

Why Parapsychological Claims Cannot Be True

 skepticalinquirer.org/2019/07/why-parapsychological-claims-cannot-be-true

July 2,
2019

The July-August 2018 issue of *American Psychologist* contained an article titled “The Experimental Evidence for Parapsychological Phenomena: A Review” by Etzel Cardeña. Cardeña is known for research on hypnosis and consciousness, parapsychology, and, interestingly, for his work in theater as an actor and director. The paper prompted us to examine and critique the science behind parapsychology (Reber and Alcock, forthcoming). This article is a summary of our arguments.

The *American Psychologist* is the flagship publication of the American Psychological Association (APA), the largest and most influential professional organization in our field, and it is sent to its nearly 120,000 members. An article being published within it is equivalent to granting the imprimatur of the APA. Interestingly, this wasn’t the first time the APA had entered this controversial domain of psychology; in 2011, another of its respected journals, the *Journal of Personality and Social Psychology*, published a paper by Daryl Bem of Cornell University that purported to show evidence of precognition. Bem’s paper lit a small firestorm largely because Bem was well-known for research in fields outside of parapsychology. It was applauded enthusiastically by psi researchers and, of course, was immediately subjected to efforts at replication by other labs (which almost uniformly failed) and well-honed criticisms, including one by one of us (Alcock 2011).

Cardeña’s paper was, to the eye untutored in the world of the paranormal, an impressive effort. It reviewed the data for psi, focusing mainly on meta-analyses of published papers that showed small or marginal effects and, importantly, acknowledged the fact that there is no coherent theory for psi. Cardeña, in an effort to find a causal mechanism through which to understand the paranormal, brought in quantum mechanics (QM) and, to a lesser extent, relativity theory and the recently proposed notion of a “block universe” model in which past, present, and future all enjoy a simultaneous coexistence. The effort failed—mainly from some unfortunate misunderstandings of QM, relativity theory, and the fact that the block universe notion is little more than creative speculation.

While the paper bothered us on several levels, our primary concern was that it was symptomatic of a larger, more important issue that was being missed. It is not a matter of reviewing the existing database, scratching at the marginal and highly suspect findings of meta-analyses for something that passes the “< .05” cutoff point. It is not a matter of rummaging around in arcane domains of theoretical physics for plausible models. It is more

basic than that: parapsychology's claims cannot be true. The entire field is bankrupt—and has been from the beginning. Each and every claim made by psi researchers violates fundamental principles of science and, hence, can have no ontological status.

We did not examine the data for psi, to the consternation of the parapsychologist who was one of the reviewers. Our reason was simple: the data are irrelevant. We used a classic rhetorical device, *adynaton*, a form of hyperbole so extreme that it is, in effect, impossible. Ours was “pigs cannot fly”—hence data that show they can are the result of flawed methodology, weak controls, inappropriate data analysis, or fraud. Examining the data may be useful if the goal is to challenge the veracity of the findings but has no role in the kinds of criticism we were mounting. We focused not on Cardeña specifically but on parapsychology broadly. We identified four fundamental principles of science that psi effects, were they true, would violate: *causality*, *time's arrow*, *thermodynamics*, and the *inverse square law*.

Causality. Effects have causes. Bridging principles identify the causal links for observed effects. The appropriate response to circumstances that lack such a mechanism is skepticism or an existential agnosticism—and, historically, this has been the case. Newton's notion of gravity as “action at a distance” was considered suspect until rescued by Einstein's relativity theory; mystics' claims to control autonomic functions were thought to be scams until the discovery of biofeedback; Wegener's theory of continental drift was viewed skeptically until mid-ocean ridges and sea-floor spreading were discovered..

Within the study of psi, there are no causal mechanisms, and none have been hypothesized. Worse, there is virtually no discussion over whether the claimed effects have singular or multiple causal mechanisms or why the purported findings lack coherency. If psychokinesis affects the roll of dice in a psi lab, why not at craps tables? If telepathy exists, why are our brains not constantly abuzz with the thoughts of those around us? To maintain that the future puts in appearances—but only in psychology labs at Lund or Cornell—is to strain credulity to the snapping point. There are no patterns here. As we noted in our paper, “It is as if actors from a dozen different plays have appeared on the same stage in a discordant farrago.”

Time's arrow. Within parapsychology time is turned upon itself, most glaringly in precognition. Psi researchers have tried to explain this through QM, in particular the “entanglement” effect. It won't work. It's true that the spin of two particles separated in space are *entangled* (the state of one is simultaneously aligned with the other), but there is no *reversal* of time, simply concurrent effects. In the so-called “twin paradox” the twins age at different rates, but neither gets younger. As we argued, “The notion that the strangeness of the quantum world harbors an explanation of the strangeness of parapsychology is a false equivalency.” QM is a physical theory but not in the ordinary, Newtonian sense that we confront in daily life. As Nobelist Richard Feynman has quipped on many an occasion, “It is safe to say that nobody understands quantum mechanics”—outside of the mathematics. And as quantum theorist Jonathan Dowling noted in his 2013 book *Schrödinger's Killer App*,

there is nothing in QM that entails paranormal effects. If anything, it rules them out (Dowling 2013).

