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JOURNAL OF SCIENTIFIC EXPLORATION

A Publication of the Society for Scientific Exploration

AIMS AND SCOPE: The *Journal of Scientific Exploration* publishes material consistent with the Society's mission: to provide a professional forum for critical discussion of topics that are for various reasons ignored or studied inadequately within mainstream science, and to promote improved understanding of social and intellectual factors that limit the scope of scientific inquiry. Topics of interest cover a wide spectrum, ranging from apparent anomalies in well-established disciplines to rogue phenomena that seem to belong to no established discipline, as well as philosophical issues about the connections among disciplines. The *Journal* publishes research articles, review articles, essays, commentaries, guest editorials, historical perspectives, obituaries, book reviews, and letters or commentaries pertaining to previously published material.



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EDITORIAL

With the recent passing of SSE co-founder, Robert Jahn, our Society has suffered a great loss. So in this issue we pay tribute to Bob and honor his considerable achievements both within and outside mainstream science. The eloquent testimonials in this issue make it clear just how central Bob has been to the intellectual and administrative life of the SSE, and also how extensive and varied his scientific contributions have been. For relative newcomers to the SSE and *JSE*, perhaps unfamiliar with Bob's work, I enthusiastically recommend perusing (for free, of course) back issues of the *JSE* for the many papers that bear his name. It's an unusually impressive body of work, and only a small portion of his intellectual legacy. To facilitate my recommended literature search, here's a list of all of Bob's *JSE* papers, followed by a selection of his other publications.

JSE articles:

- Jahn, R. G., Dunne, B. J., & Nelson, R. D. (1987). Engineering Anomalies Research. *JSE* 1(1):21–50.
- Dunne, B. J., Nelson, R. D., & Jahn, R. G. (1988). Operator-Related Anomalies in a Random Mechanical Cascade. *JSE* 2(2):155–179.
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- Dunne, B. J., & Jahn, R. G. (1992). Experiments in Remote Human/Machine Interaction. *JSE* 6(4):311–332.
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- Jahn, R. G., Dunne, B. J., Dobyns, Y. H., Nelson, R. D., & Bradish, G. J. (2000). Art REG: A Random Event Experiment Utilizing Picture-Preference Feedback. *JSE* 14(3):383–409.
- Jahn, R. G. (2001). 20th and 21st Century Science: Reflections and Projections. *JSE* 15(1):21–31.

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- Jahn, R. G. (2001). The Challenge of Consciousness. *JSE* 15(4):443–457.
- Jahn, R. G. (2002). M^* : Vector Representation of the Subliminal Seed Regime of M^5 . *JSE* 16(3):341–357.
- Dunne, B. J., & Jahn, R. G. (2003). Information and Uncertainty in Remote Perception Research. *JSE* 17(2):207–241.
- Jahn, R. G., & Dunne, B. J. (2004). Sensors, Filters, and the Source of Reality. *JSE* 18(4):547–570.
- Jahn, R. G., & Dunne, B. J. (2005). The PEAR Proposition. *JSE* 19(2):195–245.
- Jahn, R. G., Dunne, B. J., Acunzo, D. J., & Hoeger, E. S. (2007). Response of an REG-Driven Robot to Operator Intention. *JSE* 21(1):27–46.
- Dobyns, Y. H., Valentino, J. C., Dunne, B. J., & Jahn, R. G. (2007). The Yantra Experiment. *JSE* 21(2):261–279.
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- Jahn, R. G., & Valentino, J. C. (2007). Dependence of Anomalous REG Performance on Elemental Binary Probability. *JSE* 21(3):473–500.
- Jahn, R. G., & Dunne, B. J. (2008). Change the Rules! *JSE* 22(2):193–213.
- Jahn, R. G., & Dunne, B. J. (2011). The Uses and Misuses of Quantum Jargon [Letter to the Editor]. *JSE* 25(2):339–341.

Selected Papers Not in JSE:

- Jahn, R. G. (1982). The persistent paradox of psychic phenomena: An engineering perspective. *Proceedings IEEE* 70(2):136–170.
- Jahn, R. G. (1988). Physical aspects of psychic phenomena. *Physics Bulletin* 39:235–236.
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- Jahn, R. G. (2001). Inertial mass and the quantum vacuum fields. *Annals of Physics* 10(5):393–414.
- Jahn, R. G. (2005). Consciousness, information, and living systems. *Cellular & Molecular Biology* 51:703–714.

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- Jahn, R. G. (1968). *Physics of Electric Propulsion*. McGraw-Hill Series in Missile and Space Technology, New York: McGraw-Hill.
- Jahn, R. G., & Dunne, B. J. (2009). *Margins of Reality*. ICRL Press.
- Jahn, R. G., & Dunne, B. J. (2011). *Consciousness and the Source of Reality*. ICRL Press.
- Jahn, R. G., & Dunne, B. J. (2012). *Quirks of the Quantum Mind*. ICRL Press.
- Jahn, R. G., & Dunne, B. J. (2015). *Molecular Memories*. ICRL Press.

I found it inspiring, and humbling, to compile this list. And it's a clear reminder of what a keen and visionary intellect, and supportive and generous colleague we lost with Bob's passing.

—STEPHEN E. BRAUDE

RESEARCH ARTICLE

On Carving Reality at Its Joints: Black Holes and Process, People, and an Experimental Challenge

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Abstract—Black hole event horizons provide us with an image of what the world looks like when it has been reduced to its smallest spatial components and all process has been squeezed out of it. It appears as a vast sheet of tiny, random dots. Since time is at the basis of ‘process’, the image highlights questions about temporality that also exercised philosophers, notably Henri Bergson and Alfred North Whitehead. Following a strategy suggested by Whitehead’s approach to the questions leads to a possibility, which is also at the basis of a particular panprotopsychist theory (‘SoS theory’), that the ‘time’ to which we ordinarily refer in everyday language may have two ontologically distinct but equally ‘real’ components—(a) the ‘objective’ metric spacetime of general relativity which refers to the organization of classical, causal relationships and (b) a ‘subjective’ sequence of ‘nows’ providing a basis for conscious experience—albeit ‘nows’ to which (usually very brief) objective durations can be attributed. If true, it is to be expected that macroscopic, conscious mind-related violations of energy conservation should occasionally manifest. There is a wide range of anecdotal evidence from ‘psychic’ phenomena suggestive of such violations. The main aim of this paper is to point to the potential value of investigating the energy budgets of candidate phenomena.

Keywords: black holes—consciousness—event horizons—panpsychism—process philosophy—SoS theory—time—Whitehead

Introduction

The main aim of this paper is to make a case for the possible value of investigating energy budgets of anomalous ‘physical’ phenomena, such as those that have been said to manifest in séances and elsewhere, on the assumption that they are sometimes genuinely anomalous and are not always products of fraud, mass hallucination, self-deception, or the like. It describes, in other words, a theory together with a range of related

considerations that may plausibly be thought sufficient to guide enquiry into weird physical happenings of a sort that have been widely reported and are sometimes investigated by parapsychologists. The possibility is also raised that short-lived violations of *objective* energy conservation may frequently manifest in effects on brain rhythmicity (see Pereira et al. 2018 for more detail).

The story I shall offer starts with a vindication of Henri Bergson's assertion of the greater importance to our existence of 'process' over 'structure'. He was especially doubtful about the completeness of general relativity's account of time, arguing that relativity theory excludes the central importance to temporality of both creativity and present moments. The vindication offered here depends on looking at implications of contemporary ideas, unavailable in Bergson's lifetime, about the nature of cosmological black hole event horizons.

