



Why are Scientists Afraid of Daryl Bem?

Larry Dossey

Many readers will be aware of the furore occasioned by a recent publication of Daryl Bem, which seems to violate the presuppositions of scientific materialism. This is an edited version of Larry's editorial in Explore. Scientists are supposed to be evidence-based and reasonable, but this episode reveals deep-seated prejudices with which Network Review readers will be all too familiar.

Prejudice is never far from the experience of most readers of *Explore*, concerned as we are with concepts of healing that are frequently outside the mainstream. Over the years we learn to expect prejudice and we become somewhat inured to it. But sometimes prejudice is so blatant, so in-your-face, it is shocking and cannot be ignored.

I'm referring to a recent event in the field of consciousness research, which is one of the main focus areas of *Explore*. Bias against this field is nothing new, but in this instance it was more vehement than usual and achieved national attention.

This conflict is an example of the 'denier movements' that are currently rampant in our culture, and which have recently been described by *Explore* columnist Stephan A. Schwartz. In his seminal report in May 2010, Schwartz specified the denial of the concept of nonlocal consciousness as one of the most important issues of our time. I hope the following discussion will help readers understand that consciousness manifests nonlocally in ways that defy the limitations of space and time, why this concept is so offensive to many scientists, and why it is likely to become, at long last, a part of the scientific worldview.

Scientists and Politics

In 2009 the Pew Research Center released a report on scientists and politics, conducted in collaboration with the American Association for the Advancement of Science. The study involved a survey of 2,500 American scientists. They found that only nine percent of the scientists considered themselves politically conservative, and that only six percent identified themselves as Republicans. The most frequent reason given for this dramatic skewing is that scientists have become hostile toward what they consider Republicans' contempt for the basics of modern biology, anthropology, evolutionary theory, geology, cosmology, stem cell research, and climate change.

The Pew findings imply that scientists are liberal, progressive thinkers who are tolerant of new ideas. Unfortunately this is not always the case.

Bem's Bombshell

Flagrant prejudice among scientists erupted in early 2011, when Cornell University psychology professor Daryl Bem had a paper accepted for publication in the elite *Journal of*

Personality and Social Psychology. Bem's paper is titled 'Feeling the Future: Experimental Evidence for Anomalous Retroactive Influences on Cognition and Affect.' Bem is no ordinary psychologist. He is widely respected for his clear, creative thinking and his meticulous, original research.

His study was an eight-year project involving more than a thousand Cornell students in nine separate experiments. In one of the experiments, the subject sits in front of a computer screen on which pictures of two curtains appear. Behind one of the curtains is a picture of an erotic nature; behind the other curtain is a blank wall. The subject's task is to indicate which curtain conceals the erotic photo. At the time of the subject's choosing, however, neither curtain conceals the photo. It is only *after* the subject chooses that the computer makes a random choice and assigns the erotic picture to one of the curtains. If the subject merely guesses, he or she should be right 50 percent of the time. But that is not the way the experiment turns out. The hit rate for the erotic stimulus was 53.1 percent — not a huge departure from chance but statistically significant nonetheless. It was as if the subjects were seeing the future, or that information from the future was perhaps traveling backward in time to the present.

In another experiment, students were shown a list of words and were then asked to recall words from it, after which they were told to type the words that were randomly selected from the same list. Oddly, the students were better at recalling words that they would *later* type, as if reinforcement from typing acted backward in time.

In an additional study, Bem employed research on 'priming' — the effect of a subliminally presented word on a subject's response to an image. For example, if someone is momentarily flashed the word 'ugly,' it will take her longer to decide that a picture of a kitten is pleasant than if 'beautiful' had been flashed. Running the experiment backwards, Bem found that the priming effect seemed to work backward in time as well as forward.

All the nine experiments were variations on this general theme. All but one were statistically significant. Eight of the nine seemed to indicate that an effect could come before its cause.

