow up on concepts they do not understand. As higher wage earners, they also possess the financial means and time to take advantage of high quality sources of news coverage and to attend science museums and similar cultural institutions. In 2012, 40 percent of Americans in the top quartile of wage earners said they had visited a natural history museum or a science center during the past year compared to less than 20 percent among those in the bottom quartile. The knowledge gap effect has even been observed relative to media outreach strategies such as Discovery Channel and National Geographic Channel programs that are intended to engage broader audiences who otherwise may never consume science-related information (Corley and Scheufele 2010; Nisbet et al. 2015).

Paradoxically, the very success of the science and engineering sector has also created the conditions that have led so many others to distrust experts and the professional class.

Despite its popularity as a tool among scientists and their allies, social media are no panacea, and initiatives that invest heavily in social media outreach at the expense of other strategies may only reinforce disparities and divisions. According to Pew (2017c), a substantial proportion of social media users say that they incidentally bump into science news stories that they otherwise would not have sought out. But about twice as many social media users also say they mostly distrust rather than trust the science posts they encounter. This sentiment is in line with a growing skepticism of social media generally, and is confounded by the tendency for social media to facilitate the spread of misinformation, to foster incivility, and to inflame group based differences rather than transcend them.

Given public concerns about the role that scientific innovations will play in contributing to rising inequality, scientists and their partners must start to directly address these reservations. Traditional approaches to science communication will not be enough—nor will social media efforts—no matter how clever or well resourced. It is time to focus on novel methods for promoting a more fruitful dialogue about science and society, bringing scientists and people of diverse backgrounds together to spend time talking to each other, contributing to mutual appreciation and understanding, and forging new relationships and insights.

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Yes, We Do Need Experts

I recently watched a livestream video of a panel discussion titled "What Happened to the Public Intellectual?" (https://www.facebook.com/events/167273190504508/). Although the panelists were all very smart, I came away thinking this was another vapid topic such as those referred to in the Simon and Garfunkel song "The Dangling Conversation," Paul Simon's portrait of a faded marriage.

> Yes, we speak of things that matter
> With words that must be said
> "Can analysis be worthwhile?"
> "Is the theater really dead?"

The panel discussion might have been more interesting and timely if it had not been on such a narrow and celebrity-oriented topic—a mistake not made by Tom Nichols, author of the recent book *The Death of Expertise: The Campaign Against Established Knowledge and Why It Matters* (Nichols 2017b).[1]

Much more worrisome is the growing view that expert knowledge in general is of little value and has no role in our democracy.

The problem isn't merely that public intellectuals are disappearing. We could (and can) live with that. Much more worrisome is the growing view that expert knowledge in general is of little value and has no role in our democracy. If you need evidence that expertise is falling out of favor, consider the following examples:

- Voters recently elected a real estate developer with no prior government experience as president of the United States. He campaigned against "elites" and repeatedly claimed "Only I can fix it" (Jackson 2016).
- The new president went on to appoint a number of people to high positions in the administration who had little or no experience relevant to their posts. The Secretary of State is the former CEO of a large oil corporation, and the highest science position in the Department of Agriculture was awarded to a former conservative radio talk-show host with no science degrees—unless you count a BA in political science (Nichols 2017a).
- Many parents, often from affluent areas, reject the Centers for Disease Control recommendations for child immunizations. In 2016, 26 percent of school children were not vaccinated in Ashland, Oregon, because their parents claimed a non-medical exemption ("Ashland Oregon Vaccine Statistics" 2017), and this past summer, Minnesota experienced the "worst measles outbreak in decades" (Sun 2017).
- Since the 1990s, faith in many established institutions has been very low. According to Gallup, faith in the medical system, which 74 percent of Americans rated "a great deal/quite a lot" in 1977, has hovered between 35 and 40 percent in recent years. Similarly, faith in television news, which was in the mid-30 percent level through the 1990s and the early 2000s, has dropped to the low 20s, briefly hitting 18 percent in 2014 (Gallup N.d.).
- Scientists in particular get little respect these days. A 2015 Pew Research Center poll of U.S. adults and of members of the American Association for the Advancement of Science (AAAS) found wide gaps in the opinions of these two groups. For example, there was a jaw-dropping 51 percent difference in the views of American adults and AAAS members on the safety of genetically modified foods (GMOs), with 89 percent of AAAS members indicating that GMOs were safe. Similarly, the Pew study found that 87 percent of scientists agreed with the statement, "Climate change is mostly due to human activity," compared with

only 50 percent of U.S. adults (Funk and Rainie 2015). Another Pew poll released in October 2016 found that only 15 percent of conservative Republicans and 39 percent of Americans overall believed climate scientists could be trusted "a lot" to give accurate information about the causes of climate change (Funk and Kennedy 2016).

Critical thinking involves questioning authority, but when it comes to many important decisions, do we really want to go it alone? I don't know about you, but I like knowing that my gastroenterologist has advanced degrees and lots of experience. I'd rather not have to ask my neighbor to perform my colonoscopy. In addition, although it is clearly out of fashion with many Americans, I'd prefer that the people in my government have expertise in their fields.

How did this fervor of anti-intellectualism come about? In his clearly written and well-reasoned book, Nichols points to three primary culprits: higher education, the Internet, and journalism.

Nichol's critique of higher education hits some familiar notes: the popularity of safe spaces—he believes college should not be a safe space when it comes to ideas and speech—the prevailing attitude that feelings are more important than thought, and the paradox of students turning the tables on their professors, often schooling their elders. An example of this last phenomenon occurred in 2016 when a group of students at Yale petitioned the English Department to eliminate its Major English Poets class because it involved too many white European males. Nichols takes the story from here:

> "We have spoken," they said in the petition. "We are speaking. Pay attention." As a professor in an elite school once said to me, "Some days, I feel less like a teacher and more like a clerk at an expensive boutique." (Nichols 2017b, 82)

But Nichols also cites some problems that have been given less attention lately, including grade inflation and the view that everyone is entitled to and capable of a college education. At the root of many of these problems is a commodification of higher education, with colleges engaged in expensive marketing campaigns to compete for the government-guaranteed loan money that fuels the whole machine. "Each spring and summer, the highways fill with children and their parents on road trips to visit schools not to which they have been accepted but to which they are considering applying" (Nichols 2017b, 79). In order to keep the clients happy, schools are focused on protecting students' feelings and making college a good experience at the expense of rigor and critical thinking.

In his attack on the Internet, Nichols cites Sturgeon's Law, introduced by science fiction writer Theodore Sturgeon, who was stung by literary critics who said most of the sci-fi they encountered was of poor quality. Sturgeon replied, "Ninety percent of everything is crap."

The new president went on to appoint a number of people to high positions in the administration who had little or no experience relevant to their posts.

Sturgeon's Law certainly applies to the Internet. Indeed, Nichols suggests 90 percent may be lowballing the level of crap. The Internet offers tremendous convenience, but the sheer volume of data makes it much harder for non-experts to find the non-crap. Professionals who are well trained in their fields benefit from the convenience of not having to schlep to the library to do research, but average users—your everyday Googlers—are generally unable to judge the quality of the information they uncover. So the Internet gives the appearance of being a great democratizing force, and people who fall under its sway soon think they are experts because they found a great article on Wikipedia. Worse yet, Nichols suggests there's a special strain of Internet Dunning-Kruger effect, in which "the least competent people surfing the web are the least likely to realize that they are learning nothing" (Nichols 2017b, 119). The illusion of Internet-derived knowledge is no substitution for information literacy and the hard-fought credentials of scholars and scientists.

Nichols also points out that the Internet has made us meaner. The lack of social connection combined with instantaneous communication leads people to dig in and defend their preconceived notions rather than listen to different viewpoints. Email and social media posts—to say nothing of the comments—are not the best media for increasing understanding.

Finally, Nichols turns to journalism for a particularly harsh indictment. Many people praise the explosion of news sources we have at our disposal today. More is better, right? Unfortunately, no. Once again, Sturgeon's Law applies. In particular, the development of a huge market for news-as-entertainment has created a decades-long attack on established knowledge. Nichols begins his account with the early expansion of AM talk radio and in particular the success of Rush Limbaugh in the 1980s. Limbaugh provided a rougher alternative to the eggheads on the Sunday morning television political shows, and by taking callers, adding lots of humor, and staying on the air for three hours a day he was able to build an enormous following. Throughout his career Limbaugh has slammed established knowledge, and in 2011 he called the government, academia, science, and the media the "four corners of deceit" (Nichols 2017b, 148).

As one might expect, Nichols also faults twenty-four–hour cable news. With many hours of airtime to fill, CNN and the networks that followed it resorted to filling the time with editorial programing and pundit debates. He credits Roger Ailes of Fox News with taking the news-as-entertainment concept to its logical conclusion, but CNN and MSNBC engage in the

same kind of political sporting contests. Nichols points out that all three of these networks have fine news operations, but they frequently blur the line between hard news and opinion. Furthermore, when partisan commentary is presented on a news station, it has the effect of diluting the information value and authority of the network. Every news story—left or right—can be challenged on the basis that it comes from a source with an agenda. Entertainment news brings in ratings and advertising dollars, but it substantially diminishes the authority of the source and does nothing to increase public understanding.

Critical thinking involves questioning authority, but when it comes to many important decisions, do we really want to go it alone?

Near the end of *The Death of Expertise*, Nichols deals with the problem of experts who make mistakes. It happens. The introduction of "New Coke" is a classic case of misjudging public opinion, and more recently the poling oracle Nate Silver failed to predict Donald Trump's success in the 2016 election. But expert opinion is still better than the alternative. So how do we improve the relationship between experts and the public?

This is where Nichols gets to the crux of the matter and where I wish he had more to say. Nichols readily admits he is rather pessimistic about the prospects of restoring experts to a more appropriate level of respect and authority, but he points to two things that would help. First, experts need to continue to speak out. Echoing the conclusions drawn in the panel discussion on public intellectuals I watched, he argues that experts must continue to translate their work for the general public. It is not good enough to leave the job to journalists who have various agendas and may or may not provide a good translation of the experts' findings. Many academics and other experts are uncomfortable being in front of the public and are likely to be attacked by their peers for being mere "popularizers." But Nichols urges academics and other experts to present their material to the general public whenever possible. Second, Nichols places much of the responsibility for improvement on the public. He seems to be hoping for a kind of attitude adjustment in which the citizenry finds the sweet spot between healthy skepticism and reverential respect. It is not entirely clear how we can bring this adjustment about, but it is likely such a change would help.

The Final Word

I strongly recommend *The Death of Expertise*. One of the best things about the book is its apolitical stance. Nichols describes himself as a conservative, and I describe myself as a liberal. Nonetheless, I found very little to quibble with in this book. We are both largely on the same page. Nichols is probably harder on higher education than I would be. I detect a little distain for those who did not attend high-status name-brand universities (disclosure: he did, and I didn't), and he is not as supportive of free or reasonably priced college as I am. But I think he is absolutely correct about the pernicious effect of high-cost education and student loans on the commodification of college.

As the list of examples above suggests, rationality and established knowledge are on the decline in the American political and social landscape. We can hope, as Justice Ruth Bader Ginsburg predicted in February 2017, that the pendulum will swing back in the other direction (Phillips 2017). But in the meantime, there is much work to be done by educators, experts, and all of us who value a society based in science, reason, and incremental knowledge, and the stakes are very high. The forces of unreason are gaining power, and their ability to damage us all has increased. Let us hope that we can avoid the worst consequences of the glorification of ignorance before the pendulum turns back toward reason.

Note

1. Disclosure: Nichols's book and two of mine were produced by the same publisher.

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[SCIENCE WATCH

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Science (Indeed, the World?) Needs Fewer, Not More, Icons

To the extent we are rational, we share the same identity.—Rebecca Goldstein

September was an awkward month for *Nature*, perhaps the most influential and well-respected science publication on the planet. In August, a group peacefully protested—and vandals subsequently defaced—a Central Park statue of J. Marion Sims, a nineteenth-century surgeon and founder of the New York Women's Hospital often referred to as the "father of modern gynecology." Sims's likeness was left with fiendish red eyes and the word *RACIST* scrawled across its back.

The quarrel stemmed from the mostly undisputed facts that, although Sims helped develop life-saving surgical techniques to help women recover from particularly traumatic births, he also experimented on female slaves without providing anesthesia, and after seeking consent only from their owners. Unsurprisingly, commentators contest whether Sims's methods were consistent with the customs and scruples of his time (Washington 2017).

Nature's first inclination was to publish an editorial originally titled "Removing the Statues of Historical Figures Risks Whitewashing History," arguing that we should leave such icons in place to remind people of the important historical lessons they might provide (The Editors 2017). The piece also recommended the installation of additional iconography to "describe the unethical behavior and pay respect to the victims of the experimentation."

Sims's likeness was left with fiendish red eyes and the word *RACIST* scrawled across its back.

Given then-recent events in the ever–emotionally explosive and divisive world of American popular culture especially, vigorous dissent was inevitable. A flurry of indignant letters descended on *Nature*'s editors. Several writers suggested that, at least in America, the primary if not sole purpose of public statuary is to honor its subjects, not to inform curious minds of their historical significances (Comment 2017). One contributor noted that the history of Nazi Germany has been well-documented in the very conspicuous absence of Nazi iconography. Another reasoned that because written documentation always precedes statuary, removal of monuments would have "no impact on our understanding of the historical failings of those individuals."

Other letters offered less restrained and, frankly, less disciplined commentary. One author submitted that the editorial "perpetuate[d] racist white supremacy." Two more branded it simply as "white privilege at its height" and as a "racist screed." Another found the article in support of "unethical science"

and to inform *Nature*'s minority readers that they "remain unwelcome in science because of their race."

But more importantly for my purposes here, many writers contributed thoughts on the Sims monument itself that reveal quite plainly our human tendencies to interpret the inherent ambiguity of statues—indeed iconography and other symbolic expressions more generally—consistent with our fears, personal agendas, or ideological mindsets. One author, for example, confided that the Sims statue bid her to "Go away, woman. You have no authority here," and to "Go away, woman of African descent. You cannot have the intellect to contribute to the science of your own healthcare" (Green 2017). Another saw Sims's likeness as a "signal" that the "accomplishments of a white man are more important than his methods or the countless people he victimized," and that "the unwilling subjects of that research … are unimportant and should be washed away" (Gould 2017; Comment 2017). Yes, all of that from a motionless, voiceless sculpture.

Given the statue's essential ambiguity, I say take it away, melt it down, and donate its metal to a more fruitful purpose.

In the end, *Nature*'s guests called consistently for the icon's swift removal. And given its (and any other statue's) essential ambiguity, I agree. Take it away, melt it down, and donate its metal to a more fruitful purpose. But, regrettably, many writers also petitioned for *additional* iconography—this time to honor accomplished females in medicine and the victims of sexist and racist medical practices. In other words, they would display more monuments of more humans, no doubt all with potentially hideous skeletons lurking in their so far sealed closets, likely to be scrutinized and challenged by any conceivable number of equally fault- and agenda-ridden human interpreters to come.

In the rush to colonize others' minds, or perhaps to cast painful blows against cross-cultural enemies, has anyone actually taken the time and effort to think this through? Both duly and thoroughly reproved, *Nature*'s editors quickly apologized and revised their article, including its title, to comply with reader objections (Campbell 2017; The Editors 2017). But glaring similarities between the Sims controversy and more widely publicized events involving statues of Confederate generals, for example, (at least one of which resulted in meaningless violence) have attracted the attention of the general media as well.

Writing for *The Atlantic*, Ross Anderson aptly observed that "the writing of history and building of monuments are distinct acts, motivated by distinct values" (Anderson 2017). No serious person ever suggested, he continued, that statuary "purport[s] to be an accurate depiction of its history." So far, so good. At that critical point, Anderson appeared well on his way to advancing the sensible argument that inherently simplistic and ambiguous iconography can only divide our society and perhaps even inspire (more) pointless violence.

Unfortunately, that was also the point where the author stumbled and then strayed onto a perhaps well-worn, but nevertheless unsustainable, trail. The legitimate purpose of a society's statuary, he argued, is "an elevation of particular individuals as representative of its highest ideals," a collective judgment as to "who should loom over us on pedestals, enshrined in metal or stone…." But, honestly, no credible history has ever instructed that any individual, no matter how accomplished, whether male or female, black or white, can ever represent our "highest ideals." And is there anything about recent American history to suggest we could ever agree on what constitutes those ideals? And, come to think of it, how do people tend to react when others choose which monuments and symbols will collectively "loom over" them? Indeed, wasn't that the problem in Charlottesville, Virginia?

According to Anderson, the activists demanding removal of the Sims statue and its replacement with iconography of presumptively more deserving subjects ask only "that we absorb the hard work of contemporary historians … and use that understanding to inform our choices about who we honor" (Anderson 2017). But, as any experienced historian knows, historical facts can be, and often are, responsibly parsed and interpreted in many different ways. And why should common citizens blindly accept one credible historian's perspective over that of any other? Regardless, shouldn't we encourage the public to consult the actual history, rather than convenient but severely underdeveloped and necessarily misleading shortcuts?

Author Dave Benner (2017) argued, instead, that we should preserve our monuments. Pointing to the New Orleans statue of Franklin Roosevelt (which, to this point, remains free of public derision and vandalism), Benner reminded us of Executive Order 9066, by which FDR displaced 110,000 American citizens of Japanese ancestry into internment camps, without due process, in "one of the saddest and most tyrannical forms of executive overreach in American History." Should the FDR monument (indeed, the dime) be purged according to the same reasoning offered by *Nature*'s revised editorial and those who oppose the Sims statue? By such a standard, would iconography depicting any of the American founders survive?

Perhaps not. But to what supposedly disastrous end? By Benner's lights, the removal of cultural iconography would "simply make it harder for individuals to learn from the past." But, again, as the many dissenters to *Nature*'s original editorial observed, the purpose of statuary is not to inform. And let's be completely candid here: nor is it to "honor" the dead and insensible subjects of such iconography who no longer hold a stake in that or any other outcome. Rather, the unspoken object is no less than to decree and dispense value judgments for the masses.

And some would no doubt argue the propriety of that object in the context of politics and government. But can and should science do better? "As the statues and portraits of Sims make clear," offers Harriet Washington, award-winning author of *Medical Apartheid*, "art can create beautiful lies" (Washington 2017). "To find the truth," she advises, "we must be willing to dig deeper and be willing to confront ugly facts. No scientist, no thinking individual, should be content to accept pretty propaganda."

Science's battle is not with any particular ideological foe. It stands against all ideologies equally. It has no interest in turning minds to any individual's, or any coalition's social cause because it has no agenda beyond the entire objective truth. Science is incapable of pursuing ambiguity or any shortcut, especially where the potential for clarity, completion, and credibility persists. And science certainly doesn't need more icons; it needs fewer—or none.

A final thought on symbolic expression: Yes, American history is saturated with political symbolism, from the flags of the colonial rebellion to the Tinker armbands and beyond. As I wrote this column, however, the discussion of alleged "race" in America grew increasingly inane—dominated, in fact, by Donald Trump, our Clown in Chief, on one side and mostly mute and under-studied NFL football players on the other. The social, popular, and activist media, along with their rapacious followers, of course, seemed thoroughly enchanted by this absurd spectacle.

I take no position on this "debate," if it can be so characterized. Indeed, any comprehension of the contestants' grievances is precluded by their irresponsible methods. The President's very involvement is inexplicable. But, for me, it's the players' exclusively symbolic expressions that cause greater concern. Again, not because I disagree with whatever they might be trying to say. Rather, because their gestures are so ambiguous and amenable to any number of conceivable interpretations that, in the end, they say nothing. Is this the future of all public discourse?

Waving or burning flags just isn't impressive. Nor is standing, or sitting when others stand. Nor is raising a fist or locking arms. Because these expressions require no real investments, they amount to cheap, lazy, conveniently vague, and, thus, mostly empty gestures. I'm old enough to know that they'll persist, of course, and no doubt dominate the general public's collective consciousness. I only hope we can manage to maintain, perhaps even expand, spaces for more sober, motivated, and responsible discourse. In any case, I'd prefer not to spend my remaining years watching them being torn down, especially from within.

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[SKEPTICAL INQUIREE BENJAMIN RADFORD

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Is Elvis Presley in *Home Alone*?

Q: **I've been trying to debunk this for years, but my eyes have convinced me Elvis is in the airport scene in *Home Alone*. It should be easy to prove but I can't find the name of the extra in question or any entry online that puts this particular myth to rest. Nothing short of the name of the extra and a photo comparison will convince me otherwise.**

—Dan L.

A: I got this query in September 2017, and though I'm fairly well versed in conspiracy theories (and, to a lesser extent, Elvis-related legends), I had not heard this one before. With a few keystrokes, I was faced with a wall of words (including many in ALL CAPS for added credibility) and images explaining to sheeple like me why, exactly, we know that Elvis Presley is alive—or at least was as of 1990 when *Home Alone* was released.