It turns out that Bergson's 'process philosophy', as developed by Alfred North Whitehead, may be thought to lead on to a particular panprotopsychoist¹ theory of the ontology of consciousness, dubbed 'SoS theory' (Nunn 2013, 2015, 2016). I will argue that lines of thought pursued by Whitehead can be given a focused, albeit speculative, interpretation in SoS theoretical terms. A principal justification for considering this line of argument is that it implies a surprising and potentially testable prediction which, if fulfilled, would differentiate the view offered from all other currently extant theories of consciousness of which I am aware, while indirectly rehabilitating Bergson's claims (see, e.g., Canales 2015) about the inadequacy of the 'clock time' of general relativity to provide a complete account of temporality. SoS theory is of particular interest in connection with this because it is the only protopsychoist theory, so far as I know, to incorporate a built-in solution to the 'binding' or 'combination' problem (i.e. the problem of how it is that events in the brain that are apparently separated in time and space can give rise to unified conscious experiences) that presents major difficulties for other panpsychoist theories (Nunn 2013).²

Both Henri Bergson and Alfred North Whitehead placed great emphasis on the world's changeability, 'vitality', 'creativity', and the independent reality of what might be termed 'nowness'.³ Bergson (along, perhaps surprisingly, with the mathematician Henri Poincaré) was said to have taken the view that scientists, including Einstein, "do not measure time but cut it up into pieces that they declare to be identical so that their equations are as simple as possible" (Souriau 1937), the implication being that some of time's essence is lost in the process of dissection.

Both philosophers emphasized the precedence that must be given to considerations of process over structure when it comes to understanding

our apparently separate subjective and objective worlds. Present-day conceptions of the nature of black hole event horizons, which of course were unavailable to these thinkers, can nowadays be used to provide a particularly vivid illustration of the value of their views about the primacy of process, with its dependence on time. Unger and Smolin (2015), too, have recently explored in detail the necessity of appreciating the essential ‘reality’ of time with its concomitant dynamic; a dynamic that may even span successions of universes, they speculate. Space, in their view, is a less fundamental circumstance than time.

I’ll be focusing especially in this paper on an attempt to elucidate what any ‘reality’ attributable to time may mean, how it may manifest in us and how the proposals offered might be tested. My first step involves taking a look at a paradoxical difference between the experience of, and information available to, people observing a black hole event horizon from the outside and the predicted experience of someone actually falling through a horizon—in the special case of black holes sufficiently massive to allow a faller to survive purely tidal forces while transiting their horizons. Holes of sufficient mass are thought to exist in the centers of most galaxies, and I will assume that the unlucky faller is adequately protected from radiation surrounding the hole.

Black Holes

Many lessons have been drawn from these black holes, and it is now familiar that a precise entropy, as well as a mass, charge, and spin, can be attributed to each. Black hole entropy was a big surprise when discovered (by Jacob Bekenstein in the early 1970s), and it was an even bigger surprise that this entropy relates to the surface *area* of their event horizon measured in Planck units, not to the volume enclosed by the horizon. The second surprise (about the importance of area) was a consequence of the fact that entropy provides a measure of ‘information’. It had been expected that objects falling into a hole would pack into its volume somehow, carrying all their ‘information’ with them. The discovery about area subsequently led some cosmologists to make an extrapolation from Bekenstein entropy and infer what has been termed the ‘holographic principle’, which has become an ever more popular concept in recent years; the claim is that the whole universe and, in principle, any subsection of it, is fully represented by ‘information’ spread over the surface of whatever equivalent (most often the ‘light horizon’ of the universe) to a black hole event horizon it may be thought to possess. How valid was the extrapolation and the subsequent inference?

The first point to make is that event horizons exist only from the point

of view of observers sitting outside them. The mathematical structure of general relativity shows that they would be expected to have no direct physical significance whatsoever for an observer unlucky enough to fall through one. They are, in a sense, an observer-dependent illusion. Therefore, any extrapolation of conclusions drawn from them to the entire universe has to be regarded as shaky at best, unless one supposes that they are a feature of the experience of a God sitting outside the visible universe; even with such a supposition, extrapolation would need to assume that God is an ‘observer’ closely resembling ourselves in this respect, which seems more than a little unlikely. We therefore need to try to unpack the origins of the illusion and its precise connection(s) with ‘information’.

The Bekenstein entropy of black holes can be regarded as dependent on the fact that, from the point of view of outside observers, anything falling into one takes an infinite amount of time to cross its event horizon, even though, from the point of view of an unlucky faller (assuming the hole is massive enough to allow her to survive tidal forces at the horizon and *have* a point of view), her clock keeps ticking away normally. Contrary to her own experience, it appears to outsiders that she gets ‘smeared out’ over the event horizon despite the fact that the crossing has no special physical effect on her that is independent of the smoothly increasing gravitational field to which she is subject. Because there is an infinite time, from an outsider’s point of view, during which the apparent ‘smearing’ occurs, it’s not really surprising that the process looks as though it grinds her down to her smallest (i.e. Planck scale) spatial components. The black hole is acting as a sort of measuring instrument or microscope that allows outside observers to ‘see’ the minimal spatial components of objects falling into it, after having apparently destroyed all previously existing connections between these components.

Black hole entropy thus has to be regarded as a measure of *algorithmic* information content. This is consistent with the horizon’s dependence on outside observers since algorithmic information is defined as a measure of the length of the (minimal) computational program needed to fully describe some object. In the case of a black hole horizon, which is supposedly entirely random, any program describing it would have to exactly reflect in its complexity the entropy of the hole itself. Bekenstein entropy doesn’t even relate in any rigorous sense to the Shannon information of our familiar ‘bits’ and ‘bytes’ since there is no meaningful way of attaching an expectation value to a Bekenstein pixel. Despite the vast algorithmic information value attaching to black holes, their Shannon value is best regarded as summing to just a few bits; bits that relate to the presence or absence of a horizon

along with its position as perceived by outside observers. For anyone falling through it, it has no informational value at all since it has no reality for her and she has no means of ascertaining her position in relation to it. The ‘holographic principle’, insofar as it may be valid at all, thus describes only the potential for representing the minimal (Planck-scale) chunks of spatiality within a volume after they have been divested of any temporal component; it can say nothing about their relationships, especially not their temporal relationships.

Event horizons teach us what ‘reality’ and ‘information’ look like from an objective point of view when stripped of all relatedness (with the exception of those few Shannon ‘bits’); they appear as simply a vast sheet of tiny, random pixels. It wouldn’t be totally unfair to say that they show us the final goal of any program of extreme reductionism—random structure, devoid of life and meaning. But what is the true nature of the temporality that allows anyone falling through the horizon of a sufficiently massive black hole to retain their rich subjective life for a brief while, until they meet whatever fate awaits within the hole? It is certainly hard to believe that the metric, ‘clock time’ of general relativity can be sufficiently ‘real’ to offer a complete account of the very different temporalities and experiences of outside observers and fallers without any introduction of additional considerations. Indeed the very fact that an infinity crops up in the experience of observers (the infinite time taken by falling objects to cross an event horizon) ought to raise doubts about the likely completeness of general relativity’s account of time.

Henri Bergson and Alfred North Whitehead reached a very similar conclusion from more general philosophical considerations about a need for concepts over and above those offered by general relativity in order to reach an adequate understanding of temporality. Both philosophers admired and understood the elegance of Einstein’s general relativity (as so well described by Canales [2015] in her history of the Bergson/Einstein debates), but felt that it must provide an incomplete picture of temporality because its geometric structure, along with the ‘block universe’ implications of special relativity, left no adequate place for the changeability and ‘creativity’ associated with time; nor could it accommodate the ‘nowness’ of our own subjective experience, they felt. While Bergson never offered any very clear-cut suggestions for a solution to the problem, Whitehead described a detailed, highly technical approach to resolving it. I want to take a look at his proposal next because, although it turns out to have been at least partially incorrect, it suggests a strategy pointing to an alternative solution that may work and should prove testable.