Shooting from the Lip

Bem's study prompted a hissy fit among scientists. When an article about his results appeared on the front page of the *New York Times* on January 6, 2011, the controversy was

suddenly thrust before the nation. The following day, additional outbursts from several scientists and philosophers were featured in the *Times* in the 'Room for Debate' section. There was almost no debate, however, because nearly all the experts whose opinions were solicited by the *Times* were hostile to Bem's findings.

Cognitive scientist Douglas Hofstadter of Indiana University predicted disaster, wailing, 'If any of [Bem's] claims were true, then all of the bases underlying contemporary science would be toppled, and we would have to rethink everything about the nature of the universe.... There has to be a common sense [sic] cutoff for craziness.... Otherwise, the floodgates will be open to crackpots of all stripes — and opening the floodgates to the frequent publication of crackpot ideas in top-notch journals would...spell the end of science as we know it.'

Columbia University astronomer David Helfand thundered that Bem's findings were 'an assault on science and rationality.' Breezily ignoring more than a century of experimental investigation, Helfand questioned 'whether ESP is even amenable to scientific inquiry.' He compared Bem's study to 'the memos describing the weapons of mass destruction in Iraq, the rantings of Senator Jim Inhofe on climate change, and the triple-A ratings of collateralised debt obligations.' He charged that Bem's paper, like these examples, had not been 'subjected to rigorous and impartial peer review,' and would therefore cause similar mischief—an accusation that is vigorously disputed by psychologist Charles Judd of the University of Colorado, the editor of the journal that accepted Bem's paper. Helfand cheekily suggested that psi may deserve 'the same exalted status as belief in the Pastafarian Flying Spaghetti Monster.'

Physicist Lawrence M. Krauss, of Arizona State University, excoriated Bem's paper as an example of 'bad research [which] gets happily buried in the dustbin of history, which is what I expect will happen in this case,' although he gave no specific reasons why Bem's research was 'bad.' Philosopher Anthony Gottlieb, a visiting scholar at N. Y. U.'s philosophy department, amazingly suggested that Bem's evidence simply doesn't matter, no matter how solid it might be: 'But even if Daryl Bem's study...turns out to be gold-standard science and breaks none of the standard procedural rules, one can still be confident that its findings are incorrect.' Gottlieb seems blissfully unaware that precognition, or future knowing, usually takes place not in labs but in free-range humans in the wild.

Ray Hyman, a retired psychologist at the University of Oregon, who for decades has been a voluble, dedicated foe of such findings, screeched that Bem's work and its imminent publication are 'craziness, pure craziness. I can't believe a major journal is allowing this work in. I think it's just an embarrassment to the entire field.' Hyman even suggested the Bem's paper might be a hoax. 'He's got a great sense of humor,' he said. 'I wouldn't rule out that this is an elaborate joke.'

Against this barrage, editor Judd stood firm. 'Four reviewers made comments on the manuscript,' he said, 'and these are very trusted people.'

Science journalist Jim Schnabel saw many of the scientists' comments as flagrant attempts to suppress free inquiry. He wrote: 'But how shall we account for the Inquisitional outbursts from scientists that appeared in the [*New York Times*]....? I mean the calls by prominent academic researchers to effectively *suppress* the findings of a scientific colleague, the eminent psychologist Daryl Bem, essentially because his findings threatened their reality.'

Not all the media response to Bem's study was negative. A more open-minded analysis was offered by science commentator Robert Krulwich of NPR: 'Maybe psychologists, like quantum physicists, will have to deal with the deep strangeness of our universe. Maybe time doesn't behave properly. Maybe it makes little leaps....'

Evidence Ignored

Quite apart from the uninformed rants of critics from within science, one of the more irritating features of this debate has been the journalists' appalling ignorance of the field they are attempting to cover. They appear to be completely in the dark about the existing experimental data that support Bem's findings. Neither the *New York Times* nor the *New Scientist* reporters — nor any others, as far as I know — mentioned that many studies in the field of presentiment research have *already* confirmed what appear to be retrocausal effects, in which physiological arousal occurs *before* the stimulus for such. Retrocausal effects in about a score of additional experiments were reviewed in 2000 by researcher William Braud in the journal *Alternative Therapies in Health and Medicine*. But of all this, both the critics and journalists are silent. They behave as if Bem's study is a completely new species — an alien one at that.

