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## EDITORIAL

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I've often noted how discussions of the evidence suggesting postmortem survival fail to consider adequately alternative interpretations in terms of dissociative processes, and in particular the apparent ease with which dissociation either facilitates the operation of living-agent psi or unleashes otherwise latent creative capacities that might suggest survival to the unwary (see, e.g., Braude 2003). I suppose it should come as no surprise that a related phenomenon sometimes occurs as well—namely, that evidence suggesting dissociative processes might in fact be evidence for the operation of psi. An interesting recent paper by Hong Wang Fung in the *Journal of Trauma & Dissociation* illustrates the point (Fung 2018).

Fung's paper is titled "The Phenomenon of Pathological Dissociation in the Ancient Chinese Medicine Literature." And I commend Fung for unearthing some interesting material. He summarizes six obscure, old cases described originally in terms antedating the development of present-day psychological concepts. One case in particular stood out for me. Fung reports it as follows.

Gui, aged twenty-something, was a farmer's son from Dantu. He had gotten married and had a son. During one winter, he acquired an unusual illness, sighed all day long, and did not eat and drink. His wife felt dissatisfied; Gui sought for solutions but [they] did not work.

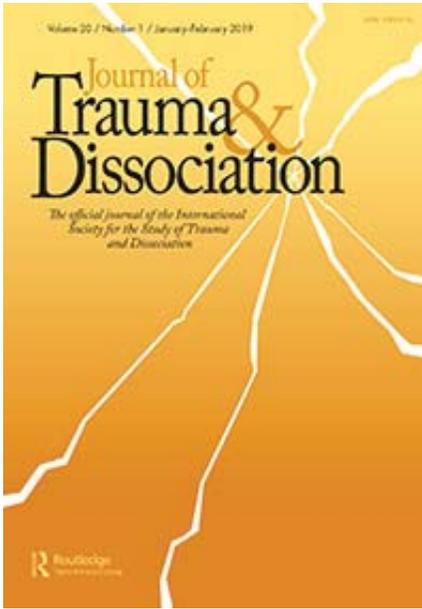
One day after an afternoon nap, he suddenly looked around and spoke with a Lu accent, saying, "Strange! Where is this place? Why am I here?"

After speaking, he ran quickly to the door and wanted to go away. His wife was shocked and stopped him by dragging on his clothes.

Gui spoke angrily, and said, "What do you want? I am not a person belonging to here, it is not good to stay."

After speaking, he attempted to go again. His wife cried and said, "You are mad, how come you cannot even recognize the one who sleep[s] with you in the same bed (i.e., herself, his wife)?"

Gui laughed and said, "Strange! How could I have such a yellow-face (i.e. ugly) wife?"



His wife became more scared, asked “So, who are you?”

Gui said, “My family name was Lee, and I am a Shandongese” (a Lu accent is the accent from Shandong). “You do not know me, why do you see me as your husband?”

His wife said, “You are named Gui, and I am your wife, everyone living here knows that.”

She also pointed to the 3-year-old crying boy and said, “This boy who is learning to speak is our son and is yours and mine. Even if you do not care about the love between husband and wife, don’t you consider this boy (your son)?”

At that time, other villagers came and said the same thing to Gui, consistent with what his wife said. His wife said, “If you don’t believe, why don’t you look in the mirror?”

Gui said “good” and did so. He was shocked and said, “Strange! Today’s me is not the ‘me’ from yesterday. Where is the original me?”

Both of them cried. The villagers thought it was strange too and discussed what happened.

Gui said, “I also don’t know what happened. Just a while ago, I was in Shandong and napping.”

The villagers and his wife thought he was just talking nonsense after being ill, and tried to give comfort to him. Yet, Gui argued that he had a wife and a concubine, several beautiful houses, and a lot of books, and said, “How can I stay in this dirty house?”

He still wanted to leave. His wife cried and tried to follow him. Without other ways to intervene, the villagers then sent him to the government official/court. While Gui originally was illiterate, he wrote the deposition himself, he wrote several thousand words and displayed remarkable literary talent. Finally, in the document, it is suggested that this may be the case of “li hun,” in which another person’s soul/spirit is possessing one’s body.

In this case, it appears that the experience of Gui is consistent with contemporary clinical presentations of pathological dissociation. He suffered from amnesia as he did not remember his past and could not recognize his wife and son. He also suddenly became another person (assumed a new identity) and behaved differently, and did not recognize himself in the mirror.

Readers familiar with the parapsychological literature will see much in this case that reminds them of more familiar ostensible reincarnation and possession cases. Although Fung notes that the author of the source document considers that it might be a case of possession, Fung doesn't pursue that line of thought, and in fact he doesn't raise the question of whether anyone made an effort to confirm the current or prior existence of Lee, Gui's apparent alternate identity. On the contrary, Fung asserts that Gui "was *very likely* to have suffered from dissociative amnesia and identity alteration; he could not recognize his family members, and he did not even know his identity" (p. 84, emphasis added). I'm presuming, by the way, that Fung would, quite properly, not consider genuine possession to be a dissociative process. Now, granted, the concept of dissociation is difficult to unravel precisely (for a discussion of the concept of dissociation, see Braude 2009). But whatever, exactly, we take dissociation to be, presumably it should be analyzed entirely in terms of processes happening within the person. By contrast, possession (if genuine) requires the causal intervention of an outside agent.

It's regrettable that Fung (and evidently the original author) failed to consider the seemingly crucial piece of information concerning Lee's identity. One naturally would like to know whether the original author had some basis (other than mere theoretical possibility) for considering possession as an option. And since many elements of the case parallel familiar features of ostensible reincarnation cases, it's likewise somewhat surprising that neither author considered that as well. Nevertheless, this case—frustrating though it may be—reminds us that older documents may be a rich source of information concerning the operation not just of dissociation but also of psi in everyday contexts. And that latter possibility remains an important avenue of inquiry if we're ever to have a decent idea of what it is we're trying to study in more formal, experimental contexts and whether those contexts are even appropriate for eliciting the phenomena.

—STEPHEN E. BRAUDE

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RESEARCH ARTICLE

**Coincidence or Psi?  
The Epistemic Import of Spontaneous Cases  
of Purported Psi Identified Post-Verification**

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**Abstract**—Many people are persuaded of the existence of psychic phenomena by their own spontaneous experiences of apparent psi. However, without some measure of how often psi-suggestive experiences can be expected to occur purely by chance, it is difficult to determine the epistemic import of these cases. While methods have been developed to find statistical baselines for some spontaneous cases—specifically ones in which cases of interest can be identified before any verification of their supposedly psychic content has been obtained—many spontaneous cases of purported psi are not identified as such until after some degree of spontaneous verification occurs, for instance, when a person notices a striking correspondence between their mental state and another event to which that state appears to have no physical causal connection. This paper develops a method applicable to these cases—the time-slice method for calculating baseline correspondence potential—and thus enables individuals to determine the epistemic import of their own spontaneous psi experiences.

**Introduction**

Personal experience of apparently psychic phenomena is one of the most important reasons individuals cite for their belief that psychic phenomena exist (Wagner & Monnet 1979),<sup>1</sup> and parapsychologists have long pointed out that psi phenomena spontaneously encountered outside the laboratory are much more striking than those encountered under controlled experimental conditions (Stevenson 1968, Braude 1986, 2007, Radin 2013). Skeptics of psychic phenomena often dismiss the import of these spontaneous cases, however. In addition to citing the possibility of deceit or faulty memory, they argue that these cases lack evidential force because there is no statistical

baseline against which to measure the frequency of such events. Given the huge number of events constantly occurring, it is entirely plausible, argue the skeptics, that spontaneous psi-suggestive experiences may be nothing more than coincidences, brought to us courtesy of the Law of Truly Large Numbers (Diaconis & Mosteller 1989).

As Ian Stevenson (1968) has rightly pointed out, some cases of spontaneous psi are so blatantly paranormal that chance is not a remotely plausible explanation for them. He writes,

We can too easily forget . . . that we only need statistical methods of assessment in situations where chance is a likely alternative explanation and when we wish a method of identifying the probabilities that chance is not the correct explanation. (Stevenson 1968:92)

Nevertheless, many of the personal experiences that convince people of the existence of psi are of exactly this less blatantly paranormal type, and it would be advantageous to have a method for determining the likelihood that they are truly cases of psi rather than mere coincidences.

Parapsychologists have already developed such methods for some spontaneous psychic experiences. For instance, Andrew Paquette (2012a,b, 2015) has developed a method for using his extensive personal dream journal as a source of statistical baselines against which to measure the epistemic import of his psychic dreams. This method works because the entries in his journal were recorded before it was determined whether the dreams therein described could be verified by correspondence with external events. Similar methods presumably could be found for other spontaneous cases of psi that are identified as cases of interest before any verification of their psychic content has been obtained.

However, many spontaneous experiences of purported psi are not recognized as such until *after* some degree of spontaneous verification has occurred. That is, a person doesn't suspect that anything psychic is going on until after they notice a striking correspondence between two events that don't appear to have any physical causal connection. I suspect that these cases identified post-verification make up the majority of the cases that convince ordinary people (i.e. people without pronounced psychic ability) of the reality of psychic causation. It's for this reason that I think it important to develop a method for calculating a statistical baseline that works in such cases.

In this paper, I develop such a method, tailored particularly to cases in which the noted correspondence is between a person's mental state and some other event. In the Introduction, I review some preliminary

epistemological considerations regarding what reason, if any, observing a particular correspondence between a person's mental state and another event presumed to be unconnected to it by physical causation gives us for believing that the correspondence is a product of psychic causation. In particular, I discuss how to take into account multiple endpoints as well as how one might determine a rational prior degree of belief in psychic causation. In the next main section of the paper, "**The Problem of Baseline Correspondence Potential**," I illustrate the difficulty of finding a statistical baseline for the correspondence in question: specifically, of determining how often one would encounter a correspondence of this degree purely by chance. In the next main section, I propose the time-slice method for calculating baseline correspondence potential, and then in the section titled "**Applying the Method**," I demonstrate the application of the time-slice method to two real-life cases, while refining it in two important ways. In the final section of the paper, I issue a caveat and highlight an important further application of the method.

### **Definition of Psychic Causation**

Before we get into the meat of the subject, let me say a few words about my use of the term 'psychic causation'. For convenience, I use the term 'psychic causation' to refer broadly to any manner in which a mental state—a desire, belief, thought, etc.—may be explanatorily connected to another mental or non-mental event<sup>2</sup> in a fashion that defies what C. D. Broad (1962:3) has called the "basic limiting principles" of the modern, physicalist worldview. Note that this definition allows under the umbrella of psychic causation even the "acausal connecting principle" hypothesized by C. G. Jung (2010) and for which he introduced the now widely employed term 'synchronicity'. The method I describe in this paper can be used to investigate the evidence for an acausal connecting principle as well as the evidence for psychic causation more strictly understood.

Note that my definition of psychic causation also encompasses cases of indirect causation, where, for example, a mental state may explain the occurrence of a particular physical event only by way of some intermediate event, like the action of a divine being. Furthermore, this definition says nothing about the *direction* of explanation. In discussing the possibility of psychic causation, I intend to leave open whether the psychic causation in any particular case originates with one of the two corresponding events, whether it originates with some third event that explains them both, and even whether it makes any sense at all to talk in terms of direction of explanation rather than some holistic organizing principle. In my discussion of the scarab coincidence below, I do refer to the "influence" of a mental

state on other events, but I do this only for convenience of exposition, and I hope that it will be clear to the reader that a similar argument could be made if the influence were hypothesized to run in the opposite direction, to extend to both the mental state and the other events from some common cause, or to be holistic.

### ***Probability on Competing Hypotheses***

One of the first things many of us do when we observe an event that bears uncanny resemblance to some presumably causally unrelated aspect of our mental state is to think to ourselves, “What are the odds?” If the causal history of the event is fairly straightforward, we may be able to come up with an estimate of the probability that event E would be observed by subject S at time T given a set of pre-existing circumstances C that excludes any causal connection between E and S’s mental state. Let’s say that we determine that this probability is 1 in 279,936. That might seem pretty significant, but in fact very improbable events happen all the time. If I roll a fair, six-sided die seven times, there are 279,936 possible outcomes. *Whichever* of these outcomes occurs, it had only 1 chance in 279,936 of doing so. Let’s say I rolled 5-2-5-4-6-3-1. Would I think that because of the low odds of this outcome some psychic process must be at work? Probably not. However, one reason I might think this outcome provided evidence for psychic causation is if this sequence of numbers was *personally significant* to me, that is, if it corresponded in some significant way with my mental state. This might be the case if, for instance, I’d been recently wondering if I should call my friend Debbie and this was Debbie’s phone number. In that case, an outcome that is very improbable on the hypothesis of chance is much *more* probable on the hypothesis of some explanatory connection to my mental state. To take one example of such a hypothesis, if my mental state were somehow influencing the outcome of the die rolls (either directly or perhaps through the intervention of some non-physical being who desired to give me an answer to my question), this is precisely the sort of outcome we would expect.

We can summarize the point this way: An event E provides evidence for the existence of a psychic link to the degree that E is more probable on the hypothesis of a psychic link than on the hypothesis of no psychic link. Let’s define our psychic link hypothesis as follows.

**Psychic Link (PL):** There exists a relationship of psychic causation between event E and the mental state of S.

Using conditional probability notation, according to which  $P(x|y)$  symbolizes the probability of  $x$  given  $y$ , we can now succinctly state that  $E$  provides evidence for  $PL$  to the degree that  $P(E|PL) > P(E|\neg PL)$ . The ratio

$$\frac{P(E | PL)}{P(E | \neg PL)}$$

is called the “Bayes factor” for  $PL$  over  $\neg PL$ .

### **Multiple Endpoints and the Definition of Personal Significance**

In the case in which I roll my friend Debbie’s phone number, you might think that  $P(E|\neg PL) = 1/279,936$ , or  $0.00000357$ , and  $P(E|PL)$  is close to 1, making the Bayes factor for  $PL$  over  $\neg PL$  close to  $279,936$  and meaning that this piece of evidence counts  $279,936$  times more in favor of  $PL$  than  $\neg PL$ . However, this approach ignores, among other things, what statisticians Persi Diaconis and Frederick Mosteller (1989:859–860) call “multiple endpoints”: other rolls that could have occurred and been at least as personally significant to me as the one that did occur.

Let’s define an event  $E$ ’s personal significance for a subject  $S$  as the degree of correspondence between  $E$  and  $S$ ’s overall mental state, where our measure of correspondence gives greater weight to more salient components of a mental state—for instance, components of higher emotion or more enduring character—and to larger and/or more enduring components of a physical event. I won’t develop here a more detailed definition of personal significance, or of what exactly I mean by “correspondence” between  $E$  and  $S$ ’s mental state, but I suspect that such a definition could be usefully fleshed out using Kolmogorov complexity, where the complexity of a state is equal to the size of its shortest description. If we notate the complexity of  $X$  as  $C(X)$ , we could then define the correspondence between a mental state and another event as:

$$\frac{C(\text{mental state}) + C(\text{event})}{C(\text{mental state} + \text{event})}$$

But this definition is not essential to what follows, so readers who don’t find it helpful may simply rely on their own intuitive notion of such correspondence.

Returning to the case at hand, consider that, instead of Debbie’s phone number, I might have rolled my *own* phone number, or that of a dear

deceased relative. I might have rolled the first seven digits of my social security number. Or the first four digits of the roll might have corresponded to the address of a home I'm considering purchasing. Once the roll has occurred, it's easy to forget all the other ways it might have been personally significant. But what's important in determining the likelihood of psychic causation in such a case is not just how likely it was that I would roll by chance the particular personally significant number I did roll, but how likely it was that I would roll *some* number of at least comparable personal significance to the one I did. And this is because  $P(E|PL)$ , which we previously cited as possibly close to 1, is actually going to get progressively smaller the more personally significant alternative rolls there are. Let's say, for instance, that once we consider my mental state at the time of rolling the dice and its relationship to all possible rolls at that time, it becomes clear that there were 15 rolls besides E that would have been at least as personally significant for S. If each of these 16 rolls is equiprobable on PL, this means that, on the hypothesis of PL, the probability of getting the roll I did is not 1 or even close to 1 but at the very most is 1/16 or 0.0625. If  $P(E|PL) = 0.0625$  and  $P(E|\neg PL) = 0.00000357$ , then the Bayes factor for PL over  $\neg PL$  is now only 17,507.

Because of the importance of multiple endpoints, in this paper I will adopt a special notation— $E'$ —to refer to the union of all events at least as personally significant to the subject in question as E.<sup>3</sup> The phrase 'the probability of  $E'$ ' will thus refer to the probability that some event at least as personally significant as E occurs. Note that  $E'$  occurs whenever one of its member events occurs; so if E occurs, then  $E'$  also occurs. Also note that member events of  $E'$  do not have to be mutually exclusive as in the dice example just employed. I will discuss simultaneously occurring multiple endpoints in the section "**Applying the Method.**" The takeaway from the above discussion is that, in determining the epistemic import of E for belief in PL, we must consider *the combined probability of all events that could have occurred at time T that would have had at least E's level of personal significance for S.*

In fact, matters are a bit more complicated than this. I said in the case above that  $P(E|PL)$  was *at the very most* 1/16. In fact, it might be significantly less, if one of the following things is true.

1) One of the alternative rolls that is at least equally personally significant as the actual one is in fact quite a bit *more* personally significant than the actual one. If so, then the probability of that alternative roll on PL will be much higher than 1/16, meaning that the remaining personally significant rolls, including E, will each have *lower* probabilities on PL, since the probabilities of all the alternatives on PL must sum to 1.

2) There are rolls *less* personally significant than the actual roll that collectively have a significant probability of occurring on PL. These alternatives will also reduce  $P(E|PL)$ , since, again, the probabilities of all alternatives on PL must sum to 1.

A precise calculation of  $P(E|PL)$  would have to take all of these possibilities into account and determine what the relative probabilities of these different rolls would be on the hypothesis of PL. One thing we can do to simplify our calculations is to focus on the collective probability of  $E'$  on PL instead of the probability of  $E$  alone, and thus on the epistemic import of the occurrence of  $E'$  rather than on that of  $E$  specifically. That is the approach I will take in this paper. However, it still leaves the problem of determining just how likely  $E'$  is on PL. And it *is* a bit of a problem, because we can imagine many different strengths of psychic link that would make  $E'$  more or less probable. For instance, are we testing the hypothesis that there is a psychic link so strong that it would make  $P(E'|PL)$  approach 1? Or are we testing a hypothesis on which the psychic link is much weaker, making  $P(E'|PL)$  only 0.01 or 0.001? We can in fact test any of these hypotheses we like and see how much evidence the occurrence of  $E'$  provides for them, but it would be a good idea to make this aspect of the hypothesis explicit. We could do that by modifying our definition of PL as follows.

**Psychic Link<sub>x</sub> (PL<sub>x</sub>):** There exists a relationship of psychic causation between event  $E$  and the mental state of  $S$  such that  $P(E'|PL) = x$ .

If we modify PL thus, we make explicit the fact that the degree of support  $E$  provides for PL depends on how strong the psychic link in PL is assumed to be. The stronger the psychic link—i.e. the larger  $x$  is—the larger the Bayes factor for  $PL_x$  over  $\neg PL_x$  will be. On the other hand, it seems likely that the larger  $x$  is, the lower the prior probability of  $PL_x$  will be. We will return to this thought at the end of the next subsection, after a more general discussion of the prior probability of PL.

### **Prior Probability of PL**

According to the Bayesian approach, the size of the Bayes factor needed to justify belief in PL (of whatever strength we choose to consider) depends on the prior probability of PL. Bayes' theorem applied to our case gives us

$$\frac{P(PL | E)}{P(\neg PL | E)} = \frac{P(PL)}{P(\neg PL)} \cdot \frac{P(E | PL)}{P(E | \neg PL)}$$

Notice that the ratio all the way on the right is the Bayes factor. As we can see from this equation, if PL and  $\neg$ PL are equiprobable prior to our observation of E, then any degree to which E is more probable on PL than on  $\neg$ PL will mean we should accept PL. If  $\neg$ PL is twice as likely as PL before the observation of E, the observation has to be more than twice as likely on PL as on  $\neg$ PL (i.e. the Bayes factor has to be greater than 2) for us to be justified in accepting PL as a result. And if  $\neg$ PL is 100,000 times as likely as PL, then E has to be over 100,000 times more likely on PL than on  $\neg$ PL.

But what prior probabilities *should* these two hypotheses have? Many skeptics of psychic causation say that the prior probability of PL should be extremely low (regardless of the value of  $x$ ). For instance, psychologists Eric-Jan Wagenmakers, Ruud Wetzels, Denny Borsboom, and Han L. J. van der Maas (Wagenmakers et al. 2011:428) claim it would be reasonable to assign PL a prior probability close to zero. For illustrative purposes, they choose the number  $10^{-20}$ , or 0.00000000000000000001, which would mean that to justify belief in PL, we would need evidence with a Bayes factor for PL over  $\neg$ PL of more than  $10^{20}$ , a bar that few everyday cases of psi can be expected to reach. However, all three of the arguments that Wagenmakers et al. offer for this conclusion are unsound. Let's briefly review them.

Wagenmakers et al. first cite the fact that “we have no clue about how precognition could arise in the brain” (p. 428). Their implicit assumption is that, if precognition were likely, we would already have some idea of how it works. In reality, of course, science is full of phenomena that we believe to exist even though we have no idea how they work. To take one particularly relevant example, all medical researchers are well aware that the placebo effect exists and must be controlled for, even though no one yet has a good handle on the mechanism behind it. If we had to know how something worked before we could admit its existence, science would have very few subjects for investigation.

Wagenmakers et al. also argue that if psychic phenomena were at all possible, natural selection would have already “led to a world filled with powerful psychics (i.e., people or animals with precognition, clairvoyance, psychokinesis)” (p. 428). Notice, however, that a parallel argument could be used to conclude that there are no humans with IQs over 100: “If IQs over 100 were possible, natural selection would have already given *all* humans and animals that level of intelligence. Since it hasn't, an IQ greater than 100 must not be possible.” Something is clearly wrong here.

Wagenmakers et al. have overlooked two important points in constructing this argument. First, any development of mental capacities—psychic or otherwise—comes at a cost. Living things have finite resources,

and natural selection will not develop to the highest degree every capacity that would be useful in survival but will instead select those creatures that have a particularly efficient *blend* of various capacities. We should expect to find, as we do, that some capacities are more well-developed in some species than in others, and that even within a species there is variation in the capacity to perform different tasks. Thus, if psychic causation exists, it would be in keeping with what we see in other human and animal capacities for human psychic ability to be unevenly developed. Second, if psychic abilities are much like other mental abilities, we should expect that they can be refined by practice, as well as that some conditions are more conducive to their optimal functioning than others.

Wagenmakers et al. offer as their final argument the observation that, if psychic abilities existed, the world's casinos would have long ago gone out of business. However, there is no requirement that psychic abilities, if they exist, must be under conscious control, nor that they must be readily activated by the desire for monetary gain.<sup>4</sup> But even in the case that psychic abilities *could* be routinely employed by the general population for monetary gain, casino owners could also have psychic abilities, including perhaps the ability to block the precognition of clients or to influence the roulette wheel against their bets. In the end, all that a casino owner needs to do to be assured of profits is to set the house odds slightly greater than the average odds of clients who have an average level of psychic ability.

Given these problems with Wagenmakers et al.'s arguments for assigning PL a near-zero prior probability, let's consider some other ways of assigning it a prior. One way we might find a rational prior is by consulting experts. While the people most qualified to be called "experts" on ostensibly psychic phenomena are those who have rigorously studied the vast accumulation of data on the topic, so many people in this group have a strong belief in the reality of psychic causation that we might be accused of biasing our sample by consulting only people in this group. So let's look instead at the opinions of a cross-section of highly regarded American scientists.

A survey of 339 council members and section committee members of the American Association for the Advancement of Science showed that, while 50% of respondents considered extrasensory perception either a remote possibility or an impossibility, 29% considered it either an established fact or a likely possibility (McClenon 1982).<sup>5</sup> If 29% of eminent scientists consider psychic causation either an established fact or a likely possibility, we can hardly justify assigning PL a prior close to zero. Even if 50% of scientists had said ESP was *completely* impossible, assigning it a probability of absolute zero, if we balance that against 29% who gave it a probability of at least 0.5, and the remaining 21% who we will say gave it

on average a probability of 0.25, then the overall weight of these experts' opinions gives us reason to assign the existence of ESP a prior probability of at least 19.8%. If we took the range of these experts' opinions as our prior probability for PL, we would need a Bayes factor of only slightly more than 5 to warrant believing PL.

Now it's important to note that the respondents to this survey were stating their degree of belief that ESP operates for *someone sometime*, not their belief that it is operating in any particular case we might be considering. PL is our hypothesis that there is psychic causation *in the case of the particular event E and the particular mental state we are considering*, and we would have to make a few more assumptions if we wanted to determine what the experts' opinions imply about what prior probability should be assigned to PL in whatever case we are considering (for instance, assumptions about whether psychic causation might be more likely to occur under certain conditions and less likely to do so under others). Nevertheless, the fact that 29% of American academic scientists surveyed considered ESP at least a "likely possibility" argues strongly against the idea that the prior probability of PL should be extremely low.

Another way to obtain a rational prior probability for PL is to look at the results of formal parapsychological experiments. As readers will likely be aware, several meta-analyses of these experiments show small but highly statistically significant effects suggestive of psychic causation. For instance, psychologists Charles Honorton and Diane Ferrari (1989) analyzed 309 forced-choice precognition experiments published in peer-reviewed journals over the preceding 52 years, experiments that collectively involved more than 50,000 people and nearly two million trials. The average effect was very small (0.020), but the odds of an effect that size occurring by chance across such an enormous sample they calculated to be  $6.3 \times 10^{-25}$ . A larger effect size of 0.21 was found in a meta-analysis of 26 presentiment experiments between 1978 and 2010, and chance odds were calculated to be between  $5.7 \times 10^{-8}$  and  $2.7 \times 10^{-12}$ , depending on whether it was assumed that the presentiment effect varied randomly between experiments (Mossbridge, Tressoldi, & Utts 2012). Similarly, a 2017 meta-analysis of 52 dream-ESP studies between 1966 and 2016 found an effect size of 0.18 with chance odds of  $2.72 \times 10^{-7}$  (Storm et al. 2017). These meta-analyses and others, including several focused on psychokinesis, are all discussed in Etzel Cardeña's 2018 comprehensive review of the evidence regarding parapsychology, where he concludes, "This overview of meta-analyses of various different research protocols supports the psi hypothesis" (Cardeña 2018:672).

Depending on the degree of similarity between the situations examined in these controlled experiments and the circumstances of the particular coincidence we're considering, these studies could give us reason to assign PL a prior probability not far from 1. But now we have to return to the question of what version of PL we are considering. Is it one in which the psychic link is so strong as to make  $P(E'|PL)$  close to 1? Or is it one in which the psychic link is much weaker, making  $P(E'|PL)$  closer to 0.01 or 0.001? The psychic effects observed in the controlled experiments described above are rather small (though comparable to those produced by more widely accepted psychological phenomena (Richard, Bond, & Stokes-Zoota 2003)), and this means that the version of PL for which they could support a prior probability nearing 1 is a version of PL that puts  $P(E'|PL)$  on the smaller side. When we experience a really striking correspondence between our mental state and another event and consider that it may have a psychic cause, the psychic mechanism we have in mind is generally one much more powerful than what has thus far been observed in the laboratory. And for this hypothesis of a *strong* psychic link, where  $P(E'|PL)$  is quite large, the laboratory experiments will give us some prior support but will not be able to give us a prior probability anywhere near 1. In fact, it seems that the farther the effect size gets from that supported by the laboratory experiments, the lower will be the prior probability of PL supported by those experiments. If we are interested in evidence for psychic causation with large-scale effects, that evidence is going to have to come largely from outside the laboratory.

Looking outside the laboratory, we find many accounts of blatantly paranormal psi that are quite credible when closely investigated. For some excellent examples, see the cases of physical mediumship described by Braude (1986). While it seems to me that the cumulative evidence offered by well-attested, well-controlled occurrences of blatantly paranormal psi gives us strong reason to assign the existence of psychic causation with large-scale effects a probability close to 1, once again that does not mean that we have reason to assign a high prior probability to the operation of psychic causation in the particular case we are considering. Nevertheless, all the data cited above should make it clear that the prior probability of the operation of psychic causation in the particular case we are considering cannot be nearly as low as contended by Wagenmakers et al., and thus the Bayes factor necessary to overcome a rational prior probability for PL is not going to have to be nearly as large as  $10^{20}$ . This in turn means that the Bayes factor even of less blatantly paranormal cases of purported psi may be enough to tip the scales in favor of PL. At the very least, the Bayes factor of such cases is worth investigating.

### The Problem of Baseline Correspondence Potential

As we have seen from the preceding discussion, determining the Bayes factor of a purported case of psi requires having, in addition to a value for  $P(E'|PL)$ , a value for  $P(E'|\neg PL)$ . However, calculating this latter value is not nearly as straightforward as many people assume. Let me illustrate the difficulty by returning to the die-rolling example.

Imagine that I tell you about my amazing experience in which I was wondering whether I should call my friend Debbie and then I rolled seven dice and they produced her phone number. You would probably think this was a pretty striking event. Perhaps so striking as to be good evidence for psychic causation. But consider whether your opinion would change if you knew that I had been rolling these seven dice once a minute for a year, each time wondering whether I should call Debbie.

Most people, given this additional information, would find it thoroughly unsurprising to hear that I had on one occasion seen the dice produce my friend's phone number. Most of us immediately realize the relevance of all the *other* times I rolled the dice without getting my friend's phone number. This is a demonstration of our intuitive sensitivity to what is often called the Law of Truly Large Numbers. While it's true that rolling my friend's number had only a 1 in 279,936 chance of happening at any *individual time*, it had an 84.7% chance of happening at least once during the whole year in which I was rolling my seven dice once per minute.<sup>6</sup> Unless there's some reason to think that I was doing something relevantly different on that one occasion, there's no reason to be surprised about rolling my friend's phone number against the background of so many additional trials. Even things that are unlikely to happen if you try only once are very likely to happen sometime over many tries.

Now it might seem that if, in real life, I rolled the dice only one time while wondering whether I should call Debbie and on that single occasion got her phone number, this would make the problem go away, but this is not so. Determining  $P(E'|\neg PL)$  is problematic even in cases where I don't repeat the same scenario over and over. To see why, follow me through a series of further hypothetical situations.

Let's go back to the case where I rolled the dice once a minute for a year. Now imagine that I wasn't thinking of Debbie's phone number each time I rolled the dice. Imagine instead that, each time I rolled my set of seven dice, I was thinking of a different seven-digit number. Does that make the fact that I got the number I was thinking of once in 525,600 tries more or less likely than before? In fact, it doesn't affect the odds at all. As long as the odds in each case remain exactly the same and the total number of trials

does as well, it doesn't affect the overall odds whether the number I have as my "target" is the same or different in each case.

Now imagine that, instead of rolling dice every time, I use many different random number generators over my 525,600 trials. Sometimes it's a little quantum gadget plugged into the USB drive of my laptop. Sometimes it's a random number generator I activate over the Internet. Sometimes it's a random number table. Again, as long as the odds remain the same across devices, this doesn't change the probability of the outcome.

Next imagine that sometimes I use a generator that produces sequences of letters rather than numbers. Let's say that the particular random letter generator I use is programmed to produce exactly 279,936 outcomes, each with equal likelihood, and that when I use the letter generator, I think of one of these letter combinations instead of a seven-digit die roll. Finally, imagine that sometimes I use a random *image* generator, which randomly shows me one of 279,936 different images I have previously viewed, and one of which I think of just before activating the generator.

The point is that it doesn't matter to the probabilities if I use the same generator with the same selection of possible outcomes each time or if I use different ones. As long as the odds of a hit remain the same for each use of the generator, it will remain true that, over 525,600 trials, I have an 84.7% chance of at least once seeing generated the particular 1-in-279,936 outcome I had in my head at the time of initiating that particular trial.

This problem generalizes to any spontaneous correspondence between events. If we want to calculate the probability of at some point experiencing merely by chance an event as personally significant as what we've actually experienced, we need to know how many times we've "used the generator." To put it another way, we can't take as evidence relative to PL only the occasions on which there is a striking correspondence between our mental state and some other event. We have to consider also the evidence against PL provided by all those occasions on which there was *no* striking correspondence between our mental state and other events we observed. Even if the outcome in *this one case* was highly personally significant, it will barely budge the overall strength of our evidence for PL if we have also used the observation generator billions of times throughout our lives *without* generating such a personally significant observation.

At the same time, some people have experienced correspondences that they intuitively feel are so improbable that they wouldn't expect to have them by chance even if they lived many lifetimes. To know whether this intuition is correct, we need some way of calculating just how many "misses" they've encountered that are comparable to the "hit" under consideration. Only then can we calculate the frequency with which they

should be expected to encounter comparable hits merely by chance, what I call “baseline correspondence potential.”

One way of attacking this problem is to estimate how much fodder for chance correspondences a particular subject S encounters: that is, the amount of information they encounter that’s generally accepted to be random with regard to their mental states. This kind of calculation is going to be extremely difficult since the amount of random information each of us comes across varies not only from person to person but from hour to hour, even minute to minute. Spending a minute staring at a blank wall provides a lot less opportunity for the occurrence of chance correspondences than does reading a book or walking down a street in a foreign city. Fortunately, we don’t have to calculate this quantity for every situation in our lives.

### **The Time-Slice Method for Calculating Baseline Correspondence Potential**

We can greatly simplify our calculations of baseline correspondence potential if we consider an observation generator defined such that one “use” of this generator is responsible for producing absolutely everything observed by a subject S during a specified length of time. Say S observes an event E that seems highly correspondent to S’s mental state, even though there seems to be no physical way in which they can be causally related, and S wants to know if this improbable correspondence with her mental state is statistically significant. The first thing to do is to choose a length of time that contains the observation of the relevant event E. It’s best to choose a short period of time, because the second step is to consider all of the possible observations that S could have made during that same period of time, given a set of prior conditions C. That is, we need to explore as exhaustively as possible S’s probability space for that entire period of time.