A handful of blogs have tackled the topic, including the Vice network's Noisey.com:

> One of the oddest post-mortem sightings by those who believe The King to still be walking the earth is an appearance in the 1990 holiday classic *Home Alone*. There is a scene midway through the film, where Catherine O'Hara's character, exhausted from unsuccessfully trying to get back to Chicago to reach her son whom she forgot at home (hence the title), is bartering with an airline employee over a ticket counter in a Scranton airport. A bearded man in a sports coat and turtleneck hovers over her left shoulder, occasionally expressing his impatience with his body language. This man, many believe, is played by Elvis. (Ozzi 2016)

A handful of videos offer dark, ambiguous hints: how the actor moves his head, for example, and the shape of his nose. Wary of going too far down the rabbit hole—and rather than assuming the burden of proof and chasing down all the claims—I focused on Dan's specific evidence and logic (after all, I could easily spend hours researching and debunking a claim that he never gave credence to in the first place).

I gamely replied:

> If you think it's Presley, why do you suppose someone who went to such great lengths to fake his death and make sure he wasn't seen would choose to appear on camera close enough that he could be recognized in one of the biggest box office movies of the decade?

Dan wrote back but didn't really answer my question:

> Every time I look at this film clip, I'm convinced it's Elvis Presley. I've looked at the Patterson Gimlin [Bigfoot] film a thousand times and I know it's a guy in a suit and I know a guy came forward saying he was the guy in the suit. No guy has come forward claiming to be this extra and I say this scene in *Home Alone* is the Patterson Gimlin moment for the Elvis is Alive conspiracy. I work in Hollywood and I see a lot of celebrities and I'm very good at spotting people at a distance, through crowds, trying to disguise themselves. I get the same sensation when I see this clip from *Home Alone*. As I said, it should be easy to debunk but it's not.

I replied:

I'm not sure that the fact that the background extra has not come forward to be identified is significant. There are any number of reasons why that might be the case; for example, he may be dead or retired. It's possible, even likely, that he doesn't know there's any controversy about the scene or question about who is in it. I research both urban legends and conspiracy theories for a living (and have for about twenty years), and I'd never heard of it. Background extras are cattle calls and tens of thousands of people appear in TV and films every year. Most are not professional actors but ordinary people who do it for a few bucks and a lark, and there's no reason to assume that any of them would necessarily be aware that his momentary scene in a film from twenty-seven years ago is the subject of any mystery.

Dan replied with his theory:

Elvis didn't want to be Elvis anymore and was miserable after his divorce, sick of all the hangers on in his life, sick of giving 50 percent everything to [manager] Col. Parker. That Elvis trip to D.C. to visit Nixon had a personal agenda of creating a new identity with the help of the federal government. The Feds gave Elvis permission to legally kill off Elvis Presley and assume a new identity—just like a Witness Protection individual—only in this case, one of the most famous people in the world. How did Elvis end up in *Home Alone*? Someone involved with casting extras put him there. Either he showed up for an extra call like most people do for a fea-

ture film, or the person in charge snuck him on set and stood him there. One theory is that director Chris Columbus's previous film was *Heartbreak Hotel* about a teen who kidnaps Elvis for his dying Mom. Perhaps Elvis contacted Columbus. Of course Columbus denies this, but he and [Macaulay] Mac Culkin (who wasn't in the scene) protest too much in the DVD extras.

I replied, somewhat hesitantly:

"Well, that's certainly an interesting theory, and it seems to combine (or connect the dots between) several established facts about Elvis's life (such as his meeting with Nixon), which lends it some credibility. I guess to me it raises more questions than it answers, for example:

1) Can you think of any other globally (or even nationally) famous person who faked his or her death because they were tired of the riches and trappings of fame? It's possible—anything is *possible*—but that idea would have more credibility if that was something that was known to have happened in other similar cases (Bogart, Monroe, James Dean, Michael Jackson, Princess Diana, Robin Williams, etc.). I'm not aware of any, but maybe you know of some?

2) Why would Nixon be involved in any way? Elvis wouldn't need the government's 'permission' to fake his death, and involving the bureaucracy would just exponentially increase the chance of someone leaking the secret.

3) Why would a casting agent put Elvis Presley onscreen in *Home Alone*, when he had spent so much time and effort staying out of the public eye? If Elvis was alive and wanted people to know he was alive (or be able to identify him, as you and others claim to have done), why such a random way?"

Dan wrote back, still not fully addressing my queries:

No famous person has successfully faked their death as far as we know. But if you or me wanted to legally change your name and become a different person, you can easily do it. Elvis Presley needs to do it a different way. Ignoring all that, let's find the actor who is in this scene and call it a day.

The decades-long absence of any connection between Presley and *Home Alone* is curious. After all, it's not as if hushed rumors circulated at the time that The King had been seen on the set. How could the rest of the cast and crew—including the other background extras in the scene—have failed to notice the presence of one of the most famous figures in the world? Onscreen of course we only have a few ambiguous visual cues to go by, including general height and (bearded) facial features. In person, however, the actor's distinctive—and well-documented—voice and mannerisms would likely tip off people on the set. As director Chris Columbus told *USA Today* (October 5, 2015), "If Elvis was on the set, I would have known."

With a few keystrokes, I was faced with a wall of words (including many in ALL CAPS for added credibility) and images explaining to sheeple like me why, exactly, we know that Elvis Presley is alive.

Dan seemed convinced not only that debunking this claim "should be easy," but also that identifying the actor would definitively settle the matter. However, from my experience neither is the case: an investigative task that to a layperson should be simple and straightforward rarely is. Presumably records exist (or existed in the late 1980s when the movie was being filmed) of who was on the set—extras and background actors must sign paperwork including releases and waivers—but after a project is wrapped and a film is released, there's rarely a need to keep such trivial documentation, especially over a quarter-century later.

An interesting challenge (for Dan or others who wish to investigate) would be to randomly choose ten other equally prominent background extras in *Home Alone* scenes and see how easy they are to identify after all this time; if most or all of them can be easily located and identified, that suggests that the lack of information about this particular actor may be relevant or notable. On the other hand, if few (or none) of them can be traced, that suggests that there is little mysterious about this person's apparent anonymity. And even if the actor is identified that is unlikely to settle the matter, since of course Elvis Presley would be able to find someone who resembles him to pose as his doppelganger and refute the skeptics. He was, after all, The King.

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A Cancer Nurse Examines Alternative Medicine

"It's the Equivalent of Murdering Somebody"

CARRIE POPPY

"Oh my gosh, Carrie. I just had a shady experience with an alternative cancer treatment hospital, thirty minutes south of the California/Mexican border."

Those were the first words of an email I received from a cancer nurse recently. Nurse K, as I'll call him, had been in touch here and there as he helped me with a journalistic investigation, but this was the first time he had emailed out of the blue. A patient had asked him to send medical records to a clinic where, he told me, he couldn't find a single medical professional to speak to on the phone.

"Ugh! This can be so maddening," he wrote. "I hate to see patients waste their time and money with questionable places like this."

I share Nurse K's concerns. Last year, I went on a tour of "alternative" cancer clinics in Tijuana, and the methods used there were largely pseudoscientific and sometimes dangerous. Some of Nurse K's patients have refused conventional treatment, opting instead to go to these alternative clinics, mostly in Mexico, where regulation is far laxer than in the United States.

It's important to note that Nurse K works at a respected cancer treatment facility, so anyone who finds their way into his care, even at a late stage, has accepted modern medicine on some level. Who knows how many more people have died because they never received evidence-based treatment?

I asked Nurse K if I could interview him and discuss what happens when patients decline or delay real treatment in order to get unfounded "natural" therapies. He agreed, provided that he be given a pseudonym, due to stringent medical privacy laws (the Skeptical Inquirer has confirmed Nurse K's credentials). When I called Nurse K, he was eager to talk, boiling over with stories of patients he had watched suffer, or even die, because of their fear of evidence-based medicine.

Carrie Poppy: Thank you for doing this interview. It's so important. How long have you been an oncology nurse?

Nurse K: For about eight years.

So, how often do you see patients getting alternative medicine instead of conventional medicine?

Maybe a handful of times every year. The most common form of alternative treatments that I see is people going to naturopaths. I have literally had people come in with suitcases of supplements. Every kind of herb that has had a shred of evidence toward treating cancer. There's such a stigma against modern medicine with some people, but they'll take an herb that isn't regulated by the FDA that could be 10 percent ginkgo biloba and 90 percent dirt and twigs. I've seen actual consult notes that they brought with them, saying, "Do oil pulling. This will help with the mouth sores that you have. And it will also regulate your digestive tract."

That must be incredibly frustrating.

And it's not to say that all complementary and alternative therapies don't have benefit. In some cases, the evidence is there, but it's not curative. If the evidence is there, great. But it has to be strong enough evidence that's equivalent to what we have already. And so my reasoning is, if this is so effective and life-changing and wonderful, don't you think that a lot of these first world countries that have a very robust health system would have this already? But it's all a conspiracy to them.

Yeah, the standard answer to that is that "they" don't really want to cure cancer. They want to keep cancer operational, so to speak, so that you can keep treating it.

Right. And some people would argue that alternative therapy is more affordable. It's not. You'll see people shell out thousands of dollars to go to a clinic in Mexico. To me, in some cases, it's the equivalent of murdering somebody or causing their death. Because you're making all these empty promises and taking their money. And you're taking

these people that have nothing left to lose. And my heart breaks for them.

Do you find that people are foregoing real treatment in order to go get this alternative treatment? Or is it that they've run the gamut of what they perceive conventional medicine can give them and this is the last-stage hopeful grasp?

It's different from person to person. I have seen patients for whom this is their last-ditch effort, and they're doing this because there's nothing else. Usually, the people who initially seek out this treatment without doing evidence-based treatments are people who have money and who can afford to do so. I think that the more desperate you get, and the fewer number of options that you come to have because of your disease progression, you'll find people that will do Go Fund Me or will just scrape money together. And people go to great lengths to get the money, like selling their estate.

I'm trying to imagine a person who is defending these modalities and they might say, "Well, sure, if you're getting this questionable treatment instead of getting real medicine, then of course that's bad. But if you're dying anyway, and you get this alternative therapy, and have hope instead of being sad for the last few weeks of your life, what's the harm there?"

My counterargument to that is that these practitioners mention a handful of studies, and you have to have a basic understanding of statistics to really understand it. Usually the studies have a poor sample size. And so you have these treatments that could inherently be harmful. So you don't want to expose the patient to a treatment and say, "Oh hell, they're dying anyway. So what does it matter if this makes her life shorter? What does it matter if they have a bad reaction to it, or there are bad side effects that we don't know about?" Because the research hasn't been done. You have the potential to harm them. You have to realize that the treatments that are covered and approved by the FDA have the best evidence behind them. And I'm not talking about a handful of studies. I'm talking about years and years and years of clinical trials with hundreds of patients.

Right, and then meta-analyses of those studies.

Exactly. Meta-analysis is the best form of evidence, because it's including all of the evidence that is there and synthesizing it.

With people bringing you supplements and treatments they've been given at alternative medicine clinics, do you ever have to scale back the real treatment? I imagine that those supplements might actually slow their progress because you have to watch out for contraindications and side effects.

There are instances where we've had to basically say, "These medications interact with each other. You can't take this supplement." And usually you can reason with them. But the more concerning practices that I've seen is with what's called a "mediport." It's a central line that goes directly to one of the major vessels in your heart so that treatment is directly delivered. There was a person who went to Mexico maybe six years ago. And they were told by someone there to inject apricot extract and holly berry extract, and huge doses of vitamin C into their central line. Mind you, that goes straight to your heart. It has a high risk for infection. And he came in with a massive infection. The port was just messed up to hell, he was septic, and it was bad. We were able to save him. But we said to the patient, "What did we learn?"

And apricot extract is really high in cyanide.

Oh, yeah! Right. Actually, there is some chemo that does utilize toxins such as arsenic, but it's within really safe levels.

So you mentioned in your email that you had had patients who you felt had passed away because either they delayed conventional treatment or abandoned it. How many times do you think you've seen that?

I'd say in my eight-year career I've seen it maybe five to ten times.

"There's such a stigma against modern medicine with some people, but they'll take an herb that isn't regulated by the FDA that could be 10 percent ginkgo biloba and 90 percent dirt and twigs." —Nurse K

That's a lot!

Yeah. It's really tragic. And I would love to see zero cases of that. And I think that psychologically it's a little bit of denial, because they don't think the cancer is that serious. The majority of the cases that I saw were people that were like, "I did yoga and drank green tea, and did Ayurveda, or faith healing." I've heard it all. And they've allowed their cancer to progress to such a point that it's really hard to treat, and they either passed away or really suffered. I never want it to sound like I'm condemning these people for what they're doing because it's a horrible experience. My main goal here is if I can do anything to prevent people from doing this kind of stuff without being properly informed, I'll do it.

So, of all these therapies, are there any that concern you the most?

The trend of injecting high doses of vitamins, such as vitamin C for instance. What they'll do is they'll tell these patients to go home, and they say "Here, we're going to give you everything you need, and you're gonna inject this vitamin C three times a day." And so you have these people that really don't have any idea what they're doing, and they get a pamphlet from the "hospital" that says, "To access your mediport …." And they're given a little hug, and sent home and told this will work. So that's the most dangerous thing I've seen. It's just the risk for infection. These are people who are possibly immunocompromised and can get deathly ill from catching the flu.

I think most of the readers of Skeptical Inquirer are going to be totally in agreement with you. But there are people thinking, "Yeah, maybe these alternative healthcare providers are terrible. But on the other hand, if we ever stopped them, we're taking away the agency of the patient and her right to get whatever treatment she wants, whatever her threshold of evidence is." What would you say to that person?

That is a gray area of bioethics. So, right! That is true. Everyone has the right to decide on what treatment they want. They also have a right to refuse treatment, and I've seen people that do that. They have advanced stage cancer, and they're like, "I've lived my life, and I want to do hospice." And it's beautiful in that they did it on their terms. However, there is a part of medicine called "doing no harm." And if you are exposing a patient to something that you know has this unknown variable, that's against the law. If you're doing harm to somebody by being willfully ignorant and just out for people's money and giving them false hope, that is doing them harm. Medical quackery has been prosecuted in the past and we should continue to do so. And the reason why you see these places out of the country, in Mexico, is there are looser regulations. They don't have to answer to the FDA. They don't have to answer to the Board of Medicine and to the National Institutes of Health.

And there is dangerous stuff in the United States, too.

And there's some quackery that is in the United States. We're charting really dangerous territory with religious freedom bills, not only in the realm of outright discrimination, but also in the realm of faith healing. You know, I can send a bill to my insurance company because I consulted with a Christian Science person over the phone. It is a fine line. I could see cracking down on quackery being overdone. And if it were so simple, we wouldn't be having these discussions.

Touché.

I don't think that we should ever force patients to do something that they do not want to do. That should never happen. However, preventing people from hurting themselves is something that we should consider. Ignorance is very dangerous. And we've all fallen victim to it at one point in time in our lives.

For a person who has a loved one who has cancer or another serious illness, and the sick person is considering alternative treatment, what advice would you give them?

Hear the person with the illness out. Really get to the root of what their hesitation is to follow through with medicine that has evidence behind it. Once you analyze the source of their apprehension, you can start getting somewhere. Maybe it's spiritual or cultural. Or perhaps Aunt Maggie had cancer, and that chemo just destroyed her, and she was so miserable. (Even though that was a totally different type of cancer, or it was thirty years ago.) So, identify the source of their apprehension, and then come from a place of understanding and not a place of being condescending. Because, to them, it's a good option. And also encourage them to have open conversations with their physicians, because a lot of patients are scared of talking to the doctor, because they think that they're going to be instantly condemned. Sit with them and try to rationalize: "OK, so we visited the doctor a week ago, and these were the options that he gave you. Do you have questions about the treatment he wants to do? Call the doctor's office, talk to a nurse, talk to the doctor again. Make a list of your questions, be very thorough. That's why they're there."

There's also that push and pull between wanting to save someone's life and also wanting to accept that they may have made a decision, and you don't want their last memory of you to be you being belligerent about it. That must be a very difficult dance.

Right. Just come from a role that's supportive. And in cases where people don't have options left, they've tried conventional medicine, and they want to go to an alternative center and get vitamin C and all this stuff, have a "Come to Jesus" moment with them. And say, "You know, this has limited evidence." And I've had patients say, "I'll take whatever I can get." In that case, you can't stop them. But just make sure that they have the most informed decision that they can have. And that they've talked to their doctor about it, and that they are OK with the risk of the side effects, infection, death, or the risk that it is going to make their cancer worse. And does that mean that they can't pursue an alternative treatment that has evidence behind it, to alleviate their symptoms? No. If massage helps you with your pain, if acupuncture from a licensed acupuncturist helps with your pain, or doing yoga, or practicing meditation, or getting in touch with your spiritual side, great. But it won't cure your cancer. ■

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Critical Thinking Approaches to Confronting Racism

Benjamin Radford

The racial divisiveness and tensions that erupted this past year (specifically in Charlottesville, North Carolina, in August), resulted, predictably, in a maelstrom of opinions—informed and otherwise. Amid all the arguing over whether Nazis should be punched, if and when censorship is acceptable, whether President Trump is racist, the appropriateness of publicly naming and shaming marchers, and so on, one thing largely missing from the debate is evidence-based guidance on what psychology and sociology can teach us about what's effective at reducing racism and prejudice.

Emotionally satisfying reactions are not necessarily effective ones, and they may in fact be counterproductive. Is it better to engage with racists or deny them an audience? What do we know about what is most likely to actually change people's minds? There's no panacea, but here are some strategies suggested by experts who have experience in productively confronting racism and prejudice.

Researchers found evidence suggesting that racial and gender biases can be reduced using personal engagement instead of hostile reactions; as a *Vox* headline noted, "Research Says There Are Ways to Reduce Racial Bias. Calling People Racist Isn't One of Them." Likewise, former white supremacists recommend that the most effective way to deal with racists is not to attack, shout down, or insult them because it just fuels their narrative of victimhood and gets them sympathy—even perhaps from those who otherwise wholly disagree with their views, such as free speech absolutists. Musician Daryl Davis has taken a similar tactic, as explained in a *Huffington Post* story:

> For the past few decades the black musician, actor and author has made it his mission to befriend people in hate groups like the Ku Klux Klan by calmly confronting them with the question: "How can you hate me if you don't even know me?" … In 1983, after Davis played a gig in an all-white venue in Frederick, Maryland, an audience member approached him to compliment him on his piano playing. The two struck up a friendly conversation, and Davis was surprised to discover the man was a card-carrying member of the KKK. Through this man, Davis got in touch with Roger Kelly, the former Imperial Wizard of the white supremacist organization. Over time, Kelly and Davis became close and Kelly eventually quit the hate group.

That pattern has repeated itself a dozen more times, as seen in the documentary film *Accidental Courtesy*.

We invited several distinguished experts to contribute their brief thoughts and observations about how best to deal with racism through evidence-based strategies. As Carol Tavris has noted, racism and prejudice are thorny, age-old problems with many origins. There is no single solution, no magic spell that will bring everyone together. But—like any human endeavor—some evidence-based approaches show more promise than others. As Stephen Pinker and Michael Shermer argue in their books *The Better Angels of Our Nature* and *The Moral Arc*, respectively, the overall historical trends for humanity are encouraging, toward a more peaceful and more cooperative world. Perhaps by applying evidence-based strategies we can nudge that progress along. ■

Amid all the arguing over whether Nazis should be punched and if and when censorship is acceptable, one thing largely missing from the debate is evidence-based guidance on what psychology and sociology can teach us about what's effective at reducing racism and prejudice.

Benjamin Radford is deputy editor of the Skeptical Inquirer and a Committee for Skeptical Inquiry research fellow.

Psychology, Skepticism, and Confronting Racism

CRAIG A. FOSTER AND STEVEN M. SAMUELS

What Does Skepticism Have to Do with Racism?

Racism is abhorrent. It is therefore easy for a movement such as skepticism to adopt anti-racism stances, but skepticism must avoid promoting viewpoints because they are politically popular or self-satisfying. Skepticism promotes beliefs that are consistent with thoughtful interpretations of the existing evidence.

Racism is not scientific nor is it reasonable. Racism is essentially a negative attitude toward others based on their membership in a particular race. Racism per se is not pseudoscientific; it is a general mindset toward particular races rather than an identifiable scientific claim. However, racism is typically bolstered by folk scientific claims that do not hold up under scrutiny. The most inflammatory of these types of claims is probably the theory that members of certain races are genetically inferior. This type of folk theory overlooks obvious scientific problems. Racial categories are socially constructed, based more on appearance than genetics. Social and economic factors exert systematic influences that can perpetuate racial stereotypes.

If Racism Is Specious, Why Do People Become Racist?

Skeptics know that people are capable of believing all sorts of unsubstantiated or downright ridiculous claims. A review of all the reasons that people develop prejudiced beliefs is beyond the scope of this piece. At the risk of doing a disservice to the topic, here is a quick overview:

1. Humans are quick to engage in *social categorization*; they can place others into racial boxes swiftly and efficiently.
2. People tend to favor the groups to which they belong (*ingroup bias*). This can occur because viewing one's own group as superior contributes to personal esteem. Ingroup favoritism also justifies distributing more resources to the ingroup, which benefits oneself or others who are emotionally close to oneself.
3. People misperceive others based on race. They can associate traits and behaviors with particular groups that are not really there (*illusory correlation*). They tend to exaggerate the similarity of outgroup members (*outgroup homogeneity effect*). They can wrongly assume that members of particular races conform to their impression of the broader group (*stereotyping*).
4. Stereotypes that accompany prejudice are difficult to eradicate. Outgroup members who do not conform to existing stereotypes can be easily forgotten. They can also be dismissed as uncommon exceptions (*subtyping*).
5. Individuals might engage more broadly in a tendency to overestimate the role of character and underestimate the role of the broader situation (*fundamental attributional error*). Thus, when people see boardrooms full of white men, they implicitly or explicitly conclude that white men must be more intelligent, more industrious, or both.
6. Individuals can even elicit stereotype-confirming behavior from others (*self-fulfilling prophecy*). A white supervisor who expects racial minorities to be lazy might unknowingly reveal her or his prejudiced feelings. The supervisor's employees of color might find this leader unsettling, but the supervisor misinterprets their emotional distance as further evidence that racial minorities do not work hard.