The unwillingness of mainstream scientists to consider that Bem's findings might possibly be valid is an old pattern. Intolerance predictably surfaces anytime data is presented suggesting that consciousness can act in ways that transcend mediation by the physical senses. Such phenomena are generally considered paranormal and are relegated to the purview of parapsychology or psi. These 'para' terms are inappropriate, however, because abundant evidence suggests these phenomena are common in all cultures; and if they exist, as copious evidence demonstrates, they are presumably a part of nature, not outside or 'para' nature.

One of the unique features of these phenomena is their capacity to elicit overheated, hysterical responses from scientists. Many scientists, who are willing to entertain hypotheses in other areas of science that are so breathtakingly bizarre they can hardly be imagined — e.g., an infinite number of alternate or parallel universes; string theory, which many scientists consider to be unproven and unprovable, requiring eight extra dimensions that have no basis whatever in human experience, and which cannot be experimentally verified in any way; or a Big Bang, out of which an entire universe arose from nothingness — lapse into fevered frenzy when confronted with so-called paranormal events. They simply ignore the research validating these phenomena and resort to the 'everybody knows' argument — since 'everybody knows' these things can't happen, they don't happen.

Bem's Cardinal Sin

Professor Bem has poked the dragon of materialism, and the dragon is lashing out. His unforgivable transgression is that he has dared to suggest a primary role for consciousness in the elaboration of reality. His experiments suggest that consciousness can acquire information without mediation by the physical senses, outside the present, with the reversal of cause and effect. Consciousness, therefore, cannot be a slave to matter or time. To those who worship at the altar of materialism, this is blasphemy.

But in condemning Bem, his critics also manage in the process to denounce some of the patriarchs of modern

science. As described in Ken Wilber's book *Quantum Questions: The Mystical Writings of the World's Great Physicists*, many pioneers of the quantum-relativistic worldview such as Erwin Schrödinger, Sir Arthur Eddington, and Sir James Jeans held opinions about the nature of consciousness that are a far cry from the knee-jerk materialism of Bem's critics. Jeans, for example, was forthright in championing a primary role for consciousness in physics. Nobel physicist Eugene Wigner expressed the situation pointedly, saying that it is 'not possible to formulate the laws of [physics] in a fully consistent way without reference to the consciousness [of the observer].'

The most cursory reading of the history of modern science reveals that there have been rumblings from physics for nearly a century that we have underestimated consciousness in our account of what's real. Moreover, actual experiments suggest that the actions of consciousness are not limited to the present. For example, in so-called delayed choice experiments consciousness seems to operate outside the present, affecting events that have already happened — a cause coming after an effect, as suggested in Bem's studies. It would be wrong to suggest there is agreement on what these experiments mean. But the fact that there *is* controversy and that fundamental issues in physics remain unsettled suggests that the presumptuous, full-bore criticisms of Bem's findings are inappropriate.

Bem's critics are simply wrong. He is not trying to smuggle consciousness into the physical sciences; it is already there, installed by many of the architects of quantum physics nearly a century ago. Denying this fact has led to pernicious results. 'One of [the] most destructive consequences [of this denial] has been what can only be considered an all-out assault on parapsychological research, chiefly because it threatens to expose the deficiencies in the assumptions of materialism,' says philosopher Keith Chandler, author of *The Mind Paradigm: A Central Model of Mental and Physical Reality*.