One second seems like a reasonable period of time to presume to be able to do this to a useful degree of accuracy. So let’s say we explore the probability space of that second of time, thinking of the various observations that could have been made instead of or in addition to those that were in fact made by S during that second and what the probabilities of these other possible observations were, based upon our set of prior conditions C. Using this information, we determine what proportion of the probability space for that second would have been at least as personally significant to S as what actually occurred. Let’s say we come to the conclusion that only one-millionth of the probability space is as personally significant to S as the event E that was actually observed by S. That is, there were chance odds of only 1 in 1 million that S would observe, in this second, something as personally

significant as what S did observe. To put it yet another way, the chance odds of E' occurring during this second were 1 in 1 million.

Now remember that we defined our observation generator in such a way that this single use of the generator was responsible for everything S observed during the length of time we chose to examine. That means that there is no question of whether another observation generator could have been running simultaneously to this one, thus increasing the odds of a personally significant outcome. If there was any reason to think there was the potential for S to make any additional observations during the time under consideration, that has already been taken into account in the exhaustive exploration of the probability space during that time. So, with regard to subject S, this is the only observation generator operating for the duration under consideration.

But how about determining how often this observation generator is operated throughout the rest of the life of subject S? Because we defined the generator as what produces the total observations made by S in the space of one second, we know it runs once per second for the entirety of S's life. And a hit in any of those other seconds is defined precisely the way it is defined in this one: as an event that is within the most personally significant one-millionth of the probability space for that second.

What this gives us is an observation generator that, over a lifetime, can admit of infinite variation in possible outcomes generated and in the mental states of S and yet keep the chance odds of a hit precisely constant over time, to match the chance odds of E' during the second under evaluation. For instance, with the odds for E' that we were considering above, we should expect hits at a rate approaching one out of every million seconds. That's approximately once every 11.6 days—or about 2,500 times over a lifespan of 80 years. The method tells us that coincidences of this level of significance are not going to be rare at all.<sup>7</sup>

But one in a million was a number I selected arbitrarily. There are people who report psychic-seeming correspondences much more improbable than this, as we will see in the next section when I apply this time-slice method to two real-life cases. Analyzing these examples will also give me occasion to explain two important refinements of the method: the first merely practical, the second crucial to obtaining evidentiary results.

### **Applying the Method**

#### ***Example 1: Matching Descending Doubles***

Andrew Paquette (2011) describes the following personal experience.

One night when Kitty and I were playing backgammon, I had a feeling similar to when I touched the doorknob and knew Sumi would commit suicide. It was nothing so dire, but was at least as strong; "Kitty," I said, "we are now going to roll Matching Descending Doubles, from sixes to ones." Kitty shook her cup and rolled double sixes. I rolled double sixes also. She rolled double fives and I matched them. She rolled double fours; I did likewise. She got double threes and I got double threes. She rolled a pair of twos, and I did the same. At this point, the staggering mathematical improbability of what I'd just seen hit me like a wave. I lost confidence and predicted we would not get the double ones. Kitty then rolled a pair of non-matching numbers. For visualization, here is the sequence we rolled: 6,6,6,6,5,5,5,5,4,4,4,4,3,3,3,3,2,2,2,2. (Paquette 2011:23–24)

As Paquette subsequently notes, the odds of rolling any particular 20-number sequence on a fair six-sided die are 1 in 3,656,158,440,062,976. Approximately 1 in 3.7 quadrillion. But given how many people there are in the world and how many events they are all observing day in and day out, maybe it's not that surprising that someone somewhere would once make a prediction this wild and have it come true. Let's apply the method developed in the last section and see just how often we should expect, on chance, to see such an improbable correspondence between two causally unrelated events.

We'll begin by dividing the probability space for the time of this event (duration as yet unspecified) into approximately 3.7 quadrillion equal parts, one for each of the possible 20-number sequences of die rolls. We'll consider in a moment further divisions of the probability space that may be needed because of the possibility of concurrent coincidences, but for now let's focus on this single set of alternative events. Among these 3.7 quadrillion possible events, how many would have been at least as personally significant to Paquette as the one that occurred?

I think we can make a very strong case that the actual roll sequence was the most personally significant to Paquette of all 3.7 quadrillion possible sequences. This is not because none of the other possible sequences would have been significant to him at all. If he and his wife had rolled each of their social security numbers in succession, that certainly would have been significant to him. Or if they'd rolled both the home phone and cell number of someone Paquette had just recently been thinking about calling. However, as Paquette recounts the case, just moments before rolling this sequence, he experienced a strong conviction that they would roll the sequence of matching descending doubles that was actually produced (minus a coda of four 1's that they didn't manage to roll). This strong feeling, along with Paquette's subsequent announcement of his prediction to his wife, are

enough in my view to make that particular 20-roll sequence the single most personally significant of all those possible.

But, you might ask, what if Paquette makes these kinds of predictions all the time? In actuality, he states that he has only made a prediction of this sort three times in his life, each time with a similarly successful result (Paquette 2011:25–26). However, we don't need to rely on that information if we are using the method described in the last section, because the possibility that he could have done this is *factored into the method itself*. In the final step, the time-slice method will take into account all of the many other equally strong correspondences Paquette could have chanced upon throughout his life, including ones that could have arisen from his repeating this same prediction as many times as physically possible.

But before we reach that step, we need to fill out our understanding of the probability space during the time of this event and determine the duration of time for which we have the probability space thoroughly described. Let's say that it took Paquette and his wife 10 seconds to roll all the dice in this sequence. How much additional information was Paquette capable of observing during those 10 seconds? For instance, if the lights in the room had flickered, would he have been able to observe that while continuing to observe the outcomes of all the die rolls within 10 seconds? Or would making that observation have slowed his observation of the rolls to some degree? The distinction between a possibly simultaneously observed event and one that displaces the observation of the first event to a later time is crucial, because if observation of a second event would *displace* the observation of the first, then it is not truly a possible simultaneous event but rather a possible *alternative* event.

Considering a possible *simultaneous* event is not going to reduce the size of the probability space occupied by the event E already under consideration. Instead, it opens up the possibility that, no matter which of the 3.7 quadrillion roll sequences had been observed, something *else* could have been simultaneously observed that would have been *at least as psychologically significant* to Paquette as E. Say that another couple was simultaneously rolling dice beside Paquette and Kitty, and Paquette was able to observe all of their rolls as well as his and his wife's in just 10 seconds. The probability that Paquette would observe within those 10 seconds his most personally significant 1 in 3.7 quadrillion rolls *being rolled by that other couple* would be itself 1 in 3.7 quadrillion. This almost doubles the probability space occupied by the event constituted by at least one of the couples' getting that 20-roll sequence, which means that, in that case, E' would be already almost twice as likely as E alone.

On the other hand, if Paquette is not capable of observing all of these

dice at once—if observing the other couple means he is slower in observing his own rolls—then the observation generation is not simultaneous. Rather, it *displaces* the first process of observation generation to a slightly later time. And that means that it is an *alternative* within the ten seconds in which Paquette actually observes the original event corresponding to his mental state. Alternatives make the probability of the events they displace *less* likely the more alternatives there are during the time period in question. Thus it's of no use for a skeptic to list all the possible corresponding events that could have happened *instead* of Paquette's die rolls. Any alternative event we take into consideration just makes the improbability of this already very improbable event (the 20-roll sequence) even higher by shrinking its portion of the probability space—*unless*, of course, the probability that a distracting event would be at least as personally significant to Paquette as the actual 20-roll sequence is *higher* than the probability of he and his wife rolling that sequence. But it's hard to see how this could be the case here. Paquette's state of mind, as evidenced by his prediction spoken to his wife, is clearly focused on one very particular sequence of die rolls. It's hard to see how any event could correspond as closely to his mental state at this time as the actual 20-roll sequence he witnessed. Which means that, if we choose to simply ignore all possibly distracting events, we are actually erring on the side of a *conservative* estimate of the evidence that this event provides for psychic causation influencing the dice.

Now this won't be true in every case, or even in most. We will see in Example 2 below that the probability of alternative events can be quite important to determining the overall significance of a spontaneous correspondence. But it happens that, in this case, Paquette's mental state is so closely tied to the rolls of these very dice that no distracting event is going to be able to rival the outcome of these die rolls in significance.

However, if appealing to alternative events is not going to help a skeptic reduce the improbability of Paquette's coincidence, where the skeptic *can* look for help is in the issue of *simultaneous* outcomes, discussed above. But the skeptic is going to have to show that the outcome of a simultaneous observation generator *could have been observed simultaneously* to the rolls that were actually observed. For the dice rolled by a nearby couple to qualify as a simultaneous outcome, it must have been possible for Paquette to observe the outcomes of all 40 die rolls during the timeframe we're considering. If we say that he could have observed them all, but it would have taken twice as long, then we've effectively admitted that the other couple is not a simultaneous observation generator but an alternative one.

But a simultaneous observation generator needn't be another couple rolling dice. As mentioned before, the lights in the room could have flickered

during his observation of the die rolls. Or Paquette could have heard a neighbor yell out, “Matching Descending Doubles!” Or there could have been an earthquake. Or the TV might have been on, and a commercial might have come on displaying someone rolling dice and getting a sequence like the one Paquette predicted. The crucial question is this: How much extra attention did Paquette have available for observing additional information during the 10 seconds in question? And how probable was it, on chance, that that extra attentional space would be filled with information at least as personally significant as the matching descending doubles he did observe?

I think the answer to the latter question is “exceedingly improbable,” for reasons mentioned above: namely, that the prediction he made so narrowly focuses his state of mind on these particular rolls that it’s hard to see how *any* other event could be as personally significant to him as getting the precise roll he predicted in precisely the way he predicted it.<sup>8</sup> Nevertheless, even if there were the possibility of some other event possibly matching that roll sequence in personal significance for him, there’s a way we can avoid having to answer the question of how probable such a significant simultaneous outcome would be.

If it seems that observing 20 die rolls in 10 seconds, say, would leave Paquette with additional attention with which to observe other simultaneous processes, all we need to do is reduce this span of time until we are reasonably certain that it is the minimum time necessary for Paquette to observe the rolls of the 20 dice. Again, to be very conservative (in the direction of underestimating the significance of Paquette’s coincidence), we could estimate this minimum at 2 seconds. I don’t think anyone but the most highly trained dice observer could observe more than 10 rolls per second.

This leads to my first refinement of the method.

**Refinement 1: To simplify application of the method, one may set the duration of time to be examined as the *minimum time necessary for S’s observation of E*. Then simultaneous events need not be considered in the description of the probability space.**

Returning to Paquette’s case, if we take 2 seconds as the duration of time for which we have thoroughly searched the probability space and for which we have found that the odds of Paquette’s observing an event with at least as much significance as the actual roll sequence he did observe are at most 1 in 3.7 quadrillion (leaving out the possibility that he might get distracted), that means that we have conservatively estimated that Paquette’s psychic-seeming experience is the sort of thing that we should expect to happen to any particular individual by chance about once every 7.4 quadrillion

seconds. Since there are around 2.5 billion seconds in an 80-year lifespan (about the average lifespan in the developed world), a correspondence of this strength should be expected to happen by chance to approximately 1 in 3 million people sometime in the course of their life. (Again, this estimate errs on the side of saying the event is more common than it probably is, because it doesn't take potential distractions into account and because the minimum time it would take Paquette to observe the 20 rolls is likely longer than 2 seconds.)

So what should Paquette conclude about PL? He might think to himself, "Well, in a world of 7 billion people, something this wild was bound to happen to over 2,000 of them just by chance, so it doesn't actually imply anything about the truth of PL." This, however, would be an improper application of the Law of Truly Large Numbers. While it may very well be true that something this wild should be expected to happen just by chance to 2,000 people in the world, if we don't know how many of the 7 billion people in the world it has *actually* happened to, we can't say that this one person's experience is irrelevant to our determination of the weight of the evidence. The fact that one of the people whose experiences we are familiar with *has* experienced it makes it epistemically more likely that other people have as well. The Law of Truly Large Numbers is often misused in the way I've just illustrated, but in fact *it is proper to employ the Law of Truly Large Numbers only if one has data for those truly large numbers.*<sup>9</sup>

In Paquette's case, this means that, if Paquette doesn't know *how many* of the other 7 billion people on earth have experienced something this improbably significant, then the fact that there are 7 billion people on earth is irrelevant to his calculations. Instead, he's going to have to think carefully about how many people he knows who, if they'd had a similarly significant experience, would have somehow communicated it to him. He could begin estimating this number by considering how many people he's told about *his* experience. Say he's told 1,000 people in person about this experience, and that 50,000 other people have learned about it through his book and the Internet. We'll assume (again conservatively) that any one of these people who'd had an equally significant psychic-seeming experience would have contacted him about it. That gives us a total of 51,000 people whom he could expect to have heard from if they'd had an experience as astounding as his. We should probably add to this the authors of any books Paquette has read who could be expected, because of their subject matter and apparent candor, to have related such an experience if they had had it. Even if we allow that Paquette has read a thousand books whose authors meet this description, our total—52,000—is still clearly nowhere near 3 million. And, in fact, if the average age of the folks whose experiences

Paquette is acquainted with is only 40 years old, he would actually need reliable knowledge that *6 million* people have not had any psychic-seeming experiences this personally significant in order to counterbalance the evidence provided for PL by this single experience of his.

In sum, this single psychic-seeming correspondence is so improbable on chance that the evidence it provides for PL is so strong as to overwhelm any reasonable difference in prior probabilities between PL and  $\neg$ PL and to make the strength one selects for PL all but irrelevant. On any reasonable values of these variables, this personal experience gives Paquette extremely strong reason to believe PL.

### **Example 2: The Scarab under the Mat**

Let's now apply the method to a less clear-cut correspondence, this time one from my own life. One afternoon I was sitting on my front porch reading a book about meaningful coincidences, which in turn got me thinking about several coincidences I'd previously encountered and the pattern they seemed to form. A phrase came into my head—"It's bigger than you know"—which I understood to refer to the pattern behind these coincidences I'd experienced. At this point, I stood up and began to walk inside the house. When my bare foot hit the welcome mat that sits just outside the door, I felt a lump in it and immediately thought to myself that I needed to look under the mat, because whatever was there might be a coincidence related to my current thoughts.

When I lifted the mat, I discovered a giant scarab beetle, over an inch long and about three quarters of an inch wide. I couldn't remember ever at another time encountering such a beetle in the wild, even though I'd lived 25 of my 35 years of life within a 30-mile radius of that location and spent a fair portion of that time outdoors. In fact, I was so fascinated by this insect that it took a moment for the significance of the coincidence to sink in: I had just been thinking hard about personally meaningful coincidences, and in the Western world the symbol most closely associated with meaningful coincidences is a scarab, due to a well-known story recounted by Jung (2010:22, 109–110).<sup>10</sup> Furthermore, this scarab was quite large—much bigger than any beetle I'd seen before in the wild—and its size seemed to echo the phrase I'd heard in my head: "It's bigger than you know." Overall, the feeling produced by this event was that it confirmed, in an artful and highly improbable manner, the conclusion I had just come to about the pattern of coincidences in my life.

Let's now attempt to determine the baseline correspondence potential for this case. Following Refinement 1, we will first determine the minimum time required for me to observe E. In this case, two observations combined

to constitute my observation of E: First I noticed the lump in the mat, then I lifted the mat and saw the scarab underneath. Let's estimate the minimum combined observation time as one second. That is, it would take me at least one second to process all the relevant tactile and visual information and come to a conclusion about what I was observing. I think this is a fairly conservative estimate given the novelty of the information in question.

Let's now do a preliminary exploration of the probability space during this second. Let's focus first on all the other things I could have found under the mat. How many of them would have been at least as personally significant to me in that moment? The first thing that springs to mind as being possibly *more* significant is a golden or metallic green scarab. In Jung's anecdote, one of the scarabs was golden and the other metallic green; neither was glossy black like the one I found. Jung relates that the live scarab that tapped at his window was of the species *Cetonia aurata*, while mine was a *Xyloryctes jamaicensis*. And though both of these are in the family Scarabaeidae, another member of this family is much more common where I live and more closely resembles the color of Jung's *Cetonia aurata*. This is the Japanese beetle, *Popillia japonica*, which I know as a common garden pest. Nevertheless, I didn't know until researching this paragraph that Japanese beetles were scarabs, nor that the scarabs in Jung's anecdote were golden and metallic green. If I'd found a Japanese beetle under the doormat—and I may have never even noticed its presence, since they're so small, being at most half an inch long—I would have been so unsurprised that I would have paid it no further heed and probably never thought of connecting it to Jung's scarab. That is to say, for me, with my particular array of conceptual associations, Japanese beetles were not nearly as connected to the concept of *scarab* and thus to the concept of *coincidence* as was the much larger, black scarab I actually found. For this reason, among all the insects and other small creatures I've had occasion to observe in my home climate, I don't believe there's any so closely corresponding to my state of my mind at that time as the large, black scarab beetle I indeed found.

But what about non-living things that I might have found under the mat or been otherwise confronted with during the second it took me to feel the lump under the mat and look underneath? I can think of only a few that would have borne a closer relationship to the concept of meaningful coincidence. For instance, I could have found a copy of Jung's work *Synchronicity* that someone had left for me beside the door, or a note with Jung's name scrawled on it, or perhaps a photograph of him. Or I might have heard a neighbor yell out, "It's not a coincidence!" Or perhaps heard a plane fly overhead and turned to see that it had produced the phrase "Bigger than you know" in skywriting.

On the other hand, we should also consider that I might have observed something that, instead of evoking meaningful coincidences in general, would have borne a relationship to the particular patterns of coincidences I'd been contemplating in my life, coincidences with a couple of overarching personal themes. I can come up with a few ideas for items I could have found under the mat that would have borne as strong a relationship to those personal themes as the scarab bore to the idea of meaningful coincidence, but the likelihood of my finding them under the mat at my front door, or somehow else being confronted with them at the moment that I was stepping on the mat or bending to look under it, seems much smaller than the probability of my finding the scarab.

But before we can determine just how probable it was that I would observe  $E'$  (something at least as personally significant as a giant scarab) or even that I would observe  $E$  (a giant scarab), we need to answer another crucial question: Which elements of the situation are we keeping fixed? The more detail we use in specifying these conditions  $C$ , the more probable the observation of the scarab will appear and the less probable alternative events will appear. For instance, in specifying  $C$  in the scarab case, we could include information about local scarab populations, the lumens and wavelength of my front porch light, the events that led this particular scarab to crawl under my mat, etc. If we knew enough about the state of the world in the instant before I saw the scarab under the mat, the probability of my observing a scarab in that next instant could be close to 1 and the probability of observing anything else close to 0.

This demonstrates that the probability we're interested in is not some "objective probability" of  $E$  occurring at  $T$ . It may have *seemed* that way in the Matching Descending Doubles case, but even there, if we had factored in the starting positions of the dice, the movements of the rollers' hands, the movements of air molecules, etc., then the actual way in which the dice fell may have had an objective probability near 1.<sup>11</sup> What we want to know in asking about the probability of an event  $E$  is its probability given only some basic facts about the physical situation and no causal connection to  $S$ 's mental state. Think of us as simulating an experiment where we repeatedly run the same scenario (e.g., rolling a die 20 times or looking under a doormat) to see how frequently  $E$  occurs in the absence of a causal link to  $S$ 's mental state.

In selecting our constants, we should consider whether any of the facts we're proposing to take as given—say, the fact that I was on my front porch rather than somewhere else—is a fact that could itself have been psychically caused or influenced. In the case of Matching Descending Doubles, we don't hold constant the movements of air molecules and the movements

of the rollers' hands because (1) we don't believe these conditions were physically influenced by Paquette's mental state and (2) these are precisely the conditions that, if there was something psychic going on, psychic causes *would* be expected to influence. The same is true for the scarab. If some psychic force "brought" this scarab to me, it likely didn't do so by materializing it out of thin air. It's more likely that it somehow persuaded a scarab who was already in the neighborhood to burrow under my mat. We have to leave open the possibility that psychic causation will bring about E *in the most physically probable way*. And thus, if we want to measure the full extent of unexpected correspondence between E and S's mental state (that is, correspondence unexpected on  $\neg$ PL), we will make our constants as few as possible, not holding constant any circumstance that psychic causes might have already affected.

For instance, let's say we find out while researching the probability of scarab sightings that, on the particular day on which I saw the scarab, an unusual swarm of scarabs had just arrived in my county. Since this happened before I saw the scarab, do we take it as part of the conditions C that we hold constant, or do we take the fact that these scarabs arrived in my county just before my deep thoughts about coincidences as itself *part* of the correspondence to be explained? Which choice we should make depends on what kind of psychic link we want to test—i.e. whether we are hypothesizing that, if the psychic link exists, it could have influenced the arrival of the swarm of scarabs (or, influenced me to think about coincidences on the day the scarabs were in town). I think the psychic link most people are curious about investigating is one that has some substantial ability to affect the pre-existing circumstances of the coincidence.

Consider a different case where I didn't see the scarab on my front porch but instead saw it when I was visiting a state I'd never visited before that day. Say I later discover that, while scarab sightings are very rare in my home state, in this state they are exceedingly common. In this case, do we take the fact that scarab sightings were very common in the place where I was as a given, or do we consider that part of the coincidence was that I happened to travel to a place where scarab sightings were common? As long as I didn't travel to that state *because I knew there were a lot of scarabs there*, there seems no good reason not to consider the fact that I went to a scarab-infested state as possibly part of the psychic effect we are testing for.

But just how far do we take this? For instance, do we take the fact that I was outdoors at the time I saw the scarab as a constant or as part of the possibly psychic effect? Presumably, seeing a scarab (a real one, at least) would have been much more improbable if I had stayed indoors. Thus, if I measure the probability of seeing a scarab *anywhere*, that will be lower than

if I look at the probability of seeing a scarab *when I'm outdoors*. Should we then allow that psychic causes might have brought me outdoors to have my rumination on coincidences so that I could observe the scarab? If so, we should take the probability of my seeing a scarab *anywhere* as determining the probability space we're working with.

But what if we are interested in knowing about probable psychic causation at *any* point in time, in relation to *any* variable that helped produce E? If we take the most extreme path, where we hold absolutely nothing constant—not even the laws of physics—then it's hard to see how we could define the probability of any event whatsoever, unless it's merely by the event's logical possibility or impossibility, which won't tell us much. So we will likely decide, for practical purposes, not to routinely investigate the kind of psychic influence (or psychic holism) that would stretch all the way to selecting, say, the physical constants of the universe.<sup>12</sup> We are going to want to narrow our focus by choosing to hold *some* things constant.

But which things? One set of facts it's imperative to hold constant is all the facts that could plausibly have influenced or been influenced by the subject's mental state in a non-psychic way. For instance, if my interest in the topic of coincidences led me to attend a conference on synchronicity, and while at that conference I saw a poster featuring a scarab, it's important that I measure the probability of seeing a scarab poster *at a synchronicity conference*, not the probability of seeing one in the world at large. On the other hand, if I were walking in a strange city and happened upon a synchronicity conference where I saw a scarab poster, my presence at the conference would *not* be something to hold constant.

There is one other crucial requirement in selecting constants: *that the same constants be used in all our calculations*. Most important is that we use the same constants when calculating  $P(E'|PL)$  as when estimating or selecting a value for  $P(E'|PL)$ . But we should also be careful, if we make separate calculations of the probability of E and the probability of all the other events that are part of E', to use the same constants in those cases as well. For instance, we shouldn't measure the probability of seeing a scarab over all locations, outdoors or in, and then, when we go to consider all the other events that make up E', only consider ones that would occur in the actual location of outdoors.

These two absolute requirements on constants leave us with quite a bit of leeway. Of course, the limits on our knowledge of the actual situation will be a further, practical constraint since we can't hold constant a fact if we don't even know whether it obtained in the actual situation. But beyond that, what could help us decide what other facts would be useful to hold constant? I propose we try to balance two primary considerations. The first

is the availability of data. The more narrowly we define the situation in question, the less data there will be available for situations of this kind. The second is that, if we choose a level of generality much wider than the sphere in which the psychic cause is actually operative (should it exist), we run the risk of swamping the effect: making it look small when, within the context in which it's operating, it's actually quite large. So, if we doubt that the psychic cause under consideration would influence certain factors in the situation, it makes sense to set constant as many of those factors as we can.

Let me summarize the most important takeaways regarding the choice of constants.

**Refinement 2: Choosing Constants. There are two essential conditions in the choice of constants:**

- 1. Any features of the situation that correspond to the subject's mental state as a result of a non-psychic connection between them must be held constant.**
- 2. The same constants must be employed in all calculations—specifically, in determining both  $P(E'|\neg PL)$  and  $P(E'|PL)$ .**

**As long as the above conditions are met, choice of constants may be based upon:**

- a) how widely one wants to cast the net for possible psychic causation, and**
- b) which constants figure in the best data at one's disposal.**

Let's return now to the case of the scarab. Let's try to determine just how improbable it was that I would observe a giant scarab during the second under consideration. In deciding how widely to "cast my net" for psychic causation, I am going to hold constant that I was at home at the time (I'm not worrying about whether psychic causation may have influenced my being at home) as well as the fact that I was not reading anything or watching or listening to the television or radio. However, I am not going to hold constant the fact that I was outdoors, nor the fact that it was daytime. That is, I am going to allow the possibilities for potential correspondences to range over anything I might observe when I'm at home, outdoors or in, day or night, when I'm not reading or exposed to television or radio.

Unfortunately, my Internet research on the likelihood of observing one of these large scarabs has turned up no useful statistics, so I am going to have to estimate this likelihood based on my own experience—even if this might make the event seem more probable than if I had a larger sample. At the time of this experience, I had lived 35 years of life with only one sighting of such a scarab, and I would estimate that over those 35 years I

had been “at home” (in one of my successive places of residence) about 22 hours out of every day. Over 35 years, that comes to about 1.01 billion seconds. Based on the fact that I only saw one giant scarab in this time, we will estimate the probability that I would observe a giant scarab in any particular second at home as on the order of 1 in 1.01 billion.

Now we have the issue of adding in the probability of my observing some *other* correspondence at least as personally significant as the giant scarab. How many such random occurrences of coincidence-related events can I recall experiencing around my home, at any time in my life? Again, appealing to my own experience may overestimate the chance probability of such events, or possibly underestimate them, since on most occasions such events wouldn’t have stuck out to me as strongly as this scarab did, because I wouldn’t have been thinking so hard about coincidences just prior. But, despite its shortcomings, appeal to personal experience seems the only available strategy in this case for coming up with a number that’s even close to accurate.

So let’s take a stab at a number. Remember that we’re looking for not just any random mention of a coincidence by someone in my company, but one that has a connection to *meaningful* coincidences, which Jung called “synchronicities.” Also recall that, in addition to bearing a relationship to meaningful coincidences, the scarab, in being so large, corresponded to my thought “It’s bigger than you know.” To rival the giant scarab in personal significance, an alternative event would similarly have to have some additional element of correspondence with my mental state.

I am going to estimate the number of times I have ever experienced, at home, an event not provoked by my interest in coincidences but just as closely related to “synchronicities bigger than you know” as perhaps 4 in my entire life. If we add this to the probability of observing a giant scarab, we get an overall chance probability for E’ in this second of 5 in 1.01 billion, or 1 in 202 million. That means that I end up with an estimate of the overall odds of experiencing anything in this second at least as significant as what I did experience as 1 in 202 million. Meaning this is the sort of correspondence I should expect to encounter by chance once every 6.4 years or so. This is not nearly as significant a correspondence as Paquette’s, but it’s not tiny either. The question is whether I’m encountering events like this significantly *more* often than once every 6.4 years. If so, then I may have reason to think that on at least some of these occasions I’m experiencing the result of psychic causation of some kind. Whether I do have reason to believe this will depend on just how large the deviation from chance expectation is, what prior probability we assign to PL, and what strength of PL we are considering.

### A Caveat and a Further Application

In closing, I want to make some further comments about what baseline correspondence potential can and cannot tell us. It *can* tell us how often we should expect by chance to encounter correspondences at or above a particular level of improbability. That is, it gives us a baseline against which to compare our actual rate of observation, to determine whether it's above chance. The virtue of this approach is that it allows us to show that certain correspondences—like that recounted by Paquette—are *so* improbable that it is extremely unlikely on chance that we would ever encounter them in an entire lifetime, or even in 3 million lifetimes or more. However, this method does *not* show that correspondences occurring at or even below the baseline rate over one lifetime (or several) can't be evidence for a psychic link. Those coincidences could still be evidence for PL if their distribution within that lifetime bears a pattern that is more probable on the hypothesis of PL than on  $\neg$ PL.

Consider, for instance, the commonly made observation that people experience stronger and more frequent psychic events during times of heightened emotion and/or stress. Psychiatrist M. Scott Peck (1978), for instance, claims to have seen numerous such events occurring at crucial moments in his patients' lives with a resulting beneficial effect on their mental health. He writes

I have come to believe . . . that these phenomena are part of or manifestations of a single phenomenon: a powerful force originating outside of human consciousness which nurtures the spiritual growth of human beings. (Peck 1978:260)

Note that by referring to a "force originating outside of human consciousness," Peck is not ruling out that this force originates in the human *unconscious*. Many parapsychologists hypothesize something like this: that strong desire and need—whether conscious or unconscious—produce powerful psychic effects in the physical world.<sup>13</sup>

Now, if psychic events do tend to occur more frequently in periods of heightened psychological need (even if at a rate no greater than chance overall), this non-random pattern could provide evidence for a certain kind of psychic link: one that occurs more readily in periods of heightened psychological need. But while skeptics concede that people do experience stronger and more frequent correspondences between their mental states and independent events during these times, they explain this non-random distribution as the result of people being more attentive to such correspondences during such times. There's no objective increase in the

number of significant correspondences, they say, just an increase in the number people notice.

But this is another way in which the time-slice method of finding baseline correspondence potential can be helpful: It allows us to control for potential observation bias in this case. Armed with this method, we don't need to know how many correspondences people are ignoring when they are not in a state of heightened psychological need. We only need to estimate how much time a particular person or group spends in such a state and see whether the correspondences experienced by them in that state exceed the baseline correspondence potential *for that period of time*.

Thus the method of finding baseline correspondence potential does *not* say that an insignificant deviation from the baseline for an entire life means that a correspondence or set of correspondences is not evidence for psychic causation. It could still be evidence for psychic causation within some subset of cases, if the data within that subset deviates significantly from the baseline for the time period covered by that subset.

It might be objected that this leaves open the possibility of someone selecting a subset of cases with the express purpose of choosing only cases that support a psychic link. Of course, fabricating an ad hoc hypothesis is something to guard against when investigating any phenomenon, not just a purportedly psychic one, but what is needed specifically in the psychic case, to prevent a hypothesis from being ad hoc, is some commonality among the cases to which we choose to restrict our attention, a commonality that we have independent reason to believe would be conducive to the operation of psychic causation.<sup>14</sup> In the example discussed above, we do have such an independently justifiable commonality: the presence of heightened psychological need. It is very easy to see why this hypothesis about the operation of psychic causation is more likely to be true than a hypothesis that appeals to some ad hoc disjunction of properties—it is exactly the sort of pattern we would expect to see from an agent who had a *purpose* in influencing the world psychically,<sup>15</sup> specifically, the purpose of meeting strong psychological needs.

Another characteristic that may set apart certain circumstances as conducive to psychic causation is a subjective feeling that something psychic is at work. Paquette's case is an example of this. So is the "special feeling" or "anomalous attention" that William Braud (1983) proposes to employ in order to predict which words in a person's experience are likely to be repeated in the near future at a rate greater than chance. In a similar vein, Stevenson (1968) writes, about testing the precognitive properties of dreams. that "the proper comparison to be made is not that between all dreams and all events, but that between dreams (or other experiences)

thought by the subject to be significant (at the time they occurred) which are veridical and those which are not” (p. 113).

It makes sense that, if psychic causation exists, its occurrence would be accompanied by a unique subjective feeling that alerts the subject to pay attention. What is more, the occurrence of such feelings before the full constellation of corresponding events has been observed provides occasion for *predicting* psychically caused events, in much the way Paquette reports to have done. I can’t see why a skeptic should object to restricting cases of interest to those in which a strong subjective feeling of the operation of psychic causation is experienced, and regarding significant deviation from baseline correspondence potential *in these cases* as evidence for actual psychic causation. After all, this is the way any other phenomenon is studied: One focuses one’s attention on the cases where one has reason to expect the phenomenon, and the evidence for its existence in those cases is dependent on how large the deviation from chance is *in those cases*, not on how large it would be if averaged over all cases, even those where we have no reason to expect the phenomenon.

In conclusion, if we see that the rate of observed correspondences exceeds the baseline correspondence potential within a subset of cases selected according to some independently plausible principle, this will indeed constitute evidence for psychic causation in the occurrence of those correspondences. And the time-slice method I’ve outlined will be useful for calculating this baseline probability in such a subset of cases, in addition to over all the experiences had by an individual or group.

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### Notes

- <sup>1</sup> See as well the surprising admission of Michael Shermer (2014), publisher of *Skeptic* magazine. When he himself experienced a striking and emotion-laden “anomalous event,” he said it “rocked me back on my heels and shook my skepticism to its core.”
- <sup>2</sup> I do not intend to draw any philosophically momentous distinction between events and states. I assume that we generally call a relatively short-

lived state an “event” and a relatively long-lived event a “state” but that these categories are essentially interchangeable.

<sup>3</sup> I say a “union” of events because in probability theory events are understood as sets of outcomes.

<sup>4</sup> I thank Stephen Braude for pointing out these two objections to this argument.

<sup>5</sup> For a similar survey with respondents educated in fields in addition to science, see Wagner and Monnet (1979).