Confronting Racism: Intuition versus Science

Many people recognize the problems with racism without knowing the underlying social scientific principles. Obviously, many individuals have close relationships with people whom society designates as representing a different race. Positive experiences in "interracial" relationships belie the stated or unstated claims that accompany racism. Furthermore, even a rudimentary knowledge of history or current events demonstrates the extensive harm that stems from racist ideology. Disagreements about race can therefore become heated. This likely causes individuals to respond in ways that even they might later concede are ineffective.

To wit, yelling at white supremacists seems unlikely to make them less racist. Indeed, it might do more harm than good. White supremacists have likely heard all the arguments that debunk their racist ideology. They will either ignore these arguments or recall ready-made racist responses, much like strong supporters of pseudoscience do. Thus, arguments to the contrary might actually reinforce their racist beliefs. Plus, the conflict between white supremacists and protestors might serve to invigorate the white supremacist community. It gives them a sense of purpose—together they stand against the brainwashed liberals who are taking their country from them.

Skepticism promotes beliefs that are consistent with thoughtful interpretations of the existing evidence.

Of course, not protesting is also dangerous. If white supremacists promote their ideology without eliciting some vitriol, it could make this type of belief system appear more acceptable. Accordingly, protesting against white supremacists and those who promote similar race-based belief systems is almost certainly valuable. It provides an opportunity to demonstrate that most (hopefully almost all) residents of the United States do not support racism. Protesters can improve their effectiveness by thoughtfully considering their overarching goals. Are they trying to influence white supremacists or demonstrate to others that race superiority theories are dangerous and unacceptable? This type of thoughtful approach might be less emotionally satisfying than shouting angrily at neo-Nazis and the KKK, but it will probably be more effective in the long run.

White supremacists are in some ways easier to address because their grassroots race theories are explicit and can be discussed directly. However, racism can also occur in the form of unacknowledged bias. Individuals might disagree with racism, but they unknowingly view members of particular races in ways that are influenced inappropriately by their racial memberships. This type of *implicit bias* lacks conscious intent but can still cause people to be treated unfairly based on race. Confronting implicit racism is challenging because it can be exhibited by people who do not believe that they exhibit it. Calling these people "racist" is unlikely to be effective because the accusation is likely to elicit defensiveness rather than thoughtfulness.

Furthermore, opponents of certain political views are capable of perceiving racism that might not truly be there. The *affirming the consequent fallacy* occurs when individuals mistakenly use a statement's consequent to affirm that the antecedent must be true: All cows have four legs, so an animal with four legs is a cow. Similarly, even though whites who dislike racial minorities typically support certain political views (e.g., limiting immigration), not all people who hold such political views are racist. Equivocating particular political beliefs with racism creates, ironically, a form of the stereotyping that those who contest racism are trying to repudiate. Accusing such people of racism is likely to alienate those who might otherwise be willing to consider whether they are being sufficiently thoughtful about issues involving race.

Effective approaches to confronting racism can be time-consuming and challenging. Those who want to confront racism need to exhibit sustained influence. They should try to remain likable and credible—always useful influence tactics. They must also tailor their arguments for their audience. Too little disagreement is essentially agreement, while too much disagreement can cause others to reject arguments outright. One can more effectively address racism through a discussion where both sides are considering race-based concerns authentically. This is understandably frustrating; it would be much easier if individuals could quickly see the folly of their explicit or implicit racism, causing it to simply disappear. That just isn't the way people are, and skepticism is committed to reality, even when that reality is ungratifying. ■

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Disclaimer: The views expressed in this article are those of the authors and do not necessarily reflect the official policy or position of the United States Air Force Academy, the Air Force, the Department of Defense, or the U.S. Government.

Combating Racism through Shared Goals

STUART VYSE

When my oldest child was in high school, the school encountered its first openly gay student. The young man in question was an exuberant thunderbolt of warmth and talent who, from the moment he entered kindergarten, was loved by all who knew him. When he hit high school, he came out in a big way. "I am gay—*very* gay," he said, and he started attending school events with his boyfriend. Our small town had never seen anything like it before.

This story would not be particularly remarkable except that this young man was born into a family of Republicans. His father was a strong Second Amendment advocate who harbored government conspiracy theories, and his mother's family were Catholics who had been central to local GOP politics for years. But more important to them than politics or religion was their unquestioned love for this boy. Almost overnight, his family became some of the strongest and most vocal advocates for gay rights our town had seen. They did not all become liberal Democrats, but to them the campaign for LBGTQ rights was an important and obvious cause. They were in.

As much as I value ideas and facts, these are not the things that mend the divisions between us.

Much of the last twenty years of my career has been spent championing evidence, reason, and critical thinking. I've taught the basics of logic and the pitfalls of fallacies. Unfortunately, as much as I continue to value rationality, experience tells me that argument is rarely an effective method of changing minds. As much as I value ideas and facts, these are not the things that mend the divisions between us. Rather the path to greater cooperation and understanding is both simpler and much more difficult.

In 1954, the Turkish-American social psychologist Muzafer Sherif (1961) conducted the now-famous Robbers Cave Experiment. He and a team of researchers recruited twenty-two well-adjusted white Protestant fifth-grade boys to participate in a summer camp in Oklahoma. The boys were split into two groups, the Rattlers and the Eagles, and, during an initial period, the groups were kept apart. Then, after the members of each group had gotten to know each other, the counselor-researchers introduced the groups to each other and organized four days of competition between the Rattlers and the Eagles. The boys played football, softball, and had a tug-of-war, and before long, signs of intergroup prejudice and conflict emerged out of the competitions. The Eagles burned the Rattlers' flag, and in retaliation the Rattlers trashed the Eagles' cabin.

The most remarkable part of the Robbers Cave Experiment was not the ease with which the researchers could instill prejudice in a group of young boys. It was that, once established, they were able to counteract the prejudice they had created. First, they tried merely putting the groups together, but simple contact failed. Fights broke out, and no progress was made. So the researchers rigged a number of situations that required the boys to cooperate across groups for common goals. A broken-down truck needed to be moved, and doing so required all the boys to pull together on the same rope they used for the tug-of-war. A movie night was organized, but paying for it required all the boys to contribute in a manner they devised together. As these contrived cooperative situations unfolded, conflict died out and friendships across groups emerged. Sherif's simple conclusion was that competition for limited resources breeds prejudice and cooperation toward superordinate goals breeds intergroup harmony.

This seems like such a simple thing. Work together for common goals, and respect and affection will result, but how do we arrange for common goals? The integration of the U.S. Armed Forces in 1948 was widely cited as a significant step forward in the civil rights movement (Conn 1952). The common goals of the military are obvious, and placing white and black soldiers side by side made interracial cooperation a necessity. But integrating the armed

forces required an executive order from President Truman. It would not have happened without the right kind of leadership. Unfortunately, with few exceptions, today's leaders appear to be creating greater competition between groups and fewer opportunities for cooperation toward superordinate goals. There are some unusual circumstances in which the bonds of cooperation are preexisting, such as in the family of the pioneering gay young man in our town. But far too often the bonds of cooperation have to come from somewhere else: our leaders or ourselves.

In the wake of the horrible events of Charlottesville, I came across an article with the unlikely title "We Need to Start Befriending Neo Nazis" (Mandel 2017), which was made even more unlikely because it appeared in the Jewish newspaper, *The Forward*. The article went on to describe a number of successful efforts to convert people from racist and bigoted organizations by listening to them, rather than arguing with them, and, in one case, by inviting an anti-Semite who had been shunned by the rest of his college community to come to a Shabbat dinner. People who have the extraordinary patience to reach out to those whose beliefs they find abhorrent have, on occasion, been able to forge the kinds of shared bonds that reduce conflict. This kind of work is not for everyone. Even the author of the article admitted that she might not be up to the task. But the message is clear: We do not solve our problems by demonizing our enemies. We do not change minds through argument or violence. We have to treat each other as equals and find new superordinate goals that we can all work toward together. And, of course, elect leaders who will do the same. ■

Note

A short video about the Robbers Cave Experiment, "5 Minute History Lesson, Episode 3: Robbers Cave," including historical footage of the campers, can be found at https://www.youtube.com/watch?v=8PRuxM-prSDQ.

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Photo: Anthony Crider

Alt-right members preparing to enter Emancipation Park in Charlottesville, Virginia, holding Nazi, Confederate, and "Don't Tread on Me" flags.

Are Racist Beliefs Pseudoscientific, and What Do We Do about Them?

TERENCE HINES

One of the defining characteristics of a pseudoscience is nonfalsifiability. Although racist beliefs can certainly be made nonfalsifiable, most are simply wrong. Nor do they, usually, involve esoteric and mystical mechanisms. No one (as far as I know) argues something like "Blacks are inferior because they lack the karmic vibratory structure of the quantum consciousness that Aryans have." Thus, it is more accurate to think of racism as junk science—if it's science at all (most racists don't even bother with the junk science theories of the Nazis).

But the cognitive processes that maintain racist beliefs are quite similar to those maintaining many pseudoscientific and paranormal belief systems. The major one is confirmation bias. The racist who sees a minority individual doing something negative will be more likely to remember that than if they see that same person doing something positive. Racist beliefs share another feature with paranormal ones: stereotyping. There is little difference, cognitively, between holding that African Americans have natural criminal tendencies and saying that people born under a particular astrological configuration are more aggressive.

That said, there is a big difference between run-of-the-mill pseudoscientific beliefs and racist beliefs. Racists tend to be much more aggressive in asserting their beliefs, at least following the election of President Donald Trump. I doubt one would ever see a group of believers in astrology brandishing clubs and guns to attack a group of skeptics. This tendency toward more virulent and violent defense of their beliefs will make it more difficult to alter racist attitudes. The standard social psychology textbook answer to the issue of reducing stereotyping and prejudice is to have prejudiced individuals work together with members of the disliked group and so discover they're just regular people. I doubt that approach will work in the present political climate.

What might work? Certainly being violent back won't help—it will just egg the racists on and allow them to play the "I was a victim" card. Nor will denying them their free speech rights. They could claim, correctly, that they were being discriminated against based upon their beliefs. However, making fun of them might work. I recently saw a video of a group of Nazis demonstrating in Germany. The local citizens followed them around playing tubas and other instruments, turning the hateful parade into a sort of party and opportunity to mock the Nazis without violent confrontation.

Thinking about it, this is sort of like the anti-homeopathy events where people swallow hundreds of homeopathic sleeping pills and then … don't die. A bit of creative energy spent coming up with different ways to mock the KKK and Nazi types could be both fun and effective. ■

Terence Hines is professor of psychology at Pace University. He is author of *Pseudoscience and the Paranormal*.

Photo: Evan Nesterak

A counter-protester gives a white supremacist the middle finger. The white supremacist responds with a Nazi salute. Charlottesville, August 12, 2017.

A Hard Look at How We See Race

Jennifer Eberhardt's research shows subconscious connections in people's minds between black faces and crime and how those links may pervert justice. Law enforcement officers across the country are taking note.

SAM SCOTT

The first time Jennifer Eberhardt presented her research at a law enforcement conference, she braced for a cold shoulder. How much would streetwise cops care what a social psychology professor had to say about the hidden reaches of racial bias?

Instead, she heard gasps, the loudest after she described an experiment that showed how quickly people link black faces with crime or danger at a subconscious level. In the experiment, students looking at a screen were exposed to a subliminal flurry of black or white faces. The subjects were then asked to identify blurry images as they came into focus frame by frame.

The makeup of the facial prompts had little effect on how quickly people recognized mundane items like staplers or books. But with images of weapons, the difference was stark—subjects who had unknowingly seen black faces needed far fewer frames to identify a gun or a knife than those who had been shown white faces. For a profession dealing in split-second decisions, the implications were powerful.

Lorie Fridell, then head of research for a law enforcement policy group in Washington, D.C., says Eberhardt's research helped her resolve a nagging paradox. She sensed that law enforcement had a problem with racial profiling. Yet she was certain the vast majority of officers would sincerely recoil at the idea of policing with prejudice.

The answer, Eberhardt's work suggested, was largely in the subconscious. Intentions hardly mattered. "It totally changed my perspective," Fridell says.

More than a decade later, Eberhardt is no longer the anonymous academic she was then. A "genius award" from the MacArthur Foundation in 2014 served as perhaps the broadest notice yet that Eberhardt is someone with something vital to say. Yet her signature remains the same: unsettling research revealing the long, pernicious reach of unconscious racial bias, and an unrelenting commitment to share her findings with the outside world.

"This is not someone who is just doing work in the ivory tower of a university," says Chris Magnus, chief of police in Richmond, California, a Bay Area city where a quarter of the population is black. "This is someone who is really out in the trenches working with police departments and the criminal justice system."

Eberhardt's message is not an easy one to hear, particularly for the many Americans who think racial discrimination is largely a thing of the past, or that they themselves would never treat someone differently because of race, or that racism is somewhere else.

In one study capturing how high the stakes are, Eberhardt and her colleagues analyzed two decades' worth of capital murder cases in Philadelphia involving white victims and black defendants—forty-four cases in all. The defendants' photographs were independently rated according to how stereotypically black they appeared.

The results of the research were startling. The half of defendants rated as the most stereotypically black were more than twice as likely to have received a death sentence as those in the other half. "No matter what we controlled for, the black defendants appeared to be punished in proportion to the blackness of their features," she said.

A "genius award" from the MacArthur Foundation in 2014 served as perhaps the broadest notice yet that Eberhardt is someone with something vital to say.

In another study in 2012, commuters at a Bay Area train station were shown informational slides about the California prison system and then asked if they'd sign a petition in support of a proposed (and ultimately successful) amendment to lessen the severity of the state's Three Strikes law, which gives mandatory life sentences to certain repeat offenders.

Approximately 25 percent of the state prison population at the time was black. But 45 percent of prisoners serving a life sentence under the Three Strikes law then were black. Commuters who saw a presentation in which 25 percent of the inmates depicted were black were almost twice as likely to sign the petition as were those shown a presentation in which 45 percent of the inmates were black.

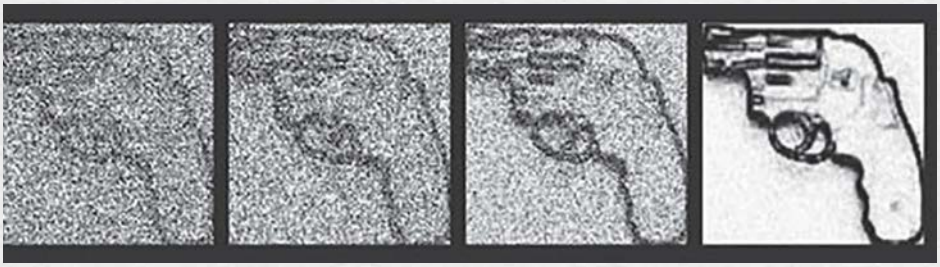
The conclusion seemed perverse: Someone seeking to mitigate racial disparities in sentencing might be best served by not pointing them out. It's not that the respondents were necessarily bigots or even bad people, Eberhardt says. But the reach of implicit bias, arising from America's tortured racial history, from culture, and from still pervasive inequities, is powerful, enduring and underrecognized, especially in the context of criminal justice.

Much of Eberhardt's work has focused on revealing the wide-ranging consequences of those biases. Her research has shown that police—black and white officers alike—are more likely to mistakenly identify black faces as criminal than white faces; that people show greater support for life sentences for juveniles when they read about a case involving a black defendant than when the case involves a white defendant; and that words associated with crime can cause people to instinctively focus on black faces. A picture of post-racial America it is not.

"She is saying things that make people uncomfortable, but she has the evidence to back up the reality of what's she's describing," says Susan Fiske, a Princeton social psychologist who calls Eberhardt's work simultaneously original, provocative, and rigorous. "I think she has changed the way we all think about the American dilemma of race."

Social psychology has a long history of studying stereotypes—it's been core to the field's interest for generations, says Hazel Markus, a professor in the Stanford social psychology department and a close colleague of Eberhardt's. But Eberhardt has helped move the field's focus from the people with biased attitudes to the people targeted by those biases, and she has found ingeniously simple but powerful ways to make the problems with stereotyping apparent.

"She was looking for a way to show elegantly the real consequences for people, [and] to show it in a way that would wake people up to the fact that, when you're the target of these stereotypes, it can be harmful, if not life-threatening," Markus says.



In one experiment, subjects were subliminally shown black or white faces, then asked to identify a blurry image as it came into focus over forty-one frames. On average, participants primed with black faces could identify a weapon nine frames sooner (middle-left) than those primed with white faces could (middle-right).

* * *

Eberhardt's acadademic study of race began more than two decades ago during graduate school at Harvard, where she initially focused on cognitive psychology, a discipline pertaining to how people acquire, process, and store information. It wasn't the right fit, and Eberhardt was looking for a new direction when she was struck by an experience she

had as a teaching fellow for a social psychology class.

She was giving the class a demonstration of the "fundamental attribution error," a well-documented tendency people have to explain the outcome of a situation by assigning undue credit to personality traits rather than external factors that may be at play. For example, a stranger snaps at you for bumping into him at a supermarket—the initial reaction may be to label him a jerk, when in fact his response may be the result of poor sleep, a recent death of a loved one, or severe stress at work.

Eberhardt asked a pair of students to play quizmasters. Each had to come up with 10 questions designed to stump two fellow classmates, who played the role of contestants. As intended, neither respondent knew more than a handful of the answers.

Afterward, Eberhardt asked the class to rate the sides for their level of general knowledge. Despite the obviously slanted playing field, observers of such scenarios—consistent with the fundamental attribution error—regularly rate the quizmasters, who know all the answers, higher than the contestants who struggle with them.

But that didn't happen this day. When Eberhardt asked the students to discuss the unexpected result, silence fell over the normally chatty class. Nobody wanted to mention what appeared to Eberhardt to be an obvious factor: As the result of drawing lots, the contestants had been white men, the quizmasters black women.

After ending the awkward discussion, she turned to the reading of the week on unconscious racism, which reignited discussion, with students decrying such behavior. "But no one connected these studies to what had happened at the beginning of the class period," Eberhardt later wrote in her dissertation. "No one wanted to personalize what was so easy to condemn in the abstract."

The experience inspired her dissertation, which examined the effects of bias on the fundamental attribution error, and foreshadowed the dominant theme of her career—the hidden ways in which race shapes outcomes, even in people who deny it influences them.

Looking back, Eberhardt says the subject of race first fascinated her when she was growing up as the youngest of five children in a predominantly African-American, working-class area of Cleveland called Lee-Harvard. Even as a small child, she instinctively zeroed in on the fact that race mattered, a realization that only amplified after her family moved to the mostly white suburb of Beachwood.

Her new home was a bike ride and a world away from her old neighborhood, a move enabled by her father, a mailman with an eighth-grade education who ran a successful side business in antiques and Tiffany glass.

Eberhardt guesses she might never have even gone to college if they'd stayed in Lee-Harvard. Her husband, Stanford law professor Rick Banks—who went to the same elementary school but was in the gifted class, which got far more attention—says the doggedness that defines her work

Jennifer Eberhardt

probably has roots in those days, when little was expected of her. (He would go off to a private school for middle and high school; the two later remet at Harvard.)

At Beachwood, by comparison, college seemed inevitable. There were better facilities, better teachers, and real expectations. Book smarts were no longer something to hide, she says; they were social currency. "People would choose their friends based on how smart they were," she says. "Stuff like that just didn't happen in my old neighborhood."

But it was also an early experience in feeling like a "race out of place," when she observed fundamental differences in how she and her classmates experienced the world. The disparities were blatant—her father and brothers were frequently pulled over by police—and subtle. When Eberhardt was in seventh grade, for example, soon after the move, her teacher asked the class to share their families' immigration stories.

As student after student told stories of their families leaving European countries, including tales of fleeing the Holocaust, Eberhardt's mind raced. Her own family's escape had been from the Jim Crow South. But Alabama and Georgia were clearly not countries. Neither was Africa, the other response that was twirling in her head.

In the end, she stood in front of the class and chose the answer she knew more about, Alabama and Georgia, to the laughter of her classmates. The other kids seemed to think she was joking.

"Because the worlds were so different, I just thought about race a lot and I thought about inequality a lot," she says. "I could suddenly see the place I had come from and sort of put it in a larger context."

* * *

From the beginning of her career at Stanford in 1998 (which she began as a non-tenure-track professor), the now-tenured Eberhardt has coupled scholarship with a drive to bring her research into the world, typically through novel collaborations with officials in the criminal justice system.

The conclusion seemed perverse: Someone seeking to mitigate racial disparities in sentencing might be best served by not pointing them out.

In 2004, with her reputation yet to be widely established, she organized an unprecedented conference at Stanford on racial bias in policing, bringing together scores of academics from across the country with law enforcement officials from thirty-four agencies in thirteen states.