Sociologist Marcello Truzzi, a keen analyst of skepticism, elaborated on the intellectual narrowness demonstrated by Bem's critics: "Scientists are not the paragons of rationality, objectivity, open-mindedness and humility that many of them might like others to believe.' Nobelist James D. Watson, co-discoverer of the structure of DNA, agreed: 'One could not be a successful scientist without realizing that, in contrast to the popular conception supported by newspapers and mothers of scientists, a goodly number of scientists are... narrow-minded and dull....' And as psychologist Hans Eysenk observed, 'Scientists, especially when they leave the particular field in which they have specialised, are just as ordinary, pig-headed and unreasonable as anybody else, and their unusually high intelligence only makes their prejudices all the more dangerous....'

A Candidate for Burning

The tantrums provoked by Bem's paper are nothing new. A similar episode occurred in 1981 when Sir John Maddox, the late editor of *Nature*, one of the most prestigious science journals in the world, attacked British biologist Rupert Sheldrake when his ideas of morphic fields and morphic resonance were introduced in his book *A New Science of Life*. Maddox, as editor of *Nature*, was considered one of the elite arbiters of science. He suggested that Sheldrake's book should perhaps be burned. As he fumed in *Nature*, 'This infuriating tract... is the best candidate for burning there has been for many years.' Maddox's indignation toward Sheldrake continued to fester over the years. In an

interview broadcast on BBC television in 1994, he continued, "Sheldrake is putting forward magic instead of science, and that can be condemned in exactly the language that the Pope used to condemn Galileo, and for the same reason. It is heresy." Maddox would not let up. In *Nature*, in 1999, he reviewed Sheldrake's book *Dogs That Know When Their Owners Are Coming Home and Other Unexplained Powers of Animals*, saying, 'Rupert Sheldrake is steadfastly incorrigible in the particular sense that he persists in error. That is the chief import of his eighth and latest book. Its main message is that animals, especially dogs, use telepathy in routine communications. The interest of this case is that the author was a regular scientist, with a Cambridge PhD in biochemistry, until he chose pursuits that stand in relation to science as does alternative medicine to medicine proper.' (Note the drive-by shot at alternative medicine. We always make tempting targets.) Maddox seemed not to care that Sheldrake's hypothesis is buttressed by dozens of experiments that have been done over the years.

Maddox's crusade against Sheldrake lasted for more than two decades, until Maddox's death in 2009. His condemnation of Sheldrake rested on his status as editor of *Nature*. He did not concern himself with evidence; he believed his authority sufficed. His criticism began with ridicule and degenerated into ad hominem attacks. A similar attitude toward Professor Bem can be detected in the disparaging comments of some of his critics.

If a Skeptic's Museum is ever built, Maddox's tirades should be put under glass on prominent display as a prototypical example of the hostility of 'experts' toward unconventional findings in science, where mind and consciousness are concerned.

Neal Grossman, professor emeritus of the University of Illinois at Chicago, is a rare academic philosopher and historian of science who is well informed about the research surrounding the nonlocal expressions of consciousness. He suggests that materialism is hopelessly incapable of accounting for these events and deserves a decent burial: 'Materialism — the belief that consciousness is produced by or is the same thing as the physical brain — is one of those beliefs that have already been proved false by science. However, ...it will take another generation before these facts are recognised by mainstream academia. Old paradigms never go gently into the night: they go screaming and kicking.'

A 'Baghdad Bob' Scenario

The evidence favoring Bem-type phenomena is neither rare, marginal, nor inaccessible. In spite of the squawking by pseudo-skeptics who claim otherwise, this research has been replicated by researchers around the world and is freely available for anyone who cares to look. The time-worn, perennial objections to this material have been eviscerated recently by more scholarly books and treatises than I can name here. This situation is summarised by researchers Adrian Parker, of the Department of Psychology, Goteborg University, and Göran Brusewitz, of the Swedish Society for Psychical Research, in their paper 'A Compendium of the Evidence for Psi': 'It appears quite clear... that irrespective of what interpretation is given to specific research reports, the overall results... are indicative of an anomalous process of information transfer, and they are not marginal and neither are they impossible to replicate. In the face of this, the critic who merely goes on asserting there is no evidence... is using a tactic reminiscent of Mohammed Saeed al-Sahhaf, Iraq's former Information Minister, in blindly asserting there are no American troops in Baghdad.'