<sup>6</sup>  $1 - \left(1 - \frac{1}{279936}\right)^{(365 \times 24 \times 60)} = 84.7\%$

<sup>7</sup> Readers may note some similarity between this conclusion and “Littlewood’s Law of Miracles,” attributed to mathematician J. E. Littlewood by physicist Freeman Dyson. In a 2004 *New York Review of Books* review titled “One in a Million,” Dyson writes,

[Littlewood] defined a miracle as an event that has special significance when it occurs, but occurs with a probability of one in a million. This definition agrees with our common-sense understanding of the word “miracle.” Littlewood’s Law of Miracles states that in the course of any normal person’s life, miracles happen at a rate of roughly one per month. The proof of the law is simple. During the time that we are awake and actively engaged in living our lives, roughly for eight hours each day, we see and hear things happening at a rate of about one per second. So the total number of events that happen to us is about thirty thousand per day, or about a million per month. With few exceptions, these events are not miracles because they are insignificant. The chance of a miracle is about one per million events. Therefore we should expect about one miracle to happen, on the average, every month. (Dyson 2004)

Some web sources cite *Littlewood’s Miscellany* (Littlewood 1986) as a source for Littlewood’s Law, but it does not appear there. The closest Littlewood gets in that book to something resembling Dyson’s description is when he states on page 104, “With a lifetime to choose from, 106 : 1 is a mere trifle.” In personal correspondence on January 24, 2017, Dyson said that he thinks he remembers hearing Littlewood state his “law” when Dyson was a student at Cambridge, where Littlewood was teaching, but he is unaware whether Littlewood ever put it into print (one could also try *A Mathematician’s Miscellany* by J. E. Littlewood, Andesite Press, 2017). In any case, I regard Littlewood’s Law of Miracles as a good starting point for the statistical analysis of spontaneous psi-suggestive experiences, but in need of much refinement, some of which I hope to provide in this paper.

<sup>8</sup> What is more, Paquette indicated in personal correspondence on October 30, 2017, that,

at the time of the Matching Descending Doubles incident, we lived deep in farm country outside Putney, Vermont. The nearest neighbor was half a mile away, but couldn't be seen or heard from the house we rented. Also, although we had a TV, we didn't have cable, so we only used it for VHS tapes, which we never played while doing something else in the dining room, like playing backgammon. We also didn't have a radio.

<sup>9</sup> If you require convincing of this, consider the implications of there being no such restriction on the employment of the Law of Truly Large Numbers. In that case, one could reduce the strength of any evidence for any hypothesis whatsoever to next to nothing merely by citing the existence of enough intelligent extraterrestrial beings, saying something like, "After all, in a universe of 700 trillion quadrillion intelligent beings, someone was bound to get these experimental results just by chance." But we quite rightly don't take the strength of our ordinary scientific evidence to depend on how much intelligent extraterrestrial life exists.

<sup>10</sup> I have more than once seen depictions of scarabs on the covers of books about coincidences and in magazine articles on the topic. See, for instance, the cover of Peat (2014) and the title image of Blake (2015).

<sup>11</sup> That is, if we assume that the fall of the dice was not dependent on any quantum events, which do appear to be objectively probabilistic.

<sup>12</sup> Some researchers *are* interested in this question, however. They are interested in determining the significance of what we might call the biggest, most comprehensive psychic-seeming event of them all: the way in which the laws of nature, the physical constants of the universe, and the initial conditions of the universe have all turned out to fit within the very narrow range necessary for life to exist (see Collins 2009). For an argument as to why the multiple universe hypothesis does not make the fine-tuning of our universe any less improbable, see White (2000).

<sup>13</sup> See, for instance, Braude (2003:13).

<sup>14</sup> For discussion of this topic, see White (2003).

<sup>15</sup> For a similar argument, developed in detail, see White (2007).

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RESEARCH ARTICLE

## Two Attempted Retro-Priming Replications Show Theory-Relevant Anomalous Connectivity

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**Abstract**—We report a theory-relevant post hoc analysis of two Dutch retro-priming experiments that were part of a large replication project of the retro-priming experiment by Daryl Bem and colleagues. This replication project sought to investigate the role of the experimenter in psi studies. The results of the retro-priming experiments performed by student research groups at the University of Amsterdam ( $N = 61$ ) and the University of Groningen ( $N = 222$ ) did not, however, replicate Bem's earlier findings of an anomalous interference of a future stimulus on response times. We report the results of these two studies here, but the overall results will be reported elsewhere. Both Dutch studies used the exact same software as did Bem and colleagues. However, each study used a different questionnaire. The questionnaires asked for information that in previous research had been associated with success in psi tasks and that could help us to deal with individual differences, but above all could be used as selection criteria for participants in future studies. In the Amsterdam study, there were 14 questions, while in the Groningen study there were 55. A correlation analysis revealed several significant correlations between the psi effect in the Bem task and questionnaire items. In this paper we focus on the post-hoc research question: Is this global composition of the correlation matrix anomalous, as suggested by Generalized Quantum Theory? Rather than using the subjective number of 'significant' correlations as a dependent variable, we introduced two objective measures directly representing the correlation values in the cells to characterize the 'Connectivity' in the matrix. Our analysis revealed 'Connectivity' to be marginally significantly larger ( $p < 0.075$ ) in the Groningen study and significantly larger in the Amsterdam study ( $p < 0.025$ ). These results are discussed in the framework of the Consciousness Induced Restoration of Time Symmetry (CIRTS) theory and the Generalized Quantum Theory (GQT) that predict that as soon as there are reasons to expect replicability (or control) the extra chance psi scores will disappear or

reverse. The conclusion is that these results can be seen as support, though statistically not strong, for the GQT.

### Introduction

In spite of strong experimental claims by some proponents, for instance Bem et al. (2015), of the psi hypothesis, the reality of claimed phenomena such as telepathy has not been accepted by mainstream science (e.g., Traxler et al. 2012). The major reason given for this skeptical position is that there appears to be no parapsychological experimental paradigm yet with a robust effect size that might be used by independent researchers to check this reality for themselves, i.e. given a specific power and a specific sample size, a specific distribution of outcomes as well as the probability for success in a single experiment can be calculated. Thus independent researchers can check if their experiments do follow the distribution of outcomes as predicted by the power of the original studies. This problem of nonreplicability is characteristic in controversial research areas, but during the last decade has also been a topic of intensive discussion in mainstream science because in a number of ‘well-established’ fields it turns out that the replicability rates are suspiciously low (Pashler & Wagenmakers 2012).

Within the field of parapsychology there are researchers who rather consistently seem to get results confirming the psi hypothesis, and there are independent researchers who fail to do so, and for these researchers improvement of the paradigm to a level where a specific power can be expected is high on the wish list.

The Heymansgroup of the University of Groningen, embedded in the Department of Experimental Psychology, developed a multi-year research program to that end ([Heymansgroup.nl](http://Heymansgroup.nl)). If replication is such a problem, there has to be a large portion of unexplained and uncontrolled variance. This uncontrolled variance may be due to so-called questionable research practices or QRPs (Bierman, Spottiswoode, & Bijl 2016). However, as a result of further automation, especially the real time uploading of experimental data (Jolij & Bierman 2017), as now is becoming standard at the Heymansgroup and other research groups worldwide, it seems that these known QRPs are becoming increasingly unlikely.

The other obvious source for this error variance could be individual differences in participants. However, as is often claimed in experimental parapsychology, the uncontrolled variance may also be due to differences in experimenters. Therefore, the Heymansgroup embarked on the development of a selection instrument to be used in future experiments for participants *as well as experimenters* (see mission statement at [Heymansgroup.nl](http://Heymansgroup.nl)). This selection instrument would then become publicly available in order to give

independent replicators the tools to reduce error variance due to individual differences in participants and experimenters.

To begin with, the group decided to use a coarse-grained approach to explore simple questions to help predict performance in a parapsychological experiment that was run in another context as sketched above.

Student experimenters had to first study the relevant literature searching for predictors of psi and come up with questions that captured the suspected predictor. The historical search for personality variables predictive of psi has had limited success. One of the successful and more consistent predictors of subjects' performance is 'belief in the reality of psi' (Schmeidler & McConnell 1958). However, even here the results seem ambiguous, often caused by nonbelievers scoring 'the wrong way'. Other predictors that have positively been implicated are 'experience with mental disciplines', 'creativity', 'intuitive versus rational thinking' (Honorton 1997).

Thus the questionnaires in both studies contained a number of questions relating to these potential predictors (see Appendix 1 for the wording of these questions). In spite of this study being highly explorative with regard to the questions intended to measure factors that had been associated with positive scoring in a psi task in the past, the student experimenters expected specific positive correlations in the literature they had been studying.

In the following we will describe the experiment in Groningen in detail in the Methods section. The experiment in Amsterdam that was done one year earlier was identical but used 14 different questions to be correlated with psi performance.

## Methods

### **Background**

The experiments are part of a large-scale, multiple-laboratory research effort by researchers unrelated to the University of Groningen or Amsterdam for which these Universities were invited to be participating research institutes. That particular large-scale experiment was trying to investigate the effects of the experimenter, and the results will be published elsewhere. The experiments were run by students as experimenters and they tried to replicate Bem's findings. On top of this evidential hypothesis, the students asked a separate research question of their own. Specifically: Can we find simple questions to be used in later research for subject selection for which the subject's responses would have a predictive value in the main psi task?

After the studies were completed, the supervisors in Groningen asked a further theory-driven question: Is the correlation matrix *as a whole* anomalous (is there explained variability than can be expected by chance)?

### **Bem's Retro-Priming Task**

In this task (Bem 2011) adapted from de Boer and Bierman (2006), the normal sequence of prime and target in a 'valence judging' task is reversed. For instance, a picture of a flower is presented and the participant has to respond by a key press that the picture has a positive valence or another key press if the participant experiences a negative valence. Subsequently a 'prime' like the word 'ugly' (noncongruent condition) or 'beauty' (congruent condition) is presented. So the prime appears after a response has been given. In 'normal causal' priming the response times in the congruent condition are shorter. This can be explained by activation of the semantic network containing 'flower and beauty'. However, in the retro-priming experiment there is no causal model that would be able to account for response differences between the congruent and noncongruent conditions simply because the response is given earlier. The 'prime' can have an effect except when this effect is 'retrocausal'. The psi score then is operationalized as the difference between the mean response time in noncongruent trials and the mean response time in congruent trials. Details of the task such as the timing can be found in the original publication (Bem 2011).

### **Student Experimenters**

Experimenters in Groningen were 11 psychology students (4 male and 7 female) ages from 21 to 23 who participated as part of their academic training. They had to subscribe to one out of a number of student projects and chose for this project one that was described with the following research question: *Can future events have an effect in the present?* (see Appendix 2 for full text). With regard to the educational goals, the supervisors emphasized the prevention of questionable research methods.

### **Task for the Student Experimenters**

Each experimenter had to recruit his/her own participants, run the experiment using the standard software package as provided by Daryl Bem (rPrime, d.bem@gmail.com). They also participated in the construction of the questionnaire intended to measure aspects of the participant's personality that might predict results of the psi task. After data acquisition, they had to analyze their own results and analyze the global results with the whole group of experimenters. Finally, they had to write a scientific report.

### **Participants**

Groningen participants were friends or family members of the student

experimenters. 143 were female with a mean age of 21.5 (SD = 1.6) while 79 were male with mean age 23.5 (SD = 4.6). They were compensated €5. In Amsterdam there were also more females (34; mean age = 25.8, SD = 12.0) than males (28; mean age = 28.3, SD = 12.9) and they were friends of the student experimenters who participated.

### **Tasks for the Participants**

The participants first viewed a video clip, randomly selected from two such video clips. One clip was from a psi-proponent with an argument in favor of the reality of psi, and one clip was an argument from a well-known skeptical scientist against the reality of psi. This manipulation was embedded in the software and was of possible importance for the research into experimenter effects. The manipulation produced inconsistent results in Amsterdam and Groningen and will be evaluated over all participating labs by the principal investigators of the large-scale replication project.

After giving consent, the participants filled in the computerized questionnaire and subsequently ran the retro-priming experiment (see below).

### **Supervisors**

The supervisor in Amsterdam was Eva Lobach, and the supervisors in Groningen were the authors of this article.

### **Materials**

**Questionnaire.** The questions from the 5-point Likert scale (agree–don't agree) questionnaire were suggested by the student experimenters after they read the relevant literature about personality measures and performance in a psi task. Both questionnaires of 55 items (Groningen) and of 14 items (Amsterdam) can be found in the table in Appendix 1.

### **Analysis**

To begin, and as a didactical element, the student experimenters had to analyze if, like in Bem's original experiment, anomalous interference of the random future with the present could be replicated. However, as mentioned before, our real goal of the study was to find questions predictive of performance in this retroactive priming task. In this analysis, for most of the questions a positive direction of the Spearman correlation with psi scores was expected. This expectation was based upon the previous findings in the research on individual differences in psi scoring.

**TABLE 1**  
**Mean Psi Score, Defined as Difference in Response Time in Milliseconds**  
**between Incongruent and Congruent Condition,**  
**Compared with the Expectation Value of 0**

<b>Study</b>	<b>Mean-Psi Score (milliseconds)</b>	<b>t</b>	<b>df</b>	<b>p</b>
Groningen	1.37	0.21	221	0.80
Amsterdam	-2.34	-0.153	60	0.88

Results are very similar with log-transformed data.

Secondly the supervisors realized that the data matrix with a column with random scores (under the null) and many columns with questionnaire scores was formally equivalent to data matrices obtained in other psi experiments that have been developed to check for ‘excess correlation’ (von Lucadou 2006). This extra (acausal) correlation is one of the predictions of GQT. The analysis of this prediction thus has theoretical impact and therefore it was decided post hoc to run this analysis. It requires the researcher to define a measure for this anomalous connectivity. Rather than using the subjective measure used by von Lucadou and others, we developed an objective measure.

## **Results**

### **Overall Psi Scores**

In spite of not being the focus of this experiment, the overall psi score, being the difference of the mean noncongruent and the mean congruent response times corrected for outliers as is standard in the package supplied by Bem, was compared with a chance expectation of 0 to assess an overall psi effect.

The effects claimed by Bem (2011) could not be replicated, as is clear from Table 1.

### **Correlations with Questionnaire Items**

The exploration of questionnaire items that could potentially be used to select ‘gifted’ participants was the student’s major goal of this study.

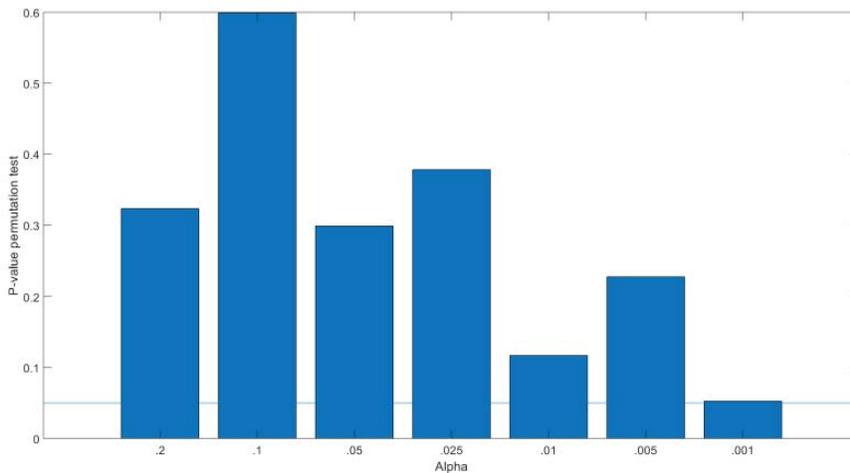
In the Groningen experiment, 4 questions out of 55 did correlate ‘significantly’ ( $p \sim 0.05$ ; two-tailed) with the performance in the retro-priming task (see Table 2). Since these questions are dependent upon each

**TABLE 2**  
**Marginal and Significant Results of Correlations**  
**between Psi Score and Response to Questions**

Study	Number of significant relations	Questions	R	P (2-t)
Groningen	4 out of 55	G3. Sometimes I sense something that I am unable to explain with my normal perception (hearing, seeing, feeling, tasting, smelling).	-0.138	0.043
		G9. I believe in life after death.	0.139	0.041
		G16. I consider myself as being creative.	-0.185	0.006
		G23. I have had an experience in which I felt like I was outside my body.	-0.127	0.062
Amsterdam	4 out of 14	A1. Some humans are capable of lifting objects by means of mental power.	0.244	0.058
		A8. Some people have the unexplained faculty to predict the future.	0.290	0.024
		A13. People may have a visionary moment that can be used to predict the future.	0.280	0.020
		A14. The claim that people can predict the future is nonsense.	-0.241	0.064

other, there is no straightforward way to tell if this number of significant relations is significant in itself. This question is even more relevant with regard to the correlation matrix obtained in Amsterdam that also contained 4 significant correlations from the 14 correlations that were measured. We return to this issue in the discussion of the potential models for our results and the Connectivity analysis to check for these models.

Secondly these results look not very surprising because the questions do relate to aspects that have been found to be ‘predictors’ in previous research. For the Groningen data, this concerns most notably ‘creativity’. This could give confidence, but such confidence is not warranted: The directions of the results of three of the four Groningen correlations are opposite to what one would expect on the basis of earlier research.



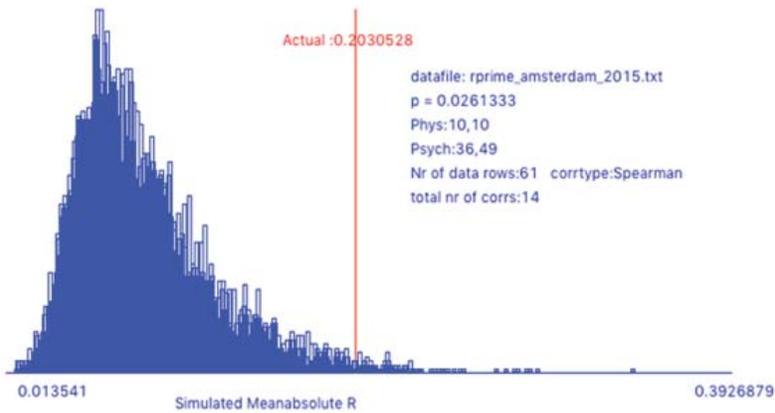
**Figure 1. The  $p$ -value for the CMM (Correlation Matrix Method) analysis as a function of the criterion to count a correlation as significant.**

### Connectivity

In earlier research by von Lucadou (2006), an analytic approximation for the chance distribution of significant cells in correlation matrices was used. The approximation is required because of the dependencies among the responses to different questions. Grote (2017) did not use the analytic approximations but did *simulate* this distribution of the number of significant correlations in the correlation matrix, by multiple (10,000) random *permutations* of the actual psi scores of the different participants correlated to the question variables.

By comparing the obtained experimental chance distribution with the actual number of significant correlations obtained with the nonpermutated data, they assessed the probability of finding a correlation matrix that showed that amount of connectedness or more.

Several experiments were designed in the past to explicitly test the methods with the correlation matrix as the dependent variable (von Lucadou 2006), and more often than not such an effect was found. However, the statistical treatment has been criticized and data of the most recent experiments were re-analyzed using proper permutation methods (Grote 2017). This proper connectivity analysis does also support the psi hypothesis but the effect sizes are smaller than originally reported (a review article is in preparation).



**Figure 2. Results of the 10,000 permutations analysis of the Amsterdam data. The red line represents the experimental data's real 'connectivity'. The histogram represents the control distribution of connectivity obtained by permutation techniques.**

### ***Removal of the Subjective Aspects of the Permutation-Based Connectivity Analyses***

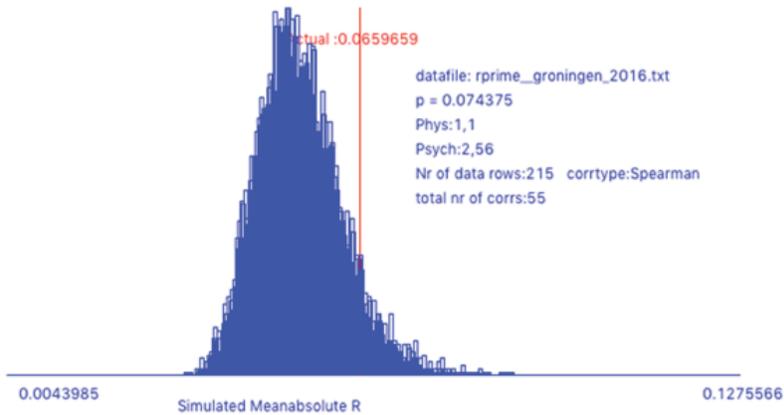
The choice of  $p < 0.10$  as a criterion to call the correlation 'significant' is of course subjective. This can easily be seen if one uses different values for calling a correlation 'significant'. For instance in Figure 1 the results are dependent on this subjective choice, but for all values of  $0.02 < p < 0.1$  the results of the analysis is significant.

Smaller values of  $p$  result in too few data points for a reasonable analysis.

Because of this subjective aspect, we developed a method that is not dependent on the arbitrary choice of a critical  $p$ -value. The key word here is *connectivity*. We explored two definitions for this concept. First we used the average of the absolute correlation values in the correlation matrix and secondly we looked at the average square of the correlation values in the correlation matrix. We used permutation techniques to construct the chance distributions for both of these dependent measures (Figure 2). (The software, 'connectivity-analysis', is available by downloading from the Heymans website or the Open Science Framework).

### ***Permutation Analysis versus Monte Carlo Simulation***

We also ran the analyses using random numbers rather than permuted psi scores. The results were virtually identical. We prefer the permutation



**Figure 3. Results of the 10,000 permutations analysis of the rPrime experiment run at the University of Groningen. The red line represents the ‘actual connectivity’ in the experiment. The histogram represents the control distribution of the explained variance.**

analysis because that analysis does keep certain aspects of the original distribution of the experimental psi scores.

### **Connectivity Analysis on an Identical Experiment in Groningen**

According to the GQT, this anomalous surplus of connectedness in the correlation matrix should be replicable. Therefore, we also checked the dataset of the Groningen laboratory that participated in the global Bem experiment a year later. The correlation matrix analysis results were replicated in this dataset. Using the same permutation simulation to obtain the empirical chance distribution, it was found that the amount of connectedness in the correlation matrix of that experiment was marginally larger than can be expected by chance (see Figure 3,  $p < 0.08$ ). These results can be seen as a *support* for the GQT. But of course for these conclusions to hold up, further replications are required.

### **Three New Measures for Connectivity**

The requirement for a measure of connectivity is that it must be sensitive to correlations that are more extreme than we could expect by chance. We used the absolute value of the correlation, but one could also use the square of the correlation coefficient. The analyses using that definition of connectivity turned out to be less sensitive (see Table 3). Finally we used the standard

**TABLE 3**  
***p*-Values Obtained Using 3 New Different New Measures for Connectivity**

Measure	AMSTERDAM	GRONINGEN
< R >	0.018	0.074
<R*R>	0.029	0.175
sd(R)	0.025	0.235
Subjective #sig.R	0.013	0.599

Results for the old measure of number of significant correlation where significance is assumed if the correlation has a chance probability of 10% or less are shown for comparison.

deviation of the correlations. That measure gives results comparable to the measure based upon the mean square of the values of the correlations. For all the measures, the chance distribution was assessed by permutation techniques.

### Discussion and Conclusion

The results of the evidential hypotheses did not replicate the original results from Bem (2011). It shows the reason why mainstream science is reluctant to accept the reality of these phenomena.

The research question from the students did not result in clear-cut answers. None of the reported correlation coefficients reached significance when corrected for multiple analysis. The most significant correlation was the one between ‘creativity’ and psi performance in the rPrime task. However, this correlation was negative, contrary to what is generally found and assumed in the field, namely that the more creative participants do better in psi experiments.

To see if this sign was correct, we did a number of post hoc checks on the integrity of the data. We checked the rPrime software, the entries by the students in the database of the responses to the questions, and the possible interference of the response times by the previous prime that appeared after the previous target.

After all these checks, we concluded that the significant correlations that were found had the proper sign. Therefore, these results may call into question earlier work on individual differences. Most notably regarding the factor ‘creativity,’ though, when corrected for multiple analyses the negative correlation is far from significant.

### **Procedural Differences**

Confronted with this result, we identified some procedural aspects that might be different from other experiments that assessed individual differences. The major one is that the sessions were done in an experimental room with 2 or 3 half-open cubicles where the experiment was running. It has been suggested that this could have had an effect on some relations. For instance, the relationship with extraversion that has been reported (Bem & Honorton 1994) is thought to be strongly dependent on context. Extraverts would do better than introverts when tested in an open (lab) environment with more people. However, none of the questions dealt with extraversion.

### **Anomalous Connectivity in Regular Matrices**

It should be remarked that in previous analyses of this kind the experiments were generally designed from the beginning to produce a data matrix that would be suitable for this approach. These PK experiments were generally rather complex to perform. The realization that simple data matrices from other than PK-experiments could also be used in this kind of connectivity analysis prompted us to use the data matrices obtained in the failed rPrime replications. The only requirement for the matrix is that at least one column contains random data under the null. This is generally the column with psi performance data. In fact in each psi experiment where personality variables are measured, such an analysis is possible. The software for the Connectivity analysis is able to handle most matrices.

### **Physical Theories**

There are two theories rooted in physics that could be argued to account for elusive effects.

**CIRTS.** In the first, consciousness-induced restoration of time symmetry (CIRTS) (Bierman 2010), all psi is modeled by retrocausation (or, more accurately, time symmetry). However, this retrocausation cannot be used to create a so-called *closed time loop* paradox (like the grandfather paradox in time travel). This paradox occurs when ‘future’ information is used in the past to change the course of events that resulted in that future information. This limiting principle in the theory fits with ideas by Novikov (Novikov 1992) and Echeverria (Echeverria, Klinkhammer, & Thorne 1991). Time travel to the past is possible but not to everywhere in space–time. It will be impossible to change the course of events in such a way that the future changes. The result of this limiting principle may look like the classic Trickster chaos. But there should be some internal structure; these ‘Trickster’ moments should be more probable in contexts where closed time

loops that may result in paradoxes that could be produced. In principle this is a testable hypothesis.

**Generalized Quantum Theory.** The second theory is called the Generalized Quantum Theory (GQT). Here the limiting principle is that the anomalous correlation may never be used as a *signal* (Atmanspacher, Römer, & Walach 2002, von Lucadou & Römer 2007). That is, it will be impossible to manipulate at will on one side of the ‘communication channel’ thereby forcing the other side to be encoded at will. This is an analogy to the quantum nonlocal correlations that disappear if one sets up the experiment in such a way that the correlation may be used as a signal (for instance to earn money). But rather than being totally capricious, the built-in ‘Trickster’ in this theoretical approach is assumed to become active only when the nonlocal character of the correlation is threatened.

A well-known ‘practical’ prediction of the GQT is that although upon replication, according to the theory, the anomalous correlation will disappear in the (correlation matrix) cell that one intended to use as a signal cell, extra correlations will pop up in other (unexpected) cells. The hypothesis is then that the correlation matrix that we found contains more extreme correlation values (independent of sign) than can be expected by chance. As argued in the Results section, there is no straightforward analytic statistical technique to test this hypothesis because the cells are dependent and therefore the null distribution of the connectivity in the correlation matrix is unknown. We solved this problem by using permutation techniques to construct the chance distribution of two variables that could be used as operationalization of ‘Connectivity’. The use of the average *absolute* correlation coefficient turns out to be more sensitive than the use of the average of the square of the correlation matrix. This could imply that cells with weaker correlations are more apt in assimilating the supposed anomalous nonlocal correlation than cells that have more extreme values, and this finding if replicated may give further theoretical suggestions.

**To summarize:** The experiment was set up for the student experimenters as an exploration into possible individual differences in performance in a psi task. Overall performance was at chance level. Some correlations between the performance and several predictors were larger than can be expected by chance, but the direction of the correlation for some questions went against the expectation. However, when corrected for multiple analyses all these correlations become nonsignificant.

The major finding from these experiments comes from a post-hoc analysis suggested by the apparent decline from Bem’s results and the Generalized Quantum Theory that ‘explains’ this decline and predicts that in case of decline the anomalous correlations should ‘go’ to other cells

in the correlation matrix. Although the whole study was explorative and hadn't been preregistered, we still believe that this finding may be different from the chance findings that always pop up in explorative research. Most important is the fact that we initially assessed this effect marginally in the Groningen data, then requested the totally independent Amsterdam data and could replicate this result. We cautiously conclude that this finding can be seen as a support of the Generalized Quantum Theory.

### **Future Developments**

The use of the term *connectivity* may turn out to be misleading. At least in the Amsterdam data, we found a comparable effect using the standard deviation of the values of the correlation coefficients. This could be interpreted as an increase of variance rather than connectivity. Currently we are running simulations with several models for how the data may be affected in such a way that we get the same pattern of results as we found using the three different new measures. These simulations may therefore give the theoretical details of how the concept of nonlocal correlation as used in the GQT may interfere with normal causal correlations.

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## APPENDIX 1

### Full List of Questions and Correlations with Psi Score

N in the Groningen data ranges from 213 to 215. N in the Amsterdam data is 61.

nr	Question	R	p
G1	I see beauty in things where others might not.	-.058	.398
G2	When getting angry, I direct my aggression toward others instead of keeping it to myself.	.030	.666
<b>G3</b>	<b>Sometimes I sense something that I am unable to explain with my normal perception (hearing, seeing, feeling, tasting, smelling).</b>	<b>-.138*</b>	<b>.043</b>
G4	At least once I have found myself in a state of altered consciousness (which is a temporary change in one’s normal mental state without being considered unconscious, so not while dreaming, daydreaming, meditating, or being hypnotized).	-.030	.664
G5	I believe I am able to see things that are in the future or happening somewhere else.	-.100	.144
G6	I often have visible signs of nervousness such as sweaty palms or shaky hands.	-.029	.673
G7	When making decisions, I often rely on my gut feeling instead of logical thinking.	.075	.274
G8	I believe that it is possible to sense things not with your physical senses (feeling, hearing, seeing, etc.) but with your mind, as if it is “the sixth sense”.	-.074	.282
<b>G9</b>	<b>I believe in life after death.</b>	<b>.139*</b>	<b>.041</b>

nr	Question	R	p
G10	I am confident in succeeding in all parts of this experiment.	.037	.586
G11	I'm usually aware of internal processes like thoughts, feelings, and bodily sensations.	-.017	.805
G12	I believe in paranormal phenomena (e.g., witchcraft, telepathy, existence of ghosts).	-.044	.519
G13	I usually feel comfortable in testing situations.	-.055	.424
G14	I frequently have self-critical thoughts.	-.079	.250
G15	When in trouble, I actively try to improve the situation.	-.038	.583
<b>G16</b>	<b>I consider myself as being creative.</b>	<b>-.185**</b>	<b>.006</b>
G17	I have had an out-of-body experience.	-.069	.314
G18	I believe it is better to think things out than to get angry.	-.104	.131
G19	I have been successfully hypnotized on a previous occasion.	-.075	.275
G20	I consider myself as an outgoing person.	-.088	.202
G21	I am never bored because I start fantasizing when things get boring.	-.077	.261
G22	When reflecting on my personality, I feel that I have many qualities which are traditionally regarded as feminine.	-.047	.492
G23	I've had an experience in which it felt like I was outside my body	-.127	.062
G24	I often do things without thinking through the possible outcomes.	.022	.753
G25	I feel it is important for me to act as an independent person.	-.029	.674
G26	I practice ways of mental control, such as meditation, self-hypnosis, autogenic training, etc.	-.110	.110
G27	I often feel that I have little influence over the things that happen to me.	.081	.236
G28	Sometimes I am aware of the fact that I am dreaming.	-.001	.984
G29	I have experienced or am experiencing mental health conditions.	.095	.164
G30	I get stressed out easily.	.034	.618
G31	I am open to new experiences.	-.046	.503
G32	I have participated in research about whether I can anticipate or sense the future.	-.039	.568
G33	I make rational decisions.	.029	.677
G34	At least once I have experienced telepathy (which is transmitting information to someone without any form of interaction).	-.086	.208
G35	I feel relaxed in new situations.	-.012	.863
G36	Religion is an important part of my life.	.108	.114
G37	I am comfortable taking risks even though I might be wrong.	-.055	.422
G38	I have a lot of sex appeal.	-.041	.555
G39	I have an inner aspiration to go beyond previous limits in different fields (physical, mental, spiritual).	-.087	.204

nr	Question	R	p
G40	I like to find myself in situations which make my heart beat faster.	.009	.892
G41	I smile at strangers whenever it is appropriate.	-.081	.238
G42	I am easily bothered by stimuli in my environment, e.g., noises or chaotic scenes.	.110	.108
G43	The norms and values that influence my goals, plans, actions, thoughts, and feelings, are to a great extent based on my spiritual beliefs.	-.057	.404
G44	In familiar situations, I enjoy the unexpected.	-.023	.743
G45	At least once I have seen something that was happening in the future or somewhere else.	-.090	.187
G46	I feel I have achieved something in my life.	.081	.235
G47	When asked to choose a number, I tend to choose my lucky number.	-.056	.417
G48	When I am in pain, I feel I am being slower.	.041	.548
G49	I believe that when the person I love the most got seriously ill or died, I would feel or know it somehow.	.077	.262
G50	Someone has tried to take something directly from me by using violence or threat of violence.	-.022	.749
G51	I often deceive people.	.054	.434
G52	I am interested in reading books and articles on psychic phenomena.	-.111	.103
G53	I use meditation techniques.	-.075	.274
G54	I consider myself an artistic person.	-.074	.281
G55	I believe I have telepathic abilities (which is the ability to transmit information to someone without any form of interaction).	-.085	.215
A1	Some humans are capable of lifting objects by means of mental power.	.244	.058
A2	PK, the movement of objects by means of psychic influence, does really exist.	.099	.448
A3	Thoughts can move objects.	.133	.305
A4	It is impossible to read someone's mind.	.160	.218
A5	Astrology can predict the future.	.232	.072
A6	A horoscope may foretell the future.	.218	.092
A7	Some psychics are able to accurately predict the future.	.224	.083
<b>A8</b>	<b>Some people have the unexplained faculty to predict the future.</b>	<b>.290*</b>	<b>.024</b>
A9	Events in the future may influence my behaviour and decisions at this moment.	.228	.077
A10	My intuition enables me to feel the future.	.201	.121
A11	It is possible that by unknown means a mental picture can be transferred.	.196	.131
A12	It is possible to mentally influence some other person by thoughts alone.	.093	.476
<b>A13</b>	<b>People may have a visionary moment that can be used to predict the future.</b>	<b>.284*</b>	<b>.026</b>
A14	The claim that people can predict the future is nonsense.	-.241	.061

## **APPENDIX 2**

### **Full Text Used for Selection of Student Experimenters**

Can future events have an effect in the present? According to a controversial paper by Bem (2011), it can. With this thesis, you can replicate Bem's famous experiment. This project is part of a larger international replication effort. Each student in this group will run his/her own experiment. You will learn through doing the following:

1. Adjust a foreign experiment to local conditions and replicate a so-called 'retroactive priming' experiment with 20 subjects. The experiment consists of a computerized priming task with English words (that have to be adapted for Dutch/German-speaking subjects) and a questionnaire that also has to be translated from English. This work will be split up among the 5 students in the group (group effort).
2. Formulate a personal hypothesis and pre-register this (personal effort).
3. Expand the questionnaire with new items that are supposed to be predictors of the subject's performance in the priming task (group effort).
4. Introduce each of the 20 subjects to the experiment, keep a logbook, and debrief the subject at the end of the experiment.
5. Do a simple differential test comparing the priming response times in two conditions (congruent versus noncongruent).
6. Analyze item scores of the questionnaire with the priming performance scores.
7. Write a so-called extended abstract about your own experiment.