Alfred North Whitehead (1861–1947)

One of the most profound thinkers of the first half of the 20th century, Whitehead made his name co-authoring *Principia Mathematica* with Bertrand Russell, subsequently becoming well-known for espousing the view that ‘reality’ is best considered a process comprising ‘actual events’, alternatively termed ‘actual occasions of experience’. Widely quoted as having opined that “[conscious]⁴ mind is simply the intrinsic temporality of a physical event,” he regarded the search for static ‘building blocks’ for the world, whether in the form of ‘Platonic’ mathematical structures or physical particles, as being of secondary relevance only to the actual basis of reality. Perhaps discouraged by the prevailing intellectual climate at the time, which was more concerned with structure than with process, he later diversified his interests, becoming, among other things, an assistant founder of the Harvard Business School. Nevertheless, he and Bergson were quite right to emphasize the primacy of process. The aridity of event horizons—those two-dimensional sheets of meaningless pixels—provides a far more striking image than any that was available to either of them of what is left when all process is squeezed out of the world.

Whitehead’s approach to our ‘what is temporality’ problem is best described in one of his books, *The Principle of Relativity with Applications to Physical Science* (1922). About two-thirds of it deals with the mathematics of tensor theory but the underlying ideas are relatively clear, although some of the terms that he used need translation for modern readers. Important ones include:

(1) ‘Actual events’: these appear often, and perhaps always, to equate to causative happenings (conceived classically and not in terms of ‘quantum measurement’, so far as I could see), which always carry some particular (‘adjectival’) character.

(2) ‘Event particles’: the particular entities involved in ‘actual events’, which in many ways seem to have been regarded by Whitehead much as we would regard bits of active information (conceived in terms similar to Bateson’s ‘a difference that makes a difference’ and without any reference to Shannon information theory).

(3) ‘Adjectives’: descriptors of the characteristics pertaining to some particular ‘actual event’. Crucially, ‘adjective’ may refer either to a Galilean primary quality such as ‘contiguity’ (an example offered by Galileo himself) or to an experiential secondary quality such as ‘red’ (the example Whitehead often used). Even when referring to a Galilean primary quality, ‘adjectives’ also carry an experiential component.⁵ Whitehead was

thus a ‘pan-experientialist’ of some sort; his view may have been rather closer to modern panprotopsychism or dual aspect theory than to property dualism, despite his characterization of the nature of his ‘adjectives’ which he may have envisaged as quale-like and thus panpsychist (see Note 1). However, his ‘actual events’, sometimes termed ‘actual occasions of experience’, were clearly *protopsychist* equivalents. One can speculate that *sets* of ‘actual events’ get elaborated into ‘actual occasions of experience’, but Whitehead didn’t make this step explicit in his writings.

Because of these background concepts, Whitehead needed some place for a real ‘nowness’ in time that he couldn’t find in Einsteinian general relativity, which offers a wonderfully accurate metric for the description of classical, objective space–time. It is a smooth geometric structure, providing an apparently perfect model of the tempo–spatial organization of classical causative relationships. What it doesn’t have is any special niche for ‘now’ other than as a reference to the occurrence of some particular, local causative event, nor any clear means of accommodating the perceived flow of time. Whitehead needed, in other words, to introduce a duality of some sort into general relativity that might offer a foothold for a concept of ‘now’ as a real entity with some sort of independent existence and might also provide a basis for making more fundamental distinctions between past and future than are provided by the standard statistical arguments from entropy (i.e. arguments based on the fact that, in closed systems like the universe, entropy always increases in the future direction).

Inspired, perhaps, by his feeling that ‘Platonic’ mathematical structures can’t be part of the real world, he formulated general relativity in terms of *separate* geometric and gravitational tensors (instead of Einstein’s single tensor which incorporates, indeed identifies, both geometry and gravitation), regarding the geometric tensor as not part of ‘real’ physics. This maneuver allowed him to claw back a basically Newtonian notion of ‘now’. His formulation made predictions fully equivalent to those of Einsteinian general relativity for all phenomena that were under consideration during their lifetimes. It has, however, subsequently been shown to make a wrong prediction for certain very high energy phenomena, although a modified version of it may still prove useful (see, e.g., Alvedo 2015). Though Whitehead turns out to have been wrong about at least part of the detail, his overall strategy of introducing a duality of *some* sort into our concept of time’s basis is well worth consideration. That’s where I want to go next, taking as a guideline Whitehead’s belief in the existence of an intimate relationship between consciousness and temporality rather than his technical enquiry into tensors.

Two 'Times'?

Rather than look for two tensors to provide a basis for enquiry into the nature of time, it is a lot more straightforward to consider the possibility that time may present us with two distinct, but equally 'real' aspects. This is an idea with a long history, albeit one often ignored by mainstream thinkers. It dates back at least as far as McTaggart's (1908) suggestion that 'tensed' time (past, present, and future) is a concept distinct from that of 'tenseless' time (earlier than, contemporaneous with, and later than). McTaggart himself, writing some 20 years before Bohr's notion of 'complementarity' gained currency, supposed that incompatibilities between his two notions of time 'proved' that time is unreal. One can speculate that Whitehead ignored the idea because MacTaggart had used it to reach an opposite conclusion to the one he wanted. It is far more fruitful, however, to suppose that both of McTaggart's 'times' are equally real and that he reached a wrong conclusion from their apparent differences. The two 'times' may actually refer to different realms of reality, rather as waves and particles appear to belong to different categories from our point of view but are nevertheless aspects of an underlying unity, an idea that was adopted by Hans Primas (2003, 2009), for instance, who suggested that 'tensed' time might be 'the carrier of non-material, mental phenomena' while 'tenseless' time can be identified with the objective, clock time of general relativity.

Because any fundamental split in time implies that a symmetry of some sort has been broken, it is reasonable to ask where the break may be thought to occur. One possibility is that it coincides with those quantum 'measurements' that result in energy eigenstate manifestations (Nunn 2013). The idea, which depends on attributing ontological rather than purely epistemic status to the temporal component of quantum theory's time/energy relationship, is that little chunks of non-objective or 'mental' time occur along with actualization of objective energies. The manifestations of objective eigenstates of course adhere to the metric time and causative structure of general relativity. The hypothetical units of 'mental' time,⁶ which I dubbed 'scintillae of subjectivity' (SoSs), can be conceptualized both as elementary units of 'nowness' and as the 'temporal', subjective flipside of the virtual particles that play such essential roles in quantum field theory. Because of the Heisenberg time/energy uncertainty relationship, each SoS will have a duration (usually a very brief duration) from an objective point of view. This 'objective' duration can be calculated (in principle at least) from the energy uncertainty associated with some particular energy eigenstate 'measurement'. For instance, if the energy 'measurement' has an uncertainty of 10–33 joules, the associated SoS will exist, from an objective

point of view, for 0.1 second. From its own, subjective point of view—and it is not misleading to think of it as owning a point of view—it will simply exist in a durationless ‘now’ which may be pictured as analogous to the ‘now’ that would have to be attributed to a photon traversing the visible universe according to special relativity theory. ‘Nowness’ may not be attributable to photons because they probably don’t *have* a point of view, but the postulate here is that SoSs *are* a point of view. I’ve described elsewhere (Nunn 2016) how SoSs might be envisaged to provide a basis for our form of subjective conscious experience, but there are also questions to ask about their possible implications for relativistic, physical time and the objective world.

If SoSs exist, they have the potential to provide relativistic time with grounds for distinguishing between present, past, and future. ‘Future’ is when relativistic, clock time is unaccompanied by any SoS; ‘present’ is when a clock time event duration overlaps with the objective duration of an SoS (more usually the durations of a large number of individual SoSs in the context of our own conscious experience); ‘past’ is when such overlap no longer exists from the clock time perspective. From the SoS perspective, however, which occupies a durationless ‘now’, there is no ‘past’. SoSs thus have to be regarded as forming an ever-accumulating ‘memory’ for events occurring in relativistic time, thereby providing the sort of independent reference frame for general relativity that is required by many convergent lines of thought, especially those mentioned earlier in this paper.

