EDITORIAL

What Is Swept Under the Rug?[1]

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Abstract: Playing with the Occam's razor trope, Nobel laureate Sidney Brenner coined the term *Occam's broom* to describe the practice of sweeping under the rug facts that do not support the scientist's hypothesis. This practice is taken to extremes by some critics of anomalous cognition research (psi), who engage in dismissing inconvenient research data (including sometimes their own), naturalistic observations, and eminent scientists supporting this research. They also engage in rhetoric in which they claim that psi ought not be considered unless published in mainstream journals while simultaneously blocking such publication, and fail to acknowledge methodological and statistical advances spurred by psi research.

Keywords: Science suppression, Occam's razor, Occam's broom, anomalous cognition, psi, parapsychology

Scientists often cite the metaphorical razor of 14th century philosopher Occam (or Ockham) that "entities are not to be multiplied without necessities," to argue that theories with fewer hypotheses or entities are to be preferred to those that require more (or *principle of simplicity*). Similar ideas, however, were proposed centuries before Occam, for instance by Aristotle who wrote in *Posterior Analytics: "*We may assume the superiority *ceteris paribus* [other things being equal] of the demonstration which derives from fewer postulates or hypotheses" [in Baker, 2016]). The dictum itself is not found in Occam's works (Ariew, 1977), who might not have endorsed some of the cuts proposed by the epistemological barbers "because human beings can never be sure they know what is and what is not 'beyond necessity'" (Baker, 2016). Particularly in our days of paradoxical quantum principles (e.g., particle/wave complementarity and uncertainty in physics) and chaos theory (small changes in nonlinear systems giving rise to large and unpredictable outcomes), what we find in micro and major systems is forbidding complexity rather than simplicity.

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This editorial, however, is not primarily about Occam's razor, but about another object in his household. In 1997, 2002 Nobel laureate in Physiology/Medicine Sidney Brenner (1997) coined the term *Occam's broom* to describe sweeping "under the carpet any unpalatable facts that did not support the hypothesis" (p. R202). He stated how in many areas of modern biology "quite often neither the simplest theory, nor the most elegant… turned out to be right" (p. R202). If inconvenient data and observations are illegitimately swept under the carpet in mainstream areas, the practice is much worse with respect to research on psi/anomalous cognition, a topic that can stir vehement, even irrational, reactions by some who would like to eliminate it altogether. I will lift the rug now to reveal some of what is swept under it by some anti-psi authors (I reserve the term "skeptic" to those who, while not convinced by the evidence for psi, are nonetheless open to conducting research and considering it, e. g., French, 2021). I discuss a few examples out of a considerably larger number:

1) Research Data

A cornerstone of scientific practice is to produce data under carefully described and conducted conditions, which will be properly analyzed quantitative and/or qualitatively. For instance, we believe that the theoretically-predicted Higgs boson exists because scientists at the Large Hadron Collider (LHC) reported observations that were replicated by others and were beyond what would be expected by chance (e.g., Particle Data Group, 2020). There has been no attempt to deny the results even though the boson is not part of our ordinary experience nor is it easy or frequent to observe (it shows up only in about 1 in a billion particle collisions!).

A very different attitude is held by some with respect to the orders-of-magnitude smaller field of anomalous cognition. Reber and Alcock (2019a, b) provide examples of this attitude. Initially presented to the journal editors as a rebuttal to one of my papers (Cardeña, 2018) reviewing the meta-analytical evidence for psi phenomena and discussing potential physics theories and authors that might accommodate it, Reber and Alcock (2019a) declared the existential invalidity of psi phenomena because "the laws" of physics (which is not their discipline) make psi impossible and concluded that the data "are necessarily flawed and result from weak methodology or improper data analysis, or are Type 1 errors" (p. 391). Did they then describe how the methodology of the studies was weak or the data analyses flawed? No, and they explained why in another paper in which they wrote that "the data are irrelevant" (Reber & Alcock, 2019b). Criticisms of their papers came from multiple sources (e.g., https://www.scientificexploration.org/journal/volume-33-issue-4-2019) including a psi skeptic (http://www.skeptophilia.com/2019/08/the-realm-of-impossible.html).

A similar exclusion by fiat to that held by Reber and Alcock is an unfalsifiable in practice prior Bayesian estimate for psi phenomena of 10^{-20} (Wagenmakers et al., 2011), which ignores both previous research and naturalistic observations. Since at some point many findings now considered inarguable (e.g., atom immutability) were considered impossible, adopting this Bayesian estimate would have brought scientific development to a standstill a long time ago. Compare the certainties of the anti-psi authors with what 1965 Nobel physics laureate Richard Feynman (1981/1999) declared: "I have approximate answers and possible beliefs and different degrees of certainty about different things, but I am not absolutely sure about anything" (pp. 24-25; by the way, he was dismissive of psi but also of the social sciences in general).