"Somehow she got us all together, and she got these major city chiefs and sheriffs to show up with an open mind," says Jack Glaser, a social psychologist at UC-Berkeley. "She … made this opportunity, which just didn't exist before. I really don't know how she pulled it off."

Eberhardt's feat required not just bridging camps with little history of dialogue, but also disregarding the pressures of a profession not set up to reward hand-in-hand work with real-world practitioners. Her persistence, though, has borne fruit for her and others who have followed.

"There was not a field of social psychology and criminal justice, and then there was Jennifer Eberhardt, and then there was a field," says UCLA professor Phillip Goff, a former student of Eberhardt's and a collaborator on some of her most noted studies. "She made it possible for other folks to come after her."

He includes himself in that group. His work as cofounder and president of the Center for Policing Equity at UCLA, which fosters collaboration between police and social scientists, is riding the momentum Eberhardt created at the 2004 conference and again at a 2007 conference held at Stanford.

"She made it possible for those of us who cared about black lives to do work that was relevant to policy, but that social psychologists could recognize as their own," Goff says. "I can't even express to you how nontrivial that accomplishment is."

While other scientists have also made major advances in implicit bias research, it is Eberhardt who brought the science to police, says Fridell, who now heads her own business, which has trained law enforcement officers across the United States and Canada to recognize and mitigate their biases. "I wouldn't be doing this but for Jennifer Eberhardt."

Key to the training's appeal, Fridell says, is that it treats bias as a common human condition to be recognized and managed, rather than as a deeply offensive personal sin, an approach that makes cops less defensive. "They understand that it is a real issue with which they need to deal, but not because the profession is made up of ill-intentioned individuals with explicit biases (e.g., racists), but because the profession is comprised of humans," she said in an email.

Still, that very same message—the ubiquity of implicit bias—can lend an added grimness to Eberhardt's work. Racial bias against African-Americans isn't confined to the past or the South or police or even whites. It seeps into everything, a point Eberhardt sometimes uses personal anecdote to reinforce.

Eight years ago or so, she was flying back to California from Harvard, where her husband was teaching winter term, when the middle of their three sons pointed out a man he said looked like his dad.

Eberhardt was bemused. The stranger was probably the only black male on the plane, but he was crowned with long dreadlocks, not exactly a ringer for her decidedly bald husband. But before she could quiz him for the connection, the five-year-old added, "I hope he doesn't rob the plane."

Even with her vast knowledge of the insidiousness of bias, Eberhardt was floored. Her son grew up in one of the most educated areas in the country, watched little TV, and hardly seemed to notice race. And yet he had connected blackness and crime and his father, the parent he was probably closer to at the time.

"He didn't know why he said it. And he didn't know why he thought it," she says. "But at five, you already have what you need to come to that conclusion."

Eberhardt's radiant smile and easy laugh can make it seem she somehow rides above the implications of her findings. And indeed for a long time, Eberhardt would shrug off questions about how she deals with the bleaker aspects of her research.

But after she had given a lecture at San Quentin State Prison, an inmate serving a life sentence made her reevaluate. "He said, 'I am really happy you do the work you do, but I don't know how you do it—it's so depressing,'" she recalls. "Hearing it from that guy felt different. This is a guy who has a life sentence."

She began to realize she was feeling a toll, particularly after research for a 2008 paper she published with Goff and two others revealed persistent connections in people's minds between black people and apes. One part of the six-part study showed that in the same way that subjects identified images of guns more quickly when unconsciously primed with black faces, so could they pick out apes much sooner. The old racist trope had seemingly died out, a small sign of progress, but the experiments suggested the connection was still robust.

That realization led her to shift more of her energies from delineating the problem to finding solutions. "People need to have hope," she says.

Eberhardt has been heavily involved with the Oakland Police Department—to the point that she's almost embedded, says Assistant Police Chief Paul Figueroa. She attends staff meetings, gives feedback, tracks data, and provides training.

Her work raising awareness at the department about implicit bias has contributed to changes that include a new policy for foot pursuits. Rather than follow a suspect into a backyard, Figueroa says, officers are now supposed to wait for backup, reducing the chances of a high-adrenaline confrontation in which biases can surface unchecked.

"If we slow down and take our time and go in very slowly and methodically, we put everyone in a safer position," he says.

Figueroa is eager for the results of one of Eberhardt's most ambitious projects. She and her colleagues are analyzing footage of thousands of encounters recorded with officers' body cameras in an attempt to parse the behaviors that lead to positive outcomes from those that spiral into problems. Such scrutiny can be uncomfortable, Figueroa says, but it's worth the investment in the future.

"For the first time in history, we'll be able to see firsthand how police officers make contact with the public and how those interactions unfold in real time," Eberhardt says. "And we'll soon be in a position to design interventions that can directly affect the course of those interactions."

She is also working with Oakland and Stockton police and California Attorney General Kamala Harris to develop statewide training on implicit bias that can be measured for efficacy over time. And President Obama's Task Force on 21st Century Policing issued a report that quotes her testimony in its call for implicit bias training at all levels of law enforcement.

"I think we're going to find in the next few years that the standard will become that officers start learning about implicit bias when they are recruits," says Magnus, the Richmond police chief. He credits Eberhardt for pushing for the change. "She has really helped advance the discussions and put it in the framework of science, which takes a lot of the emotion out of it."

Not everyone buys the idea of racial bias being an unconscious problem, Magnus says; some believe it should be viewed as a more deliberate form of discrimination. And some community members have questioned whether implicit bias isn't just convenient cover for racist behavior.

Scientists like Goff say that's not the case. "You will never hear me say, 'It's implicit so it's not your fault,'" he says. "You are still in control of your behavior."

Still, Eberhardt says focusing only on individual instances of racism, on getting rid of the "bad people," won't solve the problem. There needs to be an emphasis on reforming cultural and institutional environments that promote bias—for example, by fixing policies that create racial discrepancies in hiring or incarceration. "Bias can grow organically out of that," she says.

"Because the worlds were so different, I just thought about race a lot and I thought about inequality a lot," Eberhardt says.

During a lecture at Stanford in April 2015, while standing under an image of Tamir Rice, a twelve-year-old who was shot and killed by police in her hometown of Cleveland, Eberhardt made explicit the connection between her research and the events roiling the nation. The recent protests and tumult in response to police killings, she said, are part of the cost of not seeing—the price of our blindness to bias.

"All over this country, black people are still finding themselves in situations where they feel the state does not fully protect them, where they feel the state does not fully register their pain," she said.

But she does see signs of progress, from new policies to new training to a greater attention and openness to the problem. Less often there's denial. That awareness enables incremental change.

"I always knew I wasn't going to be the person who made a difference because I had the loudest voice. … I wasn't going to make a difference from litigation or from protesting," she says. "I felt like through the research I could make a difference." ■

Sam Scott is a freelance writer. This article originally appeared in *Stanford Magazine*, published by the Stanford Alumni Association, and is reprinted by permission.

In What Version of Evolution Do You Believe?

Despite our strong scientific understanding of organic evolution, many introduce unfounded beliefs to create a hybrid view of evolution that is unscientific and should not be taught in science classrooms.

DAVID ZEIGLER

> Evolutionary science deserves to be better understood.
>
> —Lynn Margulis

> The true Darwinian explanation of our existence is still, remarkably, not a routine part of the curriculum of a general education. It is certainly very widely misunderstood.
>
> —Richard Dawkins

Before the reader complains: yes, the word *believe*, as in taking something on faith, is appropriate to the title because it is clear that many who say they "accept" evolution do in fact believe in a version of evolution that is not empirically based. It is true that even scientists "believe" that empirical objective evidence gives the most accurate information concerning the nature of the physical universe. Though some philosophers disagree with this stance, I assure you that even the most ardent idealist looks both ways before crossing a street.

We know the term *evolution* can be broadly taken to mean simply change, as in the evolution of the automobile, the evolution of fashion, or the evolution of our view of evolution. But when scientists/biologists use the word *evolution*, it is organic evolution with common descent that comes to mind—Darwinian evolution to be precise. Today evolution is well understood to be the result of several naturalistic mechanisms such as natural selection, genetic drift, horizontal gene transfer, endosymbiosis, and others. Some in the intelligent design and creationist camps accept evolution in varying degrees, even with common descent, but always with the provision that God directed evolution (in some unexplained way) according to "his" designs for life. These believers have of course been especially active in recent decades, as they probe every possible legal opening to get their equal time in the science classroom, though they still have no scientific evidence for their positions. We know, for example, that mutations are essential to evolution over the long haul, and evidence suggests that mutations are *random* changes in the genome. If a supernatural being caused specific mutations to occur at "appropriate times" to bring about his desired results, how would we know? It is clear that there is no way to substantiate that particular past mutations, horizontal gene transfers, endosymbiotic events, or selective deaths of the unfit were the result of supernatural forces. More parsimoniously, they were natural occurrences requiring no special push from a god.

Surveys regularly report that over 90 percent of people believe in some form of a god or gods, and at least half that number (in the United States) say they accept evolution. It is probably a safe assumption that religious people by and large believe that humans are an important and planned part of their god's creation. In short, a great many people who claim to accept evolution actually believe in evolution through divine guidance to create not only humans but likely most of the other life forms familiar to these believers. There is of course a major catch to this position—this is definitely not Darwinian evolution by random mutation and natural selection and therefore not the accepted scientific explanation for evolution.

Darwin's explanation of natural selection was simple, yet for some it is singularly difficult to fully grasp in its implications. Natural selection, though not the only cause of evolution, is still agreed by most biologists to be the major agent (along with mutation) of obvious evolutionary change, and the main point of natural selection is that it adapts species to survive and achieve genetic fitness within their local environments—*and nothing more*. In other words, there are no long-range teleological trends or directions to evolutionary change; no goals of design, complexity, or intelligence are inherent in the evolutionary process. For some, Stephen J. Gould's major lesson in his many eloquent writings was his continued emphasis on this important point. As he put it: "We are glorious accidents of an unpredictable process with no drive to complexity" (Gould 1996).

Other workers have also made this point: "Life is not oriented towards increasing complexity, nor is it fated to become ever more complex" (Meinesz 2008). Some disagree with this point because obviously life for the first half of Earth's history consisted only of various microbes yet now contains blue whales and oak trees. But as has been pointed

out by many, when you start out simple, one of the few paths open for innovating and adapting is to become more complex, principally by accidental gene duplications that enlarged the genomes of some lines, and in some of those lines by actual increases in structural complexity. However, some amoebas have vastly larger genomes than humans, and some multicellular lines, such as the ancestors of yeast, have simplified their morphology "back" to the unicellular level (and there are several other examples of this type of simplification having occurred). Evolution has been characterized almost as much by loss of complexity as by its increase, with much of biodiversity remaining simple for the whole scope of evolutionary history. The vast amount of biodiversity is likely to be still confined to microbes (certainly they represent the largest percent of standing biomass), so the evolved complexity of a few lines does not define a trend in evolution, only a likely consequence of life adapting to ever diverse environments. There is certainly no evidence of a *drive* (as Gould put it) toward complexity in the evolutionary process.

Darwinism evolved with the Neo-Darwinian Synthesis into a process of genetic change in populations, still driven mainly by natural selection. This—along with several more recently recognized phenomena such as genetic drift, neutral evolution, gene duplication, gene deletion, lateral gene transfer, and endosymbiosis—is the evolution most biologists now *understand and accept* (as opposed to *believe*). To suggest that metaphysical plans, goals, or directions affected any point in the evolution of life is a nonscientific version of evolution that obviously should not be covered in science classrooms except possibly as an example of how some people have blended their religion and science to form their hybrid "belief" in evolution—a belief that is not truly neo-Darwinian or empirically supported.

An essential point worth remembering is that natural selection is fundamentally a negative process that eliminates the relatively unfit, not a positive force selecting some preferred trait or form (Mayr 1997). Natural selection is in short a weeding out of the unfit—those less able to survive and reproduce than others of their species. Of course vast numbers of the simply unlucky are also eliminated. We may never know whether over 99 percent of the species that ever lived are extinct due to selective pressures or to bad luck (undoubtedly some of both), but either way the graveyard of species is beyond imagining. Also, across all species an average 95 percent or more of each new generation is eliminated early in life by lady luck or by selection's harsh hand. It would seem difficult to accept that a "higher power" would use such cruel and wasteful methods for bringing us (or any species for that matter) into being. It has recently become clear that even within the human family Hominidae, our family tree was "pruned" of at least ten to fifteen species in the past five million years leaving only one (the "chosen" one?).

Given the time span we know earthly life has existed, and the incomprehensible number of generations separating us from life's common ancestor, how many times would a god have had to step in and adjust the course of evolution to have given rise to humans or to any other of the "higher" species? The answer would likely be at a minimum somewhere in the millions. For a god to "steer" evolution from the first eukaryotic cells to any one of the more complex life forms would surely require far more "corrections" than a car would require in driving from Boston to Miami. To understand Darwinian evolution and then allow that metaphysical forces may have controlled the process to this extent is to subvert the explanatory heart of Darwinism by making the scientific unscientific.

So what about teaching evolution? In the science classroom, I believe that only our empirical understanding of evolution should be taught, because that is science, and it takes some time to explain the mechanisms and timeline of evolution. I can't imagine how one could give equal time to the creationist/intelligent design alternatives since there is no objective evidence to present for those viewpoints. As for the strict Biblical creationist myth, all available evidence contradicts it. As for the intelligent design position that holds that a higher intelligence guided evolution over the long history of our planet to achieve certain results, while this admittedly could be the case, there is no direct evidence supporting that belief. So, as for either of these two alternative views, there is really nothing here to teach in a science classroom.

Evolution has been characterized almost as much by loss of complexity as by its increase.

Our knowledge of evolution is a huge body of work that has been hard won by many brilliant workers. It deserves to be covered and covered well as an essential part of our children's education. George Gaylord Simpson wrote, "I do not think that evolution is supremely important because it is my specialty. On the contrary, it is my specialty because I think it is supremely important" (Simpson 1964). If biology teachers everywhere would take this thought to heart and continue to strengthen their knowledge of evolution, the creationists would have a hard time in their efforts to chip at the empirical foundations of evolution. They are exceedingly strong foundations. ■

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Daryl Bem and Psi in the Ganzfeld

SUSAN BLACKMORE

Stuart Vyse's (2017) article about Daryl Bem and p-hacking was disturbing. The most serious implication is that Daryl Bem, a famous and well-respected psychologist, has been guilty of "an unethical manipulation of data in search of statistical significance" to support claims of the paranormal. Such manipulation is especially serious in this field for three reasons.

1. If evidence for the paranormal were found, the implications for the rest of science would be profound.

2. There is very little evidence for the paranormal—and Bem's claims are frequently cited as providing it.

3. Many people believe in the paranormal and look for evidence to back up their belief. If a researcher as respected as Bem claims there is reliable evidence, many people will be convinced, with serious consequences for the public understanding of science.

The most serious implication is that Daryl Bem, a famous and well-respected psychologist, has been guilty of "an unethical manipulation of data in search of statistical significance" to support claims of the paranormal.

I have further reasons for worrying about Bem's claims, in addition to those reported by Vyse.

In 1979, the Society for Psychical Research gave me a small grant to visit Carl Sargent's laboratory in Cambridge. His research was providing dramatically positive results for ESP in the Ganzfeld and mine was not, so the idea was for me to learn from his methods in the hope of achieving similarly good results. The story of that visit is terribly depressing, as I described in an article and book (Blackmore 1987; 1996). After watching several trials and studying the procedures carefully, I concluded that Sargent's experimental protocols were so well designed that the spectacular results I saw must either be evidence for ESP or for fraud. I then took various simple precautions and observed further trials during which it became clear that Sargent had deliberately violated his own protocols and in one trial had almost certainly cheated. I waited several years for him to respond to my claims and eventually they were published along with his denial (Harley and Matthews 1987; Sargent 1987).

By then, the "Great Ganzfeld Debate" was under way, in which skeptic and psychologist Ray Hyman carried out a meta-analysis of the forty-two published Ganzfeld experiments (Hyman 1985). Meta-analysis allows one to compare the results of many experiments, to find an overall effect size, to detect common patterns, and (of most relevance here) to test whether the overall effect can be attributed to flaws in the experiments. Hyman argued that many of the studies were flawed, and that the better the quality of the study, the smaller the apparent psi effect. Nine of the studies were Sargent's.

Chuck Honorton (1985), originator of the Ganzfeld-psi experiments, then did his own analysis, using just twenty-eight of the forty-two studies (those that reported the number of direct hits). He concluded that there was a reliable effect that did not depend on any one experimenter and was not related to the quality of the study. This seemed to be good evidence for the reality of psi in the Ganzfeld and to show that Hyman was wrong.

What worried me was that Honorton had classified all of

Sargent's nine studies as "adequate for randomization" (one of several possible flaws considered). But seven of these nine studies had used the method I observed in Cambridge. So I repeated Honorton's calculation counting these seven as flawed for randomization. I found a significant correlation ($r=-.32$, $t=1.73$, $p<.05$, 1-tailed) between randomization and z-score, therefore agreeing with Hyman. I submitted a brief comment on this to the *Journal of Parapsychology* in January 1987. In February, the editor accepted it for publication, but in May the following year, he wrote to say that they were behind schedule and unable to publish it after all.

Meanwhile, the debate led Honorton to design the "autoganzfeld" experiments, using a completely automated procedure (Honorton et al. 1990). The methods appeared to be rigorous and the results from several labs were significant, with the effect not depending on any one experimenter or lab. Later criticisms followed, including suggestions that sensory leakage might have occurred with this method (Wiseman et al. 1996), and the Ganzfeld debate continued (Milton and Wiseman 1999; Storm and Ertel 2001).

Later criticisms followed, including suggestions that sensory leakage might have occurred with this method, and the Ganzfeld debate continued.

All this assumed greater significance when Honorton began working with Daryl Bem on a review of the Ganzfeld literature. This was published in 1994 in the prestigious psychology journal *Psychological Bulletin*, where it was presumably read by psychologists ignorant of the past history of the subject. They presented the same meta-analysis and the same autoganzfeld data and concluded that "the psi ganzfeld effect is large enough to be of both theoretical interest and potential practical importance" (Bem and Honorton 1994, 8).

They also admitted that "One laboratory contributed nine of the studies. Honorton's own laboratory contributed five. ... Thus, half of the studies were conducted by only two laboratories" (Bem and Honorton 1994, 6). But they did not say *which* laboratory contributed those nine studies. Even worse they did not mention Sargent, giving no references to his papers and none to mine. No one reading their review would have a clue that serious doubt had been cast on more than a quarter of the studies involved.

I have since met Bem more than once, most recently at one of the Tucson consciousness conferences where we were able to have a leisurely breakfast together and discuss the evidence for the paranormal. I told Bem how shocked I was that he had included the Sargent data without saying where it came from and without referencing either Sargent's own papers or the debate that followed my discoveries. He simply said it did not matter.

In his article, Vyse gives a quote from an interview in *Slate* magazine in which Bem describes his experiments as "rhetorical devices" and says he didn't worry about replication: "I gathered data to show how my point would be made. I used data as a point of persuasion." This, chillingly, reminded me of Carl Sargent telling me that it wouldn't matter if some experiments were unreliable because, after all, we know that psi exists.

But it does matter. It matters that Sargent's experiments were seriously flawed. It matters that Bem included these data in his meta-analysis without referencing the doubt cast on them. It matters because Bem's continued claims mislead a willing public into believing that there is reputable scientific evidence for ESP in the Ganzfeld when there is not. ■

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Medical Misinformation in the Media: *Is* Anorexia on the Rise?

Are eating disorders on the rise? One widely cited statistic claims so but falters under scrutiny. Here is a case study of flawed information presented by a prominent eating disorder information organization.

BENJAMIN RADFORD

When completing my master's degree in science and the public (through the Center for Inquiry and SUNY-Buffalo), I chose eating disorder misinformation as the subject of my thesis. This was important to me for several reasons, including that it involved several of my longstanding interests such as myths and misinformation (a typical skeptical subject); eating disorders (a subject I first became involved with when helping an ex-girlfriend struggle with bulimia); and the news media (the subject of my 2003 book *Media Mythmakers: How Journalists, Activists, and Advertisers Mislead Us*).

I wanted to understand and explain the processes by which valid scientific information about these important health disorders got translated—and often mistranslated—between clinical researchers and the public, mediated by eating disorder information clearinghouses (such as the National Eating Disorder Association), news journalists, and activist filmmakers.

Misinformation about eating disorders is not like misinformation about a car's gas mileage or the weather. Eating disorders are mental illnesses with potentially lethal consequences. Sufferers and their loved ones deserve accurate, up-to-date information about the diseases, but upon closer inspection, trusted sources of information often turn out to be not so trustworthy. This important topic has received little or no attention in the mainstream media and, to the best of my knowledge, in academia. Part of this may be because the problem of eating disorder misinformation is multidisciplinary and includes journalism, public education, media literacy, science literacy, medicine, and psychology. Here I discuss one case study of flawed and misleading information about eating disorders presented by one of the largest and most prominent eating disorders information clearinghouses, the National Eating Disorders Association.

A brief overview of anorexia is helpful. Anorexia is diagnosed using criteria in the *Diagnostic and Statistical Manual of Mental Disorders*, issued by the American Psychiatric Association. They are: refusal to maintain body weight at or above a minimally normal weight for age and height; intense fear of gaining weight; disturbance in the way one's body weight or shape is experienced (especially undue concern of body weight on self-evaluation); and amenorrhea (lack of normal menstrual cycles).