Al-Sahhaf gained prominence during the 2003 American invasion of Iraq for his sunny, bombastic, daily press briefings in Baghdad. He was given the moniker 'Baghdad Bob' by western observers. On April 7 he told the world that Americans were committing suicide by the hundreds at the gates of the city, and that there were no American troops in Baghdad, although American tanks were cruising the streets a few hundred yards from the site of his press conference.

Baghdad Bob would make an excellent patron saint for those scientists who doggedly deny the evidence for the nonlocal expressions of consciousness. The Baghdad Bob scenario is a modern version of the fairy tale of the emperor's new clothes, in which the king's admirers pretend not to notice his nakedness. As Lanza and Berman put it, 'It's one thing to respect authority, [but people are beginning to notice that] the emperor seems to have skimped on his wardrobe budget.'

Violations of Prejudice, not Laws of Nature

The materialistic assumptions that underlie the denunciations by Bem's critics are already being abandoned. During the twentieth century, the goal of neuroscience was to understand the workings of the mind in terms of the physical laws governing the material brain. It was an article of faith that a thorough understanding of the brain's atoms and molecules would lead to an understanding of consciousness itself. In short, the working assumption, which still widely prevails, was that mind equals brain. As astronomer Carl Sagan said, '[The brain's] workings — what we sometimes call mind — are a consequence of its anatomy and physiology, and nothing more.' Or, as Nobelist Francis Crick observed, '...a person's mental activities are entirely due to the behavior of nerve cells, glial cells, and the atoms, ions, and molecules that make up and influence them.'

These confident assertions disregard warnings from within physics itself that the materialistic approach may be fundamentally irrational. One example will make the point. In his famous 1969 essay 'Are We Machines?' Nobel physicist Eugene P. Wigner observed that in quantum physics, 'The primitive facts in terms of which the laws are formulated are not positions of atoms but the results of observations. It seems inconsistent...to explain the state of the mind of the observer, his apperceptions of the result of an observation, in terms of concepts, such as positions of atoms, which have to be explained, then, in terms of the content of consciousness.' This circular reasoning is simply ignored by the Crickish dogma that 'the atoms, ions, and molecules' account for mind itself. Wigner would have none of it, going on to say, '[W]hen it [quantum mechanics] uses the concept of observations as the basic concept in terms of which it formulates its laws, quantum mechanics is 'passing the buck': the concept of observations is outside the realm of physics and its analysis is left to other disciplines. This is unsatisfactory. ...It may well be...that present-day physics represents...a limiting case — valid for inanimate objects. It will have to be replaced by new laws, based on new concepts, if organisms with consciousness are concerned.'

The bankruptcy of the materialistic approach to consciousness is now being openly admitted. As the theoretical biologist and complex-systems researcher Stuart Kauffman puts it, 'Nobody has the faintest idea what consciousness is.... I don't have any idea. Nor does anybody else, including the philosophers of mind.' Philosopher Jerry A. Fodor expressed a similar opinion, saying, 'Nobody has the slightest idea how anything material could be conscious. Nobody even knows what it would be like to have the

slightest idea about how anything material could be conscious. So much for the philosophy of consciousness.' Theoretical physicist Freeman Dyson agrees: 'The origin of life is a total mystery, and so is the existence of human consciousness. We have no clear idea how the electrical discharges occurring in nerve cells in our brains are connected with our feelings and desires and actions.'

The materialistic approach to consciousness requires a one-way, forward-acting view of the mind and time, which prohibits the possibility of future knowledge and the retrotemporal flow of information. But the laws of physics do not prohibit information moving from the future to the present. As Columbia University physicist Brian Greene says, 'Nowhere in any of these laws do we find a stipulation that they apply one way in time but not the other...in theory events can unfold in reverse order.' In other words, Bem's findings violate not the laws of nature, but the ingrained prejudices of his critics about how the world *should* work.