Thermodynamics. Again, take precognition. If the future affected the present, it would violate the thermodynamic principle that energy cannot be created or destroyed in an isolated system. The act of choosing a card from a fixed array, a common procedure used in psi research, involves neurological processes that use measurable biomechanical energy. The choice is presumed to be caused by a future that, having no existential reality, lacks energy. And it won't work to argue that by virtue of time reversal the system isn't closed. If that were true, all systems would be subject to this "borrowing" of energy from the future, leading to the incoherent conclusion that the First Law no longer applies anywhere.

Inverse square law. In telepathy, the distance between the two linked persons is never reported to be a factor, a claim that violates the principle that signal strength falls off with the square of the distance traveled. Psi researchers again import the "entanglement" effect as a possible explanation for this, but it won't work. In QM, there is no transmission of energy between the separated particles; it is only that they are "entangled."

In short, parapsychology cannot be true unless the rest of science isn't. Moreover, if psi effects were real, they would have already fatally disrupted the rest of the body of science. If one's wishes and hopes were having a psychokinetic impact on the world—including computers and lab equipment—scientists' findings would be routinely biased by their hopes and beliefs. Results would differ from lab to lab whenever scientists had different aims. The upshot would be empirical chaos, not the (reasonably) ordered coherent picture developed over the past several centuries.

At the close of our paper, we wondered why parapsychology still exists as a field of study. Why are some scientists still focused on the impossible? For 150 years, we've witnessed a cycle. Evidence for psi is announced with fanfare then later falls into disregard. A new theory is proposed then abandoned. A novel methodology is introduced but, when findings are not replicated, is discarded. Each time there's a resurgence of interest when another apparently successful result is reported. Lather, rinse, repeat.

This enterprise has involved literally thousands of papers, hundreds of conferences, dozens of review volumes, and *nothing has been learned*. Parapsychology is precisely where it was in the 1880s. Why, we wondered, are researchers still running experiments, using ever-more sophisticated statistical techniques, reaching out to ever-broader realms of science, expanding their analyses into studies of consciousness and mind? This pattern of persistent belief in the anomalous may be the most psychologically interesting phenomenon associated with the study of psi. One of us (Alcock 1985) has argued it is likely linked with a vague sense that science, hard-nosed and physicalist, lacks that mysterianist element found in religious or spiritual realms. The lure of the "para"-normal emerges, it seems, from the

belief that there is more to our existence than can be accounted for in terms of flesh, blood, atoms, and molecules. A century and a half of parapsychological research has failed to yield evidence to support that belief.

However, for us, the alluring mysteries are the ones that emerge from the straightforward study of the astonishingly complex, inviting world of normal science in all its mechanistic glory.

Note

Our paper was vetted by two experts in quantum mechanics, one of our choosing and the other chosen by the journal editor. Both assured us that our comments about physics in general and quantum mechanics in particular were correct.

References

- Alcock, James E. 1985. Parapsychology as a “spiritual” science. In P. Kurtz (ed.), *A Skeptic’s Handbook of Parapsychology*. Amherst, NY: Prometheus Books, 537–565.
- ———. 2011. Back from the future: Parapsychology and the Bem affair. *Skeptical Inquirer* 35: 31–39.
- Bem, Daryl J. 2011. Feeling the future: Experimental evidence for anomalous retroactive influences on cognition and affect. *Journal of Personality and Social Psychology* 100: 407–425.
- Cardeña, Etzel 2018. The experimental evidence for parapsychological phenomena: A review. *American Psychologist* 73: 663–677.
- Dowling, Jonathan P. 2013. *Schrödinger’s Killer App: Race to Build the World’s First Quantum Computer*. Boca Raton, FL: Taylor & Francis.
- Reber, Arthur S., and James E. Alcock. (forthcoming). Searching for the impossible: Parapsychology’s elusive quest. *American Psychologist*.

Arthur S. Reber

Arthur S. Reber, PhD, is Broeklundian Professor Emeritus at Brooklyn College and the Graduate Center of CUNY and a visiting professor at the University of British Columbia. He is a fellow of APS, AAAS, the Psychonomic Society, and the Fulbright Association. Reber is best known for research on implicit learning and other cognitive functions that take place largely outside of consciousness. His latest book is *The First Minds: Caterpillars, 'Karyotes, and Consciousness*, an exploration of the first emergence of sentience in unicellular life. He taught courses that critically explored parapsychology at Brooklyn College for over twenty years.

James E. Alcock

James E. Alcock, PhD, is professor of psychology at York University, Toronto, Canada. He is a fellow of the Canadian Psychological Association and a member of the Executive Council of the Committee for Skeptical Inquiry and the Editorial Board of the Skeptical Inquirer. Alcock has written extensively about parapsychology and anomalous experience and has for many decades taught a psychology course focusing on these topics. His most recent book is *Belief: What It Means to Believe and Why Our Convictions Are So Compelling* (Prometheus Books, 2018).