But there’s a huge ‘but’ in that the alleged ‘memory’ would have to be regarded as entirely epiphenomenal, ineffective, and functionless unless it can reciprocally influence in some manner, from its ‘subjective’ existence, ongoing events in the ‘objective’ world. Given that SoSs are envisaged as manifesting along with energy eigenstates, it would not be surprising if they can indeed affect the objective world in some way, if only because of Newton’s principle that actions of any sort are generally accompanied by reactions. However, one can hardly be sure that the principle applies across a subjective/objective split of the sort envisaged. Empirical evidence is needed here.

Looking for Evidence

Since SoSs are regarded as being at the basis of our conscious, subjective experience, one might suppose that the best option to take, when searching for evidence of any effects they may have, would involve taking a close look at our own conscious memories. The problem here is that neural functions and memories are so closely tied in with relativistic time and

indirect experience of a range of neural and other ‘clocks’ that untangling any independent contribution of SoSs to memory could prove to be a ‘looking for a needle in a haystack’ task, even though some aspects of near-death experience, for example, may ultimately turn out to be relevant. Are there any simpler, potentially achievable options?

In fact the most characteristic and easily readable signature of any SoS back actions that may occur is likely to manifest in violations of energy conservation. Any such violations would be especially significant and striking because these are thought to be impossible in the context of contemporary thermodynamic, relativity, and quantum theories. Energy conservation is a consequence, so Noether’s theorem tells us, of the indifference of physics to *smooth* translations in clock time. Conservation follows from the fact that it will make no difference to the behavior of physical systems whether you do your experiments at lunchtime or teatime, this year or next. However, any actions that SoSs may have on objective systems will inevitably involve non-smooth temporal transitions because of the split between the two types of time involved. Within the context of the theory, SoS back actions on neural systems at least must occur *unless* it is supposed that consciousness is entirely epiphenomenal; a view which had plenty of adherents 40 years ago but is becoming ever less popular for a very wide range of good reasons. Events that encompassed both types of time could never be modeled by differential equations. Therefore, Noether’s theorem⁷ won’t apply to them, and failures of energy conservation may sometimes manifest in relation to any fairly large-scale reciprocal interactions between ‘subjective’ and ‘clock’ times. Where best to look for them?

There’s actually a vast amount of anecdotal evidence that might be taken to indicate that violations of energy conservation relating to the activities of conscious minds can and do occur. Many of the stories about the ‘miracles’ of saints or some of the capacities of sadhus, if the events reported were not all attributable to fraud, fakery, mass hallucination, or the like, have to raise questions about the source(s) of the energy needed for those feats. The same applies to reports of physical phenomena manifesting during séances. An especially intriguing, if bizarre, example of the sort of phenomenon that might reward investigation from an energy conservation point of view is available in Stephen Braude’s (2007) careful account of the ‘gold leaf lady’. She is, or was, an apparently unsophisticated woman who exuded flecks of brass foil from her skin (a feat that professional magicians who were consulted could neither emulate nor explain).⁸ If no fraud was involved (and Braude’s investigation certainly seems to have excluded this), energy balances relevant to the phenomenon would be quantifiable because the flecks could be (and were) collected and weighed.

Because ‘everyone knows’ that energy conservation is an unbreakable law, there’s only anecdotal evidence to consider (so far as I know). That’s the challenge I’d like to put to anyone with access to suitable subjects and technology—to turn some intriguing anecdote into a rigorous investigation. Parapsychologists have of course often conducted careful investigations into various types of ‘psychokinesis’, but these are unfortunately of little direct relevance in the present connection. The phenomena they have investigated in the laboratory mostly demonstrate only very small effect sizes and generally involve the occurrence of biases in probabilistic outcomes of some sort. It would be hard to demonstrate violations of energy conservation in relation to such phenomena because it would be difficult to exclude contributions from thermal or other sources, perhaps operating via some sort of ‘negentropy’ effect. More robust phenomena with larger energy requirements would be needed for any convincing demonstration. My own guess is that investigators based in India might have the best chance of success because there are quite frequent reports of sadhus and yogis who have managed to do without food, water, or even air for unfeasibly long periods. If true, how did they manage their energy balances? Perhaps there are people out there able and willing to demonstrate their abilities under adequately controlled conditions.

There’s also a possibility that similar, but much smaller-scale, apparent violations might operate all the time, allowing consciousness to modulate brain function, via an inherent (Heisenberg uncertainty–derived) indeterminacy of clock time manifestation of SoSs. It is thus possible that patterned SoSs may have a probabilistic influence on the precise ‘objective’ timing of environmental ‘measurements’ of wave functions associated with classical oscillatory events in the brain as these evolve.⁹ The situation can be pictured as analogous to that of pendulums swinging in a gravitational field with oscillating macroscopic events in the brain playing the part of pendulum swings and ‘consciousness’ playing the part of gravitational potential energy, but a form of potential energy that is objectively ‘invisible’. Modulations of any such invisible ‘potential energy’ could be expected to affect objective oscillatory events in the brain. The ‘invisibility’ of this hypothetical source of potential energy would almost certainly be hard to demonstrate but might just become apparent in the context of relating the energy requirements of calcium wave fluxes, for instance, to ATP (adenosine tri-phosphate) usage in the relevant neurons and astrocytes.

In brief, there are reasons to suppose that, if ‘subjectivity’ is indeed equivalent to MacTaggart’s ‘tensed’ time, it should be possible to demonstrate the equivalence by looking for apparent, consciousness-related, violations of energy conservation.

Notes

- ¹ It is sometimes said that the ‘proto’ in panprotopsychism is surely redundant, but this is not so. Panpsychists generally envisage their psychism as something vaguely quale-like. Panprotopsychists, in contrast, suppose their psychism to bear much the same relationship to the content of our consciousness as do action potentials in the brain, for example, to the content of our minds. There seems to be some degree of overlap between panpsychism and ‘property dualism’, whereas panprotopsychism has more in common with dual aspect (of information) theory. However, no good account exists, so far as I know, of relationships between these ideas since they are generally held by very different groups of theorists. Panpsychism had distant origins in philosophical and religious thinking while property dualism and dual aspect theory are concepts recently introduced by philosophers and others (building on a proposal made by Baruch Spinoza in the 17th century) to ‘explain’ the apparently magical emergence of consciousness from neural activity. My personal view is that both property dualism and dual aspect theory, if unconnected with pan(proto)psychism as is often the case in contemporary writings, are fudges needed to preserve a belief in monistic materialism, analogous to the epicycles required to make Ptolemaic astronomy work. Any true monism is probably best regarded as belonging to a pre-manifest reality; a realm that houses wave functions, Jungian ‘archetypes’, and perhaps mathematical forms among other descriptive concepts (see Pereira, Nunn, Nixon, & Pregnotato 2018). The apparent dualism of our manifest world is consequent on a broken symmetry of the pre-manifest monism, according to this picture, but is real enough from our point of view.
- ² Neural emergentist theories of consciousness generally appeal to ‘gamma coherence’ of EEG activity to account for ‘binding’. Quantum consciousness theories regard it as dependent on quantum coherence. However, gamma coherence doesn’t appear to be *always* necessary, though it is *usually* associated with ‘binding’, while there are major doubts about whether any widespread quantum coherence in brains could survive ‘decoherent’ processes. Given these doubts about the adequacy of relatively ‘mainstream’ theories to account for ‘binding’, there’s certainly room for consideration of possible alternatives.
- ³ Bergson often referred to this concept as ‘duration’, which can be confusing nowadays because it relates only indirectly to clock time durations.