Some psi critics even ignore their own research when it supports the psi hypothesis. Whenever the topic of psi research rears its head in a mainstream forum, it is *de rigueur* to dismiss it by appealing to *selective reporting* (aka as the file drawer effect). The argument is that the meta-analytic support for psi would be washed away by the assumed many studies that do not find evidence for it and do not get reported. This is a potential problem in any scientific area, not only psi, and the latter has had a better record of addressing it than most mainstream research areas until recently. For instance, in 1975 the Parapsychological Association adopted a policy against selective reporting only of supportive results, (Radin, 2007) and around that time also the *European Journal of Parapsychology* encouraged *registered reports* that would be peer-reviewed before data collection (Wiseman et al., 2019; for a response to the criticism of selective reporting in psi, see Cardeña et al., 2015). In addition, meta-analyses of psi routinely evaluate mathematically potential selective reporting (e.g., Baptista et al., 2015).

And there is another type of selective reporting that is very rarely acknowledged: non-reporting of psi supportive studies. Here are two examples out of more (for a review see Carter, 2007). Susan Blackmore became a well-known vocal critic of psi after she claimed that her research on the field had failed to produce any evidence for it. However, a meta-analysis of her work by Rick Berger (1989) found that 30% of her own studies resulted in significant results, considerably more than would be expected by chance (for a full discussion, including Blackmore's shifting conclusions, see Carter, 2007). In another example, Rupert Sheldrake (2015) described how

various critics (or their students) of the psi research paradigm of sensing being stared at obtained seemingly psi supportive results, which were not published and/or the data were discarded or not made accessible to him.

2. Naturalistic Observations

In a distinctly egocentric statement, Wagenmakers and collaborators (2011) wrote that psi "conflicts with what we know to be true about the world" (p. 46) which raises the question of who is this "we" and how they arrived to this conclusion. First, surveys from industrialized cultures reveal that majorities of people state that they have had ostensible psi phenomena (Watt & Tierney, 2015), so even if Wagenmakers et al. have never encountered an experience that challenged their views, they cannot speak for most people. This difference is even greater with respect to some non-Western cultures (e.g., Monteiro de Barros et al., 2022). There has been laboratory psi research precisely because in everyday life some people encounter events suggesting that their sentience is not temporally or spatially as limited as the senses or reasons would indicate. The usual anti-psi default position is that these everyday events can be explained as random unusual events, but that seems an unlikely explanation for carefully observed repeated accurate reports by a few individuals (e.g., Gauld, 1982) or independent group of people (cf. Knight, 2019). It encounters even more difficulties to explain controlled research based on observations/reports from everyday life such as guessing more often than would be expected by chance when someone is calling (Sheldrake, 2015; for a review of research on spontaneous case studies see Kelly & Tucker, 2015). The egocentric epistemic perspective articulated by Wagenmakers et al. (2011) in which one's perspective is seen as the only real or rational one (cf. Greenwald, 1980) has also hindered the study of experiences that though unusual are not *per* se pathological, can have important consequences (Cardeña et al., 2014), and have influenced scientific discovery, philosophy, and the humanities, even if not typically acknowledged (Cardeña & Winkelman, 2011).

3. Eminent Scientists Supportive of Conducting Research on Psi

The first major organization dedicated to the scientific study of psi, the Society for Psychical Research (SPR), founded in 1882, early on included such luminaries as Nobel laureates Lord Rayleigh, Charles Richet, and J. J. Thompson, one of the most important philosophers of ethics, Henry Sidgwick, and a psychologist/philosopher whose influence continues to reverberate to our days, William James. Overall, more than 30 Nobel prizewinners (including the Curies, Einstein, and Planck) and hundreds of other very eminent figures in the sciences, the arts, and politics, have been supportive of research in psi (for a list see Cardeña, 2015). Yet, when mention is made of, for instance, the genius of Marie Curie, William James, or Freeman Dyson, their support of psi is kept well under the rug. The historian of science Richard Noakes (2020) has given a thorough account of how foundational physicists of around 1870-1930 took the study of psi as an extension of their work in mainstream topics, not as woowoo.

Speaking of which, the best-selling psychologist Steven Pinker in his most recent book *Rationality* and in other venues has derided what he calls "paranormal woo-woo" (e.g., https://www.bbc.co.uk/mediacentre/2021/radio-4-think-with-pinker), basing his opinion in his own sense of rationality and the opinion of contemporary physicist Sean Carroll, who denies the possibility of psi. Mentioning the perspective of Carroll is of course perfectly adequate, but as taught in Methodology 101 one should also address alternative perspectives. Yet Pinker fails to mention recent or contemporary distinguished physicists who have proposed models of psi including Costa de Beauregard (1998), David Bohm (1986), Bernard Carr (2015), and Henry Stapp (2017), and multiple award winner computer scientist Richard Shoup (2015), among others (for a devastating criticism of Pinker's level of scholarship in a different area see Dwyer and Micale, 2021).