The most reliable estimates of anorexia place the average prevalence rate (the total number of cases in the population) for young females at 0.3 percent for anorexia nervosa (van Hoeken et al. 2003, 11), and "A mean incidence [the number of new cases in a population over a year] in the general population of 19/100,000 a year in females and 2/100,000 a year in males . . . estimated from twelve cumulative studies" (Treasure and Schmidt 2004). In other words, out of every 100,000 females in a given year, nineteen of them will develop new cases of anorexia, an incidence of 0.00019. By comparison, schizophrenia is about three times as common in the United States.

The National Eating Disorders Association

In a press release issued by the National Eating Disorders Association (NEDA) for National Eating Disorders Awareness Week (February 24–March 2, 2013), the NEDA included a section titled "U.S. Statistics on Eating Disorders."

It included statistics such as "There has been a rise in incidence of anorexia in young women 15-19 in each decade since 1930" and "The rate of development of new cases of eating disorders overall has been increasing since 1950."

There was no citation or reference attached to the statistics, so I contacted a spokeswoman for NEDA inquiring where that data came from. I received the following reply from spokeswoman Kelly Williams of NEDA: "Here is the source for that statistic. Hoek, H.W., and van Hoeken, D. 2003. Review of the prevalence and incidence of eating disorders. *International Journal of Eating Disorders*, 383–396." The journal article was not included as an attachment, but I soon located the paper. A careful review of the cited study found that the quoted information did not in fact appear; however, the following passage seemed to be closest to the statistic offered by the NEDA: "Lucas et al. (1999) reported an incidence of 73.9 per 100,000 person-years for 15–19-year old women over the period of 1935–1989, with a continual rise since the 1930s to a top rate of 135.7 for the period 1980–1989." This seemed to be the most relevant statistic. It seems that the correct citation should not be Hoek, H.W., and van Hoeken, D. (2003), since the research does not appear in that study and is merely referenced in it, but should instead be Lucas, A.R., Crowson, C.S., O'Fallon, W.M., et al. (1999). The ups and downs of anorexia nervosa. *International Journal of Eating Disorders*, 26, 397–405.

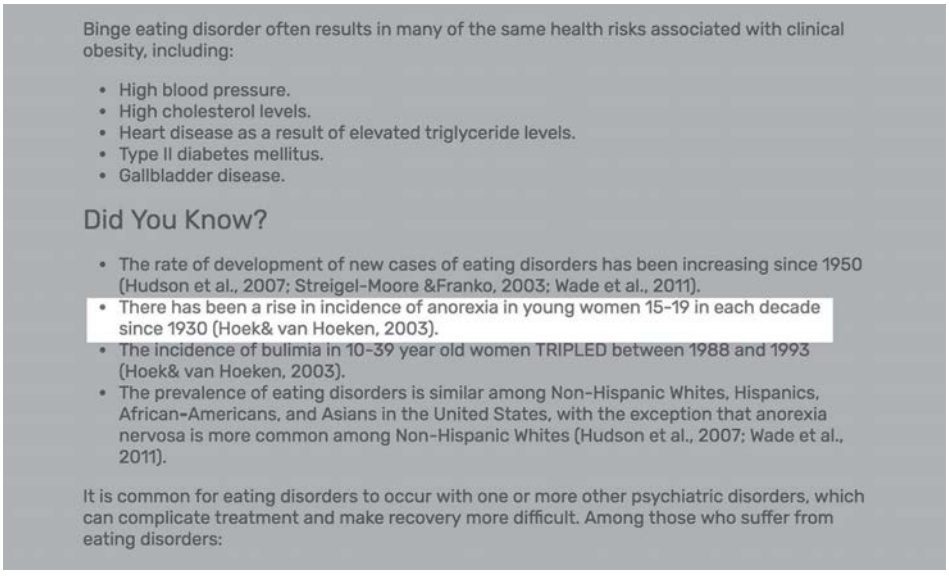
However, there remained two other problems with the statistic cited by the NEDA. First, the date is incorrect; the Lucas (1999) research began in 1935, not 1930 as stated in the information provided by the NEDA (and which also appeared on their website). Second, that Lucas study is quoted within a more recent study (van Hoeken et al. 2003) which actually *contradicts its conclusions*. Van Hoeken et al. concluded that "The incidence of anorexia nervosa increased over the past century, *until the 1970s*" (p. 383, emphasis mine). They also state that:

> There has been considerable debate regarding whether the incidence of eating disorders is, or has been, increasing. Various studies have reported diverging incidence rates, which may be due to methodologic problems. . . . The debate still continues about the extent to which there has been an increase in the true incidence (i.e., the incidence in the community) of anorexia nervosa in the 20th century. (388)

If it's true, as van Hoeken et al. state, that there is legitimate and "considerable debate regarding whether the incidence of eating disorders is, or has been increasing," then why is that uncertainty not reflected in the National Eating Disorders Association statistic?

The Lucas study involved 174 women with "definite" or "probable" cases of anorexia nervosa (along with forty-three "possible" cases). Of this relatively small sample, 93 percent of the participants were white women with an average age at diagnosis of 21.5. It's not clear why this study (of fewer than 200 white Minnesotan women) was selected by the NEDA out of all the corpus of research available to represent a statistic about the incidence of anorexia nervosa in the general population of the United States.

This raises another question: If it's true, as van Hoeken et al. (2003) state, that there is legitimate and "considerable debate regarding whether the incidence of eating disorders is, or has been increasing," then why is that uncertainty not reflected in the National Eating Disorders Association statistic? The statistic is offered as established fact—not one of


Binge eating disorder often results in many of the same health risks associated with clinical obesity, including:

- High blood pressure.
- High cholesterol levels.
- Heart disease as a result of elevated triglyceride levels.
- Type II diabetes mellitus.
- Gallbladder disease.

Did You Know?

- The rate of development of new cases of eating disorders has been increasing since 1950 (Hudson et al., 2007; Streigel-Moore &Franko, 2003; Wade et al., 2011).
- There has been a rise in incidence of anorexia in young women 15-19 in each decade since 1930 (Hoek& van Hoeken, 2003).
- The incidence of bulimia in 10-39 year old women TRIPLED between 1988 and 1993 (Hoek& van Hoeken, 2003).
- The prevalence of eating disorders is similar among Non-Hispanic Whites, Hispanics, African-Americans, and Asians in the United States, with the exception that anorexia nervosa is more common among Non-Hispanic Whites (Hudson et al., 2007; Wade et al., 2011).

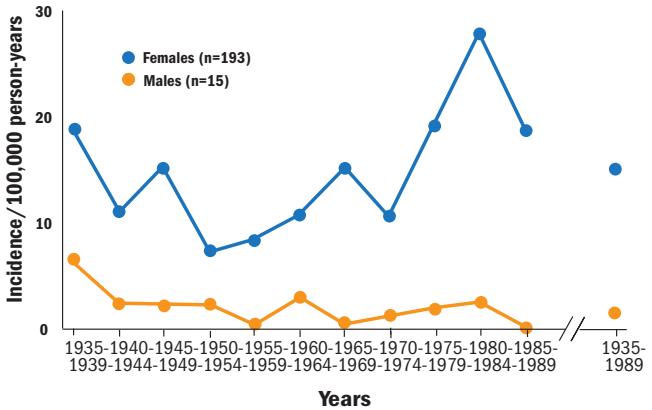
It is common for eating disorders to occur with one or more other psychiatric disorders, which can complicate treatment and make recovery more difficult. Among those who suffer from eating disorders:

Anorexia statistics offered by the National Eating Disorders Association about the incidence of anorexia nervosa.

many contradictory studies. In science, it is of course common to have at least some published studies supporting contradictory hypotheses. For this reason, researchers addressing the overall weight of the research—the direction of evidence over dozens or hundreds of studies—are urged not to cherry-pick a few studies and present them as representative of the body of literature but instead to present examples of research both supporting and refuting a given hypothesis. To do otherwise is, at best, biased and sloppy research.

The van Hoeken study comes to a significantly different conclusion about the incidence of anorexia than the statistic that was pulled out of it: "the incidence of anorexia nervosa increased over the past century, until the 1970s" cannot be reconciled with "There has been a rise in incidence of anorexia in young women 15-19 in each decade since 1930," and certainly not as it relates to the time frame from the 1970s to the present. A 2012 review of literature on the topic (Torres et al. 2012) notes that "the majority of research invalidating the increase of AN [anorexia nervosa] date from a more recent period. . . . In summation, after thorough review of the clinical research, we consider a position either for or against an increase in incidence of AN as speculation" (9). They conclude that "A substantial controversy exists as to whether or not AN is increasing. . . . The most recent studies suggest that the incidence of severe cases had increased over the past century, peaking in the 1970s, with a plateau from then to the present day" (16). If the incidence of anorexia nervosa has remained the same for at least the past thirty to forty years, then claims of an annual increase in the disease each year are clearly incorrect. In fact, Torres et al. (2012), in reviewing the research by van Hoeken et al., note that "an overall analysis of these and other studies led the authors to conclude that there was insufficient evidence of an increasing risk of AN during the 1980s compared to the 1970s" (9).

If the incidence of anorexia nervosa has remained the same for at least the past thirty to forty years, then claims of an annual increase in the disease each year are clearly incorrect.



Age-adjusted incidence rates for anorexia nervosa in 208 male and female Minnesota residents. Adapted from Lucas et al. (1999).

To help clarify the issue, I contacted a leading eating disorder researcher, Dr. Cynthia Bulik, director of the University of North Carolina Eating Disorders Program and coauthor of *Decoding Anorexia: How Breakthroughs in Science Offer Hope for Eating Disorders*. She told me, "We actually have fairly poor epidemiological data. Overall the prevalence of anorexia is fairly stable across time and Western populations" (Bulik 2012). Echoing Bulik's assessment, recent data suggest that rates of eating disorders generally (and anorexia specifically) have remained the same or dropped in the past decade. A 2011 review found that patient hospitalizations with a principal diagnosis of an eating disorder dropped 23 percent in 2008–2009 (after peaking in 2007–2008), and that the percentage for all eating disorders "declined from 24 percent to 19 percent between 2007–2008 and 2008–2009" (Zhao and Encinosa 2011).

A closer look at the Lucas et al. (1999) study, which was apparently the source for the NEDA statistic that "There has been a rise in incidence of anorexia in young women 15-19 in each decade since 1930," reveals instead that there is no data presented "since 1930," and though the researchers note that "in both genders, the age-specific incidence rates were greatest for the age group 15–19 years" among the groups they studied, nowhere do they state or suggest that there has been a rise in incidence of anorexia among young women aged 15 to 19 that has been increasing each decade. The NEDA's statistic—presented to the public as accurate, authoritative information about the incidence of anorexia—seems to be a Frankenstein-like amalgamation of phrases, categories, misread (or mis-typed) dates, and numbers taken out of context.

Elsewhere on its website on the "Anorexia: Overview and Statistics" page (https://tinyurl.com/og84zdb), the NEDA apparently again references the 1999 Lucas et al. study with this statistic: "An ongoing study in Minnesota has found incidence of anorexia increasing over the last 50 years only in females aged 15 to 24. Incidence remained stable in other age groups and in males." Users of the website—laypeople and journalists searching for information on eating disorders in 2017—would reasonably assume that NEDA's reference to anorexia increasing "over the last 50 years" refers to the past half-century, or about 1967 to the present (allowing, of course, for the fact that statistics on websites may be a few years out of date). However, as noted the Minnesota study covered fifty-five years (1935 to 1989) and offered no information

about anorexia incidence over the past three decades. In fact, that study noted that "for females of all ages, there was a fall [in anorexia rates] in 1985–1989 from the highest rates observed in 1980–1984" (401).

In fact, contrary to the NEDA's statistic, the Lucas et al. study states explicitly that "the rapid increase in anorexia nervosa seen from 1970 to 1984 *has not been sustained*" (403, emphasis added). Thus, even assuming that the findings of increased incidence of anorexia from 1970 to 1984 were valid, the authors state that the rate dropped or remained the same from at least 1984 onward. It's not clear why the National Eating Disorder Association offers no data on the incidence of anorexia over the past thirty-three years (1984 to 2017); surely more recent studies have emerged showing that the disease has either increased, decreased, or stayed the same. As with other sources of misinformation about eating disorders, this NEDA statistic has been widely repeated and referenced in other eating disorder books, including in reference materials destined for middle schools (see, for example, Sonenklar 2011). An August 2017 Google search for that statistic yielded about 612,000 hits, mostly from reputable, academic sources.

As for NEDA itself, I asked NEDA specifically about the error and was sent more information, which also had the error. Kelly Williams emailed me: "Thanks for sending your findings. I forwarded to the person in charge of stats at NEDA." That was in 2013. The wrong statistic still appears on the NEDA website today, years after I called attention to it.

Conclusion

In my research into eating disorder misinformation, I found many examples of flawed, misleading, and sometimes completely wrong information and data being copied and widely disseminated among eating disorder organizations and educators without anyone bothering to consult the original research to verify its accuracy. While this tendency is understandable and common, in many cases the information is made available through prestigious publishers. Peer-review and academic editors help minimize glaring errors by authors in scientific and medical journals, but mainstream book publishers are another matter. Editors for publishers such as Knopf and Random House are far more likely to employ fact-checkers for books on topics such as hard science than on social science. As with many subjects, eating disorder misinformation tends to creep into the public sphere where editorial vigilance is the lowest. Because expectations for factual accuracy and thorough scholarship may be relaxed for books written by nonspecialist writers about popular culture, opinion, and activism, misinformation is more likely to appear there than in eating disorder textbooks written by researchers and experts.

Many sources of eating disorder information feel that the responsibility to fact-check the information they provide falls in someone else's purview: Scientific researchers, for example, rue the fact that journalists often misquote them but make little effort to correct the record. Writers and documentary filmmakers plagiarize statistics from other sources, assuming that someone somewhere must have verified the information. Because of this, the task of ensuring the accuracy and validity falls through the cracks.

The misinformation about eating disorders—spread by the National Eating Disorder Association—is unfortunately only one of many trusted sources of information that have spread myths instead of facts; others include the award-winning PBS television series *Nova* (see Radford 2015), bestselling books, and mainstream news media. For more on this problem, please see my master's thesis, "Misinformation in Eating Disorder Communications: Implications for Science Communication Policy," available for free at http://pqdtopen.proquest.com/pqdtopen/doc/1460763167.html?FMT=ABS. ■

In my research into eating disorder misinformation, I found many examples of flawed, misleading, and sometimes completely wrong information and data being copied and widely disseminated among eating disorder organizations and educators.

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Let's be SHARPs Together: The Need for a New Umbrella Term

DAVID TYLER and GARY BAKKER

Two things that serve to maintain morale, focus, and motivation within the "community of reason" are its comparative unity and its growth over the past century, in particular within educated, affluent, liberal, democratic communities. This relative unity contrasts with the bickering, arbitrary schisms—and even bloodshed—among various religions around the world.

While supernaturalists' criteria for truth, sources of knowledge, and philosophical positions vary widely, wildly, and arbitrarily, this quietly emergent community of reason, bolstered by extraordinary successes in hundreds of technical, medical, and other scientific endeavors, is in overwhelming agreement as to the sources of true knowledge.

While theists murder each other over how an allegedly sacred text should be interpreted, atheists join various (overlapping) groups or subscribe to parallel publications according to their individual interests or preoccupations. Those focused on ethics in society and improving people's lives tend to join humanist organizations. Those concerned with pseudoscience and the spread of belief in the paranormal will read or contribute to skeptical magazines. Those upset over the continuing harmfulness and absurdity of the world's religions contribute to online atheist forums, and so on.

All terms used to date to describe members of "the community of reason" have been seriously problematic for various reasons. We propose a new, positive, meaningful (but not distastefully arrogant) one: the acronym SHARPs, to encompass anyone who identifies as a skeptic, a humanist, an atheist or agnostic, a rationalist, or a positivist.

But these variously labelled positions ultimately form an internally consistent whole, perhaps because they can be largely reduced to two interrelated core propositions: (a) that the natural world is the only world there is; and (b) that the scientific method, incorporating reason and observation/experiment, is the best—and perhaps only—way to derive generalized knowledge about the world.

A gamut of cross-consistent philosophical positions emerges, dissolving almost all of the philosophical—let alone theological—arguments and issues of the past 3,000 years. These subsumed positions include: atheism or agnosticism, empiricism, freethinking, hard determinism, materialism/physicalism, moral relativism, plus utilitarianism and consequentialism, naturalism, positivism, rationalism, secular humanism, skepticism, and others, depending entirely on precisely how they are defined.

Because the terms on this list have arisen partly from common or general usage (e.g., *skeptic*) and partly from philosophical discourse (e.g., *rationalist*), and not from a consistently developed scientific discipline, their definitions and connotations remain imprecise and debatable. This means that those who cleave to this poorly described but inherently uniform community of reason are often misperceived as diverse, amorphous, or arbitrary. How often is atheism, for example, dismissed as "just another belief system," akin to baldness being described as just another hair color?

The position of most scientists is not a hodgepodge of philosophical stances cobbled together after years of pointless word games; it is instead a consistent set of assumptions about the world *that works*. This is one good reason to select a general umbrella term to replace what this commentary has self-consciously and clumsily thus far referred to as the community of reason. We have used this clunky term for want of a better one.

But there are many other reasons we need a collective signifier. Each of the subsumed terms is not only poorly defined or understood in the general population (especially *rationalism*), but many of them have acquired unjustified negative connotations and uses. For example, atheists by definition *lack* something or are equated with antitheists. Skeptics are often mistaken for cynics, "truthers," or conspiracy theorists. Materialists are assumed to be greedy. Rationalists have either no

profile in the general population or appear to be implying that everyone else is *ir*rational.

The splintering of the community of reason into interest groups has resulted in a rich array of publications, which is a boon in populous and wealthy nations but has meant that in smaller markets only one aspect of the complex of interests is likely to be represented, if that. Similarly, many countries or towns can support one skeptical or humanist or atheist or rationalist organization or meet-up group, but not two or three, which means that few reach a critical mass.

The need for a new umbrella term with positive connotations has long been recognized. In 2003, Paul Geisert and Mynga Futrell coined the term *bright* to encompass all those who hold and promote a naturalistic worldview. Although over 78,000 people are claimed to have joined their Internet-connected group, the term itself has not taken off in general discourse, in relevant publications, or as a group signifier.

This may be largely attributable to its unfortunate connotations of arrogance, as it strongly implies that everyone else is stupid or dim. In seeking a positive word comparable to the term *gay*, the choice of *bright* was described at the time as "cringe-making" in its conceit (Christopher Hitchens), a "backfire" (Chris Mooney), and "smug, ridiculous, and arrogant" (John Allen Paulos).

The term proposed here, one that has a positive but less arrogant flavor and is also less arbitrary, is the acronym SHARP. The letters here represent five of the most commonly cited positions among the communities of reason as indicated by the names of particular organizations, websites, and journals and magazines. Signified are: Skeptics, Humanists, Atheists, Rationalists, and Positivists.

This selection from the extensive list of descriptors/positions given earlier is of necessity somewhat arbitrary, due to the vagueness of many of the definitions, and the near-equivalence of some, such as between Rationalism and Positivism.[1] But most current organizations and publications are represented, and a convenient acronym has emerged without undue contrivance.

Although positive, SHARP is less arrogant and aggressive than *bright*, since its opposite is most comfortably *blunt* (rather than *stupid* or *dim*), which can aptly imply that opposing arguments, beliefs, and positions are crude, and without nuance, complexity, balance, finesse, or subtlety. Answers to the question "Why?" can be on the one hand hard-earned, complex, precise, supported, solid, and scientific (i.e., sharp), or on the other hand simplistic, broad, and blunt, as in "Because it just is" or "Because God made it so"—very blunt instruments indeed.

That the term is depicted in capitals emphasizes its acronymic roots, and further makes it a special, technical, newly defined term, rather than an arbitrarily selected boast. We suggest that it will remain capitalized to maintain this distinction, as has occurred with AIDS (but not with dink—a couple with a "dual income, no kids").

Although the roots of the new collective term lie in the names of some philosophic positions, it does not itself describe a specific philosophical viewpoint. There is no "SHARPism." It describes a general worldview, and the community of people who share this worldview. There are people who are SHARPs (the noun), and there are SHARP (the adjective) organizations, journals, conferences, and websites.

Within this SHARP community, there will inevitably be a diversity of emphases and interests among the individual members. Hence subgroups will continue to function under the general umbrella. But it will be more possible for a critical mass to form when these groups come together for a SHARP conference, or to meet monthly in the pub, or on a special interest SHARP website, or to publish a local newsletter.

Although the roots of the new collective term lie in the names of some philosophic positions, it does not itself describe a specific philosophical viewpoint. There is no "SHARPism."

Members of the gay community represent a spectrum of individual lifestyles reflective of the diversity of that community, but they are united by one common characteristic—in this case, their sexuality. Similarly, the SHARP community is in many ways diverse, but its members also share an important commonality. That unified view is a rejection of the notion that supernatural forces are at play in the universe, and a recognition that the laws of nature, albeit imperfectly understood (but capable of being understood), govern our existence. Perhaps even more important, being a SHARP proudly proclaims that broad worldview and reinforces a commitment to rational endeavor as the best pathway to knowledge. ■

Note

1. The broader modern sense of the term *rationalism* is described by the Rationalist Society of Australia as: "Adherence to the principle that all significant beliefs and actions should be based on reason and evidence, that the natural world is the only world there is, and that answers to key questions of human existence are to be found only in that natural world." This is not the earlier narrow philosophical sense of the term, which is in contrast with empiricism.