REVIEW

## The Case for Advance Wave Causality

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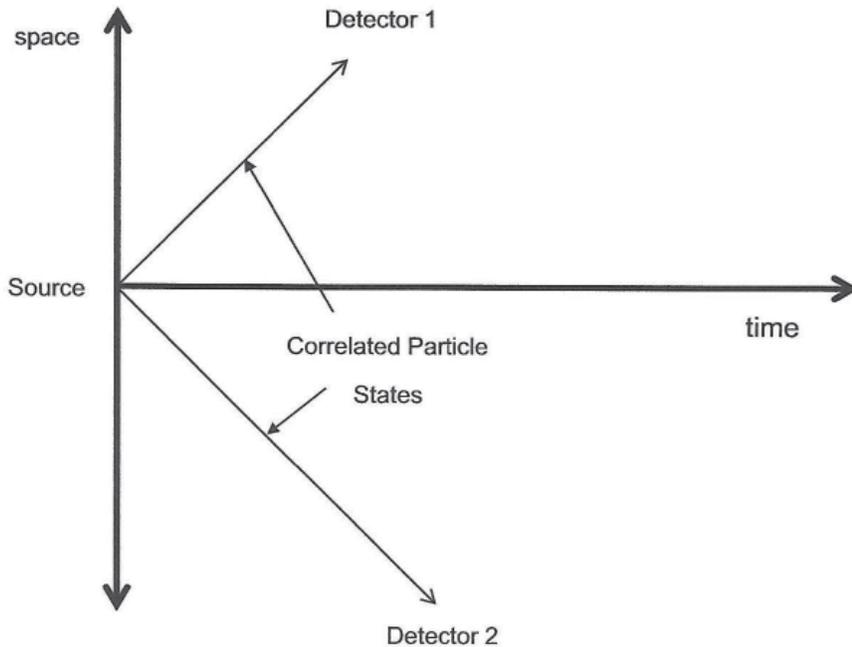
**Abstract**—We seek to strengthen the hypothesis of time reversal of cause and effect, or the bipolar causal nature of advanced and retarded waves. The hypothesis is not directly testable, at least with existing technology, so the argument is based on a priori reasoning. It provides a basis for rationalizing entanglement and for the Wheeler–Feynman absorber theory. Alternative hypotheses are given and compared to show justification.

**Keywords:** advance wave—retrocausation—causal time reversal—Occam’s razor—entanglement—Wheeler–Feynman absorber

### Introduction

The hypothesis of time symmetry of causality is problematic. We put forth some effort to explain and justify it. The argument has a two-fold thrust. The first centers on the phenomenon of entanglement, for which causal time reversal offers one explanation. The second deals with the Wheeler–Feynman (1945) absorber theory which depends on the causal existence of advanced and retarded waves, and which needs to be reconciled with current cosmologies.

The hypothesis is not directly testable, and no experiment can as yet be undertaken to falsify it. Stated otherwise, there are no known probability distributions against which it may be tested. If we follow this path, we are in some sense abandoning the paradigm of the Copenhagen interpretation<sup>1</sup> of quantum mechanics, in which only states with calculable probabilities will be considered; others are discarded as of no practical use (the “shut up and calculate” approach sometimes invoked in modern physics). This paradigm prevents us from questioning certain underlying, untestable foundations upon which our science may be based. This article is not a suitable forum



**Figure 1. Space-time diagram of two entangled particles departing from a common source and moving apart in opposite directions in space and forward in time.**

to discuss the merits or demerits of such an approach. Suffice it to say that we choose to go beyond the Copenhagen interpretation. In place of testing against calculable probabilities we will test against Occam's razor,<sup>2</sup> which is a method of ordering the a priori likelihood of various states, which may have no calculable probability distributions, and choosing to explore those which are most likely.

As a thought experiment and a test bed for the hypothesis, we will invoke Bell's theorem (Bell 1964) and the Aspect experiments (Aspect, Dalibard, & Roger 1982, Aspect, Grangier, & Roger 1982). Bell's theorem shows that under some conditions either quantum mechanical predictions fail or causality is nonlocal. The Aspect experiment tested the theorem in a situation in which entangled photons of correlated polarization are generated and measured.

Figure 1 shows a diagrammatic explanation of the experiment. We will then deal with the absorber theory (Wheeler & Feynman 1945) as a requirement for the validity of the first hypothesis, and show where it needs modification which may allow it to fit our current cosmological models.

### Alternatives for Nonlocal Causality

A number of researchers have discussed time reversal of cause and effect, sometimes dubbed as retrocausation, as a working hypothesis (e.g., Costa de Beauregarde 1977, Lear 2012, Sheehan 2006). Alternative approaches deal with the concept of retarded and advanced wave (e.g., Moffat 1998, Wheeler & Feynman 1945) wherein retrocausation is implied, but is not an emphasis. We first discuss six alternative sub-hypotheses for nonlocal causality. We will compare them under the guidance of Occam's razor.

1. The first alternative, perhaps the most widely used, is that entangled particles form a single quantum state, and will respond to a measurement as any state does, by yielding a sub-state out of the superposition. This is pure, pragmatic Copenhagen interpretation. The cause is the measurement and the effect is the collapse of the wave function, or reduction of state. But the relationship between a measurement and a wave function collapse is purely formal and not physical.

Niels Bohr never wrote about wave function collapse. Heisenberg called it the reduction of a wave function to a new state representing the change in knowledge of the state due to the outcome of a measurement. So we might assume that the Copenhagen interpretation considers a measurement as a probe of a system, and the wave function collapse as the recording of the results of that probe. We assume neither of these need be subject to conscious awareness. These are certainly causally connected, and the causality is forward in time if we make a distinction between the measurement process and the recording process.

In the case of entanglement of two polarized particles, the probe is the insertion of a polarizer and the recording is the registry of an electromagnetic signal. The measurement of an event at one pole of the system is not contiguous with the recording of the event at the other pole. This is so in the sense that the measurement and recording do not have a direct path between them in space and time within their respective light cones. Contiguity is not established until the two data streams are brought together in the lab and correlations are established. In this sense, the state is not reduced until the correlations are recorded. It is this disruption in contiguity that led to Einstein's complaint of spooky action at a distance, and led to the coinage of the term *nonlocality*.

Traditional causality is defined as a sequence of interdependent events that are contiguous in time and space, and there is an urgency to retain this tradition.

2. A second alternative is that causality acts outside of the realm of spacetime. One might argue that causality as a physics principle is

independent of, or transcends, the relationships of occurrence of events in space and time. Then its true structure remains to be discovered, as does its mode of interaction with spacetime.

3. A third alternative holds that causality is not a natural law at all, but is an artifact of human experience. It is an outgrowth of a larger reality, useful only in describing our experience of spacetime. As a sort of restatement of the second alternative, this explanation gives no clue to the underlying nature of the structure of causality within spacetime.

4. If there are hidden causal interactions between the two detectors and the source, such as David Bohm's pilot wave<sup>3</sup> which guides particulate entities, their responses may be guided as specified by quantum mechanics. The tentative fourth alternative arising from this is that if there is a hidden transmission of causal interaction from one detector to the other it must be "superluminal" (faster than light speed). In Figure 1, this would correspond to an arrow pointing directly from one detector to the other. Tachyons, for example, are hypothetical imaginary particles with speed faster than light, never slower, and would be capable of transmitting superluminal signals.

In a variant of his experiment, Alain Aspect (Aspect, Dalibard, & Roger 1982) modified his apparatus so that the polarization of the first detector was set after the photons had left the source. The polarization correlations of the second detector with the first detector were realized before the decisions were made on the polarization state of the first. It follows that any spacetime causal connection appears to have been time-reversed. The polarization change was accomplished in a pseudo-random fashion. The Aspect experiment left no signature for the presence of a transmitting particle. A tachyon, if present, could not show itself in Lorentzian spacetime.

5. A fifth alternative has causality acting in a relativistic Lorentz transformed frame of reference which is necessarily not homomorphic with the observer's frame. Such a relative frame of reference would result in certain simultaneous events (being spacelike events) becoming separated in time (becoming timelike events), but would still cause the appearance of superluminal transmission as in the fourth hypothesis.

6. The sixth and final alternative is also a Lorentz invariant transformation, as in the fifth. But it is an improper Lorentz transformation, with the time element of the transformation matrix reversed in sign. In this, causality as well as dynamics may be time-reversed, so that the cause follows the effect in time.

### Occam's Razor and Causal Time Reversal

Occam's Razor holds that the simplest explanation for a proposition is the most probable, because the simplest has the least number of assumptions to which a prior probability must be assigned.

We take as a working principle that things or concepts that are less easy to imagine, visualize, or explain, in terms of the illustrative power of the verbal or graphical description, will have lower prior probability of real existence because of the potentially larger numbers of modes of realization of such.

Among the alternatives for nonlocal causality presented in the previous section, **Alternatives For Nonlocal Causality**, numbers one through three show no answers at all to the relationship of causality to spacetime. If we suppose that this relationship holds, these three are unsatisfactory. Because they lack direct explanatory power, they potentially have a complexity of multiple paths to explanation, and have a low probability of providing an explanation. In and of itself, the fourth alternative appears to violate special relativity because it is superluminal signaling and attempts to impose the causal relationship within the observer frame of reference. The fifth alternative also results in superluminal transmission of causal action. There is no Lorentz transformation that can change a spacelike event into a timelike event. Such transformed reference frames have the shortcoming that there are still no apparent signal carriers to provide contiguity between cause and effect. The probability of causal connectivity existing in such reference frames is low.

This leaves the sixth alternative as the simplest and most rational. In the time-reversal mode, the photons or other particles moving between the source and the detectors may act as signaling paths.

Figure 1 shows arrows pointing away from the source, indicating a timewise forward motion of the particles, and implying a causal link forward in time. If one of the arrows pointed back toward the source, this could be taken as a causal link starting at the detector, which more or less randomly determines a single polarization state, which then determines the source in that state in a retrocausal fashion. The unique state thus assumed by the source will then cause the measurement at the other detector to be suitably correlated. This is time reversal of cause and effect, or advance wave causality.

### Dynamic and Causal Time Reversal: Symmetry and Cosmology

Cause and effect are multipolar. The poles are sequences of events. As a working hypothesis, we suppose that poles are causally connected if their

dynamics are correlated with each other in time and space. The dynamics of one such sequence is correlated with and dependent upon the dynamics of another. Such correlation is always subject to statistical discovery, although in many instances the statistics are so strong as to be counted as certainty. And in others, the statistics are clearly absent.

In this view of causality, we suppose that the information content of a sequence of events is causal, and the dynamics are effectual. The action of the causal sequence is driven by information that is correlated with that action. In contrast, insofar as the action of a sequence is correlated only with action in another sequence, that action is effectual.

In the abstract, information is the resolution of uncertainty. In a classic paper Claude Shannon (1949) quantified information in terms of a weighted sum of bits now called the Shannon entropy:

$$H = -\sum_i p_i \log_2(p_i)$$

The  $p_i$  are the probabilities of various outcomes of a sequence of events which for our purposes is a causal pole. For example, in the Shannon formalism the sequence was the transmission and reception of a string of bits in a communication channel.

Without an observation, the number of possible outcomes is manifold. If an observation is made, the number of possible outcomes is always reduced, but not always to a single outcome. The result of an observation is a reduction in the Shannon entropy. The dynamical entropy, which is the negative of the Shannon entropy, is increased.

In our second-law temporal universe, dynamical entropy in a closed system tends to increase over time. Informational entropy decreases, meaning a system that was initially highly causal becomes less causal. The second law dictates the time sequencing of cause before effect.

Some examples will illustrate. Suppose a billiards player wields a cue. His intention supplies information to the initiating action of the cue striking the ball, resulting in effectual action of other billiards on the table. That is a simple bipolar causal chain in which cause and effect are well-defined and separated. The array of struck balls contains information, but the information content of the player and his cue is overwhelming. The observation of cause and effect is in the correlation of the motion of the billiards with the use of the cue. In all other cases also, correlation of dynamical action is the observable.

Suppose a number of individuals are given boxes of identical kitchen blender parts, then divided into two groups, one of which is given written

instructions on how to assemble and use the blender while the other group is told only to use the blender to perform a food preparation. The use of instructions is causal, but the only discovery of a causal relationship comes from the correlation of success with the use of the blender with the use of instructions. There is no other external acting mechanism (such as a cue) driving the success rate.

In an arm wrestling contest (or a ball game) the wills are causal, but physiology is effectual, and the result is a balance of the two.

In agriculture, weather factors may be highly correlated with crop yield, but this is a classic case of confounding cause and effect. Ultimate causation may lie with solar energy.

Classical physics adds two other principles to this idea of information and correlation. Classically, a cause must precede its effect, and a causal chain must have contiguous elements throughout its spacetime domain.

The symmetry of dynamic time reversal is well-known in field theory. Under the time reversal operator  $T$ , the dynamical time variable  $t$  changes sign but the state vector does not change. If a state is symmetric under dynamical time reversal, it is reasonable to assume that it must also be symmetric under causal time reversal. That is, the operator  $T$  not only changes the sign of  $t$  but it also changes the polarity of cause and effect.

Radiation emission events are causal insofar as they involve a state transition invoked by information reduction. Radiation absorption is causal for the same reason. The information transfer in the absorption process may be seen as the basis for advance wave causality.

There are broadly three areas that challenge the symmetry of time reversal. These are  $T$ -violation processes, second law processes, and what we know about cosmology.

Mesonic decay processes have indicated the presence of  $CP$ -violation, and hence  $T$ -violation, for many years. Over the last decade or so, higher energy  $B$  meson decay processes have confirmed it.<sup>4</sup>  $T$ -invariance alone is not enough to guarantee causal time reversal in every case. But all these processes are invariant under  $CPT$  (Charge conjugation, Parity transformation, and Time reversal), which includes charge conjugation and parity, or coordinate inversion.  $CPT$  invariance may be sufficient to exchange the polarity of cause and effect.

Causal polarity reversal is an attractive concept in part because it maintains contiguity through particle paths, and the process remains Lorentz invariant. The formalism of the Feynman diagram is widely used as a picture of a particle as an antiparticle traveling backwards in time and space. They are mathematically equivalent under  $CPT$ , and potentially each carries a causal signal.

Another challenge is the possibility that retrocausation is inconsistent with the second law. If retrocausation emerges macroscopically, the consequence could be at least a limited violation of entropy increase within closed systems. Note first that microscopic causality and microscopic dynamics are both time reversible, and we can claim they both obey the CPT invariance and Lorentzian invariance. Note, however, that microscopic causality and dynamics must translate to macroscopic causality and dynamics. If the second law only governs forward causality of macroscopic dynamics, we can provide a basis for it as a principle of cosmological thermodynamics, and not as a quantum principle. The underlying principle is simply the well-known ad hoc statement that thermodynamic time proceeds in the direction of maximum likelihood. In the work that follows, then, we will need to also exclude cosmological electrodynamics from second law effects.

A final challenge is the apparent inconsistency of the Wheeler–Feynman absorber theory (1945) with most currently accepted cosmological models. Absorber theory strongly supports the role of advance causal electromagnetic waves in the structure of the cosmos. The attractive feature of absorber theory is that it eliminates the apparent lack of radiative damping of an accelerated electron emitting a photon during a state transition. Wheeler and Feynman (1945) proposed, and Hoyle and Narlikar (1995:126) found, that the absorber theory requires perfect (future) absorption of retarded waves and imperfect (past) absorption of advanced waves in the cosmological time scale. Hoyle and Narlikar (1995:139) also found that the imperfect past absorption requirement is inconsistent with all the useful cosmologies. Were it not for these inconsistencies, absorber theory would not be a challenge to advance wave causality.

### Future Absorption

In Wheeler–Feynman absorber theory the advanced and retarded fields contribute equally to the total field. In the nomenclature of Hoyle and Narlikar (1995:119), the field acting on an emitting charge (a) is the sum of advanced and retarded fields of all other absorbing charges (b):

$$F_{\text{total}}^{(a)} = \sum_{b \neq a} \frac{1}{2} [F^{(b)\text{ret}} + F^{(b)\text{adv}}]$$

We noted above that in the view of Hoyle and Narlikar (1995:139) perfect (future) absorption of retarded waves is not possible in the Wheeler–Feynman theory for most of the useful cosmologies. They proposed quasi–

steady-state cosmologies as a possible remedy, but these have suffered loss of credibility over time due to inconsistency with cosmological data (Wright 2015) and the resulting complexity of explaining such inconsistency. They also showed, as did Wheeler and Feynman, that perfect future absorption is a requirement if absorber theory is to alleviate the dynamical inconsistencies arising from photon emission by accelerated electrons. Hoyle and Narlikar (1995:125–126) showed the closed Friedmann cosmology as supporting both perfect past and future absorption. They found other closed cosmologies that support perfect future absorption, but allow only imperfect past absorption.

Perfect future absorption in a closed universe is apparently achievable because radiation may recirculate throughout the enclosure until it is captured. Perfect future absorption may not occur in an open, expanding universe if the future absorber density is too small to capture the retarded radiation.

Our current cosmological database strongly supports the existence of a cosmology that is open, flat, and expanding. The Hoyle–Narlikar analysis as just discussed determined that, based on current models of the density of matter in the universe, there are not enough future absorbers to complete the needed absorption. But absorber theory requires perfect future absorption. So if we are to proceed along these lines, we will need to find other cosmological alternatives for future absorption.

We have recently completed a study that provides such an alternative (Lear 2016). Given the dearth of real future absorbers, we suppose the presence of virtual electromagnetic pairs emergent throughout spacetime within the constraints of the Heisenberg uncertainty principle. Such virtual absorbers appear often enough to capture all the primal radiation from the big bang as well as subsequent emissions. Such capture will result in absorption and immediate re-emission of both retarded and advance waves.

Due to relativistic cosmic expansion, some regions of spacetime will come to recede from one another with speeds approaching and greater than that of light. Such regions lose causal contact with each other, and their interface constitutes a light horizon beyond which absorption of retarded waves no longer would result in advance waves being returned to the emitter. Absorption at the light horizon completes perfect absorption, resulting in advance waves returning to the emitter and retarded waves receding into a region causally disconnected from the emitter. By this means, the requirements of Wheeler–Feynman absorber theory are satisfied.

## Discussion

The literature on causality in physics contains many ramifications of definition, concept, and philosophy of cause and effect. In this work, for simplicity's sake, we have adhered to a basic concept, founded primarily in the classical definitions. We have used three classical principles, and we have proposed modifications to those principles.

The first is that a cause precedes its effect in time. This principle can be held to in special and general relativity as well. Another way of stating it is that an effect occurs in the forward light cone of the cause.

The second principle is the space and time contiguity of elements in a cause-and-effect chain. An outcome of this is that in processes involving action-at-a-distance, there are always conceptual carriers of force or other information connecting the elements of a chain.

Thirdly we used an ad hoc principle that altering or manipulating a cause will change an effect, but that effects are not subject to manipulation other than through causation.

To be physically viable, each of these principles should be testable. Their application to classical and relativistic dynamics is fairly straightforward. Their application in quantum field theory is perhaps somewhat murky, and we have explored this.

Among ramifications we have bypassed or ignored, for example, are the dependence of the simultaneity of events on the motion of rest frames in special relativity. Also, there are so-called "non-causal" dynamics such as Newton's first law of inertial motion, which do not appear to require causality to be enforced. We have bypassed discussion of causal paradoxes, leaving those to the mercy of probabilistic interpretation.

Within these constraints, the one we have proposed abandoning is the first of the three principles, that of forward causality. As a principal justification for this, we have shown that the simplest explanation of quantum entanglement lies with attributing causal action to advance waves—in other words, time reversal of cause and effect.

We addressed the symmetry breaking of causality in time by invoking the underlying principle of the second law, suggesting that thermodynamic time flow is governed by the outcome of greatest probability. This divorces thermodynamic time flow from the causal time symmetry occurring on the quantum level.

As a secondary justification for advance wave causality, we have turned to Wheeler–Feynman absorber theory, which requires a mixture of advanced and retarded waves to provide radiative damping for electromagnetic emissions from atoms. In doing so we have accepted the necessity for radiative damping forces acting externally on accelerating electrons emitting radia-

tion in quantum transitions. Such damping forces are apparent, for example, in bremsstrahlung radiation at the quantum level, and in any macroscopic process involving acceleration of charge.

The difficulties with absorber theory are mainly cosmological. We have addressed this in a previous paper (Lear 2016). There is a symmetry breaking of cosmological time, which we have addressed through thermodynamics. Also in an open Friedmann cosmology, comparable to what we know currently about the standard cosmology, there is a lack of future real absorbers to match early emissions. We have alleviated this by showing the possibility of future virtual absorbers that may fully capture all primal radiation before and when it reaches the light horizon. Future absorbers are potentially plentiful in the form of electron positron pairs, with lifetimes limited by the Heisenberg uncertainty principle, but sufficient to perform absorption and re-emission of photons.

### Notes

- <sup>1</sup> The Copenhagen interpretation of quantum mechanics was formulated by Niels Bohr and colleagues working in the early 1900s in Denmark. It is very pragmatic. Very briefly, the interpretation says that quantum mechanics cannot describe the nature of reality beyond what the axiomatic theory is capable of predicting, and that any interpretation beyond that theory is without substance and is of no usefulness to physical science. Most textbooks on quantum mechanics are good resources for study.
- <sup>2</sup> William of Ockham (aka Occam) was an early fourteenth-century English Franciscan friar and a scholastic philosopher, who is believed to have been born in Ockham, a small village in Surrey. He was a major figure in scientific and logical thinking in medieval times. He is best known for the logical principal that bears his name. There is an abundance of online reference to the application of his principle of simplest hypothesis being the most likely to be true.
- <sup>3</sup> Bohm's pilot wave hypothesis holds that particles are substantial objects following well-defined trajectories in space and time, and that these trajectories are guided according to the amplitudes of the system state vector. Most modern quantum textbooks will have a discussion of the pilot wave hypothesis.
- <sup>4</sup> There are numerous online references to B meson decay CP violation. A recent survey by Roland Waldi, "B meson decays and CP (and T) violation" (14 January 2013), from the Proceedings of the 32nd International Symposium on Physics in Collision (PIC) conference, 12–15 September 2012, Štrbské Pleso, Slovakia, may be found at [arXiv:1301.2509v2](https://arxiv.org/abs/1301.2509v2) [hep-ex]

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## HISTORICAL PERSPECTIVE

### Musings on Materializations: Eric J. Dingwall on “The Plasma Theory”

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**Abstract**—The psychical research literature has many examples of séance room materialization phenomena. This article consists of a reprint of, and a commentary about, Eric J. Dingwall’s paper “The Plasma Theory,” published in the *Journal of the American Society for Psychical Research* in 1921. Dingwall discussed some of the previously published ideas on the topic, and emphasized those related to mediums Eva C. and Kathleen Goligher. The purpose of the current article is not to provide evidence for the phenomena, but to present relevant contextual information about the article, additional bibliography, and theoretical concepts, some of which are forgotten today.

#### Introduction

One of the phenomena of physical mediumship is materializations, or appearances of ephemeral bodies (or parts of), and other forms, or things, in the séance room. This includes the production of ectoplasm, a subtle matter assuming various shapes and appearances—such as mists, plaster, and textile-like products—that may change into things such as hands, faces, and whole bodies. The topic flourished in previous eras and is largely ignored today by parapsychologists, particularly in terms of research. This is in part due to its association with fraud (e.g., Nahm 2014, 2016, Puharich 1960/2008, Schrenck-Notzing 1924, Wallace 1906), and the lack of mediums who produce the phenomenon, or who are willing to be investigated under controlled conditions. Nonetheless, some current students of materialization believe there is evidence for the occurrence of the phenomenon (e.g., Braude 2007, Pilkington 2006). The purpose of the present article is to remind readers of the spiritualist and psychical research materialization literature via a reprint and discussion of a paper on the topic

by Eric J. Dingwall (1921) in which aspects of the subject were reviewed.

Even though materializations are not widely investigated today (for exceptions see Braude 2014, 2016), the material discussed in the present paper is still relevant for various reasons. First, like any other topic, modern research into materializations would benefit from familiarity with this literature, particularly in terms of providing knowledge about methodology, theory, and previous findings. Second, this literature has much to teach us about the development of psychical research, as seen in overviews of past developments in the field (Inglis 1984, Robertson 2016), and thus deserves attention. Third, the topic is still relevant to current concerns, as seen in discussions of it in both popular (Parsons 2017, Tymn 2018) and scholarly (e.g., Brain 2013, Delgado 2011) forums, which includes studies of specific materialization mediums of yesteryear (e.g., Haraldsson & Gissurason 2015, Weaver 2015).

## **Materialization Phenomena**

### ***Variety of Materializations***

Most of the Nineteenth-Century descriptions of séance materializations, a topic barely mentioned by Dingwall in the article reprinted in this paper, referred to the appearance of whole bodies, or parts of them, a trend referred to by a commentator as the ‘materialization mania’ (Wilson 1879; for overviews see Moses’ (1884–1886) multipart paper, as well as Holms 1925/1927, Montandon 1946, and Sargent 1876). This was, and still is, a problematic literature sometimes involving mediums accused of fraud, and that did not always present clear descriptions about the control conditions under which the mediums sat.

Many accounts were about mediums such as Catherine E. Woods (Adshead 1879), Florence Cook (Crookes 1874a), William Eglinton (Farmer 1886), Francis Ward Monck (Oxley 1876), the Eddy Brothers (Olcott 1875), and Kate Fox (Owen 1871), among many others (e.g., Brackett 1886, Wolfe 1874).

A classic case of full-body materialization was Katie King, which appeared in the presence of medium Florence Cook (Figure 1). In one instance, as narrated by William Crookes:

Katie never appeared to greater perfection, and for nearly two hours she walked about the room, conversing familiarly with those present. On several occasions she took my arm when walking, and the impression conveyed to my mind that it was a living woman by my side, instead of a visitor from the other world, was so strong that the temptation to repeat a recent cel-



**Figure 1. Materialized form of Katie King (first two photos) and Medium Florence Cook.**

... celebrated experiment became almost irresistible . . . I asked her permission to clasp her in my arms . . . Permission was graciously given, and I accordingly did—well, as any gentleman would do under the circumstances.

(Crookes, 1874b:158)

Many were the reports of appearances of limbs and faces. Hands were common, as seen with Eusapia Palladino. On one occasion the medium's hands were tied with a cord that was sealed with wax and held by the controller. The writer stated he saw "two luminous hands as if coming down from the roof . . . [which] loosened the knots that held Eusapia's wrists" (Otero Acevedo 1895:Volume 2:244; this and other translations are mine). In another séance Blech (1897) reported a hand appeared "continued by an arm," (p. 3), as well as a "small and warm hand" (p. 5).

In addition to full-body appearances, and the appearance of faces and limbs, there were reports of less precise forms as well that may be considered manifestations of what was latter called ectoplasm, which is the topic of Dingwall's article. Perhaps the most common form of Nineteenth-Century ectoplasm was that of clouds or nebulous formations, such as those observed with Monck (e.g., Oxley 1876). In D. D. Home's séances there were reports of a "small white cloud without any well-defined shape" and of a "luminous cloud-like body" (Adare 1869:28, 35). On one occasion, according to Crookes, a hand was seen "ending at the wrist in a cloud" (Crookes 1889:114).

Also common was the so-called spirit drapery, which looked like textile formations. In a séance with Florence Cook, materialized drapery was seen passing through a curtain, suggesting to an observer that this "was a clear



**Figure 2. Students of ectoplasm Juliette Alexandre-Bisson, Albert von Schrenck-Notzing, Gustave Geley, and William J. Crawford (left to right).**

case of something which looked like solid matter passing through solid matter” (W. H. Harrison 1872:35). With medium Kate Fox it was reported that “an illuminated substance like gauze rose from the floor behind us, moved about the room and finally came in front of us” (Owen 1871:387–388).

Other reports mentioned “a slender attachment as of gossamer” and a “gossamer filament” (Colley 1877:557), “something white” on the floor (Lamb et al. 1875:10), a “dingy, white-looking substance” (Farmer 1886:178), and a “a small white patch, about the size of a lady’s handkerchief” (Rhodes 1876:23). Interestingly in these reports, and in others (e.g., Oxley 1876), the forms observed were connected to or developed into human bodies.

There were also many discussions of materializations during the first decades of the Twentieth Century, as seen in the writings of Gambier Bolton (1914/1919), Paul Gibier (1901), Enrico Imoda (1912), Enrico Morselli (1908), and Charles Richet (1905). Of particular importance was the work of French sculptress Juliette Alexandre-Bisson (1921), German physician Baron Albert von Schrenck-Notzing (1920a), French physician Gustave Geley (1918, 1919/1920, 1924/1927), and New Zealand-born mechanical engineer William J. Crawford (1921) (Figure 2). Their descriptions of ectoplasm provided much information about this mysterious substance. A rarely cited example is the following, which took place with medium Eva C. (Figure 3), who may have been the first medium to produce amorphous masses of ectoplasm that sometimes took various shapes:

Mme B. came into the cabinet at Eva’s invitation; as soon as she entered, a mass of substance lashed into her face; she came out completely covered, her fingers grabbing the substance; she had trouble getting it off. On the chest of the medium then appeared a round ball. From this ball, emanated

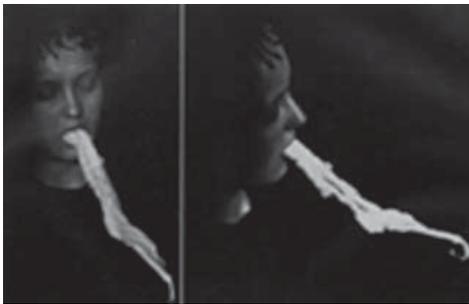


**Figure 3. Ectoplasm with Eva C.**

three rays of matter; one resting on the right arm, the other resting on the chest, the third was placed on the left arm . . . A pile of substance suddenly fell on the head of Mme B. who sat in front of the medium; the substance covered her, spreading on her back. When she raised her head, everything had vanished and seemed to have been absorbed into the medium.

(Alexandre-Bisson 1921:17)

Schrenck-Notzing provided many descriptions of ectoplasm. With Polish medium Stanislaw P., he observed a long mass coming from her mouth suspended in the air (Figure 4). "It comprised along its whole length two strips, which coalesce or are woven together . . . The surface appears rough, formed, and somewhat resembling a wool product" (Schrenck-Notzing 1920a:254). In another example with medium Willy Schneider, a photo of ectoplasm taken in 1919 was described as a "large mass of white substance covers the right shoulder and upper arm, like a white napkin, and is fastened at the neck" (Figure 5) (Schrenck-Notzing 1920a:336).



**Figure 4. Ectoplasm with Stanislaw P.**



**Figure 5. Ectoplasm with Willy Schneider.**



**Figure 6. Artistic representation of connection between materialized form and medium William Eglinton.**

### ***Vital Forces, Ideoplasty, and Materializations***

The subject of Dingwall's article is part of a larger topic in the history of psychical research. Coming from ancient times, and from the mesmeric and spiritualist movements, psychical research inherited a tradition of belief in vital and nervous forces believed to be able to produce various forms of psychic phenomena, including those of physical mediumship (materializations, movement of objects, raps, and luminous effects) (Amadou 1953). Discussions of these forces include those of De Gasparin (1854), Rogers (1853), and later theorists (e.g., Anonymous 1875, Butlerow 1874, Cox 1872, Morselli 1908). The idea was summarized by psychical researcher Hereward Carrington (1921), who, in addition to kinetic effects, discussed this principle as "a form of matter which is also externalised, and which at times can be sufficiently condensed or solidified to enable it to be seen, felt, and photographed" (p. 273) (Figure 6). I have presented overviews of such unorthodox concepts of force in several papers (e.g., Alvarado 2006, 2016b, Alvarado & Nahm 2011).

The idea that materialization depends on the vital force of the medium, what one writer called the "stuff for form-building" (Colley 1877:566), was frequently discussed during the Nineteenth Century by students of the subject (e.g., Aksakof 1898, Harrison 1876), and in messages presumed by some to come from spirits of the dead (e.g., Crowell 1874:Volume 1:417–418, Richmond 1877). As stated by an Anonymous (1875) writer, most probably William Harrison, editor of the *Spiritualist Newspaper*:

The law of the conservation of energy points out that power cannot be gained in one direction without being lost in another, consequently the power which moves a visible or invisible spirit hand must come from somewhere, and on the hypothesis laid down in this sketch the power comes from the medium . . . The spirits also draw more or less vitality from some of the sitters.  
(Anonymous 1875:135)

Physicist Oliver Lodge (1894) speculated on the existence of temporary prolongations coming out of Eusapia Palladino's body. These prolongations were generally, but not always, invisible. It was "as if a portion of vital or directing energy had been detached, and were producing distant movements without any apparent connexion with the medium" (Lodge 1894:334–335). Also based on Palladino's phenomena, somewhat later Enrico Morselli proposed that an "unknown bio-psychic force . . . , projected from the medium outside her physical person, . . . , although ordinarily invisible and intangible, is able to take on different forms" (Morselli 1908:Volume 1:449).