Another example is a short book review on the thorny demarcation problem in science. *Science News* writer Tom Siegfried (2021), in a figurative pen dripping condescension, described psi as "wishful thinking delusions" that even for a time was "taken seriously by some 'modern' scientists" (p. 30). That same author in that same magazine a few months later (Siegfried, 2022) wrote about foundational figures in quantum mechanics (which I assume he would consider truly modern) including John Bell, David Bohm, Albert Einstein, Pascual Jordan, and Max Planck, all of them having at the very least expressed interest in psi research (Cardeña, 2015a). It is not unusual to find anti-psi authors writing as if *scientists* had unequivocally refuted psi, when surveys and the fact that the Parapsychological Association has been an affiliate of the AAAS since 1969 counter that assertion (Cardeña, 2015b).

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4. The Strategy of Suppressing Publication of Psi Research While Arguing that It Would Be Accepted if It Had Been Published (the Catch-22)

Catch-22 is the name of the war-time novel by Joseph Heller (later made into a movie with the same title) that describes regulation 22 "a concern for one's safety in the face of dangers that were real and immediate was the process of a rational mind. Orr was crazy and could be grounded. All he had to do was ask; and as soon as he did, he would no longer be crazy and would have to fly more missions" (Heller, 1955, p. 35). In other words, there is no way out of being exposed to being killed, despite an apparent escape clause. In the case of anti-psi authors, consider the bombastic responses by cognitive scientist Douglas Hofstadter and astrophysicist David Helffland (https://www.nytimes.com/roomfordebate/2011/01/06/the-esp-study-when-science-goes-psychic) to a set of studies published by an eminent psychologist in an important journal (Bem, 2011). They fulminated against the sheer audacity of publishing a paper that underwent the regular scientific standards of peer review, while at the same time stating that they were defending science (fortunately other scientists commenting on that paper had a far more measured response). Consider also Reber and Alcock's (2019a) assertion that "parapsychological research has failed to yield evidence to support [it]" while simultaneously refusing to look at that evidence. Some years ago, a Yale psychology department chair (Child, 1987, 222-223) described the oxymoronic argument by psi critic Hyman that before considering a psi explanation there should be a scientific context for it, which evidently cannot be developed unless there is research on the topic that clarifies it.

At the same time, there is a "questionable publication practice" (let us call it QPP), in which research papers presenting evidence supportive of psi are suppressed by some venues (see various examples from the journal *Foundations in Human Neuroscience*, TED, Wikipedia, etc. described in Cardeña, 2015b). Most recently, PLOS ONE Associate Editor Avanti Dey wrote to Dr. Delorme and coauthors about their submission that "This study investigates the topic of psi phenomena, however this is based on the premise that psi ability is a valid and reproducible phenomenon. As the experimental and scientific validity of such phenomena have not been demonstrated nor initially established, we feel that this study lacks scientific relevance and would not contribute towards academic knowledge. As such, we cannot justify inclusion in PLOS ONE." Notice that there is no mention of intrinsic weaknesses of the submission. Thus, psi would be considered as a topic if evidence for it was published, but no publication will be allowed until its validity has established. As Dorfman (2022), a politically censored author remarks, many religious or secular censors "often perceive themselves as protecting [us]… from corrosion and corruption" (p. 32), for which they are more than willing to bend their own rules.

5. Recognition that Various "Mainstream" Developments Originated in Psi Research

Considering the complexity of the topic studied, it should not be a surprise that, although typically unacknowledged by critics, important methodological developments in the behavioral sciences have sprung from psi research. They include:

1. First use of randomization and detailed description of statistical analyses in behavioral studies (Richet, 1884; for an analysis see Alvarado, 2008).
2. First systematic use of a meta-analysis (Pratt et al., 1940).
3. Early use of registered reports (Wiseman et al., 2019).

The psi field has also encouraged the development of rigorous statistical analyses and initiated or had foundational contributions to content areas including nonconscious processes, hypnosis, eye-witnessing, research decline effects, and the systematic study of dissociative and other anomalous experiences (for a review see Hövelmann, 2015). In this editorial I could also discuss the red herring that psi research should follow stricter (typically unspecified) evidential criteria than those required for other areas in science, the "exceptional claims require exceptional proof" mantra, but it would require a long discussion, which I will leave for another occasion. I focused here on illegitimate criticism by anti-psi authors, but it should be mentioned that dogmatic pro-psi authors also sweep inconvenient facts under the rug (Cardeña, 2011), a common but unsanitary practice.

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