Brian Josephson, a Nobel physicist at Cambridge University, is among the physicists who have probed experiments such as Bem's, in which physiological changes occur in the subject before the stimulus happens. He concludes, 'So far, the evidence seems compelling. What seems to be happening is that information is coming from the future. In fact, it's not clear in physics why you can't see the future. In physics, you certainly cannot completely rule out this effect.'

'[I]t is difficult to overstate the importance of research into these phenomena,' states physicist Richard Shoup of the Boundary Institute, which is dedicated to researching nonlocal phenomena related to consciousness. 'Progress in this area,' Shoup states, 'may well lead to a reformulation and re-interpretation of quantum theory... and thus to deep reconsideration of some parts of physics. Even the scientific method itself, based largely on a concept of limited causality and forward influence, may be in need of re-examination.'

When materialistic scientists condemn Professor Bem's findings as 'craziness, pure craziness;' when they expatiate sagely on the essential nature of consciousness by alluding to neuronal activity, neurotransmitters, receptor sites, and fMRI patterns; when they triumphantly proclaim that it is now proved that mind equals brain; when they confidently assure us that the overall picture of consciousness is known, and that only the fine details remain to be filled in — when they say these things, the tendency has been to assume that they understand what they are talking about and to give them the benefit of the doubt. However, Bem's findings and the accumulated data from a century of consciousness research suggest that their buoyant pronouncements represent not understanding but a clotted intellectual enterprise that has foundered from its own inertia.

In spite of this situation, many scholars are beginning to agree, at least privately, that the materialistic approach to consciousness is incomplete. In one survey of more than 1,100 college professors in the United States, 55 percent of natural scientists, 66 percent of social scientists (psychologists excluded), and 77 percent of academics in the arts, humanities, and education reported believing that extrasensory perception or ESP is either an established fact or a likely possibility.

The Cathedral of Science

The conflict over Bem's findings reveals an unfortunate development — science, which fought for centuries to free itself from the dogma of the Church, is now mired in its own dogma, scientism. Bem's experiments are the modern

equivalent of Galileo's telescope, down which the authorities refuse to peer. As bioscientist Knox describes the current situation: 'Recall the learned men of Galileo's time who refused to look in the telescope. They were of the opinion that data from telescopes was not relevant. The same thing is happening today, except that the limiting doctrine is not coming from the Catholic Church. It is coming from science — the new religion of the 21st century. The dogma of this new religion is as rigid as that of the earlier church in dictating what is and is not acceptable in the scientific purview.'

In recent years, ornithologists have discovered that songbirds sing louder and at a higher frequency in noisy urban environments than in quiet rural settings. The reason, the experts believe, is that they are competing with background noise to be heard. This pattern is widespread, having been documented in London, Paris, Prague, Amsterdam, and other cities. But there's a catch: in singing louder, the quality of the song is degraded, with fewer syllables per second. I mean no disrespect to the birds, but certain humans, as we've seen, have recently been behaving in the same way. Offended by experimental findings they find offensive, their strategy has been to shout louder.

Perhaps critics and proponents alike could simply take a deep breath and realise that we're all in the same boat. Our understanding will always be partial, no matter how far science progresses. Our worldviews will always be in need of renovation and updating. This realisation might help us turn down the volume. It might mean more civility, tolerance, and humility in both politics and science.

We might draw inspiration from novelist Aldous Huxley, who understood these inevitable uncertainties, saying, 'I am entirely on the side of the mystery. I mean, any attempts to explain away the mystery is ridiculous.... I believe in the *profound and unfathomable mystery of life*...which has a...divine quality about it.'

Dr. Larry Dossey is a former internist, former Chief of Staff of Medical City Dallas Hospital, and former co-chairman of the Panel on Mind/Body Interventions, National Center for Complementary and Alternative Medicine, National Institutes of Health. He is executive editor of the peer-reviewed journal Explore: The Journal of Science and Healing. He is the author of eleven books on the role of consciousness and spirituality in health. The full version of this article with references can be found on the SMN website.