Following on the idea that materializations depend on the medium's vital force, Gustave Geley stated: "Everything goes to prove that the ectoplasm is, in a word, the medium herself, partially exteriorized" (Geley 1919/1920:63). Similarly, a later student of the subject wrote that in materialization the "material parts of the medium's organism, at first dematerialized, are exteriorized and recondensed" (Kharis 1921:216).

The well-known materialization researcher Albert von Schrenck-Notzing wrote that "telekinetic . . . and teleplastic phenomena are only different degrees of the same animistic process" (Schrenck-Notzing 1920b:188). Furthermore, there were discussions assuming that visible materializations were the last stages of the exteriorization of the force (e.g., de Rochas 1897). As stated by Charles Richet:

The projection of a force from the body, therefore a first phase of invisibility, a second phase during which it appears as a vapor, or a fluidic thread, and it starts being visible, a third phase during which it is tangible, visible, sometimes very clear, but most often shapeless. We will see . . . that this form may take on semblances almost as real as a living being (fourth phase).  
(Richet no date circa 1933:218–219)

The idea of exteriorization of forces from the medium's body to form materializations was generally believed to be directed by spirits of the dead, and later by the medium's mind, such that their will was imprinted on the materialized product, a topic that extended to phenomena such as spirit and psychic photography (Bozzano 1929). In this literature the word ideoplasty was used to refer to the process by which the ideas of an agent shaped

the materialized forms, but many discussed this idea without using the term. For example, Aksakof, who accepted the spirit explanation for many phenomena, stated that materialization was an example of “a phenomenon of creation . . . matter is but the objectivation, the representation of the will” (Aksakof 1890/1895:626). These were, he affirmed, but “temporary forms, created through an effort of memory and will” (p. 627). Others who endorsed the idea, but did not use the term ideoplasty, and assumed the mind of the medium was at play, were de Rochas (1897:25), Morselli (1908:Volume 1:441–442), and Visani-Scozzi (1901:141), who were discussing the medium Eusapia Palladino. Later examples, involving individuals who used the term, were de Fontenay (1914), Ochorowicz (1909:70; see also Hess 2018), and Schrenck-Notzing (1914b:141–144, 1920a:33–34, 305).

Although not mentioned by Dingwall in the article reprinted below, Geley’s theoretical ideas were very influential in his time. Based on the idea of a basic universal substance as the substrate of living things, Geley (1918, 1919/1920) considered ectoplasm and organic formations ideoplastic creations. Seeing materialization as a biological process, Geley compared the incomplete and grotesque character of ectoplasmic formations to those found in animal and human forms. “Like normal physiology, the so-called supernormal has its complete and aborted forms, its monstrosities, and its dermoid cysts. The parallelism is complete” (Geley 1919/1920:62). He also compared ectoplasmic development to the histolysis of insects: “The same phenomenon takes place, as has already been said, in the closed chrysalis of the insect as in the dark cabinet at the séance” (Geley 1919/1920:64).

Furthermore, Geley believed that, in addition to materializations, normal physiology and embryology suggested the existence of a superior and organizing dynamic force behind biological processes, which consisted of ideoplastic processes accomplished by this dynamism. In his view, the formation of a fetus and birth, and materializations, shared a similar directing process. The importance of this for Geley was that he believed that instead of seeing matter as the creator of reality, including biological process, the creator was instead an idea. Geley admitted that the nature of this directing principle was a mystery, but emphasized the importance of seeing directing ideas rule over the physiological, essentially an argument against materialism.

### **Eric J. Dingwall**

Eric J. Dingwall (1890–1986) (Figure 7), the author of the paper reprinted here, was a well-known researcher and critic of psychical research. In his youth Dingwall was part of the staff of Cambridge University Library. He was once the Research Officer of the Society for Psychical Research

(Anonymous 1923:31), and briefly a member of the staff of the American Society for Psychical Research as Director of the Department of Physical Phenomena (Anonymous 1921:319). In addition, Dingwall obtained a DSc in 1932 from London University. He was a member of the Magic Circle, and a student of customs, among them sexual ones (e.g., Dingwall 1931) (on Dingwall see Gauld 1987 and Willin 2017).



**Figure 7. Eric J. Dingwall.**

Dingwall wrote many papers about physical mediumship. These included reports of séances with mediums such as Willy Schneider, Margery, Eva C., and Janus Fronczek (Dingwall 1922a, 1926a, Dingwall et al. 1922, Wooley & Dingwall 1926), and book reviews (e.g., Dingwall 1922b, 1924, 1926b,c). Commenting about physical mediumship, he wrote:

Distrusting my own observations, I distrust those of others, and I have already seen enough to provide ample grounds for that distrust. Observations in this field, in order to be of value, must be checked and counter-checked by independent witnesses of irreproachable antecedents, and if possible registered by mechanical recording instruments. (Dingwall 1926b:389)

Furthermore, Dingwall (1926b) deplored the lack of critical analysis many had about physical mediumship, as seen in a tendency to believe too much from reports. In his view, verification of phenomena and replication via further observations were more difficult in psychical research than in other fields.

In addition, Dingwall was well-known as a critic of other topics. In a paper about a fraudulent physical medium he stated that he believed that psychical research societies had the duty "to warn persons of the frequency of fraud and of the absolute necessity of requiring scientific conditions before psychic phenomena are accepted as supernatural" (Dingwall 1922c:50).

One of his contributions to exposing mediumistic fraud was the reprint of a Nineteenth-Century work exposing the topic (Price & Dingwall 1922). Later critical contributions included "The Haunting of Borley Rectory" (Dingwall, Goldney, & Hall 1956), *Four Modern Ghosts* (Dingwall & Hall 1958), *The Critic's Dilemma's* (Dingwall 1966), and other publications (e.g., Dingwall 1937, 1973). In one of his essays he expressed his disapproval of parapsychologists, who he considered lacked a true scientific spirit and were mainly concerned with supporting their personal beliefs (Dingwall 1971/1985).

Dingwall's interest in the unusual was also expressed in two books: *Some Human Oddities* (Dingwall 1947) and *Very Peculiar People* (Dingwall 1950). Two of the essays in the first book were about D. D. Home and Joseph of Copertino, while Emmanuel Swedenborg and Eusapia Palladino were covered in the second one. Furthermore, he wrote a short book about psychic phenomena and belief in the ancient world (Dingwall 1930), and edited a remarkable collection of essays about psychic phenomena in the mesmeric movement that to this day remains a valuable reference work (Dingwall 1967–1968).

Materials by and about Dingwall are available at the University of London (Anonymous no date).

### **Dingwall's Article "The Plasma Theory"**

Dingwall's article reprinted here was published in the *Journal of the American Society for Psychical Research* (Dingwall 1921). It made sense for this review to appear in 1921 because the topic was a popular one at the time. Around 1921 there were many publications about materializations, as seen in such books as *Les Phénomènes dits de Materialisation* (Alexandre-Bisson 1921), *The Psychic Structures at the Goligher Circle* (Crawford 1921), *Phenomena of Materialisation* (Schrenck-Notzing (1920a), and *Teleplasma und Telekinese* (Schwab 1923), among others (de Faria 1921, Fournier d'Albe 1922, King 1920, Schrenck-Notzing 1920b). There were also long sections on the topic in the books of Geley (1919/1920) and Richet (1922), not to mention many articles that appeared in psychic journals such as *Psychische Studien* (Grunewald 1922) and the *Proceedings of the Society for Psychical Research* (Dingwall et al. 1922), among others (e.g., Geley 1921, Taylor 1922).<sup>1</sup>

The article was meant to be a review of ideas and observations about ectoplasm. Its author qualified his discussion in a footnote stating that he was "in no way committed either to a belief in the plasma or in the theories which have been built upon its alleged existence" (Dingwall 1921:207).

### **Reprint of "The Plasma Theory"**

In this paper I propose saying something about the theory which hypothecates the existence of a mediumistic power for producing "plasma" which in turn acts as the basis for the so-called physical phenomena of spiritualism. The power, or ectoplasy, as Myers called it, borrowing from Ochorowicz, consists, to use his definition, in the faculty "of forming, outside some special organism, a collection or reservoir of vital force or of vitalized matter, which may or may not be visible, may or may not be tangible but which operates in like fashion as the visible and tangible body from whence it is drawn."<sup>2</sup>

This hypothesis has recently received a great impetus through the experiments conducted with the mediums, "Eva C", Kathleen Goligher, Stanislaw P., Willy S., and a few others. Before the earlier experiments with "Eva C." which were conducted by Mme. Alexandre-Bisson, the word "plasma" was not often used. Mme. [Alexandre-Bisson] herself still calls it, "*la substance*," and Baron von Schrenck-Notzing<sup>3</sup> styles it ideoplasma or teleplasma whilst others prefer the name ectoplasma.<sup>4</sup> Whatever name we may choose for the substance the meaning of the word is clear. It is that substance which, it is said, extrudes itself from the bodies of certain persons, and which has various properties which we must consider in the course of the following pages:

Firstly, then, what is the nature and general appearance of the plasma? In order to answer this question intelligently it must be understood that there are apparently many different kinds of "plasma". I do not know whether the plasma of today has any relation to the "third force," which, according to Proclus, souls have inherent in their being and which possesses the power of moving objects, but at any rate the modern substance is credited with such powers to an unusually high degree. In the early days of the spiritualistic movement little was heard of any substance which was comparable to what we now mean by the plasma.<sup>5</sup> The *perisprit* in the sense that Kardec used the term was certainly something similar. According to the French authority this *perisprit* was a kind of semi-material, fluidic envelope which served as a link between soul and body. Its subtle matter was not rigid and compact like an ordinary physical body, but flexible and expansible, lending itself to all sorts of strange metamorphoses according to the will which exerted pressure upon it. On certain occasions this *perisprit* was conceived as becoming visible, tangible, and solid, thus acting in every way as ordinary matter is expected to do. In addition to the influence the *perisprit* was supposed to exert upon physical matter, a sort of universal fluid was hypothecated which was used in conjunction with the *perisprit* for producing physical phenomena. No phenomenon, it was said, could be produced through the *perisprit* alone. The mediumistic "fluid" had to be combined with the universal "fluid" in order to produce the results. The "spirits" drew the vital fluid from the medium and the phenomena were produced after the vital fluid was suitably mingled with the universal fluid, which presumably belonged rather to the spiritual than to the material world. A medium was necessary for production of phenomena in order (a) to supply the vital fluid and (b) to assist the spirits by an attitude of mind favorable to a withdrawal of the fluid from the body. Occasionally phenomena could be produced against the will of the medium but generally speaking the co-operation of the medium was desirable and even necessary.<sup>6</sup>

We know of few instances prior to the beginning of the twentieth century of this *perisprit* or mediumistic emanation being observed. Its existence was affirmed by occultists but any sort of proof which would satisfy even the least cautious observer seemed to be lacking. It may be thought that the luminous clouds and nebulous hands observed by Sir William Crookes during his sittings with D. D. Home and also noticed around Stainton Moses may have been of a teleplastic nature.<sup>7</sup> It is probable that if the plasma has any existence in fact, these appearances may have been the commencement of an activity, which, if continued in a certain way, might have eventually become the material *substance* which is now usually implied when the term plasma is employed. It is this partially solid and (occasionally wholly solid) material which has received the name of *plasma*, a term which in some quarters has

been somewhat extended to embrace a rather wider field than the actual material itself.

We must now proceed to examine a few examples of mediums who are capable of producing the plasma, and then we shall be able to get some idea as to its character and general appearance. The first sensitive whom I shall notice and whose phenomena seem associated with the production of the plasma is M. "Meurice", a medium with whom Maxwell and Richet had several sittings. His chief form of mediumistic activity lay in telekinesis which in his case consisted of the movement of small objects without contact. Placing his hands above the object to be moved, he would make a few passes and after a time it would begin to move or jump, following his hands. It was exactly as if a hair had been attached to the object and was fastened to his fingers, and Dr. Maxwell one day noticed an appearance like a ray of light or filament of gossamer which connected M. "Meurice's" fingers with the box which was being moved. He passed his own hands around the box and all over the medium's hands and arms, but felt nothing, so concluded that what he had seen was due to an ocular illusion.<sup>8</sup> M. "Meurice" himself admitted that when about to attempt to move something, a sheath of filaments seemed to pass from his fingers on to the object of experimentation. On one occasion Dr. Maxwell heard a noise as of the rubbing of a hair during a sitting and M. "Meurice" frequently said that his hands seemed full of hair, a feeling which he variously described as a spider web sensation, as if his fingers were covered with a kind of cobweb. After many of the experiments M. "Meurice" appeared to be very exhausted; he occasionally fainted and suffered from violent gastric attacks.

I do not propose to examine here the genuine or fraudulent character of these phenomena. For my present purposes I am assuming that the telekinesis was genuine and that the thread seen by Dr. Maxwell was a form of mediumistic emanation from the sensitive's fingers. In this case, then, we have a semi-material link existing between an object and the medium, and it is either through or by this link that sufficient contact is established to move the object in question. The terms "movement without contact" are merely descriptive. They mean in essence "movement without *apparent* contact." It is only the miracle hunters who want movement without any contact. No true psychological researcher ever expects to find objects moved without any contact or tables floating in the air without any support. It is the *form of contact* which is of importance, and which constitutes one of the great problems connected with the physical phenomena. In this case the form seemed to be a semi-material ray or line of force which only upon rare occasions becomes visible. The existence of such lines of mediumistic force would have remained ambiguous had it not been for the classic series of experiments by Ochorowicz with the young Polish medium Mlle. Tomczyk. The importance of these sittings has been overlooked mainly on account of their having been published in periodicals and thus not being easily accessible. The phenomena presented by Mlle. Tomczyk were of varying kinds, but the series which are of importance for our present purpose were almost identical with those demonstrated by M. "Meurice." In this case, however, objects, besides being moved, were actually levitated, and a long series of photographs were obtained showing many aspects of these remarkable phenomena (Figure 8). Again as before, the existence of threads was suspected, and later such were actually seen and photographed. The filaments or "rigid rays" as Ochorowicz named them proceeded from various parts of

the medium's fingers and joined the object to be levitated. It was comparatively easy to arrange photographic conditions so that the rays were visible and it was still easier to photograph the thinnest material filaments known and to compare the results. These showed that the rigid rays were not comparable to any known substance, and to many persons proof as to the genuineness of the manifestations seemed to have been fully obtained.<sup>9</sup>

In the case of Mlle. Tomczyk as in that of M. "Meurice", filaments of semi-material substance seem to have been extruded from the fingers and by means of these threads telekinetic phenomena were obtained.<sup>10</sup> At the time of the experiments Mlle. Tomczyk

was in a poor state of health and the phenomena appeared to be obtained at the cost of a good deal of strength; the medium, like M. "Meurice", being often very exhausted after the sittings. It will be remembered how Sir William Crookes remarked the extreme fatigue which D. D. Home exhibited after a successful séance and the same effect has been noticed in many other mediums. Evidently the extrusion of the "plasma" is accompanied by a certain amount of physical and nervous tension; the medium, after the sitting, feeling that vital force has been drained away from him.<sup>11</sup> The same thing was also noticed in the case of Eusapia Palladino, where the medium showed signs of extreme prostration at the conclusion of a séance at which many phenomena had appeared, and Mme. D'Esperance reports the same sensations as occurring after her sittings for materialization.<sup>12</sup> The best example, however, of a medium who extrudes plasma is undoubtedly "Eva C" as she is called, the famous Marthe Béraud of the Villa Carmen experiments. At these sittings which took place at the residence of a General and Mme. Noel in Algiers, about 1905, it was said that a materialized "spirit" appeared who called itself Bien Boa (Figure 9) and who was photographed by more than one camera. Although the evidence for the supernormal in the case is weak (Marthe herself confessed to fraud)<sup>13</sup> many persons still believe in the genuine character of the performance, and some of the descriptions of the phenomena recall what others have said concerning the appearance of the plasma.<sup>14</sup> For example, one witness avers that:



**Figure 8. Stanisława Tomczyk levitating scissors (Julian Ochrowicz on the right).**



**Figure 9. Form of Bien Boa observed by Charles Richet at Algiers.**

"On Thursday, August 3rd, a few days before Professor Richet's arrival, a most interesting phenomenon was forthcoming. Marthe was alone in the cabinet on this occasion. After waiting for about twenty-five minutes Marthe herself opened the curtain to its full extent and then sat down in her chair. Almost immediately—with Marthe in full view of the sitters, her hands, head, and body distinctly visible—we saw a white diaphanous looking thing gradually build itself up close to Marthe. It looked first of all like a large cloudy patch near Marthe's right elbow, and appeared to be attached to her body; it was very mobile, and grew rapidly both upward and downward, finally assuming the somewhat amorphous appearance of a cloudy pillar extending from about two feet above the head of Marthe to her feet. I could distinguish neither hands nor head; what I saw looked like white fleecy clouds of varying brilliancy, which were gradually condensing, concentrating themselves around some—to me invisible—body . . ." <sup>15</sup>

Prof. Richet himself, who was present at the séances, noticed the same vague amorphous shapes and says that not only the face of Bien Boa is indistinct and *floou* [faint], but also the outlines of the drapery are cloudy and vapory, forming a marked contrast with the precise and hard limits of a material handkerchief which was around the body of Aïsch, Marthe's companion in the cabinet. After the "confession" of Marthe and the consequent cessation of the Algiers sittings, little was heard of Marthe Beraud till 1909 when she began giving sittings for materialization in Paris. We cannot here survey the field of Eva's mediumistic activities from 1909 until 1921. She has been studied in Paris, Munich, London, and elsewhere and at each investigation the "plasma" has been observed. In "Eva C," it takes a variety of forms. The appearance of the phenomena is usually heralded by a copious flow of thick, white saliva, which often seems as if it were self-luminous, although it is doubtful whether this is the case. The plasma itself differs considerably both in color and solidity. In its more gaseous form it often resembles nebulous smoke, and when liquid is sometimes difficult to distinguish from saliva. It then appears in spots and patches of flocculent substance, and when these coagulate they resemble a cream cheese, which, besides being white, is sometimes light gray in color. To the touch this mass once felt to the present writer exactly as if he were feeling a piece of soft cream cheese encased in a transparent film or sheath, no particle of the substance adhering to the fingers. In its more solid form the plasma assumes a variety of aspects. Flat, whitish, yellowish or grayish disc-like objects are common as also are white veil-like appearances and white and gray strips. Less familiar phenomena consist of pieces of mouse gray tissue, or membrane and elastic cords which sometimes connect the medium's hands and fingers together. <sup>16</sup> Occasionally white pointed objects like pieces of candle protrude from the mouth of the medium, and the ends often resemble rude fingertips, the nail being represented by a triangular mark on the surface of the substance. The heads and hands produced by this medium vary greatly from what look like rude chalk drawings, to quite artistic colored productions which seem as if they had been actually printed. Very rarely the materialization is alleged to have been so perfect that actual hair has been obtained and on one occasion a photograph was secured of a small picture of a woman surrounded by a mass of black hairy substance, which felt stiff and fibrous to the touch. These "pictures" and "drawings" often look as if they had been cut out of paper or some soft material and creases where they have been folded are occasionally observed. At other times the basis for the production resembles white membrane

or gristle rather than paper, the picture being seemingly transferred to it. The hands, which usually are flat and more like white gloves than human members are said to have occasionally filled out before the eyes of the spectators and to have become perfect human hands in all respects. Similarly the heads, although usually flat picture-like objects, are said to become at times plastic and solid, so that the bones of the skull can be felt and the hair ruffled.<sup>17</sup>

The plasma then, in the case of "Eva C" is usually visible, tangible, and more usually solid than liquid. It is quite possible that the plasma exists in many forms. Indeed when we come to consider that associated with Kathleen Goligher,<sup>18</sup> we shall see that it is very different from the variety exhibited by "Eva C". In the latter case, the plasma may, in its early stages at least be gaseous and invisible, only becoming solid at a later stage of its transient existence. In the case of Stanisława P. the plasma was not of such a highly developed character as that presented by "Eva C". Veil-like masses, rude pseudo-hands, and large strips of white substance constitute the principal phenomena, but the series of sittings was not long enough for us to be able to draw any conclusion of value. The same must be said of the Countess Costelviecz and the young Austrian, Willy S.<sup>19</sup> who presents phenomena similar in character to those of "Eva C" but in a less developed form.

We now turn to Miss Kathleen Goligher of Belfast whose levitation phenomena are too well known to need any description in this place. In his last book, *The Psychic Structures at the Goligher Circle*, Dr. W. J. Crawford relates his recent experiments with the medium, and reproduces a few of the extraordinary series of photographs which he has obtained by flashlight. The plasma, according to the writer, is usually quite invisible in the case of Miss Goligher and it is only under certain conditions that it can be photographed. It forms rods and "psychic cantilevers", which projecting from the body of the medium levitate the table, and rap upon the floor of the séance room. In the photographs the plasma is seen extruding from the medium and tipping the table and lying about on the ground (Figure 10). As far as I know Dr. Crawford had not succeeded in obtaining any photographs when the plasma was in a state of full stress,<sup>20</sup> as the shock was said to be too great for the medium at that time. The photographs all show the plasma in an unstressed state, and in many respects closely resemble some of "Eva C's" productions. Generally speaking it consists of white and dark colored strips, rolls, and heaps of material like cotton wad or muslin which are seen about the medium's feet and hanging from beneath the table. In one unpublished photograph the plasma is seen beneath the table in the form of a long strip of white substance like animal membrane which bears a curious resemblance to some of the white tissues photographed on the French medium. In one of Crawford's early photographs a sort of white transparent pillar of gaseous material is seen rising into the air, so it would seem that this plasma also is found sometimes in a gaseous condition.<sup>21</sup> The rods of plasma appear to be wonderfully flexible and to adapt themselves readily to the kind of work demanded of them. They possess many degrees of hardness, and the gripping ends are occasionally tangible and solid, although invisible in the dim red light. Near the medium in the region of her ankles (from which it seems the rods proceed) nothing solid can be felt, but the hand encounters a flow of cold, clammy, disagreeable spore-like particles, which pass outward from the medium and presumably are an essential part of the rod, since interference with them stops the phenomena. The ends of the rods can be felt more easily. An observer describes his



**Figure 10. Kathleen Goligher and her ectoplasmic forms.**

sensations after handling one of these ends. He says that his gloved hand received the impact of a nearly circular rod-like body flat at the end. The edges at the end were blunt, serrated, and slightly rough like very fine emery paper. Again in another case Dr. Crawford says he felt the plasma pressing over the sole of his boot like a flat, thick, pancake, and on another occasion a wooden rod he was holding came into contact with something "soft, dense, plasmic, half solid, half liquid."

It will be remarked that there are several striking differences between the plasma of what I might call the "Eva" school of mediumship and the Goligher school. In the former case the plasma is usually visible, tangible, not peculiarly sensitive to light and with the faculty of forming hands and faces, arms, feet, and sometimes full forms. In Miss Goligher's case the plasma is usually invisible,<sup>22</sup> only partly tangible, excessively sensitive to light and with the faculty of forming rigid rods and beams capable of bearing great strains and stresses. What form of matter or force it can be which, whilst invisible and intangible can support a table on which a man is seated, is difficult to

conceive, and the solution will not be reached until many more opportunities for investigation are permitted.<sup>23</sup>

We have seen in the course of the preceding remarks what various observers have said concerning the appearances and tactile sensation experienced when feeling the plasma. We must now pass to a consideration of what is said concerning its place of origin in and exit from the medium's organism. In early days it was thought of vaguely as "proceeding from the medium,"<sup>24</sup> and as it was nearly always invisible, we cannot blame the observers for their ignorance of its movements. When in the case of "Eva C" the plasma became a visible, tangible, substance, its mode of egress from the medium's body was able to be observed with greater accuracy. We cannot say whether the plasma has any standard route, if I may put it so, for its exit from the bodies of mediums. At present all we can do is to note the parts in each medium from which it seems to originate and compare similar phenomenon in as many other cases as possible. Beginning then with the case of "Eva C" it appears that the plasma usually proceeds from the mouth, especially from between the teeth and gums, from the nose, nipples, and vagina, and occasionally from the navel, armpits, sacral region, and fingertips. With Stanislaw P. the plasma was mostly observed proceeding from the mouth but few experiments have been made to ascertain the precise point of issue in Continental mediums. With Miss Goligher, Dr. Crawford prepared a series of experiments which are of the greatest interest. Unfortunately in his last book, he merely hints at the solution at which he had arrived and omits those photographs which support his conclusion. Having become convinced that his medium extruded a quantity of plasma in order to produce her phenomena, he set about endeavoring to discover from what part of her body it proceeded. In an ingenious series of tests with the help of carmine and a solution of methylene blue, for details of which the book should be consulted, Dr. Crawford proved to his own satisfaction that the plasma issued for the most part from the genitals, proceeded down the legs to the feet thence issuing as rods into the séance room. In the unpublished photographs, further details can be seen, it being clear that, as in the case of "Eva C", the plasma not only proceeds from the reproductive organs, but also issues from the breasts, these often becoming hard and full in both mediums.

We have seen above what various observers have said concerning the appearance of the plasma and its place of origin in the body of the medium. Our next step will be to consider briefly a few of the facts that have been gleaned concerning the actual nature of the substance itself . . .

In the case of "Eva C" one or two attempts have been made to retain a portion of the materialized substance but without success. On November 11, 1910, Baron von Schrenck brought a small metal porcelain lined box into which a materialized finger entered and executed a few shaking movements. The lid was immediately closed and after the sitting two pieces of human skin were found inside the box. These products did not appear to differ in the least from the ordinary histological structure of human skin but the Baron failed to find any defect upon either "Eva's" hands or feet at the conclusion of the sitting. On another occasion a German doctor attempted to seize a portion of a materialized product but failed to hold it and Mme [Alexandre-] Bisson reports that she has also tried to persuade the medium to permit a piece to be detached but without success . . .

It will be remembered how in the case of this medium a good deal of saliva is

secreted, and this together with the moisture from the plasma leaves stains on the garments worn at the sittings. Baron von Schrenck on several occasions had the secretions left by the teleplastic products analyzed both physico-microscopically and physico-chemically but the results obtained were scarcely satisfactory. With regard to the structure he sums up the matter thus: "That within it, or about it, we find conglomerates of bodies resembling epithelium with nuclei, veil-like filmy structures, coherent lamellar bodies without structure, as well as fat globules and mucus. If we abstain from any detailed indications concerning the composition and function of teleplasma, we may yet assert two definite facts:

(1) In teleplasma, or associated with it, we find substances of organic origin, various cell forms, which leave behind cell detritus.

(2) The mobile material observed, which seems to represent the fundamental substance of the phenomena, does not consist of india rubber or any other artificial product by which its existence could be fraudulently represented.

For substances of this kind can never decompose into cell detritus, or leave a residue of such" . . .<sup>25</sup> Without criticising the second of the above facts, we may note that according to Baron von Schrenck the plasma is "a sort of transitory matter which originates in the organism in a manner unknown to us, possesses unknown biological functions, and formative possibilities, and is evidently peculiarly dependent on the psychic influence of the medium."<sup>26</sup>

In the case of Kathleen Goligher little has at present been done to determine the physical nature of the plasma. As the medium loses weight when the rods are "out" and as Dr. Crawford avers that the operators on one occasion drew over 50 lbs. of matter from her body, it is clear that part of the constituents of the plasma must necessarily be some of the ordinary compounds of the human body. There appears to be a decrease in volume of the fleshy parts of the medium during the extrusion of the plasma, this being noticeable both in the thighs, haunches, and elsewhere. The particles of matter, therefore, which make up the rods, are presumably ordinary matter taken from the medium's body either transformed or combined in such a way that they become an integral part of a "psychic" structure capable of performing mechanical work. At the ends the rods are more or less "materialized", and are as if a solid body were encased in a flexible skin or sheath of varying thickness and pliability. Behind this end tangibility ceases and only a sort of gaseous flow is perceptible proceeding from the medium. How a materialized end is manipulated through the agency of a "gaseous" link connecting with the sensitive is a mystery which awaits explanation as is also the nature of a rod which can sustain and resist so great mechanical pressures as those obtaining at the Goligher Circle.

It is possible that the fact of the fatal influence of light upon the structure may provide us with a clue as to its nature and working mechanism. We cannot help thinking of the analogy of a pipe which when empty is flaccid and lax, whereas when filled with fluid it attains a rigidity proportional to the pressure of the liquid within it. Mr. E. C. Craven,<sup>27</sup> in some recent speculations published in the pages of the periodical *Light*, suggests that the rigidity of the plasma may be due to the particles being in a state of electrical strain which is discharged through the influence of light waves. A good many experiments of this nature might be tried and it is through such work that the nature of these forces is likely to be understood. At present investigation has been

concentrated more upon the phenomena than upon the plasma which, it is alleged, produces them. It remains [for us] to introduce a series of new experiments which, if properly conducted by competent observers, may help us to understand more fully the theory of the plasma and its relation to psychical phenomena in general.

Possibly a good deal of information would be obtained if another medium producing the "rigid rays" could be discovered. With the exception of M. "Meurice," Mlle. Tomczyk, and Mlle. Melita P.<sup>28</sup> I do not know of any medium who has been credited with the peculiar phenomena associated with their names. The emanations of lines of force which at times, at least, are sometimes material, are so similar in character to the threads occasionally seen between the fingers of "Eva C," that it is probable that they are essentially of the same nature. Whatever may be the ultimate solution of the plasma problem the subject can scarcely be without interest to both medical men, psychologists, and physiologists. Seeing that according to Dr. Crawford the plasmic rods are able to carry on intelligent conversation, mental processes have their place in the production of the phenomena. Whether these processes are carried out by the medium or by an independent group of "operators" is not at present at all clear. Crawford himself was convinced that the phenomena were due to the intervention of "operators on the other side," but he does not give any really satisfactory evidence for his opinion.<sup>29</sup> Proof as to the origin of the messages and conversation must be found through the ordinary methods used in the investigation of mental phenomena. The elimination of the possibility of the medium having knowledge of the facts as well as the exclusion of chance coincidence and guessing, together with the verification of the facts alleged must be carried out before any satisfactory proof can be obtained. This properly falls within the purview of the investigator of mental phenomena and its discussion therefore has no place in this short summary of the plasma theory.

### **Materialization After Dingwall's Article**

#### ***Observations and Studies***

Several works on ectoplasm, and materialization in general, appeared after Dingwall's article was published in 1921. There were, for example, some developments in the Eva C. case. Although Geley (1918, 1919/1920) had summarized his findings with the medium regarding séances held between 1917 and 1918, it was only later that he published details about them (Geley 1924/1927).

There were two other important investigations into Eva C. In one in which Dingwall participated, some phenomena were obtained, but even though the researchers could not explain them via conventional means they remained unconvinced (Dingwall et al. 1922; but see Geley's [1922b] positive conclusion for the reality of the phenomena in the SPR work). The second was a series of sittings held at the Sorbonne in which it was concluded that, as regards the existence of ectoplasm, "*our experiments have resulted in results that can only be considered as completely negative*" (Lapicque et al. 1922, italics in the original).

However, Eva's case, and materializations in general, were strongly defended by Richet in his well-known and influential *Traité de Métapsychique* (1922:657–665). Using notes written in 1906, Richet wrote about phenomena produced by this medium:

After about half an hour, I open the curtains and see a faint luminosity on the floor . . . By degrees this light increases; it is like a small, luminous handkerchief lying on the floor . . . The luminous spot grows; its outlines are milky, undefined, and cloudy . . . It approaches the chair, increases in size, and takes a serpentine form which tends to rise toward the left arm of A's chair . . . Then . . . a point detaches itself from the mass, mounts up, bends and directs itself to Marthe's breast, her hands being held the whole time. The point continues to advance in a terrifying way like an animal pointing its beak; and as it advances, on the rigid stalk there appears a thin gauzy structure like a bat's wing . . . I can approach and look very closely, only an inch away. I see what looks like a swollen substance, moving as if alive, and changing its form . . . I see extensions like the horns of a snail, which start up to right and left; these horns are like transparent gelatine, they project from and sink back into the more defined central mass.

[I am using the English translation of the book, Richet 1923:516]

Dingwall himself made interesting observations of materializations with various mediums. In a séance with Willy Schneider “a luminous arm-like shape with a tapering point” (Dingwall 1922a:365) was seen. In 1923 he attended a séance with Stella C. While he laid on the floor, he observed “an egg-shaped body beginning to crawl towards the centre of the floor under the table . . . To the end nearest the medium was attached a thin white neck like a piece of macaroni” (in Price 1924:354).

Although Dingwall was not sure about the reality of Margery's phenomena, he observed various ectoplasmic formations in séances with her. For example:

After a few minutes darkness Walter [the medium's spirit control] asked me to feel the substance and note a hole like a gullet at the base of the cord leading to Psyche [Margery] . . . I first put my hand on the top of the substance. It was soft, clammy, and cold. I then lowered my hand, and noted that where the cord joined the mass there appeared to be a sort of skinny frill about half-inch high. Beneath this was the neck from which the cord hung, and in this neck I felt the depression into which, at Walter's request, I pushed my forefinger. It was soft and cool like the rest of the substance, but it did not extend so far as a quarter inch.