- ⁴ I added ‘conscious’ because Whitehead, as a pan-experientialist, almost certainly used ‘mind’ to mean ‘conscious mind’.
- ⁵ Of course Galileo’s distinction between primary and secondary qualities is iffy at best and sometimes downright misleading (see, e.g., Nunn 2016: Chapter 7). I mention it here because it was widely thought valid in Whitehead’s time.
- ⁶ Similarly conceived ‘units’ of conscious mentality have sometimes been referred to as ‘psychons’ or ‘qualions’. I’ve avoided hijacking those terms because they may mislead, in the context of the theory on offer here, by suggesting similarity to an objective particle with an ‘-on’ ending such as a photon or electron, while SoSs are conceived as belonging to a wholly different branch of reality.
- ⁷ Emmy Noether proved that “any differentiable symmetry of the action [i.e. Lagrangian] of a physical system has a corresponding conservation law.” Hamiltonians are generally thought to be equivalent to Lagrangians in this context. Translations in clock time (e.g., doing your experiment at teatime instead of lunchtime) thus involve a symmetry that entails energy conservation.
- ⁸ Braude himself speculated that the flecks of brass foil might be ‘apports’.
- ⁹ I’m assuming here that decoherence theory provides an adequate picture, for practical purposes, of the ‘measurement’ process.

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RESEARCH ARTICLE

**An Ethnographical Assessment of Project Firefly:
A Yearlong Endeavor to Create Wealth
by Predicting FOREX Currency Moves
with Associative Remote Viewing**

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Abstract—More than 60 remote viewers contributed 177 intuitive-based associative remote viewing (ARV) predictions over a 14-month period. These viewers comprised pre-established, self-organized groups cooperating under the rubric of “Project Firefly” (PFF), and were supervised by experienced ARV group managers operating under the umbrella of the Applied Precognition Project (APP), a for-profit organization exploring precognition and leveraging ARV methodology as an investment enhancement tool. Based on predictions from the ARV sessions, PFF used the Kelly wagering strategy to guide trading on the Foreign Exchange (FOREX) currency market. Viewers performed under typical scientific protocols, including double-blind conditions, appropriate randomization, etc., using a variety of ARV application methodologies. Investors, many of whom were also participants (viewers and judges), pooled investment funds totaling \$56,300 with the stated goal of “creating wealth aggressively.” Rather than meeting that goal, however, most of the funds were lost over the course of the project. Beyond merely reporting on an extensive remote viewing experiment, the present study is an examination of what went wrong, providing lessons learned for further ARV research whether involving for-profit activities or basic research, as the principles are relevant to both. Associative remote viewing is a research paradigm that harkens back to early days in science where competent non-academic researchers can provide datapoints and breakthroughs in a field typically peopled solely by professional researchers. Adapting a form of ethnographic study, we refer not only to the statistical results produced by the PFF effort, but also employ a mixed-methods qualitative approach to exploit the information and insights contributed by numerous participants about what happened, what worked, and what didn’t. This creates a reference we believe will be useful for those conducting future applied precognition projects involving multiple participants or groups. We feel that the insights gleaned from this study will improve both

ARV experimental design and execution of research protocol, benefitting professional and amateur researchers alike in their future ARV experimentation.

Keywords: associative remote viewing—remote viewing—precognition—Kelly wagering—FOREX—Applied Precognition Project—intuitive wagering—controlled remote viewing—parapsychology—predicting the future—sociology of science—ethnography of parapsychology research—non-academic contributions to science

Background

In 1972, researchers at the Stanford Research Institute (SRI) began to explore the intuitive abilities of psychics and non-psychics through numerous experiments requiring detailed descriptions of photographs, objects, and locations perceived at a distance. This process was referred to as “remote viewing” (Puthoff & Targ 1976). By the late 1970s, SRI experiments had demonstrated that remote viewing could be reasonably and consistently successful and repeatable, thus earning them a series of contracts to serve as the research arm of the U.S. military “psychic spying” programs that spanned two decades (Smith 2005).

Associative remote viewing (ARV) is a specific application of remote viewing developed by Stephan A. Schwartz and SRI researchers in the early 1970s. It is used to make predictions about future events. Schwartz first presented the concept in August 1977 at the Philosophical Research Society Conference on Extraordinary Human Functioning (Schwartz 1977).

Essentially, the ARV process serves to overcome the inherent problems of forced-choice, repetitive tasks by pairing limited choices with unlimited options. While ARV protocols and purposes vary, viewers use intuitive processes to correctly describe and produce sketches and verbal reports of a photo, video clip, or other pictorial or sensory data that is paired with a potential future outcome. For ARV with photo targets (the most common), viewers describe the associated image they will see in the future, rather than directly describing the outcome or event itself. This enables viewers to remain blind to the subject matter they will describe (which could be one of millions of potential images), even if they have foreknowledge of the event and its limited number of possible outcomes.

Depending on a project’s goals, successful ARV predictions may result in financial gain, may demonstrate evidence of psi and precognition, and/or may assist those seeking information about the future, such as predicting which candidate will win the upcoming presidential election (Katz & Bulgatz 2017).

Beginning in 1985, Dr. Edwin May served as director of SRI and the SRI-Consciousness Laboratory (SRI-C), which was considered the research

arm of the U.S. military remote viewing programs. He advised the authors that the military programs used ARV as one of their information-gathering and decision-making tools. He wrote, “instead of remote viewing yes/no questions with its low effect sizes, we could get the answers using free response in an ARV protocol” (May 2016).

In 1982, Keith Harary and Russell Targ used ARV to forecast changes in closing prices of the silver futures market. They made 9 consecutive correct forecasts, which yielded earnings of more than \$100,000 (Harary & Targ 1985). Harary and Targ repeated the experiment the following year but were unsuccessful on all 9 trials. Some speculated that shortening the time interval between trials, which resulted in viewers having to perform a subsequent trial before receiving feedback for the preceding one, may have impaired performance (Targ 2012, Houck 1986).

Also in 1982, Dr. Harold E. Puthoff used ARV to predict the daily outcome of the silver futures contract for 30 consecutive days. Seven remote viewers conducted from 12 to 36 trials per person over the entire series. Each day, predictions were made using consensus judging. Twenty-one of the 30 trades were profitable, yielding profits of \$250,000 (Puthoff 1984).

In 1994, Russell Targ, Jane Kutra, Dean Brown, and Wenden Wiegand conducted yet another ARV experiment in which remote viewers had time to receive feedback before starting another trial. In this 9-week series, objects were associated with the two possible outcomes, “Up” or “Down,” of the weekly silver futures contract. A judge used an error-detecting protocol to compare the remote viewers’ descriptions to the targets and to rate the accuracy of the description on a scale of 0 to 7. If the trial scored a 4 or higher, a prediction was made. Results yielded 2 passes and 7 trades. This was a simulation, so no purchases were made, and capital was not risked on the predictions. Six of the 7 trade predictions were correct (Targ et al. 1995).

In 2000, Marty Rosenblatt, operating under Physics-Intuition-Applications (P-I-A), reported results of an ARV experiment referred to as “the AVM project” that predicted stock market closing points. As reported on the P-I-A website and confirmed in subsequent interviews with participants, 7 viewers were paid to do 500 sessions each, for a total of 3,500 predictions, which were funneled into 700 investment targets. The “Up,” “Down,” and “Near-Neutral” stock changes were randomly associated with the “Animal,” “Vegetable,” or “Mineral” nature of 5 AVM photo targets. According to Rosenblatt’s report, their overall performance was

just about what you would expect based on chance. There were 2 instances where the group produced a very high ‘prediction cluster,’ at the 99.4 percentile based on chance, and both of these predictions were successes. Also, 2 viewers achieved the 99.8 percentile in their first 100 predictions during their dry-run period . . . (Rosenblatt 2000)

From May 1998 to September 2011, Greg Kolodziejzyk conducted a 13-year study using a unique computer-based approach to the ARV protocol that allowed a single operator (himself) to conduct 5,677 trials. Of these, 52.65% correctly predicted the outcome of their respective future events, yielding a statistically significant score of $z = 4.0$. These 5,677 trials addressed 285 project questions intended to predict the outcome of a given futures market. (Multiple ARV trials answered a single question.) Of these project questions, 60.3% were answered correctly, resulting in a statistically significant $z = 3.49$. One hundred eighty-one project questions resulted in actual futures trades where capital was risked. Of those, 60% of the trades were profitable, yielding a profit of \$146,587.30 (Kolodziejzyk 2015). Kolodziejzyk reported that he went for quantity, rather than quality, in his remote viewing sessions. He also attributed his success to combining his knowledge of the stock market and the use of logic with the intuitive practice of ARV (Kolodziejzyk 2015).