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Free Energy: When the Web Is Freewheeling

Claims about "free energy" are all over the Internet. What's it all about? Not real science.

SEBASTIEN POINT

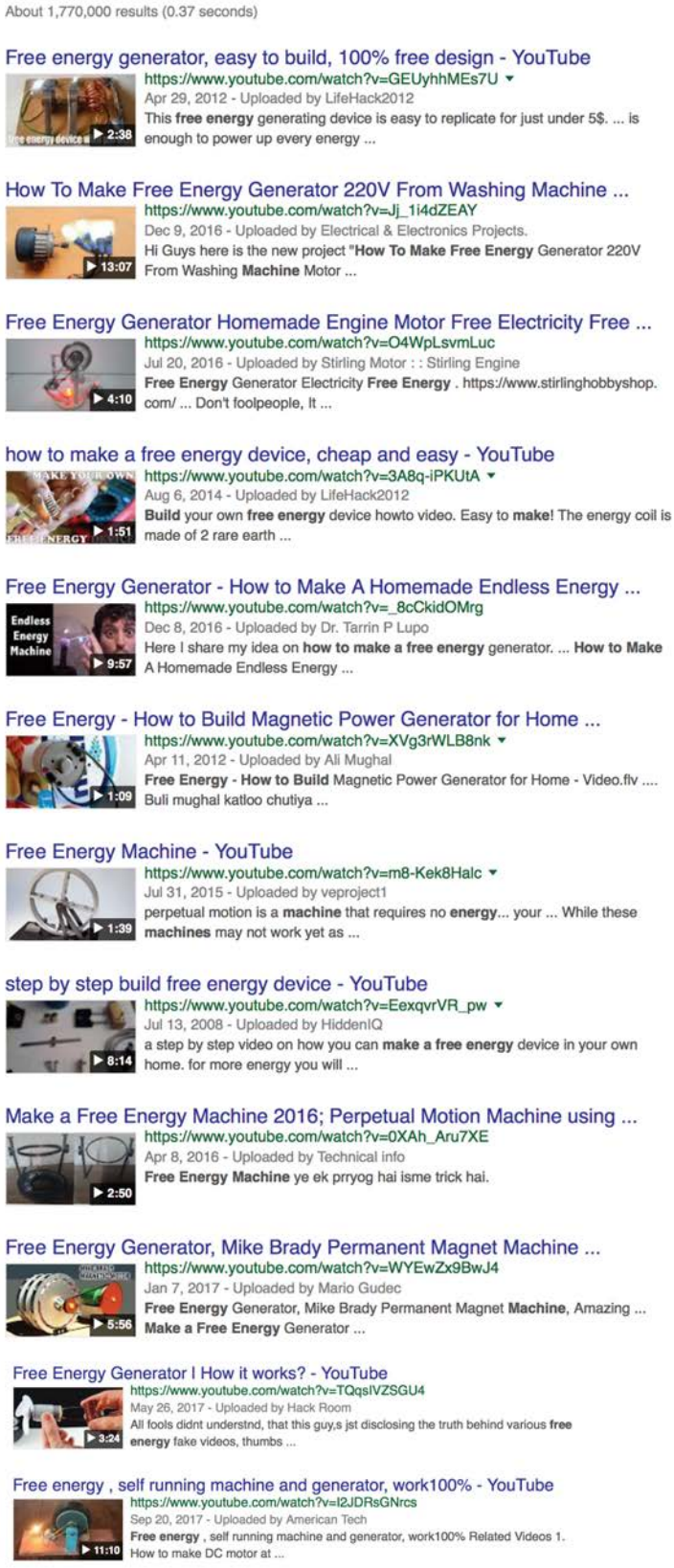
In physics, *free energy* is a mathematical function that quantifies the work performed by a closed thermodynamic system during a reversible transformation at constant temperature. That is, in any case, the definition that you can find in a textbook of physics. On the web, though, the term *free energy* refers most often to a new source of energy that is largely ignored by the scientific community but on which the future of humanity depends in the current context of energy and environmental crisis. Is it reality or Internet myth?

Based on what the Internet says, it would seem that this free energy abounds around us and that "the evidence of this free energy source is demonstrated by tens or even hundreds of people" (Wikistrike 2015). It would be available for free and occupy the "vacuum" that surrounds us. To implement it, no one needs to be an engineer or physicist, as you just have to apply what is described in one of the available books dealing with how to design a machine that will "transform something that we do not know how to detect into something usable" (Newman 2011). But as Aristotle stated, "the definition makes known what is the thing." So, what is that thing?

Based on what the Internet says, it would seem that this free energy abounds around us.

Navigating several websites that recycle the same claims, we learn that free energy would be "an electromagnetic energy whose mean is zero and seems to be electrically neutral and whose origin is supposed to be related to the presence of fields of pairs of particles and antiparticles (photons), occupying the vacuum … creating a tension between them, and thus an energy that transforms into a wave that propagates in space"[1] (Véringa 2015). Most physicists continue to deny its existence (Wikistrike 2015) while others, "courageous and disinterested researchers, are making the 'miracle' of free energy come true" (Ledoux 2015). But the technology developed by these courageous researchers—which would permit us to generate absolutely free electricity and to no longer pay a penny to energy suppliers—is suppressed by the big corporations that tyrannize researchers conducting research on free energy (L'énergie libre de Nikola Tesla 2010).

One example among others: Bruce DePalma is an electrical engineer and meditation devotee who retired to a farm to carry out research on rotating objects. He claimed to have invented a generator using rotating magnets to extract energy from a vacuum but did not dare to push his concept to the end, fearful of assassination (see www.arsitra.org). In spite of this "tyranny," it is fortunately possible (but for how long, you will ask) to consult on the Internet many videos or descriptions of free energy machines that are presented as so much



Some demonstration videos of free energy machines (among the more than 2,350,000 results that Google provides to the query "how to build a free energy machine").

proof … mostly unverifiable. It's like the revolutionary "magnet power generator" known as VTA for Vacuum Triode Amplifier, developed in the 1980s by a man named Floyd Sweet, who claimed it produced "much more energy than it consumed." But its inventor has never subjected the VTA to independent tests, and free energy adepts now consider "that attempts to reproduce results … may face serious problems because we no longer find the kind of magnet used at the time" (see www.arsitra.org). The future of the world is definitely a matter of little concern.

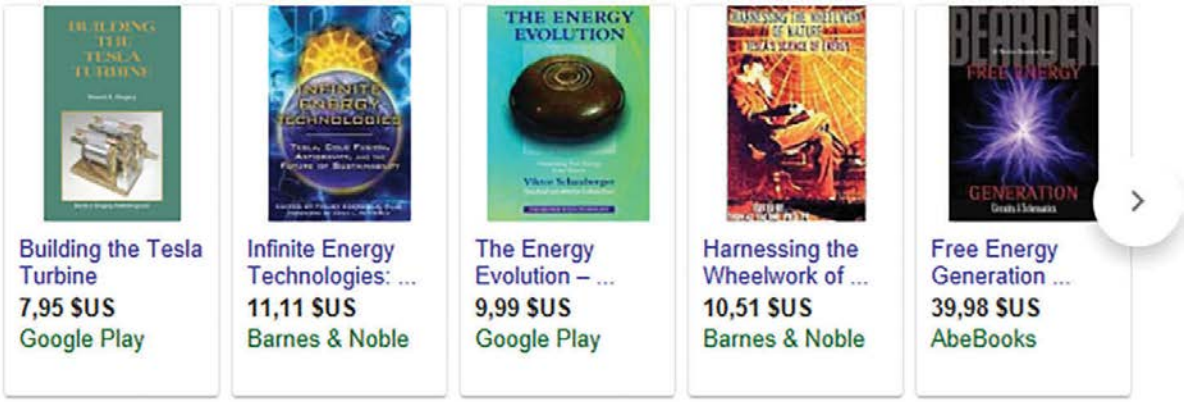
We cannot create energy from the vacuum; it would be creating matter. That is why the first principle of thermodynamics could never be overcome.

Seeing these videos and reading about all the hopes aroused by the prospect of delivering humanity "from the evil lobbies supposedly controlling this world," to restore scientific truth in the face of universities that "brainwash students" (see www.energie-sante.net), and to ensure a safer and cleaner planet (see www.quanthomme.info), one might be tempted to believe.

Stubborn Laws

Alas, the laws of nature are badly done. In the eighteenth century, Antoine Lavoisier, the French father of modern chemistry, taking up a thesis proposed by Anaxagore, who lived 500 years BCE, expressed a rule that became famous: "in nature, nothing is lost, nothing is created, everything is transformed." This idiom was formalized during the nineteenth century by the fundamental principles[2] of thermodynamics, in particular the first principle,[3] also called the principle of conservation of energy, which does not allow energy to be created from nothing. The systematic use, by scientific "skeptics," of this first principle of thermodynamics to nip in the bud the very idea of a free-energy machine is strongly denounced by its supporters who affirm that such a machine "does not violate the principle of conservation of energy" because it only "pumps a little of the energy of a vacuum" (L'énergie libre… 2013) that would fill the universe. Some cite the case of magnets suspended in magnetic levitation, wondering "what inexhaustible energy overcomes gravitation here?" (Petite expérience… N.d.) and assuming it is extracted from a vacuum.

This type of reasoning comes from a misunderstanding of the very concept of energy: it is often imagined as an exchangeable fluid present in us and around us. But energy is an inherent property of matter, and it has no existence of its own. This identity between matter and energy is one of the fundamental concepts underpinned by the famous and yet often misunderstood equation produced by Albert Einstein that can be written:[4] $E = mc^2$. In addition, energy is a relative concept: a car in its garage, immobile in relation to the terrestrial reference system, will not bring you anywhere, nor will it hurt anyone because its kinetic energy in this system is zero. However, its kinetic energy is immense in the heliocentric system since the Earth drags it along on its journey around the Sun at 30 km/s. One cannot isolate a packet of pure energy, and seeking to make a representation of energy through imagination or intuition is only an impasse generating paradoxes and mystical interpretations: as physics professor Sadri Hassani[5] reminds us in his recent Skeptical Inquirer article, "if there are paradoxes, it is only because we try to understand a physical phenomenon



Some books claiming to help us "understand" free energy and how to build a machine.

on the basis of our limited, incomplete, and mostly wrong intuition" (Hassani 2016). We should just consider energy as it appears to us in the experiments of physics: as a quantification of the changes in the organization of matter that is transformed, exchanged, and moved by the action of the four fundamental interactions (gravitational, electromagnetic, strong nuclear, and weak nuclear) in a given reference system. Risking a human-centered comparison, I would say that if the atoms were money, then the energy would be the exchange rate.

One cannot isolate a packet of pure energy, and seeking to make a representation of energy through imagination or intuition is only an impasse generating paradoxes and mystical interpretations.

A Waste of Time and Energy

We cannot create energy from the vacuum; it would be creating matter. That is why the first principle of thermodynamics could never be overcome. To assume the contrary would be to assert the possibility of the spontaneous creation of matter. And to believe that the energy industry is fighting against advances in the field is to ignore the electrical equipment industries, especially portable electrical tools manufacturers, that dream of being able to develop tools without batteries. This would make them lighter and less expensive to produce and would constitute a considerable breakthrough. Work to create energy from a vacuum or to violate the principle of conservation of energy are thus done for nothing. The only result of the efforts of all these people, persuaded to be able to diffuse energy as Jesus multiplied bread, is the confirmation of man's immemorial inclination for profusion and gratuitousness, nothing differentiating the modern myth of the free energy from the old—the eternal lamp.

Notes

1. This talk is riddled with errors and approximations that are difficult to list while keeping a calm mind. Let us emphasize simply that an electromagnetic wave carrying a zero energy density can only correspond to a wave whose electric field is zero and therefore is not an electromagnetic wave. And that if the photons were indeed antiparticles, then the light rays of our sun would brutally reduce our lifetime.

2. A principle in physics is a fundamental law that has not been demonstrated but that experiments have never been able to contradict.

3. The first principle of thermodynamics states that the increase in energy of a system is equal to the quantity of heat that the system receives from the exterior from which the work the system furnishes to the exterior is subtracted. When the system is isolated, exchanges with the outside are zero and the increase in energy of the system is therefore zero. The universe itself seems to be an isolated system.

4. For a particle at rest and that can of course also be written $m = E / c^2$, which implies, for example, that by heating an object of mass m (i.e., by increasing the stirring of its atoms) and thus raising its internal energy of e, then we increase the mass of the object of e / c^2 (which does not mean that one creates matter). But this increase in mass is indistinguishable to us given the value of c (c is the velocity of light in a vacuum).

5. Professor emeritus of physics at the University of Illinois State, author of the blog skepticaleducator.org.

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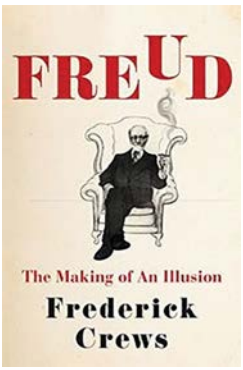
Sebastien Point is a French engineer and physicist. He is a member of the French skeptics association AFIS and of the quarterly skeptic journal *Science and Pseudosciences*. He wrote "The Danger of Chromotherapy" in our July/August 2017 issue. His talks disassembling pseudoscientific practices are available on the Internet. This text is adapted from an original article published in *Science & Pseudosciences*, edited by the French Association for Scientific Information (AFIS). Several quotations are extracted from French sources and translated by the author.

Jettisoning Freud's Spurious Contributions

PETER BARGLOW



Freud, The Making of an Illusion. By Frederick Crews. Holt/Metropolitan Books, New York, 2017, 768 pp. Hardcover, $40.

Freud, the Making of an Illusion, by American literary critic and UC Berkeley emeritus professor Frederick Crews, offers spellbinding writing and musters compelling evidence and scientific reasoning. His verdict in his latest book on Freud is devastatingly negative: Freudian psychoanalysis offers us neither a tenable theory of mind nor a proven psychotherapy. Crews considers Freud's Dora case study to be "the product of a mind that conjoined illogical and bizarre ideas with misogyny, prurience, and cruelty" (613). Dora was an eighteen-year-old girl with voice loss who Freud "analyzed" for eleven weeks during the year 1900. About a quarter of the book offers outcome data (often newly available) describing most of the other patients Freud treated in the later nineteenth century, during which he announced his most important discoveries. Crews concludes that Freud failed to achieve any corroborated cures of patients and that he falsified clinical observations to justify specious theories. He claims that Freud's daughter Anna and his official biographer, the English neurologist Ernest Jones (in his hagiographic *The Life and Work of Sigmund Freud* published in the mid-1950s), concealed the negative outcome of Freud's analytic treatments.

The author quotes extensively from a treasure trove of recently released private letters Freud wrote to his fiancée, Martha Bernays. These indicate that his cocaine dependence was more severe and far longer-lasting than previously known. It significantly affected his writing, marriage, moods, and treatment assessments. And his mistaken conviction that cocaine was an antagonist of opioids led to the almost fatal mistreatment of an addicted colleague and friend, Ernst Fleischl.

Vigorous opposition to Freud began during the first half of his long lifetime (1856–1939). Such antagonism could not be discounted as rampant anti-Semitism, dislike of his atheism, or puritanical discomfort with his finding of sexuality in all psychopathology. The counterattack that his many critics suffered from "resistance" and "unconscious counter-transference" was never open to disproof.

Freudian psychoanalysis offers us neither a tenable theory of mind nor a proven psychotherapy.

Historians can learn much from Crews's vivid recreation of the years when psychiatry was inseparable from psychoanalysis. He makes clear that Freud was misled by hero worship of nineteenth-century physicians such as Wilhelm Fliess and Jean-Martin Charcot, the founder of French neurology. Hippolyte Bernheim recognized that Charcot's experimental results on hysteria were severely contaminated by suggestion, but Freud did not accept this. Neither could he accept Charcot's explanation that psychosomatic symptoms were hypnotic stigmata associated with a proclivity toward degeneracy, female hysterogenic zones, and male "quasi-ovarian zones." Therefore, he posited a potent pathogenic invisible and unmeasurable energy hidden in an "unconscious" region of the psyche. Freud's postulation of this unsubstantiated energy later was transformed into the familiar if imaginary forces—"libido" (sexual), "destrudo" (aggression), and "thanatos" (death)—widely used to "explain" human behavior by psychoanalysts during the twentieth century. These concepts and terminology applied to psychopathology were hardly an improvement over the ancient belief that a wandering uterus produced disabling psychological symptoms in women.

But such Freudianism was transplanted across the ocean to America. Until recently, psychiatric nosology was still dominated by Freud's formulations. The *Diagnostic and Statistical Manual of Mental Disorders* (DSM) edition I (1952) featured the terms *dissociative reaction*, *conversion reaction*, and *anxiety hysteria*; DSM III retained the terms *conversion disorder* and *somatization disorder*. Finally, the 2013 DSM-5's *Somatic Symptom Disorder* included only the word *conversion*. Escape from the psychoanalytic frame of reference has improved our diagnostic precision.

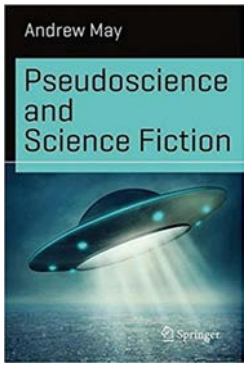
But how were we psychiatrists (including the current reviewer who was a psychoanalyst) deceived for so long? Freud at times could be a splendid writer as is shown in his eloquent descriptions of mourning for the dead and in his moving 1915 war essay *On Transience*. Crews considers Freud's *The Interpretation of Dreams* to be an ingenious hybrid text, comparable to the *Ulysses* of James Joyce. At best his fabricated case histories resemble Sherlock Holmesian narratives. But for psychiatrist-analysts, the heavy investment of time, energy, and money in a personal psychoanalysis and the years of study required to become a career analyst constituted strong incentives to defend the analytic ideology.

Many of today's psychiatrists accept Crews's negative views of Freud but maintain that his outdated theories and therapy have been better elaborated by fellow travelers such as Carl Jung and Melanie Klein. Several American psychoanalysts have advocated replacing depth psychology with empirical descriptions closer to everyday experience. The contributions of Erik Erikson and Heinz Kohut have proved far more applicable for treatment. A variety of other more contemporary versions of analytically informed treatment ("psychodynamic psychotherapy") continue to be widely used by both American and continental psychiatrists. For this reviewer, who tries to ameliorate mental conditions following severe emotional trauma, psychodynamic psychotherapy still appears to be as efficacious as prescribing medication or using Prolonged Exposure and Cognitive Behavioral therapies. Some of Freud's clinical descriptive terms seem to have become permanently embedded in the consciousness of most of us who try to understand and help patients through talking to and about them. But Crews has convinced me to question or jettison most of Freud's spurious contributions. ■

Peter Barglow, MD, is a semi-retired psychiatrist who was a tenured professor of psychiatry at the Feinberg Northwestern School of Medicine. As a certified analyst he treated twenty patients through classical psychoanalysis. He is the first author of three articles in the *Journal of the American Psychoanalytic Association*.

The Interplay of Science Fiction and Pseudoscience

TERENCE HINES



Pseudoscience and Science Fiction. By Andrew May. Springer, New York, 2017. ISBN 978-3-319-42604-4. 181 pp. Softcover, $19.99.

Although I don't know of any specific data on the point, I suspect that there is some overlap between the science fiction fan community and the skeptical movement, at least to the extent that science fiction readers and fans are more likely to be skeptics. This being the case, Andrew May's *Pseudoscience and Science Fiction* will find a welcoming audience among skeptics as well as science fiction readers. I found it a pleasure to read. It is informative, entertaining, and lots of fun.

May is obviously very conversant with the history of science fiction. Seven of the eight chapters focus on a specific class of pseudoscientific beliefs and trace how it is represented in science fiction and, in some cases, how science fiction stories may have modified or given rise to the belief in the first place. The discussion is not limited to printed science fiction. Themes from such famous TV programs as the *X-Files* and *Doctor Who* are also included. The book is beautifully illustrated with full color photographs of early science fiction magazine covers.

One name runs through all the chapters—Charles Fort, the original popularizer of weird occurrences. The first chapter is devoted to "Fort and the Forteans" as a "continuing source of inspiration" (16) for science fiction writers from the early days of the pulp magazines to the present time. This chapter also notes that it was the early science fiction/fantasy pulp magazine *Unknown*, edited by John W. Campbell, that pioneered the blend of fact and fiction that sustains much of the programming on the History and Syfy Channels to this day.

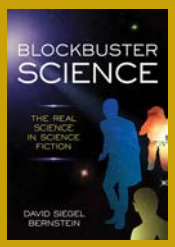
Campbell published Eric Frank Russell's novel *Sinister Barrier* in the March 1939 issue. The story centers around a race of aliens, the electromagnetic Vitons, that control humans and feast on human misery. What was unique about the presentation of the story was that author Russell and editor Campbell tried to make the story sound like it was reporting a real discovery that had to be disguised as fiction: "Russell makes the straight-faced claim that his story is essentially true, but that he had been forced to present it in the guise of fiction to avoid the risk of 'removal' by the Vitons" (13). Further cementing the importance of Fortean thinking in science fiction, the story contains many Fort-like reports of odd events.