. . . I saw extended on the table from the edge near Psyche from one inch from the middle line of the table a long, knobby, greyish white shape like a crudely formed right hand—the thumb being merely a mass of substance joining the main mass. (Dingwall 1926a:108–109)



**Figure 11. Ectoplasm in the shape of a ship and a cotton-like formation with small faces (including Arthur Conan Doyle's) obtained in T. G. Hamilton's mediumistic group.**

Later reports of ectoplasm, and materialization in general, included the performances and media controversies around Helen Duncan (see the overview of Gaskill 2001). Examples of observations of various other materialization mediums appear in the publications of Bernoulli and Müller (1931), Blacher (1932), de Goes (1937), Edwards (1941), Grunewald (1922), Haley (1935), Lebidzinski (1921), Rainieri (circa 1955), and Schwab (1923).

An important contribution was T. Glen Hamilton's work with a group of mediums in Canada (e.g., Hamilton, 1929, 1931, 1932, 1934, 1942). In one of his reports Hamilton stated:

In one instance we find the substance taking on an appearance not unlike that of a brooch or medallion . . . In another, the mass is skillfully twisted exactly like a skein of yarn; in a third we find presented a careful imitation of a pendant ear-ring, while in two most astonishing cases the teleplasm has taken on the unmistakable resemblance to a ship—one of these having even representations of sails and rigging. (Hamilton 1931:267)

Hamilton also emphasized the mental aspect of the materializations produced by the mediums in his group. He argued that spirit communicators clearly directed the production of the manifestations, as seen in communications commenting about the development of the materializations, and announcing where they would appear in the room. The spirit control predictions about "coming teleplasms . . . were unmistakably confirmed" (Hamilton 1942:230).

Also of interest are the accounts of studies in which an emanation from a medium conducted electricity, since it seemed able to close a circuit (du Bourg de Bozas 1921),<sup>30</sup> and that something invisible occluded infrared rays and its deflections corresponded to the medium's inhalation and exhalation (Osty & Osty 1931–1932). Osty (no date circa 1933:28–29) commented later: “What we studied was in fact the mediumistic energy sufficiently condensed to be partially opaque to the infra-red, but not sufficiently so to be visible.” He speculated on the existence of stages of condensation of this agent (for other infra-red absorption tests see Hope et al. 1933).

It is not possible in an article to discuss many other modern examples of writings about materialization. But the reader should be aware of observations published from the 1940s on (e.g., Braude 2016, da Rocha 2011, Edwards 1941, T. Harrison 2008, Keen 2004, Rainieri no date circa 1955, Solomon & Solomon 1999, Wills 1942), including some with Eusapia Palladino (Carrington 1954a). There have also been overviews of the topic focusing on old cases (e.g., Amadou 1957, De Boni 1960/1975, Haraldsson 2017, Pilkington 2006, González Quevedo 1968/1971, Tynn 2009).

### **Critiques**

The Sorbonne séances with Eva C. attracted much attention and critiques by the press because they had been conducted by various prestigious professors (for details and background information see Evrard 2016, and Lachapelle 2011). A journalist stated that Eva C.'s séances at the Sorbonne began with bizarreness and ended in ridicule (Vautel 1922), but it was also argued that it was not fair to conclude from one failed replication that a phenomenon does not exist (Geley 1922a).

Regardless of their validity, other critiques related to Eva C.'s mediumship contributed to dampen Eva C.'s reputation (e.g., de Heredia 1922, Jastrow 1922), and belief in the phenomena of materialization, something that continued in later years (Amadou 1957, Lambert 1954; for more details, and references, see Steigman 2016). Partly based on Eva C.'s performance at the Sorbonne, and in the performance of other mediums, journalist Paul Heuzé concluded in the Paris weekly newspaper *L'Opinion* that at the present time the existence of ectoplasm could neither be affirmed nor denied, but he wrote that it was up to proponents to present positive proof of the existence of the phenomena (Heuzé 1922b:789; see also Heuzé, 1922c).

In Germany a group of critics argued that there was no good evidence for physical mediumship (Gulat-Wellenburg, Klinckowstroem, & Rosenbusch, 1925). This led to an anthology edited by Schrenck-Notzing (1926) strongly defending the existence of the phenomena in which various authors wrote

about mediums Eva C., Goligher, Guzik, Kluski, Nielsen, and W. Schneider, among others (for reviews of these two books, see Dingwall 1926b,c).

There were also damaging developments with Kathleen Goligher. Her investigator, Crawford, committed suicide in 1920, apparently suffering from a nervous breakdown (Crawford 1920), leading some to think Crawford may have discovered fraud (Jastrow 1920). Also damaging was Fournier d'Albe's (1922) claim that Goligher committed fraud, even though his evidence was not enough to discredit all the phenomena, and particularly the observations of ectoplasm.

But other investigations of Goligher were positive. This was the case of further observations of the ectoplasmic formations after Crawford's death, which were photographed (Donaldson 1933, Stephenson 1936a,b). In fact, Crawford's work was held in high regard by many. Dingwall (1922b) was critical of aspects of it, but stated that it was "the most important contribution toward the study of telekinesis" (p. 150). Schrenck-Notzing (1921) and Sudre (1922) both considered Crawford's contributions to the understanding of physical mediumship to be of great importance. The first of these compared Crawford's observations to those of Eva C. and Stanisława P. and argued that their similarity led to the speculation of the existence of laws underlying a still largely unknown biopsychic system.

Critiques about materialization mediums have continued until recent times. This is evident in discussions of fraud in modern cases (Braude 2016, Nahm 2018, Puharich 1960/2008), and in various retrospective analyses of old cases (e.g., Amadou 1957, Brandon 1983, Hall 1962, Parker & Warwood, 2016).

### **Later Writings About Theoretical Ideas**

Following previous concepts, perhaps the only theoretical consensus among those accepting the existence of the phenomenon has been the idea of projection of some vital force from the body of the medium (e.g., Carrington 1954b, González Quevedo 1968/1971, Osty & Osty 1931–1932, Sudre 1926). In his *Introduction à la Métapsychique Humaine* Sudre formally stated that:

The phenomena of materializations have put beyond doubt that metapsychic subjects can extract from their body, and probably from nearby bodies, an unknown substance-energy capable of imitating all forms of life and raw matter . . .  
(Sudre 1926:209)

an idea he continued to uphold in a later work (Sudre 1956/1960).

Drawing on some of the ideas of the new physics, Richet wrote:

When I put a hand in front of a mirror, the image of my hand is reflected: reflection of light. In front of a thermometer, reflection of heat. In front of a galvanometer, reflection of electricity. It is true that in front of one balance there is nothing there. But is it unreasonable to suppose that this projection of light, heat, and electricity could be accompanied by a projection of mechanical force? . . .

Materialization is a mechanical projection. We already have projection of light, heat, and electricity. It is not going very far to see as possible, besides these projections of heat, light, and electricity, a projection of mechanical force. The memorable demonstrations of Einstein establish at which point mechanical energy approaches luminous energy. (Richet 1922:597)

Sudre (1956/1960) and others thought that the directing intelligence behind materializations was mainly the medium's mind (for a more recent view see González Quevedo 1968/1971). Others continued supporting the traditional spiritualist view (e.g., Bozzano 1926, Hamilton 1942). In a book criticizing René Sudre's (1926) textbook, Bozzano (1926) protested against Sudre's explanation of materializations in terms of the ectoplasmic and ideoplastic abilities of the medium. In his view, in some materializations there was an external directing will, separate from the mind of the medium and sitters. Bozzano emphasized full body materializations (e.g., Katie King) in which he believed a distinct personality and will was expressed by the materialized form. He also argued that Sudre's explanation strained credulity in cases in which more than one figure appeared in the séance room and in those cases in which the figure communicated veridical information and talked in languages unknown to everyone at the séance. This also included cases in which the figure had been identified as a particular deceased person.

Following earlier speculations (Coleman 1865, Reimers 1876), some, among them Fodor (1934), Crookall (1967), and Johnson (1953/1977), related materialization to a subtle body of the medium. In one version the medium's astral body was believed to absorb ectoplasm from the physical body, making it both solid and visible (Fodor 1934). In a variant of these ideas, and assuming the presence of a spirit's perispirit, it was suggested that the medium's ectoplasm could be drawn into this external subtle formation, where it would gradually take a shape. "The phantasm will condense as more substance is deposited, being able to assume all forms of consistency before becoming a perfect living organism" (Andrade no date 1958:309).

Similar to Geley, biologist Hans Driesch followed vitalistic ideas. He saw physical mediumship as an indication that the mind could act on space, in the same way that it acts on the physical body in processes such as metabolism. "Materialisations would then be organized assimilation in an

extended field . . . Materialisations would be at the same time a supernormal embryology" (Driesch 1932/1933:119–120).

Geley was so sure of the existence of materializations, coming from his research with Eva C., that he wrote: "Official psycho-physiological science as taught in the Universities will now have to take account of ectoplasm and accommodate its teaching thereto, whatever current doctrines may have to be discarded" (Geley 1924/1927:177). Another writer was so sure the existence of materializations had been proved that he stated that the research was "past the period when our task was to verify the actuality of the phenomena" (De Brath 1935:15). In later years several authors discussed materializations assuming that at least some cases presented good evidence for the reality of the phenomena (e.g., Johnson 1955, Sudre 1956/1960). Although there are more recent examples of this trend (e.g., Braude 2007, Pilkington 2006), there has also been much skepticism contributing to keep materializations, and their explanations, out of science. In addition to what has been mentioned above, one author stated soon after Dingwall's article was published that "none of the scientific researchers have provided evidence that materializations or teleplasty exist" (Meyer 1922:60). Several other authors also expressed doubts in later years (Amadou 1957, Hyman 1989, Tyrrell 1947, West 1954). Today many parapsychologists are skeptical of these phenomena, and the topic, unlike in Dingwall's days, is rarely investigated.

However, useful contributions come from various authors' (parapsychologists and others) retrospective analyses of past mediums that not only discuss the reality of these phenomena, but also biographical and methodological aspects, specific controversies, and sometimes instances of fraud. This includes articles and books about mediums such as Carlos Mirabelli (Braude 2017), Helen Duncan (Gaskill 2001), Indridi Indridasson (Haraldsson & Gissurarsson 2015), Anna Prado (Magalhães 2012), Francisco Peixoto Lins (Palhano Júnior & Neves 1997), Elizabeth d'Esperance (Parker & Warwood 2016), Francis Ward Monck (Randall 2003), "Margery" Mina Crandon (Jaher 2015), and Franek Kluski (Weaver 2015).

### **Concluding Remarks**

Dingwall's article is a good reminder of many observations and ideas about ectoplasm, and materialization in general, from the old days of psychical research, and particularly from the first two decades of the Twentieth Century. As such, it is a good paper to read to start becoming acquainted with some of the work on the subject by previous generations. This includes the above-mentioned work of Crawford, Schrenck-Notzing, and others.

Dingwall's overview is valuable even though it has some omissions.

Among the topics I wish Dingwall had discussed in some detail are observations and ideas from earlier Nineteenth-Century spiritualist literature, some of which I mentioned in my Introduction. Regardless of its controversial nature, this literature is relevant to understand the variety of materialization phenomena on record, as well as the idea that the power underlying the appearances of forms comes from the medium's body (and the sitters). Dingwall also omitted the observations of materializations of many previous researchers, among them de Rochas (1897), Imoda (1912), and Morselli (1908), and the above-mentioned conceptual ideas of Geley (1919/1920).

I have presented an introduction, and annotations, to Dingwall's article with many references about the topic hoping to help the reader unfamiliar with this literature to get an idea of some of the available material on the topic as well as to help contemporary readers to know more about people and ideas mentioned. This includes, but is not limited to, specific mediums, and the variety of phenomena. I have also presented references to more recent observations of materializations. These, it is important to say, are only a selection of the available material, several of which are not systematic investigations, but consist of informal popular accounts (e.g., Kean 2017:333–335, 337).

Although my interest is mainly historical, I realize that many study the topic to determine if the phenomena are real or not. As pointed out by various modern authors (e.g., Braude 2007, Haraldsson 2017, Pilkington 2006, Tynn 2009), there are good observations that cannot be ignored. But the topic is still generally dismissed. In general this material tends to be seen today with suspicion due, at least in part, to recorded instances of fraud, such as those put on record by Puharich (1960/2008), Schrenck-Notzing (1924), and Wallace (1906). This suspicion has been reinforced by reports of the only recent investigations on the topic recorded in the scientific literature (e.g., Braude 2016, Nahm 2014, 2016).

Furthermore, too many photographs of materializations—old and new—look suspicious and even ridiculous. While this does not mean the phenomenon is not real, it is a strong social and psychological deterrent keeping people away from the topic, particularly researchers who may worry about their reputations. In addition, we seem to lack today the necessary mediums that not only can produce the phenomenon at a certain level of consistency for it to be observable, but also the type of medium who is capable of performing under controlled conditions, or willing to try.

But regardless of the difficulties, hopefully future work on the topic will be inspired by essays such as Dingwall's, so as to benefit from awareness of

previous findings, as well as of methodological issues, and the problem of fraud. But more important, to be significant, this work needs to go beyond the observational stage so typical of much of this literature. By this I mean that, if it is possible to make a good case for the reality of the phenomenon, and that it appears consistently enough to be studied carefully, research needs to be conducted to learn something about its nature. As Dingwall wrote in the essay reprinted here:

It remains to introduce a series of new experiments which, if properly conducted by competent observers, may help us to understand more fully the theory of the plasma and its relation to psychical phenomena in general.

### Notes

- <sup>1</sup> Several interesting articles on the topic were published in *Light* in 1921 (e.g., Barrett 1921, De Brath 1921, Lodge 1921, Scatcherd 1921). See also articles in *Scientific American* (Black 1922), *L'Opinion* (Heuzé 1922a), *New York Times* (Jastrow 1922), *Revue des Deux Mondes* (Nordmann 1922), *Living Age* (Oesterreich 1921), and in *The Month* (Thurston 1922).
- <sup>2</sup> These are references to English classical scholar Frederic W. H. Myers and Polish philosopher and psychologist Julian Ochorowicz, both of whom were well-known psychical researchers (Hamilton 2009, Weaver in press). This quote appears in Myers (1903:Vol. 2:545).
- <sup>3</sup> These mediums were important contributors to the study of materialization during the first decades of the Twentieth Century (Inglis 1984). On Juliette Alexandre-Bisson and Albert von Schrenck-Notzing, see Schrenck-Notzing (1914a:71–73) and Sommer (2009).
- <sup>4</sup> Physician John E. Purdon (1884) used the term psycho-plasma to refer to the “stuff which constructed the materialized figures” (p. 1). Crawford also used psychoplasm, which “consists of actual molecules of matter, possibly complexly organized molecules of the same order as those composing cell protoplasm. These molecules would appear to be shot out of the human body at the extremities, in obedience to impulses sent from the brain of the medium, and to be projected into the space surrounding him” (Crawford 1915:197). Others have used the terms “spirit-substance” (Keulemans 1885:163) and bioplasm (Farmer 1886:169). Even though Richet has been credited for adopting the term ectoplasm from biology, its first appearance in psychical research is not known with certainty (Demarest 2013, Granger 2014). Richet wrote about séances he had with Palladino: “In séances with Lodge, Myers, Ochorowicz, every time we were touched, we said, half jokingly, ‘an

ectoplasm again!’ ” (Richet 1922:637, footnote).

- 5 The concept of Od, derived from Reichenbach’s (1849/1851) work, was very influential in early Spiritualism (Alvarado 2013). An early author referred to “the odylic emanation of a good medium” to account for the appearance of a hand (Wolff 1854:268). Adin Ballou (1852) referred to a spiritual magnetism common in sensitives and mediums he called spiricity. He wrote that this principle “serves as their [spirits] principal element of intercommunication. They can inhale and absorb it, exhale and radiate it, impregnate it with their peculiarities of *thought*, *affection*, and *will*, and thus transmit influences to inconceivable distances, nay, transport their perceptive consciousness so as to be virtually present anywhere within their permitted range of existence” (pp. 3–4).
- 6 The perispirit, as this principle is called in English, was discussed by Kardec (1860:38–39, 120–121, 1862:62–65, 78–79, Chapter 4) based on information received by mediums. In an article published in the *Revue Spirite*, Kardec (1858) explained physical phenomena via the operation of the perispirit. Referring to the materialization of hands seen in séances with D. D. Home and other mediums, Kardec argued that they were produced by the condensation of the subtle matter of the perispirit obeying the will of the spirit. He wrote that “the perispirit can present itself to us in a visible solid and vaporous state, or in an invisible vaporous state” (p. 124). On the perispirit, see also Delanne (1897) and Filatele (1864). There were similar ideas previous to the development of Spiritism, one example being Chardel (1818).
- 7 For information about Crookes, Home, and Moses, see, respectively, Alvarado (2018), Lamont (2005), and Tymn (2015).
- 8 Dr. Joseph Maxwell, a French jurist and physician deeply involved in the study of psychic phenomena (Alvarado 2016a), mentioned Meurice throughout one of his books (Maxwell 1903/1905) who presented both physical and mental phenomena. According to Finch (1905), Meurice was a 32-year-old man who always appeared to be tense. Although he was mentally stable, Meurice could show mood swings and episodes of neuralgia. During telekinetic movements of a small box, an observer said he “perceived a tiny ray of light—something like a dewy spider’s web with the sunlight gleaming through it—connecting M. Meurice’s fingers with the box, but this was probably an illusion, as there was nothing palpable to the touch” (Maxwell 1903/1905:344). Together with cold breezes and tingling sensations, Maxwell (1903/1905:114) also mentioned tactile sensations of spider webs as one of the sensations felt with the emission of psychic force. Medium Elizabeth D’Espérance wrote about this:

The first sensation that I am conscious of, when sitting in the cabinet . . . , is this: I feel as if my face and hands were covered with cobwebs . . . The commencement of manifestations is announced by the feeling of cobwebs, but this does not recur unless the séance is interrupted. If a break occurs, it is repeated. When the séances are not successful, I feel the cobwebs, as it were, all the time; but at such times, there are really neither veils, nor forms, nor even webs. (in Aksakof 1898:155)

She also stated that she "could feel fine threads being drawn out of the pores of [her] skin" (D'Espérance no date circa 1897:229). Ectoplasm also gave the sensation of cobwebs to sitters in some of Eva C.'s séances (Alexandre-Bisson 1921:16, 250; see also Geley 1919/1920:55), and in séances with other mediums (Hamilton 1934:120).

- <sup>9</sup> On this research with Polish medium Stanisława Tomczyck, see Ochorowicz (1909, 1910, 1911). Ochorowicz (1910) referred to two emanations from his medium: Rigid rays and X<sup>x</sup> rays. The first were invisible, and could raise objects and discharge an electroscope, and were unaffected by fire. But they had no photographic effects, and could not go through obstacles. The X<sup>x</sup> rays were said to penetrate matter more than X and Gamma rays, and to affect photographic plates. But they did not exert mechanical actions and were unaffected by electrical or magnetic fields. In other tests Ochorowicz obtained photographs of fluidic threads. The threads were said to move objects and to leave traces on substances such as flour and soot. The threads, according to the medium's spirit control, were the same as rigid rays. In other work with the same medium, Ochorowicz (1911–1912, 1912) presented photographs of hands presumed to come from the medium's double.
- <sup>10</sup> For other cases of ectoplasmic threads associated with telekinesis, see Blacher (1932) and Kharis (1921). There were also observations of threads with Palladino, sometimes assumed to be an attempt at trickery (e.g., Lanza et al. 1903). On one occasion in Italy a thread was seen in a séance going from one hand of Palladino to the other. One of the sitters grabbed and pulled it. "The thread bent into an arc, resisted for a moment, and then snapped and dissipated instantly" (Bozzano 1903:88).
- <sup>11</sup> Crookes (1874a) wrote about Home that "after witnessing the painful state of nervous and bodily prostration in which some of these experiments have left Mr. Home—after seeing him lying in an almost fainting condition on the floor, pale and speechless—I could scarcely doubt that the evolution of psychic force is accompanied by a corresponding drain on vital force" (p. 41). The withdrawal of this force from materialization mediums, commented a writer (Anonymous 1875), could produce loss of heat, which may be the cause of reports that "mediums often complain

of coldness in the back, and of their backs beginning to ache towards the close of a séance” (p. 135).

<sup>12</sup> Regarding Palladino, Lombroso (1909) wrote:

After the séance Eusapia is overcome by morbid sensitiveness, hyperesthesia, photophobia, and often by hallucinations and delirium . . . , and by serious disturbances of the digestion, followed by vomiting if she has eaten before the séance, and finally by true paresis of the legs, on account of which it is necessary for her to be carried and to be undressed by others. (p. 115)

See also Geley’s (1924/1927:21) comments about Franek Kluski regarding after-séance prostration, heart palpitation, thirst, and vomiting of blood. Mediums also experience physiological sensations and changes *during* the production of phenomena, as seen in Tomczyk’s sensations of numbness, cold, and tingling in the fingers, and muscle contractions in the arms and other parts of the body (Ochorowicz 1910:99). Hamilton (1934:117–122) also reported interesting observations with his mediums.

<sup>13</sup> The so-called confession has been questioned and has been denied (Maxwell 1906). In any case this needs to be assessed in the context of the controversies surrounding critiques of the séances and of Richet’s participation in them (see Evrard 2016:172–199 and Le Maléfan 2002).

<sup>14</sup> See Richet’s (1905) report, and later discussions of the ensuing controversies around the Villa Carmen séances (Evrard 2016, Le Maléfan 2002). For descriptions of Eva C.’s phenomena see Alexandre-Bisson (1921), Geley (1919/1920), and Schrenck-Notzing (1920a).

<sup>15</sup> Richet (1905:305). I have added the quote signs, omitted by Dingwall. See also Richet’s (1922:657–665) dramatic descriptions of moving snail-like ectoplasm.

<sup>16</sup> Geley (1919/1920) wrote:

The substance has variable aspects; sometimes, and most characteristically, it appears as a plastic paste, a true protoplasmic mass; sometimes as a number of fine threads; sometimes as strings of different thickness in narrow and rigid lines; sometimes as a wide band; sometimes as a fine tissue of ill-defined and irregular shape. The most curious form of all is that of a wide-spread membrane with swellings, and fringes, whose general appearance is remarkably like that of the epiploon (caul). (pp. 54–55)

<sup>17</sup> For photos of materialized heads with Eva C., see Geley (1919/1920, 1924/1927).

<sup>18</sup> The ectoplasm from Goligher, who performed in the context of a family circle in Ireland, was studied by mechanical engineer William J. Crawford (1921). See also Donaldson (1933), Fournier d’Albe (1922),

and Stephenson (1936a,b). See Schrenck-Notzing's (1921) comments about Crawford's work.

- <sup>19</sup> The Countess was a Portuguese medium (Frondoni-Lacombe 1918). On the Polish medium Stanisława Popielska see Lebiedzinski (1921) and Schrenck-Notzing (1920a:251–260). Austrian medium Willy Schneider was investigated by many, among them Dingwall (1922a). Schrenck-Notzing (1920a:Figures 221–225) presented photos of ectoplasmic formations with this medium.
- <sup>20</sup> A partly solid-looking rod appears in Figure W in Crawford (1921).
- <sup>21</sup> See Crawford (1921:Figures 7, 9, and 10).
- <sup>22</sup> It was invisible at first but it was later visible and photographed (Crawford 1921, Donaldson 1933, Fournier d'Albe 1922, Stephenson 1936a,b).
- <sup>23</sup> Several writers speculated that Crawford, a mechanical engineer, may have suggested his medium produce phenomena conforming to his ideas (Barrett 1921, Bozzano 1929, Schrenck-Notzing 1921, Sudre 1926). This is particularly relevant in the case of table levitations and the medium's "psychic rods" (Crawford 1916).
- <sup>24</sup> In an observation in the United States, a "great, long additional arm and hand was . . . seen protruding from the body of the medium, and it shot back into one of the normal arms of the medium as swiftly as the eye could follow it" (Anonymous 1873:83). According to Oxley (1876), a white mist was seen to come out from one of Monck's hands. For other emanations from medium's bodies see Colley (1877). In a séance with Palladino a second left arm of the medium was seen to touch someone "and then return back and melt into Eusapia's body, vanishing" (Bottazzi 1909/2017:180; for another similar case of an arm issuing and returning to a shoulder see Venzano 1907:100–101). Bottazzi (1909/2017:201) suggested that "limbs" came out from Palladino's body, which then returned and dissolved into it.
- <sup>25</sup> Schrenck-Notzing (1920a:250). See also Lebiedzinski (1921).
- <sup>26</sup> Schrenck-Notzing (1920a:249–250).
- <sup>27</sup> See Craven (1921). He stated:
- How can the attenuated, colloid matter of which the cantilevers are formed be made rigid so as to transmit and, be capable of sustaining large stresses? Why does this rigidity break down under the influence of ultraviolet light and moisture? May it not be that the particles which constitute the cantilevers are in a state of electrical strain, each mutually repelling the other?  
(p. 242)
- <sup>28</sup> Melita P. was a non-professional medium briefly discussed by Kharis (1921).

- <sup>29</sup> Reading through many mentions of the “operators” in Crawford’s books, it seems that they acted as collaborators in the research, suggesting things to do and ideas to test. A similar situation is evident as well in Ochorowicz’s (1909, 1910) research. The “spirits” have given explanations about the process of materialization, as did Palladino’s control John King about fluidic emanations (Ochorowicz 1909:76; see also Hamilton 1932:254–255). In the past some mediums have stated that “spirits” have mentioned the existence of a cord connection between the medium and materialized figures in séances with Monck (Bennett 1877) and Kate S. Cook (Rondi 1877).
- <sup>30</sup> While Palladino was able to discharge an electroscope by placing her hands close to the instrument, but without touching it (Courtier 1908, Imoda 1908), Crawford (1919) did not find evidence that his medium’s invisible projections conducted electricity.

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## LETTER TO THE EDITOR

### Preparing for the Death of a Loved One

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It often makes for interesting discussion whether or not knowledge of survival evidence makes one more prepared for the death of a loved one. Raw emotion will almost always win out over intellectual reasoning, so the very notion of being prepared may be nothing more than fanciful thinking. However, a recent occurrence in my life has led me to believe that knowledge and experience can lead to acceptance.

After losing my 15-year-old daughter in the blink of an eye 16 years ago, I was firmly entrenched in materialist thinking and I looked upon the suggestion of life after death as ridiculous and hurtful. I was mired in the deep chasm of despair with no hope of ever escaping the horror. Although I was apparently the recipient of what many would call striking examples of after-death communications, I summarily dismissed each occurrence as coincidence. Despite the preponderance of the evidence, I fought the acceptance of such a possibility for several years. Fortunately I journaled each episode and eventually sought the help of a statistician to help me calculate the odds against chance of each communication occurring. Only after seeing the hard numbers involving 20 incidents, each with odds against chance exceeding a million to one, did I relent.

So, after spending the last 16 years immersed in the investigation of survival, learning extensively about the empirical and anecdotal evidence, would I be better prepared for a future death of a loved one?

After doing very well for a few years after receiving a dire diagnosis of end-stage lung cancer, my mother's health started to deteriorate and we had her in the care of home hospice. During her final days I knew enough to pay close attention. Several days before her passing, it became apparent that she was conversing with deceased relatives who were not seen by others in the room. Despite moving in and out of consciousness, she would occasionally awaken and stare wide-eyed at a particular focus in the room, and at one point called out to her mom.

During the last day that she was able to sit in the recliner that gave her comfort, she stared at the empty chair that was placed directly in front of

her for caring visitors. My father entered the room, saw the empty chair, and sat down in it. My mother became extremely agitated, yelled “No!” and ordered my father to move. It was very apparent, at least to me, that my dad had sat down on someone who was already occupying that chair.

Later that day, after being returned to her hospital bed, I leaned over and told that it was okay to let go. I reassured her that she would be reunited with loved ones who were waiting for her, some of whom she was apparently already seeing. Even in her weakened state, she opened her eyes to acknowledge what I was saying.

On her final day, with our immediate family gathered together for the first time since she became ill, I whispered to her, “OK mom, we are all here. Do you know that we all love you?” She acknowledged with a barely audible “yes.” I then said, “It is now time for you to shed this broken body and take flight to the next adventure.” Less than an hour later she took flight.

Moments later, my daughter called from her home in Virginia. She and my four-year-old grandson had just completed a private ceremony calling upon the Universe to help “GiGiMa” heal. And when they were done, my grandson said to my daughter, “Mommy, I just looked out the window and saw GiGiMa flying on a rocket.”

Of course I grieve the loss of my mother, and my knowledge of a world beyond the physical did not prevent the tears and sadness. However, this time there was no anger, no guilt, and no wondering what could have been. Much in the tradition of cognitive behavior therapy, the way we think most often affects the way we feel. When it comes to life beyond the physical, in my opinion, those who are able to progress from vague hope, to belief, and ultimately to knowing have a distinct advantage in transforming their grief than those who believe in the finality of death.

—**ROBERT GINSBERG**  
FOREVER FAMILY FOUNDATION

ESSAY REVIEW

**The Unending Human Tragedy—and Scientific Scandal—  
of HIV/AIDS**

**How to Survive a Plague: The Inside Story of How Citizens and Science Tamed AIDS** by David France. New York: Alfred A. Knopf, 2016. 640 pp, \$30 (hardcover); ISBN 978-0307700636. \$18.95 (paperback); ISBN 978-0307745439. Documentary film, 2012, available at \$2.99+ on You Tube, Amazon Prime, Google Play.

DOI: <https://doi.org/10.31275/2019.1413>  
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Scientific explorers are familiar with and perpetually frustrated by the refusal of organized science to look at the tangible evidence for the occurrence of apparently psychic phenomena, the well-attested reports of unidentified, apparently flying objects, the range of evidence that supposedly extinct or unidentified animal species are present in various parts of the world, and other such situations. The refusal even to glance at the evidence stems from an entrenched belief that the asserted phenomena must be spurious because “science” says so.

What few people have so far realized is that the same dysfunctional circumstance of refusing to look at evidence exists within the accepted subject matter of science itself: Researchers who venture unorthodox interpretations, or who take seriously observations or experiments that seem to contradict established theory, are treated just as dismissively as are anomalists; indeed, such maverick mainstream researchers may be treated even worse, being positively persecuted rather than simply ignored. One such case is that of the established theory that HIV causes AIDS.

Only recently did I come to know about the 2012 documentary film and 2016 book, “How to Survive a Plague.”<sup>1</sup> Book and film both garnered rave reviews. For example, “David France managed to simultaneously break my heart and rekindle my anger in just the first few pages of his breathtakingly important new book . . . Riveting.”<sup>2</sup>

Those words describe my own emotions quite accurately, but for very different reasons; namely, that so many good people have unwittingly suffered so much, and so needlessly, through being misled by misguided

dogmatic dissemination of a mistaken theory by the popular media under the influence of the mainstream medical Establishment, the scientific Establishment, and most of the political and social Establishment.

It should be easy enough nowadays for anyone who cares to look at the actual evidence to recognize that HIV did not and does not cause AIDS; see for a start the books and many hundreds of articles cited at *The Case against HIV*,<sup>3</sup> but that literature exists in a parallel universe to almost all of the present-day mainstream global worldview, the global conventional wisdom.

Everyone who may read *How to Survive a Plague* or watch the film, very much including informed HIV AIDS dissidents, must surely empathize with David France and the other people whose stories and tragedies he describes; but the dissidents will also recognize the many points on which the narrative is wrong about substantive matters of fact. The account of the early history of AIDS includes many clues about how things went wrong—irretrievably wrong, it seems by now, as illustrated by the rave reviews of book<sup>4</sup> and film.<sup>5</sup>

The tale of going wrong began with misguided and mistaken classification: that the common thread among the first AIDS patients was that of being gay rather than the actual commonality of drug abuse and generally unhealthy lifestyle (Lauritsen 1985). That drug abuse can result in the wasting away, general ill-health, and opportunistic infections that characterized the early AIDS patients is demonstrated by the description of such symptoms by Gordon Stewart during the 1970s epidemic of drug abuse (Hodgkinson 1996:103–104); and also nowadays by observing on television those who currently abuse methamphetamine and its ilk; France does in one place (p. 499) note that abuse of crack cocaine can deplete the critical CD4 cells of the immune system.

Additionally misleading was the generalization that the early AIDS patients were “young and previously healthy,” whereas in truth their average age was mid-to-late thirties with a long history of venereal diseases and antibiotic treatments (Cochrane 2004). The disastrously wrong path of blaming a virus, announced in April 1984 under the official auspices of the Department of Health & Human Services, soon became entrenched (Bauer 2007: Part III): by vested interests of drug companies and of researchers whose funding comes largely from drug companies, and also the interest of gay-activist organizations that a viral cause was more congenial than the consequences of a highly self-destructive lifestyle.

None of that story is mentioned in *How to Survive a Plague*. That lack is illustrated by the absence of any mention of John Lauritsen, Peter Duesberg, Kary Mullis, Robert Root-Bernstein, John Crewdson, and the many other researchers and journalists who have, from the beginning and

to the present day, spoken truth to power over HIV and AIDS; and without truth there can be no lasting good.

Yet this book and this film remain of lasting historical value for their vivid reminders of the pervasive, terrible, psychological and social pressures on homosexual boys and men, and the discrimination and frequent violence against them, before the slow emancipation began that followed the Stonewall riots, emancipation that remains far from consummated.

David France does cite “the tidal wave of disease” (p. 18) that followed Stonewall: “What from the outside might have looked like pure carnal zeal was the rudimentary first pass for this emerging young culture [of gay community].” But he fails to note that, as predicted by Joseph Sonnabend, AIDS was the cumulative consequence of the “fast-lane” lifestyle that included this “tidal wave of disease,” described by Larry Kramer (1978) in *Faggots*, by Michael Callen (1990) in *Surviving AIDS*, and in the documentary film about Fire Island activities *When Ocean Meets Sky* (Robey 2003). It was a small percentage only of gay men who went so foolishly and so promiscuously wild, but the mistaken “virus” diagnosis brought subsequent harm and misery to huge numbers of people who happen to be classed as “HIV-positive” on the basis of entirely non-specific tests. Perhaps the most crucial element leading to the contemporary circumstances of HIV and AIDS was the progressive re-definition of AIDS: from that of opportunistic infections owing to a damaged immune system, to appearing “HIV positive” on tests that do not actually demonstrate the presence of a human immunodeficiency virus.