In 2012, two University of Colorado college students (C. Smith and D. Laham) and Professor G. Moddel successfully conducted an experiment with 10 inexperienced remote viewers, using ARV to predict the outcome of the Dow Jones Industrial Average (DJIA). One of the project's unique aspects was that participants conducted their viewing sessions together in the same room, as compared with by themselves or in the presence of a single interviewer, as ARV experiments are usually done. They also used a very simple rating system. Instead of assigning transcripts a score, they just decided which of the two photo options best matched each viewer's sessions. In aggregate, the participants described the correct images, successfully predicting the outcome of the DJIA in 7 of 7 attempts (binomial probability test, $p < .01$). An initial investment of \$10,000 yielded a gain of about \$16,000, with a total of \$26,000 at the end of Trial 5 (Smith, Laham, & Moddel 2014).

From August 2014 to August 2015, Mark Samuelson attempted to replicate Smith, Laham, and Moddel's project (Samuelson 2016). An experienced remote viewer and project manager without a formal research background, Samuelson served as project manager and independent judge. He recruited fellow members of the Applied Precognition Project as remote viewers. They met online in a webinar format a couple of times each month rather than in person. As in the University of Colorado project, group predictions were rated using a simple judging method. Samuelson's group predicted professional sporting events rather than stock market fluctuations. The goal of exceeding their 65% hit rate also differed from the University of Colorado group's goal of making money. After 26 trials, the group had 13 hits, 7 misses, 4 passes, and 2 pushes—maintaining, but not exceeding,

their 65% accuracy rate.

In a paper presented at the 2013 Parapsychological Association convention in Viterbo, Italy, Dick Bierman attempted to complete the first-known meta-study of ARV experiments. He summarized,

A review of ARV experiments yielding about 17 experiments for which trustworthy data could be obtained, suggests that the mean scoring rate in a binary situation is around 63%. If these results could be confirmed, this would falsify theories that predict that it is impossible to use psi in a consistent and robust way and moreover it could be the end of the financial problems in the field of psi research. (Bierman 2013)

In this same paper, Bierman also introduced a series of automated ARV-casino experiments using computer-assisted scoring and data collection. In summary, he stated:

Simulations of a 32-trial ARV experiment with a roulette outcome determining the target suggest that, for viewers that perform with an effect size of around 0.35 and players using a simple betting strategy, there would be an average net result of about 10 times the starting capital. (Bierman 2013)

Project Firefly

In October 2014, the Applied Precognition Project (APP) began Project Firefly (PFF), a yearlong effort to predict FOREX currency moves with ARV. APP serves as an umbrella for a variety of self-organized groups, which contribute predictions to an overall predictions list. According to the mission statement on its website, the APP's mission is "to publicly explore, research, and apply logic and intuition/emotion to predict future event outcomes, enabling participants to evolve personally while contributing to the elevation of global consciousness."

EXAMPLE 1: Applied Precognition Project. Long-time ARV enthusiast and former nuclear physicist Marty Rosenblatt founded APP in 2013, along with Tom Atwater and Chris Georges (since resigned). Prior to APP's creation, Rosenblatt operated P-I-A. APP serves as an umbrella for a variety of self-organized groups, which contribute predictions to an overall predictions list. APP groups are created by and overseen by volunteers who act as independent managers. They determine their own methodologies, recruit viewers, and choose which events to predict. Since APP's inception, Rosenblatt has overseen operations, kept data, managed active discussion lists, and planned yearly conferences, where he presents the overall group statistics. APP groups have primarily operated and communicated with each other via electronic technologies such as private, individual, or group emails, discussion email lists, and webinars. Some groups, such as the Winning Entanglements (WE) groups, use a web-based software program Rosenblatt designed. WE members receive target numbers and tasking from their group manager, then can do self-judging and input their own predictions.

TABLE 1
ARV Hit Rate Summary from June 2013 to June 2014 (Prior to PFF)
Hit Rate = 62.4%, P-onetail = .000509, Znormal = 3.3; Odds vs. Chance = 1964-1

Group	Protocol	Hit Rate (%)	Hits	Misses	Passes
WebinarWorkshops	WE	100.0%	4	0	1
CAS-OAK A	CAS	100.0%	4	0	16
Vampires	1ARV	100.0%	1	0	1
PASR	PASR	80.0%	8	2	0
Solo	Binary	71.2%	52	21	30
Sublime	Binary	69.2%	9	4	7
Omega	WE	60.0%	6	4	7
Pegasus	WE	58.3%	7	5	9
WWCdinner	WE	58.3%	7	5	4
Financial	WE	53.8%	7	6	6
Croatorium	CAS	50.0%	1	1	6
Sage	WE	42.9%	3	4	13
First Groove	WE	27.3%	3	8	7
Poised	WE	14.3%	1	6	3
CAS-OAK C	CAS	0.0%	0	2	6
Totals		62.4%	113	68	116

Data shown by M. Rosenblatt at June 2014 APP conference in Henderson, Nevada.

Project Firefly used the Kelly wagering method to determine trade size—a probability-based system relying on a mathematical edge tied to past performance, used most often in sports betting with binary outcomes (Kelly 1956). The plan also implemented a majority vote (MV) procedure on every prediction made. For PFF to be successful, the Kelly wagering method required performance significantly above the 50% random rate. According to the “Assets Growth Simulation” APP completed prior to the project, the break-even point was a 55% hit rate. Before PFF began, APP founder Marty Rosenblatt had reported APP hit rates of 62% between June 2013 and June 2014 (Table 1).

Instead of holding steady or rising, however, Firefly’s hit rate plunged to 48%. In December 2015, the project halted 14 months after it began

TABLE 2
Firefly: 177 Daily Aggregate Predictions Oct. 20, 2014, to Dec. 18, 2015

Hits	Misses	Passes	Hit Rate
85	92	72	48.0%

with 177 predictions completed (Table 2), of which 152 were executed as trades. Of these 152 trades, only 72 (47.4%) were successful (Table 3). Only

TABLE 3
Firefly: 152 Actual Trades Taken on Daily Aggregate Predictions
October 20, 2014, to December 18, 2015

Hit	Miss	Pass	Hit Rate
72	80	97	47.4%

\$4,114 remained of the \$56,300 invested by 62 members.

Following, the overall approach the authors used to report on the project and its scope are described. This includes a description of how PFF predictions were made and a discussion of what worked and what went wrong, with an emphasis on adjusting protocols for future projects.

Documenting Project Firefly: A Mixed-Methods Qualitative Approach

At Firefly's completion, the managers made it clear they did not intend to do a formal writeup of the results, other than reporting to investors, stating it was an investment club and not a formal scientific research project. The authors and many contributors to this paper—all of whom participated in Project Firefly in various roles—felt otherwise.

There is scientific value in examining not just the actual numerical results, but also the lessons learned for the sociology of science in this 14-month project. Although not its expressed purpose, Firefly had all the underpinnings of an exploratory scientific experiment, in which there were repeated, blind trials conducted by experienced project managers, who replicated aspects of prior formal experiments. A project of this magnitude, carried out in a diligent manner on par with other exploratory research-based projects, should not merely disappear into the fog of history.

In search of an effective model, we, as a self-appointed “insiders” team, opted for a mixed-methods, qualitative-based approach, borrowed

from the field of anthropology, known as “ethnography”—the study of social interactions, behaviors, and perceptions that occur within groups, organizations, and communities (Reeves, Kuper, & Hodges 2008). Whenever possible, direct quotes and data taken from written interviews, emails, presentations, documents, surveys, promotional materials, datasheets, etc., are provided. All contributors were given the opportunity to review earlier drafts of this paper and to provide input.