The second chapter covers "Anomalous Phenomena" and includes a good discussion of whether something is "science, pseudoscience, or science fiction?" (21). This chapter covers the well-known claims for the Philadelphia Experiment, the Tunguska event,

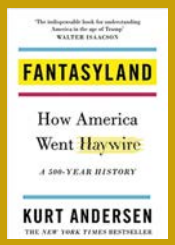
[NEW AND NOTABLE

Listing does not preclude future review.

ALIENS: Past, Present, Future. Ron Miller. Author and illustrator Ron Miller examines the question: How did—and how do—astronomers and laypeople envision extraterrestrial life? He draws extensively on pop culture (including everything from 1950s pulp stories to *Star Trek* to *Avatar*) as well as alleged alien abductions and other sources. The book is organized into three sections: an overview of our changing perspectives on alien life; astrobiology and the science of extraterrestrial life; and the effect that the concept and popularization of aliens has had on the world—including perhaps on philosophy and religion. Lavishly illustrated with everything from medieval engravings to movie posters to computer-generated illustrations, this book is a fascinating and accessible look at the topic, for scientists, science fiction buffs, and skeptics alike. Watkins Publishing, 2017, 240 pp., $25.44.



BLOCKBUSTER SCIENCE: The Real Science of Science Fiction. David Siegel Bernstein. If you want to know about the real science behind the myriad speculative ideas you find in science fiction novels, short stories, and movies, here's your book. It's an enthusiastic guide to modern science built around the ideas of science fiction. Science fiction fans and all science geeks should find it appealing. As for fantasy, fine, as long as the laws in the author-created world are applied consistently. As Bernstein cautions, "Keep in mind that science fiction, unlike fantasy, is about rationality." This books sticks to what can be proven using the scientific method and how scientific concepts and theories have been, or can be, extrapolated for fiction. Prometheus Books, 2017, 336 pp., $24.



FANTASYLAND: How America Went Haywire. A 500-Year History. Kurt Andersen. Americans have always had a weakness for fantasy, and noted social critic Kurt Anderson here explores that powerful impulse's origins, its progression over the centuries, and its modern manifestations. "Little by little for centuries, then more and more and faster and faster during the last half-century, Americans have given ourselves over to all kinds of magical thinking, anything-goes relativism, and belief in fanciful explanations, small and large fantasies that console or thrill or terrify us," he writes. "And most of us haven't realized how far-reaching our strange new normal has become." This important new book explores the reasons for "this proliferation of delusions and illusions," which involves large subjects people have always debated—politics, religion, even science—and all the small things that make up ordinary daily life. Random House, 2017, 462 pp., $30.

HANDBOOK FOR THE AMATEUR UFO INVESTIGATOR. Brian D. Parsons. Parsons (a member of several paranormal research groups, host of Paranormal News Insider show, and a contributor to the *Skeptical Briefs*) has a new book out on investigating UFO claims (full disclosure: Ben Radford's 2010 book on scientific paranormal investigation is favorably cited, as are Joe Nickell's books, and those of other

and the Bermuda Triangle. Regarding the Triangle, May notes that several of the "outlandish theories" and events in Charles Berlitz's 1974 book have turned up in science fiction, most famously in the film *Close Encounters of the Third Kind*. But even before *The Bermuda Triangle Mystery* was published in 1972, *Doctor Who* dealt with disappearances of ships in the Atlantic that turned out to be caused by a race of ocean dwelling reptiles, evoking shades of H.P. Lovecraft!

Personally, the third chapter, "High-Tech Paranoia," was the most interesting since I learned the most from it. I had heard of the "Shaver Mystery" a bit, but this chapter filled out the story for me. The so-called mystery formed from

Any skeptical science fiction fan will greatly enjoy this book and come away after reading it a more informed skeptic and more informed about science fiction and its history.

a story titled "I Remember Lemuria" written by Richard S. Shaver and published in the June 1947 issue of *Amazing Stories*, edited by Raymond A. Palmer. May summarizes the story nicely; it "told of an ancient race of degenerate humans living in underground caves, and controlling world affairs through disruptive rays and other advanced technology" (41), sort of H.G. Wells's Morlocks with superior gadgets. Editor Palmer, like Campbell before him, hyped the story by claiming that it was actually true. Palmer realized, in May's words, "that the idea that fiction could be interwoven with (alleged) fact offered a virtually untouched goldmine. Within a few years he was doing the same sort of thing, on an industrial scale . . ." (41).

May traces the idea of some secret alien race controlling earthly affairs through science fiction and conspiracy theories, ending with David Icke's belief that the British Royal Family, along with many other powerful world leaders, is actually a group of shape-shifting lizards. He misses, however, my personal favorite instantiation of the evil subterranean beings theme. How could he fail to mention that wonderful 1984 film *C.H.U.D.: Cannibalistic Humanoid Underground Dweller?*

Following the history of the Shaver mystery, the chapter discusses the paranoia of science fiction author Philip K. Dick. In the early 1970s, Dick tried to persuade the F.B.I. that he was privy to a secret Nazi plot to . . . do something bad, as Nazis are wont to do. Dick believed that the F.B.I. and/or the C.I.A. was listening to his phone

calls. It is likely not a coincidence that in 1962 he had published one of his most famous novels, *The Man in the High Castle*, which is now a popular television series produced by Amazon.

The next four chapters ("Flying Saucers," "Mind Power," "Space Drives and Anti-Gravity," and "Technology of the Ancients") cover perhaps more familiar science fiction and pseudoscience themes. All contain interesting insights into the relationships between these concepts and how they are treated in science fiction. The UFO chapter discusses "cultural tracking"—which refers to the fact that "one of the distinctive features of UFO reports is the way that, despite their supposedly other-worldly origin, they seem to mirror the earthbound culture of the time and place at which they occur" (70). So, quoting from Spencer's *UFO Encyclopedia* (London: Headline, 1991, p. 86), he notes that before modern liquid crystal type screens became common in the 1990s, the builders of interstellar space ships, according to witnesses, used the same type of crude rotating number counters that I remember from my dad's 1949 Ford when I was a boy.

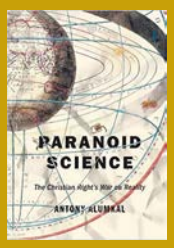
The final chapter is on conspiracy theories and the usual suspects are covered. One theory I was not too familiar with is that of predictive programming. This is the idea that the government, or some super world government, is using media such as movies, television, novels, and the like to get the public accustomed to what is coming. Thus, UFO stories about aliens visiting Earth are there to make the general population more accepting of the idea of alien contact—contact that has already happened and about which the government is well aware. The ultimate (so far!) example of this is the film *Close Encounters of the Third Kind*, about which director Steven Spielberg apparently said, "If you believe, it's science fact; if you don't, it's science fiction" (175).

Throughout the book May makes the important point that a desire to believe in the concepts in science fiction or a pseudoscientific belief system are strong and can be highly misleading. For example, he notes that "Any community that bases its philosophy on the mantra 'I want to believe' is going to be relatively easy to dupe" (69). Since May is a British writer, many of his references, of which there are many, are to British science fiction and skeptical publications. I frequently found myself checking to see whether my university library had these—and when they did not, recommending their acquisition.

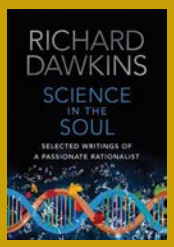
Any skeptical science fiction fan will greatly enjoy this book and come away after reading it a more informed skeptic and more informed about science fiction and its history.

Terence Hines is professor of psychology at Pace University and author of *Pseudoscience and the Paranormal*. He is a CSI fellow.

skeptics). The book is divided into four sections (I Know What I Saw; I Want to Believe; Casework: Investigation and Research; and Resources) and is precisely what it says: a handbook for the amateur UFO investigator. It is not—and cannot be—a comprehensive guide to UFO phenomena, so those expecting an in-depth analysis of specific cases will be disappointed. Instead Parsons offers practical, real-world advice on investigation and interviewing eyewitnesses, and he cautions about over-interpretation ("As researchers we need to understand that there is a difference between an unidentified flying object and an alien flying around the skies in a flying saucer," he reminds readers). There are dozens of books offering advice and guidance on how to investigate unusual phenomena, but only a handful are from a critical thinking perspective, and this handbook is a welcome addition. Lulu Press, 2017, 168 pp., $15.



PARANOID SCIENCE: The Christian Right's War on Reality. Antony Alumkal. In the vein of Chris Mooney's books (especially *The Republican War on Science*), *Paranoid Science* examines how scientific truth has come to be seen as the enemy of many in the religious Right. The book is divided into four main sections, on intelligent design claims; the so-called "Ex-Gay" movement; Christian Right bioethics; and the crusade against environmentalism. Alumkal, associate professor of sociology of religion at the Iliff School of Theology, argues that the Christian Right adopts a hostile, paranoid, and even conspiratorial stance against the scientific establishment. Of psychiatrist Richard Spitzer, for example, Alumkal writes that "ex-gay leaders commend Spitzer as 'scientific' when he agrees with them and criticize him as 'political' when he doesn't." Of interest to skeptics who follow the political aspects of scientific controversies (or "controversies," in the case of creationism), and how ideology colors people's acceptance of scientific facts. NYU Press, 2017, 256 pp., $35.

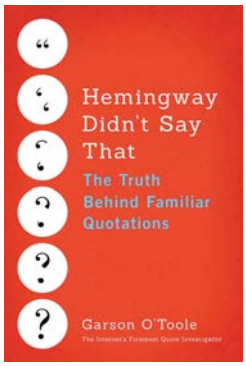


SCIENCE IN THE SOUL: Selected Writings of a Passionate Rationalist. Richard Dawkins. This is the noted scientist and author's first anthology of his own shorter pieces since *The Devil's Chaplain*. It exemplifies Dawkins's lifelong passions for science and clear thinking. It is a fine example of what, in promoting science, he calls "the Carl Sagan school of thought: the visionary, poetic side of science, science to stir the imagination." It starts with a lengthy opening chapter on "The Values of Science and the Science of Values." It ends with his speech memorializing the late Christopher Hitchens, to whom he dedicates the book. In between are dozens of illuminating short pieces. They include his open letter to Prince Charles, pleading that he give up his "hostility to science"; Dawkins's reaction to the "religious crime" of 9/11; "Science and Sensibility," speaking as (he laments) the only scientist chosen by the BBC for a series on the twentieth century; "Who would rally against reason?" published in the *Washington Post* at the time of the first Reason Rally; "Universal Darwinism," calling on exobiologists speculating about extraterrestrial life to make more use of evolutionary thinking; and much more. Random House, 2017, 438 pp., $28.

—Kendrick Frazier and Benjamin Radford

Repeating Erroneously the Words of Another

GLENN BRANCH



Hemingway Didn't Say That: The Truth Behind Familiar Quotations. By Garston O'Toole. Little A, New York, 2017. ISBN 978-150-393341-5. 383 pp. Softcover, $14.95.

To answer the question suggested by the title of Garson O'Toole's book, what Hemingway didn't say—supposedly in order to win a bet that he could write a short story only six words long—was the tearjerker "For sale: baby shoes, never worn." The pseudonymous O'Toole operates the Quote Investigator website (https://quoteinvestigator.com/), which is devoted to "exploring the origins of quotations," especially with the aid of electronic resources such as Google Books. *Hemingway Didn't Say That* is, in effect, the Quote Investigator's greatest hits in book form, except that while the website addresses a fair number of genuine quotations, the book focuses only on the bogus.

O'Toole thus considers sixty-three misattributed, manufactured, or mangled quotations in his book. The entries are separated into four chapters by the likely mechanisms whereby the error was produced: group error (including synthesis, ventriloquy, and proverbial wisdom), reading error (including textual proximity, real-world proximity, and similar names), author error (including concoctions—such as the Hemingway quotation of the title—and historical fiction), and finders keepers (including capture and host). These mechanisms are named and explained in the book's introduction. Throughout, O'Toole's discussion is careful, judicious, and plausible.

Hemingway Didn't Say That is a moderately diverting read. O'Toole's prose is serviceable, although there are a few odd turns of phrase—e.g., he writes, "The translation from German to English given here was performed by Walter Kaufmann" (284): "performed"?—and his affectation of referring to himself as "**QI**" (for Quote Investigator) is tiresome. It is probably better to browse and sample than to slog through the book cover to cover, for there is a fair amount of repetition within each entry because O'Toole diligently produces a chronological list of appearances of a given quotation, and a certain monotony emerges among the entries because they tend to share the same general outline.

O'Toole's focus on the quotation at hand, though understandable, sometimes results in lost opportunities. In the course of his discussion of "Easy reading is hard writing," for example, he writes, "In 1849 *Graham's American Monthly Magazine* favorably reviewed a history work by the famous philosopher David Hume" (315). A reader unfamiliar with Hume might wonder why a philosopher was dabbling in history; explaining that it was in fact Hume's history of England (1754–1761; the magazine was reviewing a new edition) that won him fame and fortune, while his philosophical genius began to be widely acknowledged only after his death, would have added to the interest of the entry.

What is the overall value of *Hemingway Didn't Say That*? With only sixty-three quotations, it is anything but compendious. Anyone seeking a reliable source of quotations with which to point a moral or adorn a tale would do better to invest in a book of quotations with a conscientious editor, such as *The Yale Book of Quotations* (2006), edited by Fred R. Shapiro, or *The Quote Verifier* (2006) by Ralph Keyes, both of which O'Toole repeatedly praises in his own book. And with only a few pages devoted to a sketch of O'Toole's methods, it is no substitute for a manual for investigating the true provenance of a quotation, although perhaps here experience is the best teacher.

But, although there are only a few references to scientists and skeptics (including Steve Allen, Charles Darwin,

Albert Einstein, Benjamin Franklin, and Carl Sagan) in the book, there is a valuable lesson for skeptics here: namely, *nullius in verba*: take nobody's word for it. O'Toole's work on the quotations he investigates is a model of skeptical inquiry. And it is a helpful reminder of the importance of investigating the opportunistic use of quotations by pseudoscientists, who often find that a quotation is a handy thing to have about, saving one the trouble of thinking for oneself—always a laborious business—and who often handle them incompetently or even unscrupulously.

For example, a quotation supposedly from Darwin—"Not one change of species into another is on record … we cannot prove that a single species has been changed"—is in constant circulation among creationists. But inquiry à la O'Toole reveals that the second half is attributable to Francis Darwin—a gloss on a letter of his father's from 1863—while the first half is attributable to the Harvard geologist Nathaniel Shaler circa 1902–1903, with the fusion and misattribution owing to the slapdashery of a Lutheran pastor, Theodore Graebner, writing in 1921. But the quotation persists, appearing, for example, in Dallas megachurch pastor Robert Jeffress's *Outrageous Truth* (2008).

Skeptics themselves ought to be careful with their own use of quotations. I have to confess my own sins here. In September 2005, writing in the Society for Sedimentary Geology's magazine, I encouraged geoscientists to become involved in efforts to defend the integrity of science education by urging them to "bear the famous admonition of Margaret Mead in mind: 'Never doubt that a small group of thoughtful, committed citizens can change the world.'" *Mea culpa*: there is no evidence for Mead ever saying so, although the Institute for Intercultural Studies, founded by Mead in 1944, later took the quotation as its motto (and indeed registered it as a trademark). Do as I say, not as I do!

Glenn Branch is deputy director of the National Center for Science Education. He included six unattributed quotations in his review of *Hemingway Didn't Say That*. Can you identify them all?

FOLLOW UP

While Hurricanes Ravage the United States, Climate-Science Criticism Continues: An Exchange

The following letter is from a longtime member of the skeptical community who has for years strongly criticized climate science and the Skeptical Inquirer *for reporting and defending it. Given the letter's topical nature in referring to the recent series of intense hurricanes that hit the United States, we are publishing it here together with responses by two noted scientists and climate experts, Michael E. Mann and Mark Boslough.*

I thank the editor for publishing Norman Carlson's letter "Confusing Liberals and Skeptics?" (September/October 2017, p. 66). There has been an unhealthy paucity (if not absence) in SI of critical inquiry into politically "hijacked" issues such as climate change.

Having personally just dodged not a mere bullet but a bomb with Hurricane Irma, following on the heels of Harvey's record-breaking destruction elsewhere along the Gulf coast, I wish to make a few politically incorrect meteorological points.

Though touted as nearly unprecedented in its ferocity, Irma was comparable in strength to Andrew, Gilbert, Wilma, Allen, Patricia, the Labor Day hurricane of 1935, and no doubt many before that. Harvey was also nasty, but its devastating impact was largely due to a high-pressure system (the opposite of a storm) blocking its path northward for several days. Somewhat similarly, high pressure to the east of northern New England, acting like a "Road Closed—All Traffic Must Turn Left" barricade, caused a typical hurricane to merge with a typical nor'easter in 2012 and forced the

hybrid Superstorm Sandy westward into a vulnerable landscape at high tide, rather than allowing the storms to veer out naturally to sea.

It seems to me that critical, commonsense analysis of this sort with respect to "hijacked" issues such as climate change should be trumpeted in the pages of Skeptical Inquirer rather than marginalized in the "Letters" section (if published at all).

Gary P. Posner, MD
Tampa, Florida

Climate change deniers are basically asking us to ignore the symptoms. Only it's the entire planet, not a single human being, whose health is at dire risk.

Michael E. Mann replies:
Mr. Posner's letter, alas, yields little constructive insight into the science of climate change and hurricanes.

There are theoretical reasons to expect that the strongest storms will increase in intensity as sea surface temperatures increase, and this is indeed being observed. There has been a roughly 10 mph increase in maximum sustained winds among cat 4 and cat 5 storms for each 1° F of ocean warming, a roughly 7 percent increase. Since destructive potential goes as the wind speed raised to the 3rd power, it corresponds to a roughly 20 percent increase in damage. A warmer ocean surface means more moisture content and more rainfall with these storms, and global sea level rise has increased the coastal flooding associated with these storms.

Posner's letter provides an excellent example of what Carl Sagan called "special pleading"—one of the classics of logical fallacy—in this case by trying to explain away a clear trend through appeal to a sequence of special circumstances ("merged with a Nor'Easter," "hybrid storm," "high pressure system," etc). And in response to his dismissive argument that "we've seen strong storms before," I would simply note that over the past two years when global sea surface temperatures have been at record levels, we've seen the strongest hurricanes (as measured by peak sustained winds) for the globe, both hemispheres, the Pacific, and now, with Irma, the open Atlantic. Perhaps Mr. Posner wants to explain that away as a freak chance occurrence too.

Finally, since Mr. Posner is an MD, I pose the following question: Suppose a patient notices some issues with his health, goes to see a doctor and is told he's got a serious condition that requires immediate attention. He seeks a second opinion, third opinion, and after thirty-three consecutive doctors tell him the same thing, he finally finds a doctor with a contrary view who tells him "you're alright, don't worry about it." What should he do? Seek treatment, or ignore the symptoms? Climate change deniers are basically asking us to ignore the symptoms. Only it's the entire planet, not a single human being, whose health is at dire risk.

Mark Boslough adds this additional response:
1) Posner uses the term *politically incorrect* to mean the opposite of its original meaning, which was applied to something that politicians and pundits don't want you to say. In fact, it is the climate scientists who are being politically incorrect by continuing to tell the truth about science against the wishes of those with more powerful voices: EPA Administrator Scott Pruitt's statement that now is not the time to talk about climate change, for example. Right-wing politicians and media often hijack words to mean the opposite of what they originally meant. Actual news is now called "fake news." Deniers are called "skeptics." "Entitled" now means "not entitled" (with the implication that people who are entitled to Medicare or social security are not actually entitled to them because they are called "entitlements"). By the way, I think the best way to fight back against the hijacking of the terms *politically incorrect*, *fake news*, and *skeptic* is just to continue to use them as they originally were used.

2) Similarly with his term *politically hijacked*, Posner seems to be blaming scientists for the politicization when we would like nothing more than our consensus to be accepted without political opposition. Purely scientific opposition is fine, and we can handle it, but it should be obvious to any neutral observer that it's not the scientists who have "politically hijacked" climate science.

Michael E. Mann is Distinguished Professor of Atmospheric Sciences and director of the Earth Systems Science Center at Penn State University. His books include *The Hockey Stick and the Climate Wars* and *The Madhouse Effect: How Climate Change Denial Is Threatening Our Planet*.

Mark Boslough is a physicist, recently retired from a leading national laboratory, who has long been active in organizing scientific discussions of climate issues. He is a member of the American Geophysical Union, among other scientific organizations, and a fellow of the Committee for Skeptical Inquiry.

Politicization of Scientific Issues

Although I was one of the good guys in getting my degrees, and I love science with all my heart, I couldn't help but object to one of Dr. Goldberg's conclusions in her September/October article on "Politicization of Scientific Issues." I am alarmed that this is a fact, but I was also alarmed that she thinks that science is "democratic" because you can hypothesize and reason about your hypothesis. To be democratic you would have to abide by the vote of some kind of public. I know how scientists gather sometimes and argue vociferously also sometimes, but that isn't voting. To say that publication invites criticism and some kind of concurrence of opinion and that this is some type of substitute for voting doesn't make it democratic. Newspapers also individually publish the truth as they see it and engender opinion, and democracy allows this laudable behavior, but the opinions themselves can't be said to be democratic.