Having missed the truth about the early days of AIDS, David France naturally misunderstands and mis-describes the roles of AZT and later anti-retroviral treatments; his story culminates in the middle 1990s when the advent of protease inhibitors, seemingly confirmation of the virus story, brought new and additional forms of harm to those sentenced to anti-retroviral drugs. False hope had been aroused by instances of the “Lazarus effect,” where initial anti-retroviral treatment brings a seemingly magical positive response—before the inevitable relapse, which the mainstream for a time tried to rationalize by inventing a paradoxical “immune restoration syndrome.”

The overall lack of success of anti-retroviral treatment, and the dangerous toxicities associated with it, can be read—if only between the lines—in the continuing successive changes to the official Treatment Guidelines (<https://aidsinfo.nih.gov/guidelines>). France’s book does note the greatly belated acknowledgment that the first, highly touted anti-retroviral drug, AZT, delivered no benefit to AIDS patients as well as being highly toxic; yet AZT and its chemical analogues remain part of many “anti-retroviral” regimes.

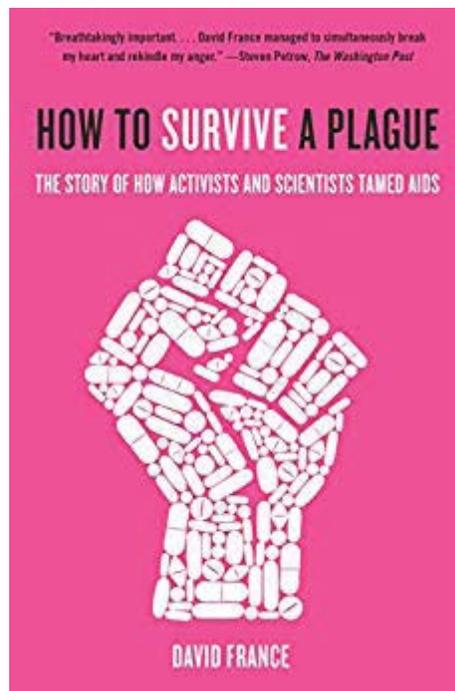
A rather obvious and striking contradiction of the official view concerns the purple skin lesions that were iconic in the early AIDS patients but which became quite uncommon within a half-a-dozen years or so. These lesions were at first taken to be Kaposi's Sarcoma (KS), supposedly another opportunistic ailment permitted by suppressed immune systems. In recent years, however, KS has come to be attributed to its own herpes virus (KSHV or HHV-8), thereby raising the conundrum, why HIV and KSHV had both victimized the first AIDS patients but then HIV continued to spread into and beyond the gay community whereas KSHV almost disappeared within a few

years. Dissidents, of course, have a convincing, straightforward answer: those purple lesions were not KS at all, they resulted from damage to the arteries as a result of promiscuous sniffing of the "poppers" (nitrite drugs) widely (ab)used in the early days of Gay Liberation (Lauritsen & Wilson 1986).

Another conundrum that orthodox HIV/AIDS theory is helpless to explain is why the 1980s American epidemic of "AIDS" among largely white gay men morphed into the contemporary circumstances that "HIV-positive" is most prevalent among black people (Bauer 2007).

This book and the film version are well done and tell a gripping story. It is informative and accurate about much of the sociopolitical events; but the book should not be read nor the film watched without being informed that the science is all wrong, that "HIV" did not and does not cause AIDS and may not even exist as an independently existing retrovirus. That this wrong theory could have captured public acceptance and public policies illustrates the danger in contemporary society of the conventional wisdom becoming captive to a scientific-technological elite, a danger that President Eisenhower warned of more than half a century ago (Bauer 2018).

In this respect, the phenomenon of HIV/AIDS parallels anomalistics,



cryptozoology, parapsychology: The mainstream Establishments have succeeded in making hegemonic a mistaken view that ignores and thereby suppresses the actual evidence. There is a fatally vicious circle: The evidence is not even glanced at because “everyone knows” it must be spurious; and the failure to look at the evidence allows ignorance and false theories to continue to prevail.

### Notes

- <sup>1</sup> <https://surviveaplague.com>
- <sup>2</sup> Steven Petrow, *The Washington Post*;  
<https://surviveaplague.com/book-reviews>
- <sup>3</sup> <http://thecaseagainsthiv.net>
- <sup>4</sup> <https://surviveaplague.com/book-reviews>
- <sup>5</sup> <https://surviveaplague.com/film-reviews>

—**HENRY H. BAUER**

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## BOOK REVIEW

**Anticipation and Medicine** edited by Mihai Nadin. Heidelberg, Germany: Springer, 2017. 363 pp. \$199 (hardcover), \$136.46 (Kindle). ISBN 978-3319451404.

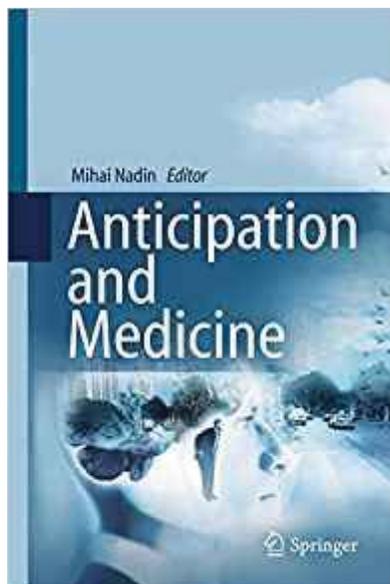
DOI: <https://doi.org/10.31275/2019.1380>  
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Anticipation is part of everyday life. We make plans, we look at forecasts, we buy insurance. It is also one of the backbones of medical practice. We anticipate which strains of influenza will arrive and concoct a vaccine accordingly (which is still generally less than 50% effective). We perform Pap smears, which can anticipate cancer of the uterine cervix by ten years. Preventive medicine is a medical specialty. The government-commissioned United States Preventive Services Task Force publishes tomes of screening recommendations.

*Anticipation and Medicine* is a collection of “the variety of perspectives pursued in medical anticipation research and associated fields.” The book is broken into seven parts, each containing two to six treatises by a spectrum of authors here and abroad who express opinions that are well-referenced; there is no original research although much existing work is cited.

In medical genetics, anticipation is the tendency for certain genetic disease (e.g., Huntington’s disease) to occur sooner in successive generations. That is not the subject here. “Anticipation” as used in this book is never specifically defined. It seems to encompass everything from gut feelings (that may be precognitive) to routine medical screenings to extrapolation from the reams of data now available via sophisticated measuring devices (e.g., smart watches and FITBITs) and genome sequencing. A central theme of the book is that a living body is more than the sum of its parts, and cannot be understood as a machine or a multitude of chemical reactions (think consciousness). Most of our readership will be accepting of this; most conventional scientists are not. Another theme is that modern medicine is more reactive than proactive and that spending more money on healthcare will not necessarily lead to better health (think false positives).

Part I is called Anticipation and Medical Care. It includes a conceptual framework, a chapter on genes, environment, and mental health and one on how the heart can be considered an anticipatory organ. Part II deals with the potential of modern genetics, including next-generation



sequencing, in anticipating illness. Although this is seductive, the reality so far involves misinformation and scaring people unnecessarily. This is a fledgling science, with more data than can be interpreted and ever-changing techniques that refine and change these data. Stay tuned. The book's third part examines the brain and includes sections on temporal memory traces, the cerebellum, and the concept that brain processes are anticipatory in nature and distributed throughout the body. Part IV is about medical data processing, using the specifics obtained from wearable monitoring devices, glucose monitors, and smart-phone health apps. Again I must say we can collect more data

than we know how to interpret. FITBITS thus far get people to move a little more, but have not been shown to improve health (Finkelstein et al. 2016). Monitoring blood glucose routinely, at least at home on patients not on insulin, does not improve diabetic control (American Board of Internal Medicine Foundation 2018). Next is a section on psychological aspects of treating patients, including anticipation and child development and neural responses to threat. Part VI deals again with the ubiquity of computer-generated information, including intelligent support for surgeons in the operating room.

The last section, Anticipation and Alternative Medicine, begins with an interesting paper by Dean Radin, "Unorthodox Forms of Anticipation," about his work on precognition, presentiment, and retrocausation. After that comes a discussion of our current American epidemic of diabetes and obesity. It correctly points out that the recommendations for low-fat diets—believed to be healthy by the medical profession and the government—mark the start of this calamity, in 1977, by forcing an increase in carbohydrate intake. There is abundant evidence to support the harms of replacing fat with carbs, but entrenched ideas die hard (don't we at the SSE know this), and the American College of Cardiology still endorses low-fat diets. Now we know that the sugar industry manipulated the original data to make it appear that animal fat and cholesterol were the culprits in heart disease, not their products (Domonoske 2016). Next is a section on breast cancer

screening, correctly pointing out the limitations of mammography and mentioning alternatives ranging from breast MRI scans to warning dreams. Prediction dreams have been noted in other circumstances (e.g., some of the work of Ian Stevenson). The problem is, just like most women who get breast cancer don't carry the predisposing BRCA gene, even fewer have premonitory dreams and those who do are unlikely to mention them to their physicians. There is a chapter on traditional healing ceremonies, including shamans, Native American sweat lodges, and Afro-American and Afro-Cuban rituals. Finally, comes chiropractic and another piece on computerized, motion-based, full-body tracking.

Unmentioned in the book is the old truism that an apple can be anticipated to fall more or less under the tree. As a practicing family doctor, having followed multiple generations of the same families, I have noticed that most children not only become their parents, but do so in uncanny ways. A teenager has an unwanted pregnancy at 16. Her mother had the same, also at age 16, and has never told her daughter about it, and will not even now. (Both unwanted pregnancies were terminated.) An oxycodone-addicted mother in her late 30s is struggling to detox. Her daughter has her first car accident at age 17; no bones are broken, but only oxycodone assuages her pain.

There is occasional sloppy editing. "Benzodiazemines" on p. 23 should be "benzodiazepines." "The benefits outweigh the risks" in the abstract on page 309 should read the opposite. But *Anticipation and Medicine* is a valuable and comprehensive reference work, and anyone who is interested in any part of its subject matter will find this interesting. It is not a cover-to-cover read but each chapter is a stand-alone treatise of great interest. It belongs in many of our libraries.

—ROBERT S. BOBROW

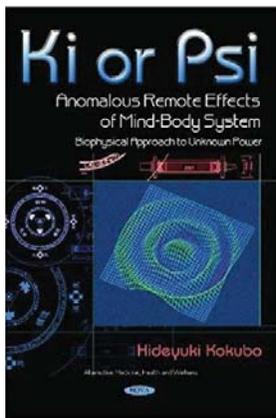
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## BOOK REVIEW

**Ki or Psi, Anomalous Remote Effects of Mind-Body System: Biophysical Approach to Unknown Power** by Hideyuki Kokubo. Happaage, NY: Nova (Alternative Medicine, Health, and Wellness Series), 2015. 208 pp., \$190 (hardcover). ISBN 978-1634829540.

DOI: <https://doi.org/10.31275/2019.1393>  
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This is an interesting book. It examines healing bio-energy (“Qi” in China, “Ki” in Japan) phenomena and measurement techniques. The author, Hideyuki Kokubo, is a biophysicist and director of the International Research Institute in Chiba, Japan, and his take on the subject is analytical and scientific. Much of the book details the use of an ordinary cucumber as a bio-energy detector. There are original experiments and full descriptions of methods. Essentially, cucumber slices can be used as bio-sensors: In the presence of a human energy field, they form biophotons, fluoresce differently, and emit a

vapor, all of which are measurable.

An introductory chapter explains the concept of Ki, historically and in modern Japan. It includes some history of the cucumber, agriculturally and in healing (in a Buddhist ritual known as *kyuuri-kaji*). The closing chapter recounts Japanese studies on anomalous phenomena during the last 50 years. It discusses the impact of Uri Geller’s visit to Japan in 1974 and the impact of Chinese studies, particularly the qigong boom in Japan during the 1980s, shortly after its introduction there. Referenced also are studies of non-contact healing, reincarnation, clairvoyance, ESP, and anomalous incidents in hospitals. There is a section on *toh-ate*, a Japanese martial art through which a non-contact attack is made.

This is a short, well-organized book. The overriding theme is that some psi effects can be measured objectively, scientifically, and quantifiably. The last sentence of the author’s final remarks sums it: “If something exists actually, it can be examined by experiments.” The last acknowledgment is to cucumbers and their farmers. I know I’ll never look at a cucumber the same way.

—ROBERT S. BOBROW

## BOOK REVIEW

**Psience Fiction: The Paranormal in Science Fiction Literature** by Damien Broderick. McFarland, 2018. ix + 235pp. \$45.00. eISBN 978-1-4766-3197-4.

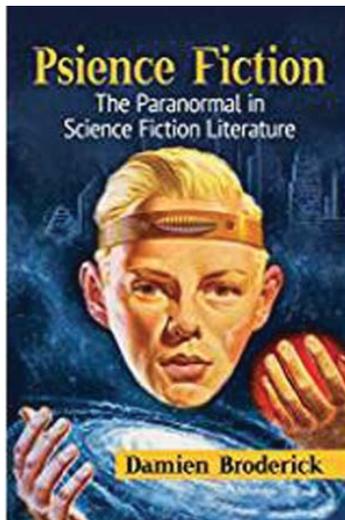
DOI: <https://doi.org/10.31275/2019.1399>  
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*Psience Fiction: The Paranormal in Science Fiction Literature* is a book that really needed to be written. In an abundance of hubris, I once played with the idea myself (and I was probably not alone in the thought). But now Damien Broderick has done it, and much better than I could have even approximated. Given his background as a science fiction literary critic and author himself, no other writer could be better-equipped.

*Psience Fiction* is exactly the right title to encapsulate Broderick's chosen topic. As he notes in one passage, his purpose here is to explore "the varied representations of the paranormal in science fiction" (p. 68)—though by paranormal he refers neither to ghosts nor mediumship nor UFO-related phenomena, but strictly to "paranormal" as it relates to putative mental powers that transcend the scientifically presumed, neuro-physical limits of our minds and brains. He refines that still further in noting that what he wants to consider is ". . . the give and take between the science fiction paranormal and the real-world kind, tested and tallied by psi researchers" (p. 5).

This book is probably most easily described as a book of book reviews (though a few relevant short stories are also considered). Authors covered run the gamut from Olaf Stapledon, E. E. "Doc" Smith, James Blish, and Theodore Sturgeon, to Zenna Henderson, John Wyndham, Robert Heinlein, Ann McCaffrey, Octavia Butler, and John Brunner, plus many more. For a literary work to be included, it must incorporate some aspect of psi as an integral plot element; a mere mention of extrasensory perception or psychokinesis does not suffice.

Since Broderick is focusing on the developmental history of psience fiction, he has to be discriminating in the texts he chooses to consider out of the myriad there are to pick from. He rightly concentrates on the youth to middle age of the genre. Writings from the 1930s through the 1970s are heavily represented, with just an occasional dip into the 1980s, 1990s, and 2000s later in the book. More recent books with significant



psi elements, such as Justin Cronin's *The Passage* (2010) await some future sequel to Broderick's survey.

Importantly, though, Broderick does point out that compared with earlier eras, there has been somewhat of a paucity of substantial psi-connected science fiction in recent decades. As he notes "... the proportion of at least moderately significant books of this kind sagged, with an astonishing Quiet Zone of 23 years prior to 2011" (p. 185). Part of the reason for this, Broderick suggests, is the ascendancy of the fantasy genre, the wild popularity of which today tends to suck the oxygen out of the room for somewhat more cerebral fiction such as the science-informed sci-fi.

It's a lot easier to write (and read) fiction that doesn't have to follow any rules but the ones the author makes up for his or her fantasy world.

I did find one omission puzzling. As far as I could tell, there is no mention of the prolific Andre Norton, whose career began in 1934 and spanned 70 years. Starting very early, much of her work was suffused with telepathy and other forms of ESP that would seem to justify her inclusion in the pantheon of pioneering psience fiction. But Norton's fare appeals solidly to the young adult market, so perhaps that's why she was passed over for this study.

Broderick conscientiously alerts us that "because this book is a study of the interaction between scientific studies of paranormal phenomena and their representation in science fiction," there will be spoilers. "LOTS OF SPOILERS" he intones in uppercase, just so we can't say we weren't forewarned. "*THIS BOOK IS MADE OF SPOILERS!*"

Don't let the presence of plot spoilers deter you. I found them generally unobjectionable, and I still feel motivated to seek out and read those tales he reviews that piqued my interest. I hasten to add that, though Broderick threatens spoilers, his writing often conceals as much (or more) than it reveals—perhaps in an attempt to make amends for having to disclose crucial plot developments necessary to his analysis.

Though book introductions are often "flyover country" for the casual reader, Broderick's book Introduction provides important context and interesting narrative as to how and why psi made its inroads into sci-fi. Particularly enlightening was the legendary John W. Campbell's role in

making it all happen very early in the modern era of the genre. As in so many other non-psi-related cases in which Campbell verged on actual prescience as he pioneered the unfolding of science fiction publishing, he seemed to “get” psi and how it fit into the scientific world of the time—and even still today. “It is not *demonstration* that is lacking, but *explanation*,” says Campbell, as quoted by Broderick (p. 15). This is precisely the state we find ourselves in today: We can present copious evidence for ESP and its relatives. But because no physical explanation is available—if one ever will be—psi is still left out in the cold (an intentional bow to the first of Broderick’s books about psi!).

Often, Broderick’s own writing style electrifies us with its imagery. In leading out his discussion of Bester’s seminal work *The Stars My Destination*, Broderick remarks:

Alfred Bester’s strategy was always to lead the reader a merry dance, not to say a danse macabre, to leap from concealment with shouts and firecrackers, to lurk and entice and disguise . . . and unmask! Explosion! Concussion! When he was in form, his pace, attack, payoff were exemplary, dazzling. (p. 83)

That passage alone made me want to read Bester’s book!

But no book is without its warts. Occasionally Broderick can be a little opaque. In his enthusiasm for the topic, he sometimes covers too much ground, perhaps, while trying to be economical in his words.

There are gaps that he perhaps is hoping the reader will be able to fill from their own familiarity with the material under review. But I think it would have been safer to assume that the reader had been exposed to none of the material, and work from there. But if this is the only complaint to be lodged against *Psience Fiction*, it is a small one indeed.

I should also mention the two appendices that add further substance to the book. The first is a nicely compact summary of paranormal research since its formal beginnings in the late 19<sup>th</sup> Century. The second appendix continues the theme of the paranormal in science fiction literature, but the focus here is psi and death survival.

*Psience Fiction* is a must for anyone who enjoys science fiction and has an interest in psi phenomena. Broderick is engaging, informative, witty, and stimulating as he brings us to understand more about the heritage that psi enjoys in the body of literature that has in many ways inspired—and predicted—the modern world in which we now live.

—**PAUL H. SMITH**  
U. S. Army, Major, retired

## BOOK REVIEW

**JOTT: When Things Disappear . . . and Come Back or Relocate—And Why It Really Happens** by Mary Rose Barrington. San Antonio, TX: Anomalist Books, 2018. 199 pp. \$14.95 (paperback), \$9.99 (Kindle). ISBN: 978-1938398940.

DOI: <https://doi.org/10.31275/2019.1405>  
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This book accomplishes the nearly miraculous achievement of being both substantive and highly entertaining. According to Barrington, “JOTT,” derived from “Just One of Those Things,” stands for a kind of “spatial discontinuity”—namely, a motley class of events in which objects appear or disappear in mysterious ways. For example, some can be classified as “Walkabouts,” in which “an article disappears from the place where it was known to have been and is found in another place.” Similarly, in “Comebacks,” “a known article disappears from the place where it was known to have been and later is found back in the same place.” And in “Turn-ups,” “a known article from an uncertain location appears in a place where it is known not to have been before it was found there.” The other primary categories in Barrington’s taxonomy are Flyaway, Windfall, and Trade-in (the reader might be able to guess what these are). The central contention of this book is that JOTT phenomena merit the attention of psi researchers and theorists of the paranormal.

I’ve often lamented that lab research in parapsychology is premature, because we have no decent idea what kind of organic function scientists are trying to investigate under inevitably straitjacketed laboratory conditions. Not only are we ignorant of psi’s finergrained features, we don’t even know what its natural history might be—for example, whether it has an evolutionary role or primary or overall purpose or function (although there’s no shortage of speculation on these matters). Of course, there’s no reason to think that psychic phenomena occur only for parapsychologists, much less only when those parapsychologists set out to look for them. After all, a major motivation for conducting formal studies is that we have evidence of psi occurring spontaneously in life. Moreover, there are good reasons for thinking that psi might be triggered unconsciously or subconsciously, in which case it might also occur surreptitiously. But since we’re a very

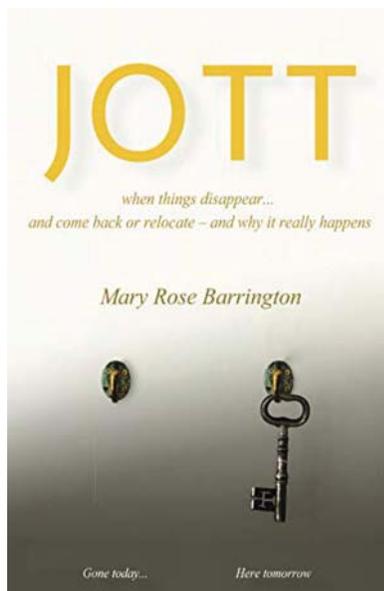
long way from understanding the nature and function of everyday psi, we don't know whether psychic functioning is an ability (like musical ability) or whether it's a brute endowment such as the capacity to see or to move one's limbs. Obviously, then, in the absence of this rudimentary knowledge, we have no idea whether (or to what extent) our experimental procedures are even appropriate to the phenomena. After all, many human capacities or endowments are situation-sensitive and can be evaluated only in real-life contexts.

In fact, I suspect that the most valuable attributes a psi researcher can have are those that (ironically) seem to be in short supply in psychology—namely, perceptivity and sensitivity. That's why I've argued that we need fewer lab parapsychologists and more parapsychological naturalists, good observers (like the biological naturalist), who can record and systematize the subtleties of broad ranges of relevant phenomena and behavior. Until we have some sort of empirically justified idea of what psi is doing in the world (and it's no more than a conceit to think we have it now), we don't even know what it is we're looking at in the lab.

Barrington, in her book, plays this crucial role of the parapsychological naturalist, by looking at some unheralded peculiar events and then trying to incorporate them into the big picture. She focuses on a class of ostensibly paranormal phenomena that have received much less attention than, say, cases of apparitions and poltergeists. And she's clear about why that is. The phenomena typically and all too easily get dismissed as merely a nuisance and are readily put out of mind. They're not as dramatic and conspicuous as a table levitation, and we can, without much difficulty, churn out counter-explanations which at least superficially satisfy us, even if they wouldn't withstand greater scrutiny. But, Barrington urges, the best of these cases present real puzzles with serious ontological implications, and they force us to attend more carefully to the many other cases that are less initially compelling. She writes,

... when all known or imagined forms of eccentric behavior are considered, there remains a hard core of cases that cannot be reasonably explained away in mundane terms, and eventually an attempt must be made to explain them using broader concepts. (p. 4)

So Barrington devotes two chapters (nearly half of the book) to presenting an extensive selection of cases, and then two more chapters in which she tries to place these phenomena in a wider parapsychological and broadly theoretical context, with appropriate emphasis on the connections between JOTT and other examples of ostensible macro PK. In the first of



those chapters, Barrington summarizes, rather quickly but thoroughly enough to be useful to parapsychological newcomers, the wide range of both spontaneous and experimental psi phenomena. I especially appreciated the details she offers about some of the more interesting and dramatic examples of spontaneous PK. Barrington's final chapter is devoted to more general speculations about the nature of reality and the place of psi in the larger scheme of things.

In that last chapter, Barrington asserts, "the one overriding law that unifies normal and paranormal under one system is the law of probability" (p. 163), which (she claims) "is built in to the cosmos rather than imposed on it" (p. 167). Moreover, she writes, "I am leading up to positing an all-embracing Cosmic Mind as fundamental" (p. 167).

With regard to the primacy of probability, Barrington reaches the unsurprising conclusion that the human mind, and the unconscious mind in particular, can at least sometimes override usually pervasive statistical natural laws. And in that connection, it's regrettable that Barrington makes no reference to Jule Eisenbud's more nuanced explorations of the same theme (see Eisenbud, 1970, 1992), especially since Eisenbud's conjectures lead away from Barrington's Cosmic Mind (of which we are dissociated parts) and more toward a cooperation among many minds. Interestingly, Barrington seems to posit something like that when she writes, "people's preconceptions are reinforced . . . to the point of permitting or preventing things from happening. This is a collective version of experimenter effect" (p. 179). Moreover, Eisenbud considers a more subtle range of ostensible psi manifestations (many from the clinical setting), as well as a more radical look at probability (see Kissner 2017). It would certainly have been illuminating to see Barrington engage Eisenbud on these matters and probe more deeply into the issues.

Nevertheless, Barrington provides much food for thought in her final chapter, including a good discussion of both active and passive telepathy, and the nature of mediumship. But no matter what the reader may think about her metaphysical speculations, the primary value of Barrington's

book will be her extensive and systematic coverage of JOTT cases. And that's no small achievement.

Incidentally, readers fortunate enough to know Barrington will not be surprised at the delicious and often trenchant humor found in this book. One of my favorites is a jab at "American university researchers with nothing better to do than deprive rats of sleep." Barrington notes parenthetically that "a bit of animal abuse always makes the obvious seem more scientific" (p. 4).

So Barrington's book is easy to recommend. She has undoubtedly and successfully argued for including JOTT in a satisfactory theory of the paranormal. Now if only I could find my socks . . .

—STEPHEN E. BRAUDE

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## BOOK REVIEW

**Otherworlds: Psychedelics and Exceptional Human Experience**  
by David Luke. London: Muswell Hill Press, 2017. 298 pp. \$20.47  
(paperback). ISBN 978-1908995148.

DOI: <https://doi.org/10.31275/2019.1403>  
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Luke's book, broadly speaking, reviews phenomenological experiences and experimental research on psychedelics, sometimes referred to as entheogens, as tools for increasing psi. The first section of the book, "Explorations of Entheogen Experiences" paints an exciting landscape filled with profound psychedelic experiences and their implications. As the book begins, it is readable, fun, and invites a wide audience into its otherworldly charm. The second section of the book, "Do Psychedelics Like Psilocybin Really Cause Psi?" is a more serious academic journey through the details of the research on psychedelics for eliciting psi. The research spans many fields of study, appealing to scientific researchers, physicians, pharmacologists, psychotherapists, shamanic practitioners, anthropologists, and psychedelic experiencers.

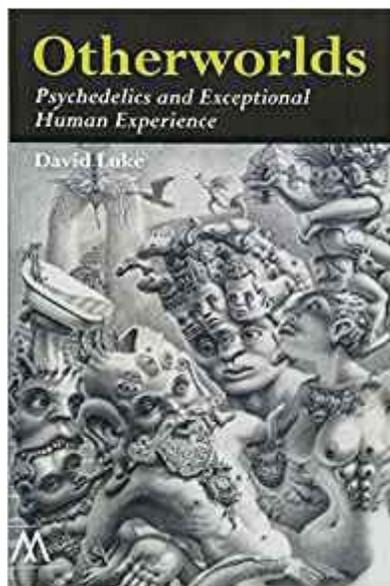
### Purpose

Luke's opinion about the ability of psychedelics to facilitate paranormal experiences or psi is clear from the beginning of the book, and he makes no attempt to suggest otherwise. His confidence is a result of his own psychedelic experiences and research, and an in-depth review of the scientific literature. Luke provides a thorough examination of the empirical and theoretical literature on exceptional human experiences mediated by psychedelics, with particular attention paid to psi experiences, including clairvoyance, telepathy, and precognition. A wide variety of psychedelically mediated experiences are examined, including synesthesia, interspecies communication, experiencing discarnate entities, out-of-body experiences, near-death experiences, and eco-consciousness, to name only a few. The psychedelics evaluated in the book include LSD, psilocybin, DMT, ayahuasca, mescaline, peyote, san pedro, salvia divinorum, and more. *Otherworlds* is an amalgamation of Luke's captivating anecdotal experiences, scientific articles, and scholarly commentary.

### Overview

The book begins with an exploration of the cactus san pedro, including its history as a sacrament and its ability to elicit psychic abilities. Luke describes his personal experiences with the cactus and the results of his research using himself as the subject (Chapter 1). The next chapter examines ayahuasca and incorporation, being taken over or possessed by the spirit of the substance, for religious and shamanic purposes, including shape-shifting, mediumship, and flight (Chapter 2). Following is a systematic literature review of experiences of synesthesia mediated by a wide range of chemical agents, which includes psychedelics and also non-psychedelics such as alcohol and tobacco (Chapter 3). The next chapter explores entopic phenomena, or visual experiences derived from visual system physiology. Luke links ancient rock art with psychedelic use and describes similar visual patterns across both, including spirals, grids, lattices, and more (Chapter 4). The following chapter is an exploration of the experience of and research on DMT, and examines the history, psychopharmacology, and phenomenology of the DMT experience, including its cartography and the perception of discarnate entities (Chapter 5). The next chapter dives deeper into the entities commonly encountered on psychedelics, in particular entities that have multiple eyes. Luke describes his own profound DMT experiences when he perceived a being with many eyes by the Ganges River in India. A discussion follows on the possibility that an objective being, Azrael, is being perceived across these similar subjective experiences (Chapter 6). The next chapter is rather brief and describes species connectedness that is sometimes experienced through psychedelic use, including with plants, animals, and the earth (Chapter 7). The chapter describes approaches to these experiences from animism and shamanism, and is also sprinkled with personal anecdotes. Ultimately, psychedelics may promote ecological connectedness and in turn stewardship.

The second section reaches into the research across many fields, including transpersonal psychology, anthropology, ethnobotany, phytochemistry, psychiatry, psychotherapy, psychopharmacology, and neuropharmacology. The first chapter of the section explores the theoretical reasons for conducting psychedelic research as a means for eliciting paranormal experiences (Chapter 8). The next chapter is one of the longer chapters, and understandably so, as it is an examination of the neuroscientific models for paranormal experiences, including those arising from psychedelic use. Five models are explored including the brain filter theory,  $\beta$ -carboline and tryptamines, DMT, ketamine, and dopamine models (Chapter 9). Luke makes it clear that a single theory may not explain psychedelics and their associated paranormal experiences, that different psychedelics



may have different models, and that these models may address the soft problem but not the hard problem of consciousness. The following chapter takes an anthropological and historical approach to psychedelics ‘in the field’, including the personal experiences and views of renowned researchers, scientists, authors, and shamans (Chapter 10).

Reports on survey research of psychedelics and paranormal beliefs and experiences are examined in the next chapter (Chapter 11). Overall, psychedelic use is associated with paranormal beliefs, such as a belief in psi phenomena, and those who report ostensible paranormal experiences are significantly more likely to use psychedelics. Luke provides a detailed assessment of the research and a discussion of its limitations. The following chapter digs into the experimental research supporting the psychedelic elicitation of ostensible psi experiences, including forced choice and free response experiments (Chapter 12). An exploration of the benefits and limitations of both experimental approaches is discussed, with a conclusion that free response experiments seem more appropriate for the psychedelic user and experience.

The next chapter is a critique of the experimental research, its limitations, and possible future directions (Chapter 13). Experimental issues addressed include the study design and the reported difficulties of working with subjects under the influence of psychedelics, such as difficulty maintaining alertness, interest in the study or task, communication difficulties, the timing of assessments, use of placebos, the ideal psychedelic to test, and proper dosage. The final chapter is a summary of the previous thirteen chapters, as well as suggestions for future research, cautions, respecting the psychedelic as a sacred tool, and potential applications for researchers (Chapter 14).

### Commentary

Overall, *Otherworlds* provides a thorough and novel approach by synthesizing the research on psychedelics and exceptional human experiences across a variety of fields of study, providing a comprehensive approach to the topic. The book is an enjoyable read, although the pace

tends to slow and quicken as it jumps from research study to experience. There is a refreshing circumvention of political or judicial issues associated with psychedelics apart from a brief mention, allowing the reader to focus on the experiences and the research without the baggage. *Otherworlds* is exactly that, a journey through other worlds, where the edge of the human experience of reality meets the edge of psychological science.

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## BOOK REVIEW

**The Premonition Code: The Science of Precognition: How Sensing the Future Can Change Your Life** by Theresa Cheung and Julia Mossbridge. London: Watkins, 2018. 256 pp. \$16.61 (paper-back). ISBN: 9781786781611.

DOI: <https://doi.org/10.31275/2019.1425>  
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*The Premonition Code* is a warm, thought-provoking, introductory book for non-academic readers who are seeking to understand, explore, and even expand their own precognitive experiences. Its strength lies in the rich and moving anecdotal stories told by people from all walks of life, including several scientists, whose accounts of precognitive dreams and waking premonitions will certainly be familiar and comforting to those who have had similar experiences and felt alone, or even questioned their own sanity.

*The Premonition Code* is co-authored by Dr. Julia Mossbridge and Theresa Cheung. Mossbridge holds a doctorate in Communication Sciences and Disorders from Northwestern University and an MA in Neuroscience from the University of California at San Francisco. She is an Associate Professor in Integral and Transpersonal Psychology at the California Institute of Integral Studies and a Research Fellow at the Institute of Noetic Sciences. She is a co-author of *Transcendent Mind: Rethinking the Science of Consciousness*. Mossbridge has personally had precognitive dreams and other exceptional experiences throughout her life, and has recently begun studying remote viewing.

Theresa Cheung holds a Master's degree in Theology and English from Kings College, Cambridge. She has authored close to a dozen popular books, including metaphysical "encyclopedias" and collections of stories about topics such as life after death, the angelic realm, and visitations from deceased loved ones. While Cheung comes from a long line of psychics and spiritualists, she states here that she only recently became aware that formal research existed on extrasensory perception and precognition.