Metagroup Method: Project Firefly Begins

Carlos Mena, a Brazilian businessman and long-time remote viewing enthusiast, conceived Project Firefly. Together, he and Rosenblatt invited all APP members to attend an introductory webinar held in August 2014. Mena’s PowerPoint slides summarized the proposed project: “Firefly is not a new group, it is a metagroup. That is, a group of groups. . . . It is aimed at creating wealth aggressively.” The plan established a majority vote (MV) procedure for every prediction made by the private investment club.

Trading would take place on the Foreign Exchange market (FOREX) via Interactive Brokers, an online broker and trading platform. Although sports betting tended to be more popular within APP than financials, Project Firefly would use FOREX because—unlike sports betting—its legality in the United States is unquestioned. Also, FOREX has no limits on how many trades can be placed or when they can be placed.

Traders would define each Firefly trade prediction as an event with a binary outcome. Based on this, Firefly entities would use an ARV protocol to predict if a particular FOREX currency pair would move either “Up” or “Down” for a specific and predefined number of “pips,” based on a predefined trade entry time. A pip is the smallest price move that an exchange rate makes for a given currency pair.

At the heart of the new project was the Kelly wagering method. This method is dependent on previous statistics, as it integrates an already established baseline into a formula to determine the optimal size of the wagers (Kelly 1956). APP had already demonstrated it could achieve a long-term hit rate of 62%, even with some groups performing at chance or even lower.

Encouraged by this high hit rate, Mena proposed an aggressive wagering strategy:

We will be betting 20% of total assets in each trial in order to maximize our growth rate. If we reach a 60% total hit rate after 240 trials, we should expect \$125,527 on our Excel sheet for each \$1,000 invested . . . if we manage to improve on our base hit rate and reach 65%, we may expect around \$16,000,000 on our Excel sheet for each \$1,000 invested after 240 trials.

The slides that followed included a disclaimer that “of course, the project could fail.”

Under the proposed plan, all APP groups and all remote viewers were considered as equal contributors. Since no one was excluded, the project had plenty of viewers and groups providing predictions. While it would require considerable coordination and communication between group managers and Firefly Traders, the groups all maintained independence to set their own procedures related to photo selection, judging, rating, participants, and issuing of predictions (Appendix A and Appendix B describe the methodologies used).

To achieve the proposed 240 trades, each group had to contribute only one session a week. The Firefly trading team assigned each group manager a weekly event and date with a specified deadline for returning the prediction, which would then be entered into a shared predictions spreadsheet. Prior to the initiation of Project Firefly, many of APP’s group managers were already submitting predictions to a shared “predictions list” that all paid APP members in good standing could make use of however they wanted. Now the difference would be that the Firefly Traders would use the predictions to place trades with money from investors. Each investor was required to participate in at least one group as a remote viewer.

Planning and Implementation

APP members and their personal contacts signed up as investors for Phase One between early August 2014 when the plan was introduced and early October 2014. Potential investors were counseled to contribute only monies they could afford to lose. The minimum investment amount was \$100. Shares were based on \$100 increments (e.g., a \$100 investment was one unit of the total, for purposes of profit disbursement). Participants could not withdraw funds after the main phase began until the yearlong project was complete. Table 4 describes the number of investors and monies collected for each phase of the project.

APP co-founder Chris Georges set up the project as a legal financial business entity, according to U.S. tax law, and controls were established to ensure that no single person had access to the funds. Those placing trades via the FOREX system had authority to move money around within the system, but could not make withdrawals. As an additional safeguard, two Traders were to be involved in making every trade.

Only a few APP members understood how to place online trades in FOREX. Those who had the skill and time to devote to the project as unpaid volunteers—Mena, Rosenblatt, and another APP group manager,

TABLE 4
Financial Summary from Firefly Administrative Officer Chris Georges

	Phase 1	Phase 2	Total	Largest	Smallest	Average
Members	54	62	62			
Collected	\$43,200	\$18,000*	\$61,200			
Invested	\$38,500	\$17,800	\$56,300			
Retained			\$4,114			
Investment amounts				\$10,000	\$100	\$987

* Includes funds from 8 new investors and additional funds from Phase One members

Igor Grgić—comprised the Firefly trading team. Jon Knowles, a less-experienced Trader, stood in for Rosenblatt when he went on vacation at the start of Phase Two. Knowles also served as a consultant for the trading team.

Some Firefly members expressed concern about the proposed management structure, citing the need for an independent Oversight Committee that excluded members of the trading team. Also, no procedures were in place in the event of early losses. Not all APP members felt it was prudent to use under-performing viewers and groups, but that also remained an integral part of Firefly’s initial design.

The *Firefly Investors Manual* was emailed to the APP Discussion Group on October 7, 2014, two weeks prior to the start of Phase One and after most of the investors had made their financial contributions. The manual made no mention of what would happen if early losses occurred. It listed Oversight Committee members as Georges and trading team members Mena, Rosenblatt [Committee chairperson], and Knowles.

The manual gave the Oversight Committee power to adjust protocols as needed:

At any point in time, Firefly may make adjustments for accepting predictions in order to strengthen our predictive capabilities. If made at all, these adjustments will be based on data gathered as the project advances and will be made by the Committee.

Per the manual, Traders were responsible for acting on each prediction, executing the trade in the market of choice, and following rules detailed internally for accepting the trade. An online document titled *Firefly Tasking and Predictions* tracked each trade decision. Traders were notified by SMS

message via the Interactive Brokers platform for each executed trade (no matter who executed it). Before each Run, if existing rules or protocol changed, then the new rules were implemented.

Methodology

Overview of the ARV Process

As noted earlier, Firefly Traders executed FOREX trades based on predictions of whether the price would go up or down. The Trader for each trial would assign the event to one or more group managers who had previously indicated their group's availability to submit a prediction.

Each group manager handled all other aspects of the trial, which started with compiling a set of photos, one of which was designated for the "Up" outcome and the other for the "Down" outcome. The group manager assigned a target reference number (TRN), which represented the photo associated with the future winning outcome. The manager emailed the TRN to the group's remote viewer(s), along with "tasking" instructions. The tasking invited the remote viewers to use their intuitive abilities to tune into the feedback photo designated for the winning outcome, which they would receive after the trade was completed. During the remote viewing session, the viewer(s) recorded all intuitive impressions via words and sketches onto blank paper; afterward, they emailed this "transcript" to their manager.

Next came analysis and judging. Each group determined whether to use independent or self-judging, as well as what judging methodology to use. Some groups used a 7-point scale, some a 3-point scale, and others simply chose the best match. In each case, the remote viewer's transcript was compared to the two photos. Ideally, the transcript(s) would be a strong match for only one photo and a weak match for the other. If the transcript had no matches or weak ones, or if it matched both photos equally well, this indicated a breakdown in the process and the judge would call a "pass."

The group manager submitted the prediction to the Firefly Trader, who would use it to execute the trade. The Trader would trade in accordance with the group's prediction. When more than one group submitted for the same prediction, the Trader would apply the majority vote rule to come up with an aggregate prediction.

After completing the trade, the Trader communicated the outcome to the group manager(s) in a timely manner so he/she could provide the feedback photo associated with the actual outcome to the remote viewer(s). Most groups reported they received feedback within 48 to 72 hours. Remote viewers were encouraged to complete a "feedback session" by closely comparing their transcripts to the feedback photo to determine what

matched. This completed what is referred to as a “feedback loop.”

The trial’s outcome would then be recorded in a shared spreadsheet maintained by the Firefly Traders.

Firefly Group Practices and Characteristics

To better understand specific methodologies used by the groups and characteristics of the group members, about a year after the project concluded the authors submitted an online survey to all Firefly group managers. Seven of the 8 group managers responded to the survey presented in Appendix B.