I laughed at the characterization of scientists as arrogant and authoritarian. What post-doc hasn't run into an authority figure, as I did when I was a member of the International Biological Program and had to listen to the ravings of a crazy Dutch authority regarding my analysis of a transect on Mauna Loa. Some authorities are gentle mentors and preceptors, true, but I'll wager most of us would leave the office of The Director with our tail between our legs.

Despite protestations, the U.S. government does not want a skeptical, probing, educated, and aware populace. Such people are harder to control and bamboozle. Similarly, corporations want only workers who can make the machines function, without ever questioning if the machines should indeed be functioning in the first place.

These factors are the principal motivators for taking young students, alive with curiosity and a sense of exploratory wonder, and turning them away from science and critical thinking.

Joseph Andrew Meeker
Faculty Emeritus
Glendale Community College

Jeanne Goldberg replies:
I understand Dr. Meeker's objection to my characterization of science as inherently "democratic" if one uses the strict definition of the word, whereby a majority vote of the public establishes truth or fact. My intent, however, was to use the word in a broader manner. Science in this context is democratic in that research focusing on an issue from diverse sources is submitted to critical evaluation, discussion, and testing (for verification) in an open forum. In these circumstances it is understood that the standards and criteria that have already been established by the scientific community (e.g., a randomized, controlled clinical trial) will be utilized in this open forum.

*I have found Dr. Lee Smolin's TED Talk, (given in February 2003) on the relationship between science and democracy to be interesting and relevant to this issue. He prefaces his remarks by stating that communities of scientists have ethical principles. To quote him, "And being [*sic*] in this process of being in a community that reasons from shared evidence to conclusions, I believe teaches us about democracy. … There [is]a relationship between the ethics of science and the ethics of being a citizen in democracy." He feels that citizens must use reason and together reach conclusions and strategies that can be agreed upon, similar to the process that occurs in scientific communities. Unfortunately this type of civil activity is often suppressed or censored in autocratic governments, with catastrophic results. (e.g. China during the Cultural Revolution).*

I just wanted to suggest a good book by Susan Jacoby concerning science and anti-intellectualism in American history: *The Age of American Unreason*. It's very apropos of the subject of Jeanne Goldberg's article. I'm sure many Skeptical Inquirer readers are familiar with it.

Brian Hattery
Alexandria, Virginia

Fallacy Analysis Not Useful?

Thanks for Maarten Boudry's "Fallacy Fork" (September/October 2017). He's right: we should think before we casually dismiss an argument as fallacious.

Still, fallacious arguments are like intellectual tar pits that our ancestors kept falling into until someone sifted human experience to map out empirically where the tar was deadliest. Lists of fallacies are something like those WWII charts of airplanes in silhouette: if you spot something like this, watch out!

Boudry seems mostly concerned with good-faith arguments badly executed through sloppiness or ignorance, arguments that require us to expend the effort to bridge leaps of logic but are still salvageable given effort.

Yet Skeptical Inquirer is a museum of bad-faith arguments intended to lure unwary humans into the tar: these are a sizeable, nontrivial problem. So, when should we charitably give the benefit of the doubt, when should we expend the time and energy to perfect a bad writer's argument, and when should we suspiciously refuse to invest in a bad argument? Learning your fallacies may at least save you from stumbling into the tar by default.

Gregory S. Bucher
Lecturer in Classics
University of Maryland, College Park
Arlington, Virginia

In "The Fallacy Fork," Boudry says traditional fallacies hardly ever occur in real life or are not actually fallacious. Could he be appealing to the *fallacy of false alternatives* or "false dichotomy"? There is a billboard in our town that shows Jesus and asks, "Liar, Lunatic, or Lord?" It always calls to my mind "Legend" as a fourth alternative. Boudry concludes, "Virtually every definition of a fallacy runs into the Fallacy Fork. ... It's time ... to get rid of fallacies." I think this is a good example of the *fallacy of incomplete evidence* or "cherry picking" in that while the fallacies he listed may end in the Fork and not be useful for the skeptic to know, many other fallacies might well be, such as false dichotomy and cherry picking. But, while I think he went a little too far, I found Boudry's article to be thought-provoking and useful—a fine example of what I enjoy about the Skeptical Inquirer.

Michael Mauser
Spring Creek, Nevada

Maarten Boudry in the "The Fallacy Fork" is incorrect that fallacies are rare or mere "Paper Tigers." Otherwise useful rules of thumb and heuristics such as *ad hominem*, *ad populum*, *post hoc*, etc., are identified as formal fallacies because people often do treat them as absolutes (*secundum quid*). Abundant evidence for this assertion can be found in the online comments sections of articles on contentious topics such as global warming, religion, many health or environmental topics, or almost any political question. For example, global warming is frequently dismissed by a combination of fallacies that includes *ad hominem* arguments. The fallacies that support their contention that man is not affecting, or cannot affect, the climate (the climate has always changed, CO_2 is a trace gas, etc.) are often absolutely resistant to any counterarguments, as the data purporting to show that warming is occurring is dismissed as the product of fraud, and anyone supporting these arguments is dismissed as a fool or a fraud. It is

the combination of fallacies with an *ad hominem* or similar fallacy such as *ad verecundiam* (argument from authority), which is truly toxic. All too often, *ad hominem* attacks are based on a person's affiliations rather than their personal past record. If the affiliation is "tribal" ("libtards" come to mind) rational discussion becomes nearly impossible. This is unfortunately not rare.

Robert Clear
Berkeley, California

The author seems to be using the Straw Man Fallacy to prove that fallacy theory is not relevant to real-life situations. He defines the *post hoc* fallacy as "If B follows shortly after A, and we can think of a plausible causal mechanism linking A and B, then A is probably the cause of B." This misses the entire point of the fallacy. The actual fallacy is "If B follows A, then this proves that A caused B." Of course A might have caused B, but you cannot use the fact that B follows A to "prove" causation. Applications to real life: a half billion dollar award to a woman who developed cancer after using talcum powder, the conclusion that high-voltage lines cause cancer, and that there is proof that all asbestos is a primary cause of lung cancer. I would suggest that ad hoc is very relevant.

Don Yost
Fair Oaks, California

Author Maarten Boudry completely misrepresents the way in which "logical fallacies" are employed.

He states that some think all that is necessary to defeat an argument is to utter a phrase from a list of phrases. That is incorrect: Arguments are presumed *not* to be logical fallacies, therefore evidence is required as is true for any other claim. Furthermore, any claim that an argument is a logical fallacy is subject to rejoinder as is any other claim. For example, there are many well-known exceptions for logical fallacies just as there are many exceptions to the "hearsay" objection in courts. The author does not seem to fully appreciate that informal logic involves discussion about the truth or falsity of *all* claims made.

The author further suggests that before a logical fallacy can be employed as an objection, the abstract form of said fallacy must have been deductively proven to always be fallacious. This is absurd, given the purpose of informal logic to persuade, not prove! Judgments in informal logic are to be made by intended audiences, not by deductive machinery smuggled in from formal logic via a false dichotomy.

The facts that neophytes make mistakes and that there is not 100 percent certainty are no excuse for foolishly throwing out the use of a time-saving tactic that has over 2,300 years of effective use.

David Clark
Garland, Texas

Maarten Boudry replies:
I was expecting some strenuous but constructive criticism from the skeptical community about my Fallacy Fork article, and I have not been disappointed. In addition to the letters published here, Steven Novella has criticized my article on his blog and podcast.

Readers have taken issue with both of my central claims: that cut-and-dried fallacies rarely occur in real life and that fallacy labels are often casually thrown around in a way that distracts from the substance of a discussion. My first argument has been met mostly with incredulity. Steven Novella writes that I "need to get out more" and advised me to "spend some time in the trenches" with active skeptics. Other readers write about "abundant evidence" for fallacies, plentiful "applications to real life," and "2,300 years of effective use." But apparently fallacies are so ubiquitous in real life that readers don't even bother to offer examples in their replies! Robert Clear just directs me to "online comments sections of articles on contentious topics," and he just states that global warming deniers often use ad hominem *and* ad verecundiam *fallacies.*

I would really invite readers to take some specific real-life arguments from pseudoscientists and see if they can find clear-cut post hoc fallacies. Bear in mind that all of us rely on post hoc reasoning in everyday life, as I pointed out in my article. In my experience, you'll find a range of weak, truncated, questionable, and sloppy post hoc arguments, but you'll find few people who flatly say that A must have caused B merely because B followed A.

As for my second claim about the careless use of fallacy labels as a substitute for genuine arguments, Gregory S. Bucher agrees with me, but David Clark writes that I "completely misrepresent" the practice. According to him, it's not a matter at all of "uttering a phrase from a list of phrases." But ironically, the letters illustrate my point better than I could've. Few readers could resist the temptation to accuse me of having committed this or that fallacy in my article, perhaps the better to show my inadequate understanding of fallacy theory. My article has been variously charged with the Straw Man Fallacy, the "fallacy of false alternatives," the "fallacy of incomplete evidence," and the fallacy of the false continuum. And all crammed in one article!

Does this use of fallacy labels move the debate forward? Hardly. When Michael Mauser suggests that my Fallacy Fork is an instance of the fallacy of "false dichotomy," he doesn't go on to explain why this is so. It's almost as if the label settles it. But some dilemmas really exclude their middles, just like some slopes are really slippery, and some correlations point to causal links. Or take Novella's charge of a "false continuum." According to Novella, I have seen twilight and concluded that night and day do not exist. But Novella misrepresents our argument, which is not about gray zones but about the descriptive validity of a concept. To stick with the metaphor: we do indeed have a crisp conception of "night" (i.e., our textbook definitions of fallacies), but when we go out in the real world, we see only (or mostly) the twilight of nuances, complications, contexts, qualifications, and uncertainties.

In playing "fallacy gotcha" with my article, I think readers have inadvertently shown what's wrong with fallacy theory. But let me end on a positive note: I fully support the goals and philosophy of the skeptical movement, and I can assure Novella that I have spent years "in the trenches" with the Belgian skeptics. It is exactly during my "service" in our trench warfare against baloney that I came to realize that some of the weaponry on our side was not as sharp and accurate as I would have wished.

Polygraph Problems

Glad to see James Randi's unequivocal denunciation of the (so-called) "lie detector" ("A Consistently Erroneous Technology," September/October 2017). From a detailed study of its history, I think there might have been a period when the technique had some (small) value. Not because it can actually detect lies but because of its intimidation factor. Before everybody became inundated in technology, a skilled interrogator, aided by the polygraph mumbo-jumbo, could "sweat" admissions out of suspects without the use of physical abuse. That was certainly the intent of Chief Gus Vollmer (Berkeley, California) when he encouraged Dr. John Larson to build the device in 1921. Larson had a PhD in physiology and is generally credited with the invention of the first practical polygraph, which combined readings of blood pressure, pulse rate, respiration, and skin conductivity (related to sweat production). He later attained a medical degree in clinical psychiatry.

By the 1930s, Larson had essentially launched a crusade against the *improper use* of the device. Speaking in Detroit, Larson told an interviewer, "It is essential to realize that this testing does not detect lies, but [rather] painful complexes which are intensified by focusing the suspect's attention on questions of truth or falsehood." He saw it as a useful tool for psychiatry, but just that … and he strongly opposed any move to use the results in court.

Evan Filby
Idaho Falls, Idaho

Evolution and Religion

Reading Matthew Nisbet's column "Evolution in the College Class-

room" (September/October 2017) gave me the uncomfortable feeling that the Skeptical Inquirer was having a Going-Out-of-Business-Sale and selling its proverbial soul. I understand the pressure to enlist religious allies in the war against creationism, but at what price? The idea that we should accommodate the religious needs of those who have a problem with naturalistic science means that we must both suspend critical thinking and allow revision of the history of evolutionary thought. How do we teach an evolution where natural selection can effectively be replaced by a supernatural selection? Indeed, the entire brilliant concept of selection becomes unnecessary when it is lowered to the level of a belief-based, guided, and purposeful alternative. How does critical thinking survive when we invoke it only on some occasions instead of at every opportunity? Teaching such double standards diminishes both teaching and what is being taught. And how does one teach the history of evolutionary thought when Darwin's input has been reduced to virtually nothing? Darwin minus natural selection is not an evolutionary theory that we would recognize or accept. So why would we do that? Once you've sold your soul, I'm told, you can't buy it back.

I've never had any respect for the argument that religion and science are separate, non-overlapping domains (in Gould's parlance, Non-Overlapping Majesteria or NOMA) because religion isn't bound by any rules regarding its domain, unlike science, which has distinct rules and limits. To argue that religion doesn't tread on science's domain is naive. Allowing a watered-down evolution that requires supernatural input is an acceptance of a religious intrusion on science. In this regard, it's no different from creationism.

Ray Sutera
Ocean Grove, New Jersey

Rose Mackenberg

In Terence Hines's review of Tony Wolf's book about Rose Mackenberg, *Houdini's "Girl Detective"* (September/October 2017), he states that "Until the publication of this book, the only description of her [in the skeptical literature] was in a short piece by Loren Pankratz in the July/August 1995 Skeptical Inquirer (pp. 28–29)."

This is almost but not quite accurate. CSI Fellow Daniel Loxton, editor of *Junior Skeptic*, showcased Rose Mackenberg and NYPD detective and fortuneteller fraud buster Mary Sullivan in the 46th issue of *Junior Skeptic* back in 2013, inside *Skeptic* magazine vol. 18, no. 1. The *Junior Skeptic* cover features Sullivan and Mackenberg.

Jim Lippard
Phoenix, Arizona

Clash of Perspectives

In the letters column of the September/October SI, reader Norman Carlson accuses me of being untrustworthy, unintelligent, lobotomized, lacking in virtue, and entitled, and he perhaps accuses the skeptical movement of prostitution as well (he says liberals have "smothered and prostituted" the skeptical movement).

It is unclear whether Mr. Carlson read my letter, which presents not my ideas but those of Bruce Fleming, from Fleming's book *Why Liberals and Conservatives Clash*, many within quotation marks. I found Mr. Fleming's ideas to be interesting, suggestive of further lines of thought, and entertaining, but I have no way to know whether they are valid or true; it would take social science research to determine whether Fleming's analysis describes how people really think, and if so whether it can differentiate liberals from conservatives—and if so, to what percentage of the liberal and conservative population it applies. Someone would also have to define liberal and conservative; Mr. Fleming says that liberals are always open to discussing things, but that isn't how Mr. Carlson sees me.

I guess I should have stated more of this in my letter, but its purpose was to call attention to Fleming's book and—exactly because I am curious, including skeptical, about all of these ideas—to suggest that the Center for Inquiry sponsor a debate between Mr. Fleming and Craig A. Foster, who advocates for conservative skeptics. Mr. Carlson accuses me of wanting to "debilitate" him, but I don't think my assistance is needed.

Bill Fishman
Los Angeles

The letter from Norman Carlson in response to Bill Fishman ("Confusing Liberals and Skeptics?") reads like road rage. It is a good example of a selection form of straw man caricature commonly displayed by a subset of modern conservatives against their concept of liberals and by some liberals against their concept of conservatives. The goal is defeat or humiliation of an enemy rather than understanding all sides of an issue as a basis for rational action. I must say, I have rarely seen it done with such a superfluity of adjectives. I especially relish the fourth paragraph's moist celebration of our society's mostly intelligent and trustworthy conservative citizens.

As an aside, I wonder why Carlson has to constantly point out to Christian friends that he is tolerant. Do they not believe him the first time he tells them?

William Rouse
Chandler, Indiana

Also related: "While Hurricanes Ravage the U.S., Criticism of Climate Change Continues," Follow Up column, this issue, page 61.—Editor.

Erratum

The November/December 2017 issue of SI went to print omitting the first paragraph of Stuart Vyse's article, "Before Carl Sagan and Neil deGrasse Tyson, There Was Dan Q. Posin." The editors regret this omission and extend our apologies to Dr. Vyse and our readers. The paragraph in question should have read as follows:

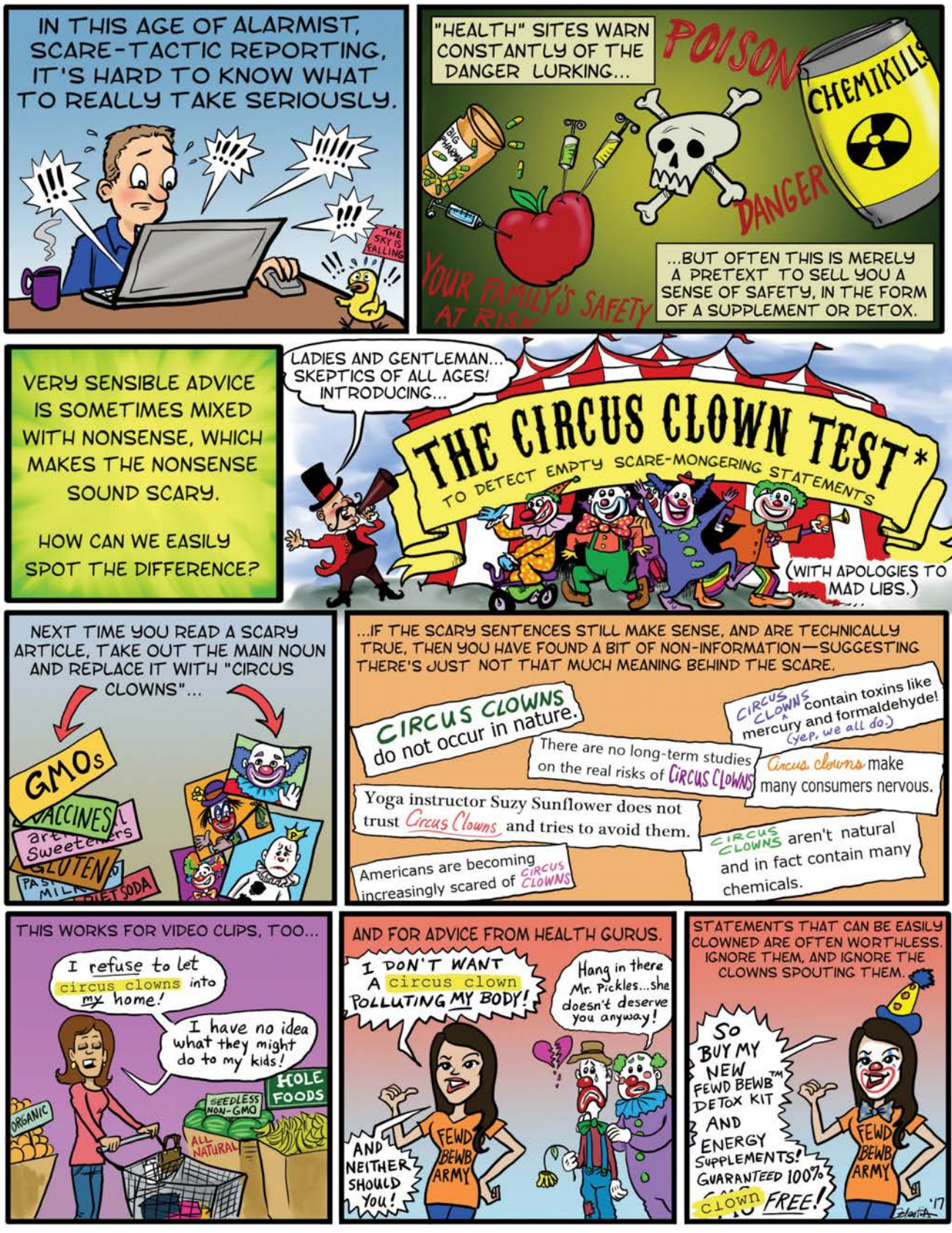
"In the 1950s and 1960s, the United States and the Soviet Union were engaged in a powerful rivalry. After World War II, both countries began stockpiling increasingly destructive nuclear weapons, and in 1957 the U.S.S.R. shocked the world by launching Sputnik I into Earth orbit, demonstrating that it had sufficient rocket power to deliver a nuclear weapon to Europe or North America. The Sputnik launch galvanized the United States, increasing the demand for scientists and putting much greater emphasis on the teaching of science and mathematics. Each new NASA launch was a national media event, and in 1962 President John F. Kennedy made his famous 'We Choose to Go to the Moon' speech, setting the goal of sending an astronaut to the moon and back before the end of the 1960s."

[FEEDBACK

The letters column is a forum on matters raised in previous issues. **Letters should be no longer than 225 words**. Due to the volume of letters we receive, not all can be published. Send letters as email text (not attachments) to letters@csicop.org. In the subject line, provide your surname and informative identification, e.g.: "Smith Letter on Jones evolution article." Include your name and address at the end of the letter. You may also mail your letter to the editor to 944 Deer Dr. NE, Albuquerque, NM 87122.

THE CIRCUS CLOWN TEST

by Celestia Ward



* NOT AN ACTUAL MEDICAL TEST...CONSULT A DOCTOR OR CREDIBLE NUTRITIONIST, NOT A COMIC!

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The organizations listed above have aims similar to those of the Committee for Skeptical Inquiry but are independent and autonomous. Representatives of these organizations cannot speak on behalf of CSI. Please send updates to Barry Karr, P.O. Box 703, Amherst NY 14226-0703.
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