*The Premonition Code* provides a precursory exploration of mind-bending questions such as does the future influence the past? Can the future be changed through will and intent in the present? What actually is time? Why do some aspects of premonitions seem to play out and not others? And

what to do if someone has had a dream or vision of an impending disaster or a crime?

At the core of the book is the contention that readers should embrace their innate intuitive abilities by choosing to become a “positive precog,” defined as a person who seeks to develop and utilize precognition for the betterment of their own life, and that of others. The authors offer their own “positive precog principles” using the acronym REACH, which stands for: Respect for the unknown, Ethics, Accuracy, Compassion, and Honesty (p. 80).

One of the book’s strengths lies in helping the average reader to think more critically about their own experiences, through the use of a checklist of criteria that may help to distinguish between true premonitions and experiences steeped in confirmation bias. It gets one thinking about concepts related to time, space, and retrocausality, although the discussions around these topics—particularly in relation to what physicists, philosophers, and psychologists say—are simplistic.

Mossbridge and Cheung appear to be optimists who have chosen to emphasize the positive, while minimizing the very real negative aspects of precognition. The authors do cover some of the challenges that come with conscious foreknowledge of the future as it relates to causality, agency, and communication. However, these could have been explored much further, not only in defining the extent of these issues, but in offering more detailed coping mechanisms for readers who don’t know how to proceed when they believe they have had, or will have, glimpses of an undesirable future. (If anyone doubts this is an issue, I’ll point to a recent voicemail message that I received from a student who was sobbing uncontrollably after she had a premonition that her presently healthy boyfriend was about to pass away. While it would have been nice to be able to recommend this book to the caller, I could not find in it anything that would have provided clear direction or solace.)

*The Premonition Code* sets out to serve as a welcoming, easy-to-traverse bridge between the general public’s focus on personal experiences and the realm of formal scientific experimentation. Unfortunately, once over that bridge, the reader is hard-pressed to find information of any real depth. As will be demonstrated below, the authors seem to want to protect their charges from becoming overwhelmed. Ironically, it is not at all the precognitive or intuitive-based information the authors feel they must protect their readership from—rather, it is the promised *science*.

### **In Search of the Science**

The book opens with promises of “detailed scientific evidence for precognition” in Chapter 3. However, for the first 14 pages there the reader will

not find any mention of experimentation. Instead, more anecdotal stories are offered up, albeit intriguing ones, from the personal lives of scientists.

This leaves only three more pages for the promised evidence. Finally, the reader is greeted with a nicely illustrated example of the standard procedure of a typical “precognitive dreaming experiment with a single dreamer,” followed by mention of results of two statistically significant dream ESP experiments with famed psychic subject Malcomb Bessent (Krippner, Ullman, & Honorton 1971). Words from Bessent’s dream transcript (“authority figures”) are compared to a description of the target photo (“police arresting people”), which was chosen only after the dream occurred and under double-blind conditions (p. 69). More examples like these, from the extensive bodies of dream ESP, ganzfeld, and remote viewing experiments, with actual sketches and corresponding photographs, would have really helped this chapter along.

Unfortunately, readers will find little description of individual experiments from here on out. This seems like a missed opportunity, given Cheung’s ability for bringing personal anecdotes to life. Rather than banishing Bem’s (2011) *Feeling the Future* experiments into the farthest reaches of the endnotes section, they could have crafted colorful accounts of participants being asked to watch pornographic video clips or studying for tests only *after* they had taken them.

Page 71 ends with a statement that there are some research methods that look for repeatability across the same subjects, while other methods seek to find single occurrences of precognition within multiple subjects. This entire collection of research is then presented as follows:

That’s primarily how Dr. Mossbridge, her colleagues, and many researchers before them have done things for decades. Instead of going through all the results from this way of testing precognition, here is a summary: there is statistically impressive evidence for both conscious and unconscious precognition, based on careful studies. (pp. 71–72)

The authors continue breezing through the formal literature, summarizing decades of presentiment experiments within two more paragraphs. Chapter 3 concludes with a statement that is suggestive of their behind-the-scenes negotiations, revealing who ultimately won this boxing match:

Julia could spend a long time talking about all the elegant methods that have been developed over the years to test for precognition in the lab, but Theresa has reminded her that most readers are probably eager now to get to the next part—about how to improve your precognitive abilities and make any precognitive experiences you already have work for you. (p. 73)

If nothing else, these writers are succinct.

The above examples demonstrate how Cheung seems to constantly assert her author authority and even a supposed superiority over the reader, through assertions that she knows their preferences and what is best for them. This is exacerbated by the editor's stylistic decision to omit all within-text citations, replacing these with minuscule end notations, virtually invisible to readers over the age of 40. This then requires a constant flipping back and forth of pages in order to have any inkling of what, or whose work, is being referred to.

### **The Remote Viewing Connection**

Before moving to Chapter 4, Dr. Mossbridge takes readers along to a Chinese restaurant, where she lunches with Dr. Edwin C. May, former director of the psycho-energetics program at SRI International/SIAC from 1986 through the mid-1990s. May (2018) recently published two of three volumes of archival materials from the now declassified U.S. government's clandestine remote viewing (AKA "psychic spy") programs, one of which was referred to as "Project Stargate."

According to Mossbridge, it is at this meeting that May agrees with her that the best evidence that remote viewing can be effective as a valuable information-gathering tool is in its longevity and continuous refunding. May shares with her an impressive presentation that includes an accounting of the number of government agencies (military and intelligence) that made use of trained remote viewers from 1972 through 1995, as well as the number of times these agencies returned for more information. In all, there were 19 agencies who sought out the services of these remote viewers, with the CIA returning no fewer than 41 times with "new missions," and another unnamed agency returning 172 times. Only 2 of the 19 agencies never returned (p. 88).

In this chapter, some of the use of remote-viewing-related terminology takes on a hazy hue, obscuring the intended meanings that are deeply rooted within this specific historical context. On page 88, Mossbridge and Cheung define remote viewing as "the ability to perceive information not currently available to the usual senses." However, this is just simply not the way the term "remote viewing" was intended to be used. Ingo Swann explained this in a 1993 interview for *Fate Magazine*:

In 1971–1972 the term (remote viewing) was coined by myself and Dr. Janet Mitchell, at the American Society for Psychical Research (ASPR) in New York, in association with Dr. Gertrude Schmeidler and Dr. Karlis Osis. It was coined to define a particular kind of experiment, not a particular kind of psi

ability. There is a substantial difference between coining a term to identify a type of ESP experiment and an ESP ability. It is very difficult to define an ESP ability, but it is not hard to identify an experiment. . . . I cannot, of course, control how people seek to use a term in the ways that they do. Meanings shift about and many use terms in different flip flop ways . . . (Swann 1993b)

Joe McMoneagle (1998) further defines the protocols that compose remote viewing. This includes blinding procedures of the viewer and monitoring the separation of roles among viewer, judge, project manager/researcher, and target selector (p. 24). Buchanan (2003), Smith (2015), and Williams (2017) offer similar definitions.

Throughout this chapter, the authors aptly draw parallels between remote viewing and precognition, although the discussion could have gone much further. Several remote viewers have written entire books on the subject of remote viewing, time, and the future. While McMoneagle (1998) gives excellent case examples with detailed sketches from his military days as a remote viewer, Swann (1973, 1993a) and Brown (2006) included extensive discussions of findings from their own formal experiments.

As the subheading “Remote viewing: Precognition by another name” (p. 87) suggests, the authors also repeatedly insist that remote viewing and precognition are one and the same thing, without providing a coherent argument for this. This contention would have undoubtedly been challenged by any remote viewer who has ever been tasked with describing a past event, or present location, or any researcher who ever gave them this tasking. Thankfully, there is no reason to have to engage in the debate because it appears that by the time the authors have reached the FAQ (Frequently Asked Questions) section, they have backed away from this wobbly stance. On page 153 (Chapter 7), an imagined reader asks: “Am I right in thinking that remote viewing is precognition by a different name?”, to which they reply: “Sort of! . . . It is—but only when no one knows the target ahead of time and the target is in the future.” This raises the question: If they are going to back off from their earlier controversial contention, why didn’t they just go back to where they first made it and do some simple rewriting?

#### **“Controlled Precognition”— Controlled Remote Viewing Rebranded**

Cheung reveals “The Positive Precog Training Programme” with a proclamation that Mossbridge finally offers a “controlled precognition training” which is a “scientifically sound way for anyone to practice the type of precognition that has been used for years in the US government” (p. 100). This is misleading as it makes it sound as if this is the first time anyone has

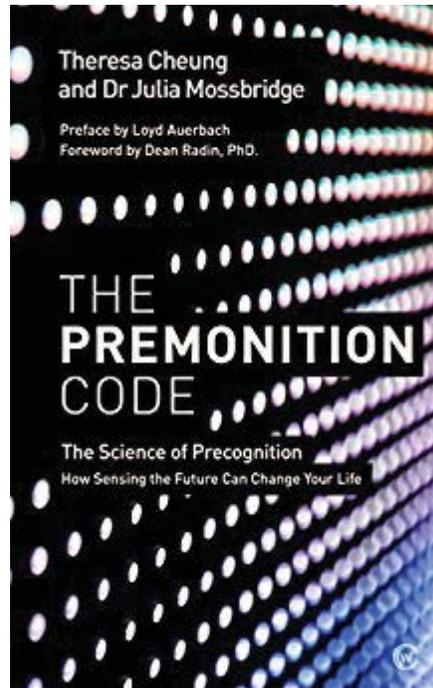
done this, which is absolutely not the case. At the top of page 102, they go on to write:

... what we present here is drawn from anecdotal evidence collected by Theresa, scientific reports, casual discussions, training programmes (especially those by John Vivanco and Joe McMoneagle), and Dr Mossbridge's own experience in learning and using controlled precognition for practical use.

Many remote viewing aficionados will immediately recognize that what the authors are referring to as their own "controlled precognition" system is actually an abridged, partial replication of Prudence Calabrese's Trans-Dimensional System (TDS)

which was already an adapted version of Ingo Swann's Controlled Remote Viewing methodology (CRV). This is their prerogative, as copyright law does not protect a method. However, the problem here is one of proper referencing per scientific standards. The authors have credited the wrong people. It is true that Mossbridge did study remote viewing with John Vivanco, Calabrese's former business partner, but he is not the creator of TDS. Meanwhile, Joe McMoneagle (1998) has been adamant for years via conference talks, email conversations, and online forum discussions that although he was "exposed" to Swann's methods at the start of his career, he does not have anything to do with controlled remote viewing methodology (Smith 2014a,b). Still, McMoneagle and many others do attribute their learning of "ideograms" to Swann, a concept that is at the core of Cheung and Mossbridge's new training system.

Swann's contracts with SRI, financed by various U.S. governmental agencies, specifically named him as a trainer of remote viewing during the period from 1980 to 1984. These contracts gave him proprietary rights over his own methods and all training materials, most of which are now available to the public in his archives housed at the University of West Georgia. Here is an excerpt taken directly from every one of his training contracts, which



were renewed about every three to six months (Swann 1980–1984):

Consultant will provide services in the assessment of current program and program development; in proposal development; in experiments, and in report preparation. It is recognized that the Consultant brings to the Psychoenergetics Program a proprietary analysis technique, Controlled Remote Viewing, which shall remain his. The use of the CRV technique in the context of the SRI program shall take place only with the knowledge of the Consultant, and its proprietary status shall be noted.

In 1984, the military moved training efforts in-house, ending Swann's formal role as trainer. At this time, Swann's student, Major Paul Smith (1998), created new training materials from memory. This manual continues to be available and easily accessible online.

In the mid-1990s, when the remote viewing programs were finally defunded and disbanded, one of Ingo Swann's early students, Major Ed Dames, adapted and reworked CRV into a system he named *Technical Remote Viewing* (TRV). Then one of Dames' early students, Dr. Courtney Brown, started the Farsight Institute and rebranded both Swann's and Dames' systems into *Scientific Remote Viewing*. Years later, one of Brown's students, Prudence Calabrese, reworked and rebranded their systems into what went on to be known as *Trans-Dimensional Systems*. Calabrese then went on to teach John Vivanco (2016), which brings us back to Mossbridge, who recently received some training from Vivanco.

What the authors have done here, from pages 109 to 122, is to take Swann's and others' systems, and repackaged and rebranded them, without giving proper credit to the originators and authors of these systems.

In fact, neither Swann nor Calabrese, nor anyone else who has made any kind of a contribution to the very techniques that comprise the authors' "controlled precognition" methodology, are mentioned *anywhere* within the body of the book, or within the references section, or even within the recommended reading lists. This is despite the fact that there actually exist no less than a dozen books and several free resources on the web clearly outlining almost identical methodologies in a much more complete and comprehensive manner (Morehouse 2011, Noble 2013, Smith 2014a,b, Smith 2015, Knowles 2017). In the past year alone, a book by another student of Calabrese, and former training manager, Jon Knowles (2017), republished Calabrese's methodology in full, adding further explanations. She herself published it on a website of her own in 2002, which is still available online for free.

*The Premonition Code* authors have taken only the first part of the specific stage-based methodology (this would be stages one, two, and just

part of three in CRV methodology), despite the fact that the longtime CRV/TDS trainers and their materials assert that the bulk of the most useful and detailed information occurs within later stages, with the early stages used to establish basic site or target contact and where earlier analytic mistakes get worked out. Therefore, it would have been helpful for Cheung and Mossbridge to explain to readers that they were just giving very minimal instruction and then follow that with appropriate references to more complete guidebooks.

### **Making Money with Precognition—ARV Rebranded**

Currently, the most active area of remote viewing research has to do with what is referred to by all involved as *Associative Remote Viewing*. While most articles on the subject take at least a few paragraphs—if not several pages—to present a review of the literature, the authors manage to sum up the entire body of ARV research in two sentences:

Let's start with making a profit on financial markets such as the stock market. This chapter is not supposed to be full of scientific stuff, but Julia can't help but point out that making a profit on the stock market using controlled precognition is something that several researchers have examined—so it's on the mind of at least some scientists [footnote j].

Now that we've got that out of the way . . . (p. 140)

Once again, the authors are doing confusing things with their terminology. First, it is very clear that in Chapter 5 the authors were referring to their specific new training methodology as “Controlled Precognition.” Now in Chapter 6, they sometimes use this same exact term as a synonym for remote viewing activities in general. Elsewhere, they use their term to reference Associative Remote Viewing (ARV) studies, projects or activities, while completely avoiding use of the proper term. In fact, they never once use the term Associative Remote Viewing at all in this chapter, so that someone less familiar with this body of research would not really understand what they were talking about. The authors also continually refer to remote viewers as “positive precogs,” which they defined earlier as one who adheres to their own REACH principles. Remote viewers probably would gladly embrace these principles, but they might object to having new labels pasted onto themselves and their activities from others without sound justification for doing so.

Evidence for using precognition to win money is set forth on page 141 by Marty Rosenblatt, CEO of the Applied Precognition Project (APP) and the Applied Precognition Project Institute (APPI). Mossbridge and Cheung write:

... in the case of APPI ... from the years 2015 to 2017 ... the funds under management produced annualized returns of 63 per cent in 2015, 155 per cent in 2016, and 22 per cent in 2017. That's using all of their precogs—when just the best performers are included, annualized returns averaged 215 per cent. That doesn't tell us whether in the next year these numbers could go south, but it does tell us that there is a decent track record.

While Rosenblatt's success sounds quite encouraging, there are some glaring problems here. The most obvious is that the simple percentages are not descriptive enough to assess their accuracy or even meaning—they don't explain how many viewers, how many trials, how much was invested, or what methods were used.

Furthermore, in 2015, even while Rosenblatt was enjoying record profits, he was also very much not enjoying record losses as Project Firefly (a yearlong project involving a network of remote viewing groups contributing hundreds of predictions for the purposes of predicting foreign stock exchange moves) was wrapping up. However, there is no mention of this massive project that involved 60 volunteer remote viewers/investors and the loss of close to \$60,000 (Katz, Grgić, & Fendley 2018). This raises the question: Why is this failed project, published in the *JSE* in early spring 2018, prior to the release of *The Premonition Code*, not presented right alongside Rosenblatt's self-reported successful series of trials? Also, why did the authors merely advise readers that a loss of investment could "possibly happen," when in fact it did happen, as cited above, and also in a much earlier project discussed in a paper by Targ et al. (1995) which was also published in the *JSE* as well?

In conclusion, Cheung and Mossbridge have written an interesting, inspirational, and somewhat informative book, but in a tone and manner and with a level of care that fails to meet the norms and standards of scientific writing. Yet, they have subtitled their book *The Science of Precognition*, and are promoting their book as if it was about science. This is prompting scientific journals such as the *JSE*, along with the *Journal of the Society for Psychical Research (JSPR)*, to solicit reviews from writers who then find themselves in the highly awkward and unpleasant position of having to make less than positive statements about their own peer's presentation of the material, or lack thereof.

*The Premonition Code* will appeal to younger audiences who have had their own premonitory experiences and are seeking more insights into these or seeking to expand their intuitive skills set. It will alert them to the fact that this is a topic that the more legitimized and legitimizing factions of society, including scientists, governmental agencies, military, corporations, and even stock traders, have not only displayed an interest in, but invested in.

It directs readers to the *Premonition Code* website ([www.premonitioncode.com](http://www.premonitioncode.com)), which offers further support, research, and practice opportunities free of charge, along with some references to more in-depth training programs and literary resources that the book itself does not include.

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## BOOK REVIEW

**Real Magic: Ancient Wisdom, Modern Science, and a Guide to the Secret Power of the Universe** by Dean Radin. New York: Harmony Books, 2018. 258 pp. \$16.00 (paperback). ISBN 978-1-5247-5882-0.

DOI: <https://doi.org/10.31275/2019.1427>  
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Given the wide range of mythical/occult lore, stage legerdemain, and popular fantasy-based fictional stereotypes that have long been associated with the term *magic* in human culture, it is quite possible that some academically minded readers may initially be put off by the title of this book. But these are not the kinds of magic that Dean Radin is talking about. Rather, he is subtly alluding to a certain class of seemingly extraordinary human experiences and abilities for which the exact underlying physical and biological mechanisms are not too well understood as of yet—namely, the experiences and abilities that may be classed as *psychic* (or *psi*). He focuses on examining three general subclasses which, in keeping with the theme of this book, are labeled in the parlance of magic: *force of will* (referring to psychokinesis, aka mind–matter interaction), *divination* (referring to extrasensory perception), and *theurgy* (referring to experiences related to survival after death).

Yet even with such clarification being made from the outset, there might still be readers who would wonder whether it is even a good idea to discuss psi phenomena in conjunction with magic, as some parapsychologists may be reminded of the effort once made by psychologist (and noted skeptic) James Alcock (1981) to portray an association between the two as being something fanciful and not fitting with the pursuit of science in his book *Parapsychology: Science or Magic?* Arguing on the basis of its seeming incompatibility with mainstream science, Alcock implied that psi is something that could be seen as being akin to occult conjuring, where one is able to spontaneously gain certain knowledge or mentally bring about certain event outcomes at will, without any apparent logic or reason. And as psychologist and psi researcher John Palmer (1983) had pointed out in his critical review of the book, Alcock even went on to imply that parapsychologists tend to act more like occult magicians than scientists, claiming that they are motivated by a predisposed belief in psi rather

than an objective search for facts and data-driven theory. In light of such blatant accusations having been made in the past, one might figure that parapsychologists would be wary of their subject matter being discussed or referred to in relation to magic again, in any shape or form.

However, Radin does give some reason for thinking that treading into such controversial territory again may not necessarily be such a bad thing. Although it may not initially be too clear just from the title, one does find throughout the course of the book that the term *magic* is being used here as a simple aesthetic metaphor (to refer to experiences and abilities that are not currently well understood, as mentioned), and not as an explanation. This use of aesthetic metaphor is likely meant to help make the book more appealing to a broader audience of lay readers, who might not otherwise be inclined to read a book that approaches the topic of psi from a scholarly angle.

In looking at the efforts being made by parapsychologists to try to better understand psi, Radin forms an analogy with the illuminating reemergence of esoteric knowledge when it is eventually rediscovered and reexamined by science, with illustrative examples being the practice of meditation and the use of cannabis for medical purposes—both previously shunned ideas in Western society that, upon closer empirical reexamination, ultimately have been found to have potential health benefits for some people. In each instance, something previously regarded as being mystical, unorthodox, or even nonsensical, was eventually found to have some degree of merit when deeper and persistent study was made of it (so as to better unlock its supposed esoteric “secrets”). Perhaps the same may eventually come of psi phenomena, Radin argues, in the way that certain domains of empirical study had partly developed and emerged from their semi-mystical counterparts (e.g., chemistry from alchemy).

Radin also points out that psi experiences can (and do) permeate human life, being reported by people who come from all aspects of society—which may even occasionally include those who are avowedly skeptical of such experiences, as illustrated by the unusual experience that skeptic Michael Shermer (2014) once admitted to, in which he and his then fiancé had apparently heard music being briefly emitted from a broken transistor radio that once belonged to his fiancé’s deceased grandfather (whom she wished could have attended their wedding). Shermer’s own prior attempts to repair the radio had been met with no success, and so it seemed quite unusual to him that the radio spontaneously began working on a particularly meaningful occasion for him and his fiancé—something which, he admitted, had “. . . rocked me back on my heels and shook my skepticism to its core” (Shermer 2014:97). On the surface, such experiences

would seem to pose quandaries that can make one wonder whether there might be something more to them, beyond mere superstition, coincidence, and misperception.

Radin goes on to make the point that magical thinking and beliefs can (and do) seep into human culture at times, even though they may not always be readily acknowledged for being what they are. An illustrative example he gives is the ritual significance underlying the performance of the Eucharist in the Roman Catholic faith. Another example he cites is the use of magical or lucky charms, which some psychologists argue can potentially be beneficial for some people—not because they are imbued with any magical “power” or luck, but because they can act as symbolic objects which may help people to cope with difficult situations by focusing their thoughts on positive performance and well-being. The mere notion or belief in the owner’s mind that such items might carry some helpful “power” or luck simply goes toward facilitating the meaningful significance the owner ascribes to them as personal charms of benefit (Valdesolo 2010). Thus, one can argue that while they are not always acknowledged, magical thinking and beliefs are not always entirely dismissed by Western society’s populace, either.

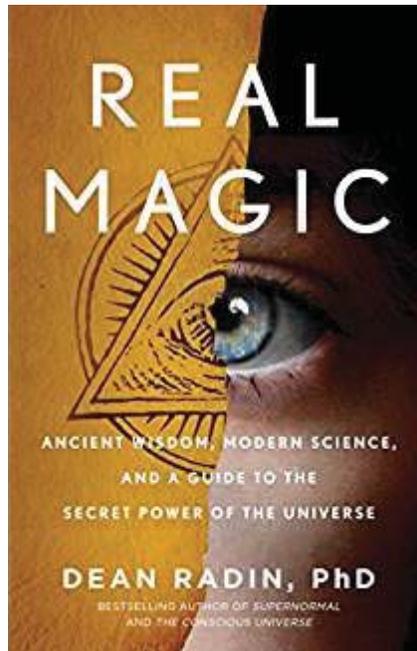
In relation to this, Radin also points out that there has been a fair degree of academic interest in the topic of magic, although this has most often come from the angle of studying it merely as a superstitious and ritualistic cultural belief, the practice of which encourages the mental illusion of control. Rarely, he states, do academics ever try to directly examine magic itself to see whether there might be something to it—presumably because doing so has largely been considered taboo, especially in Western academic circles.

Making such an examination is one of the purposes of Radin’s present book, and the longest section of it is devoted to reviewing the various lines of anecdotal and experimental evidence relating to force of will, divination, and theurgy (in the psi sense), including relevant findings from studies that Radin has conducted on these topics—among them, studies exploring possible quantum observer effects upon a double-slit interference pattern and studies examining how measures of belief in psi may correlate with performance on an online suite of ESP test programs (most *JSE* readers will likely be familiar with these studies, some of which have appeared in the pages of the *Journal* itself, and so their details won’t be covered here, for the sake of brevity). Radin describes them in a manner that is readable and easy for general lay readers to understand, though certain relevant statistical details are conveniently included in the text or in the endnotes section for academically minded readers who might like to know more about them.

More extensive reviews of the evidence for psi in general can also be found in Radin's previous books: *The Conscious Universe* (1997), *Entangled Minds* (2006), and *Supernormal* (2013).

Radin also devotes a chapter to looking at certain individual psychic claimants who might be considered (again keeping in line with the aesthetic theme of the book) "Merlin-class magicians," in the sense that their claimed experiences and abilities seem to clearly stand out from the relatively meager effects that are often observed with volunteers participating in laboratory studies. The three individuals he profiles here are St. Joseph of Copertino (particularly known for his claimed displays of levitation), the 19th-century physical medium D. D. Home, and the late psychic Ted Owens (known in part for his claimed displays of macroscopic psychokinesis). While the claims of each of these individuals are indeed noteworthy, one might wonder whether they would serve as particularly ideal illustrative "Merlin"-type figures from a purely empirical standpoint, considering that many of their claimed psychic feats (particularly those of St. Joseph and Owens) seem to rest largely upon observational anecdotes, which despite being fairly numerous, are not as reliable as findings gained through controlled laboratory studies (as Radin himself recognizes). Perhaps more fitting figures to have been profiled here in this regard include Eileen Garrett, Sean Lalsingh Harribance, and the late Ingo Swann, all of whom have produced statistically significant results on several occasions in psi experiments conducted by a range of researchers in various laboratory settings (in addition to each having their own respective collection of notable observational anecdotes).

Small portions of the book turn toward the practical end when Radin offers some basic guidelines for helping readers to facilitate the experience of psi within themselves. These guidelines are based on findings from various process-oriented experiments that seem to offer some possible insight into the mental states that may be conducive to psi functioning.



The states that Radin particularly emphasizes here are the focusing of attention and the engagement of intention, while also “quieting” the mind by steering it away from external distractions and analytical thinking. Three practical techniques Radin recommends for encouraging these states are meditation, the forming of goal-oriented affirmations, and the creation of sigils (symbolic designs that are made to reflect a desired goal). These same techniques have also been part of the traditional magic rituals of various cultures (e.g., meditation-like states are encouraged for inducing shamanistic vision quests, and affirmations and sigil creation have been ritually utilized in the crafting of spells and incantations), which ties them in with the overarching aesthetic theme of the book.

The final sections of the book are aimed at addressing, in a preliminary manner, the issue that Alcock (1981) had found so troubling: Does psi really contradict known science? As he had observed, one does appear to face problems when trying to make sense of psi from the materialist–reductionist worldview that has been widely adopted within mainstream science. But as Radin explains, while such a worldview has been found to account quite well for many of the tangible physical phenomena that take place in the surrounding macroscopic universe, it currently doesn’t seem to account as well for phenomena that are relatively intangible, which can include quantum-based physical phenomena on the subatomic scale, as well as subjective conscious experience and the various mental phenomena associated with it. This wouldn’t necessarily suggest that the materialist–reductionist worldview is wrong and needs to be rejected (as Radin put it, “it isn’t sensible to throw away what demonstrably works,” p. 186); rather, it would simply suggest that it is likely to be incomplete—or may even have its limitations of applicability. With this possibility in mind, Radin suggests that one may have to delve deeper in order to find the possible ways in which magic (in the psi sense) might perhaps fit into a future model of physical reality, and as possible bases for consideration he examines some of the post-materialistic theoretical and philosophical approaches (both current and still developing) that touch upon the possible intersection between consciousness and the physical world. These include certain approaches that are beginning to regard consciousness as being an inherently fundamental property of physical reality, perhaps being at the same basic and irreducible level as raw matter and energy. While such approaches are still relatively rudimentary in their formulation at present, Radin argues that their emergence into the scholarly domain is indicative of a notable shift in thinking about consciousness which may be important in the years to come. As he puts it:

Throughout science and scholarship a basic principle of the Perennial Philosophy—that consciousness is fundamental—is slowly becoming acceptable to talk about. Within science this notion tends to be cast into the more conventional language of information and mathematics, but the connection with consciousness is undeniable. After centuries of life-threatening suppression, the societal shift that now allows scientists and scholars to publicly discuss consciousness in a new light might seem like a trifling matter. But it's a positively astounding transformation. (p. 211)

And as Radin further argues, the “magic” of psi phenomena (in Alcock’s sense) starts to become much less mysterious when one carefully considers psi from these kinds of approaches, possibly making the conceptual gap between mind and matter seem not so vast. Whether these approaches will indeed be fruitful in the future remains to be seen.

With its aesthetic theme, numerous references to magic in popular culture, and colloquial tone and humor that slip into the text in several places, this book will likely appeal the most to lay readers from the general populace, helping to bring the field of parapsychology closer to them in a way that they can relate to. But academic readers may find something to ponder here as well, when it comes to the developments being made in the study of consciousness and considering where psi phenomena might fit into the mix. As Radin states in the end:

If we can get past the supernatural connotations, the religious fears and prohibitions, and the occult baggage, then through the scientific study of magic [in the psi sense] we have the potential to make rapid progress in gaining a better understanding of who and what we are. If we can't escape our past, then we may be running headlong into extinction. (p. 222)

And so if academic readers can also get past the title, they may actually find the content of this book to be rather thought-provoking and enlightening, in several respects.

—**BRYAN J. WILLIAMS**

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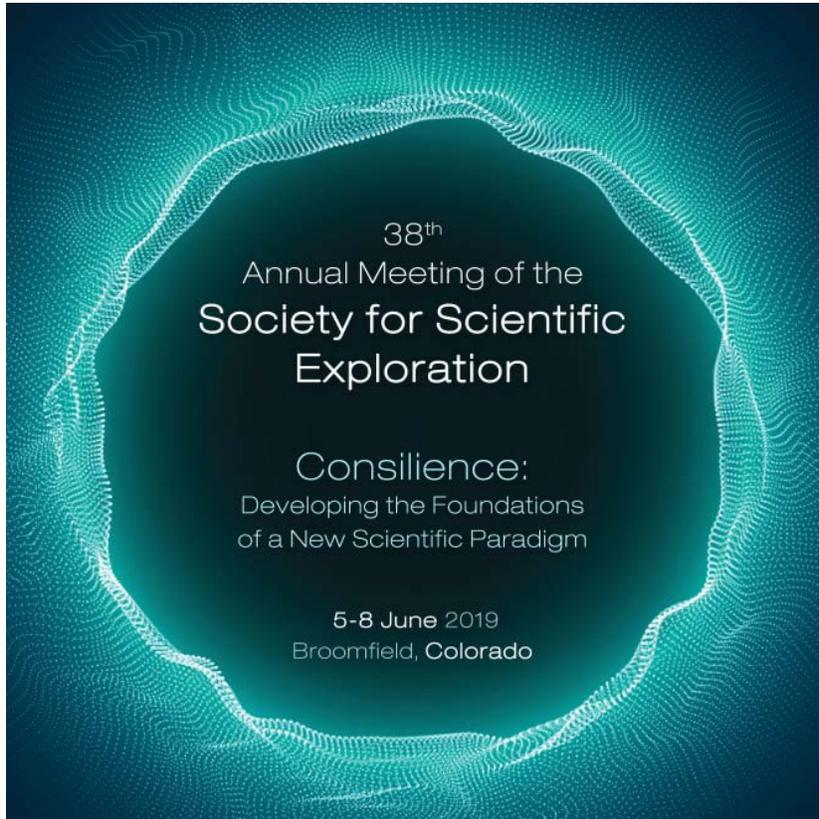
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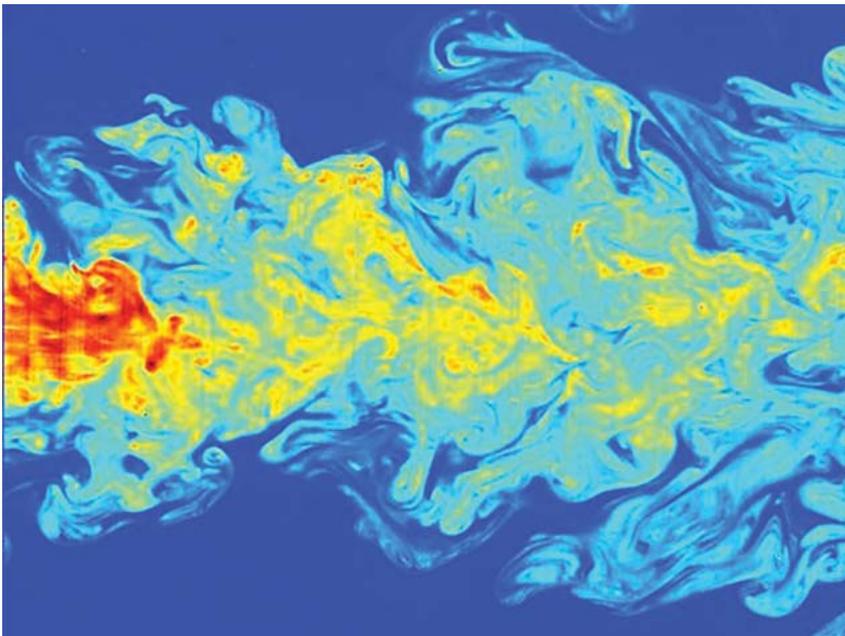


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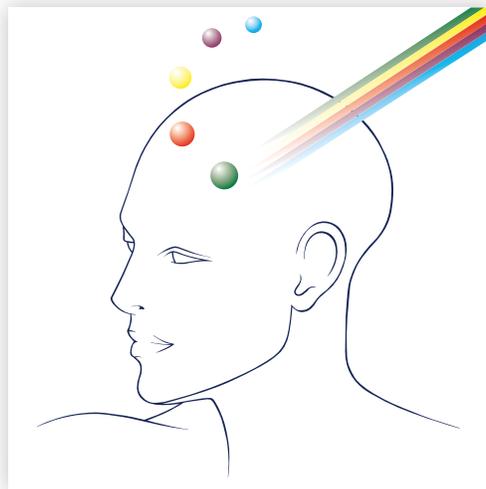
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