The 12 ARV groups that contributed sessions to Project Firefly had highly trained project managers with exposure to and training from ARV and RV founders. They were well-versed in the technical aspects, such as ensuring blind conditions, methodologies for judging, scoring, and making predictions, and target-pool creation. Prior to Project Firefly, they had worked hard for years to improve ARV statistics and learn from past performance. Collectively, they donated thousands of hours to this field.

Given ARV’s goal of predicting an unknown future outcome, it would be impossible for viewers and group managers to be anything other than blind to the outcome itself. Based on knowledge of the group protocols (and self-reporting by all but one manager), the authors have high confidence that all remote viewers in Project Firefly were also blind to both target photo options *prior* to the judging phases. Some group managers were blind to both photo options, having used randomization procedures, while others were aware of the photo options, having personally chosen them without randomization. Following submissions of transcripts, some groups used self-judging (meaning the remote viewers would need to see both photos in order to determine which photo was the best match to their transcript) while others used independent judging (meaning the manager or a third party would judge the transcripts instead of the remote viewers. This would prevent them from seeing the unactualized photo).

Three of the Firefly groups had only one member, while the others averaged 7 members each. More viewers were in groups that used self-judging rather than independent judging, including 6 groups using the online Winning Entanglements (WE) computer system. Three groups also used CAS (Computer Assisted Scoring software), a system created by Ed May based on Fuzzy Set Theory. One used ARV Creator (scripted Excel spreadsheet) and one used ARV Studio software. While Binary ARV was the standard protocol, the target pools varied between groups, ranging from simple objects only, to include locations, activities, and lifeforms (see Appendix A).

Some groups (i.e. P7B and WE groups) included newer and experienced remote viewers, while others (i.e. Sublime, Sharp, Evans) had only experienced remote viewers. Viewers were trained in a variety of methodologies, including ARV, Controlled Remote Viewing (Smith 1985), Extended Remote Viewing, simple clairvoyance, and dowsing. Most reported using modified versions of these.

Further responses to the post-project survey are presented in Appendix B, which contains specific information related to judging, predictions, randomization, communications, and viewer experience level.

Results, Protocol Adjustments, and Wrap-Up

Phase One

Following a rigorous trading schedule, the PFF Traders wagered 20% of the investment in each of the 33 trades between October 20, 2014, and December 19, 2014. Funds were relatively stable and fluctuated around the initial investment figure until they dwindled in the last two weeks. The losses resulted from 3 misses and unrealized winnings of \$4,000 on one prediction when a Trader was not able to enter the trade at the designated time. Phase One began with 54 investors and \$43,200 collected. Of the \$38,500 invested, \$21,014 remained at the end of Phase One, which had an overall 54% hit rate, as shown in Table 5. The solo groups (those with only one viewer) had a 59% hit rate.

Investors could cash out at the end of Phase One or contribute more money, and managers could revise their plans, if necessary. Eight new investors joined Firefly for Phase Two and 7 added more funds, bringing the total funds available to \$38,723.

Phase Two

After the Phase One losses, the Firefly trading team decided Phase Two would be organized into a series of short “runs” so adjustments to the protocol could be made, as needed. Chart 1 reflects the fluctuation of funds after each trade throughout the entire project. It also indicates the account balance after completing each run and outlines the different approaches taken and their results. At first, the Traders wagered 20% of the total Firefly account balance on each trade (full Kelly), but as the balance depleted they lowered the amount to 16% per trade and later to 10% per trade (half Kelly).

Run 1 began on January 26, 2015 (Week 11). Daily trades were based on a majority vote (MV) procedure using predictions from aggregate groups.

Around this time, the Traders debated whether to tell the membership

TABLE 5
Firefly Phase One, Run 1 – Hit Rate 54%

Firefly: Phase 1 Run 1 schedule: October 20, 2014, to December 19, 2014					
Week 1-9	Monday	Tuesday	Wednesday	Thursday	Friday
Group 1	FIRST GROOVE	P7B	FINANCIAL	SAGE	PSICHISENSI SOLO
Group 2	MWHITE SOLO	CROATORUM	SUBLIME	PEGASUS	JFK SOLO
Group 3		OMEGA	TRANSCENDENT		SHARP SOLO
Week 9	Miss	Pass	Pass	Miss	Hit
Week 8	Pass	Miss	Hit	Hit	Miss
Week 7	Hit	Miss	Hit	Hit	Pass
Week 6	Hit	Miss	Hit	Pass	Miss
Week 5	Miss	Hit	Pass	Hit	Pass
Week 4	Hit	Hit	Hit	Miss	Pass
Week 3	Miss	Hit	Hit	Miss	Miss
Week 2	Pass	Pass	Miss	Pass	Pass
Week 1	Hit	Miss	Miss	Hit	Hit

Predictions based on majority vote—several entities/groups per day

at large of the losses or even to disband the project. Each member of the trading team later indicated they were under a huge amount of stress as the money continued to dwindle and misses continued. During the last two weeks of Phase Two, Run 1, they made only simulated trades. Run 1 ended after 38 trades with a 36% hit rate.

In Run 1, a new precognitive tool that had shown a 64.7% hit rate in 25 trials prior to December 21, 2014, was added as a “group.” Instead of remote viewing, the “Survey” method relied on a participant’s instant response to a nonsensical pair of words, which was then associated with a particular undisclosed outcome. Mena sent the Survey weekly to all APP members until February, when he moved back to Brazil from Spain.

At that time, Mena told Rosenblatt he could no longer keep up with the day-to-day trading overview obligations because of the move and needed to find another setup. According to Mena, Rosenblatt suggested he could

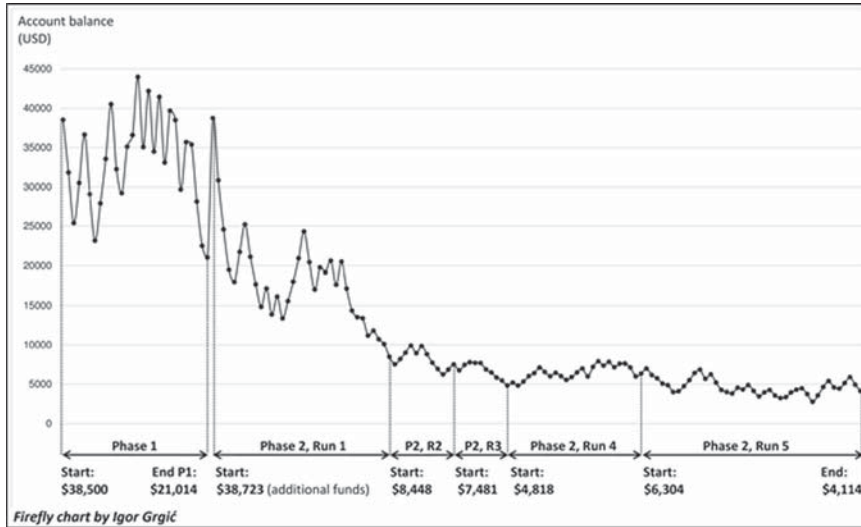


Chart 1. Firefly balance fluctuations through all trades (Oct. 20, 2014, to Dec. 18, 2015). Run 4 was the only period showing an increase in the Firefly trading account—starting with \$4,818 and ending with a \$6,304 balance.

step down as Firefly General Manager, leaving Rosenblatt and Grgić in charge. Mena felt it was within Rosenblatt’s right as APP founder to make such a request and therefore complied. When asked, Rosenblatt said he remembered it differently, as being a joint decision.

Mena announced the change at the next meeting, before Run 2 began. Some members who weren’t present said they were unaware of the changes in the management structure until Firefly ended in the fall. According to Mena, he remained on the Oversight Committee throughout the project.

Run 2 began on March 30, 2015 (Week 19), with a new approach that relied on predictions by the four best viewers, who had hit rates of 70% to 75%. Trades on Mondays, Tuesdays, and Thursdays were based on predictions by a single *entity* made of 2 viewers selected from the best 4. Traders placed simulated trades based on aggregate predictions from the other groups on Wednesdays and Fridays. Run 2 ended after 12 trades with a 50% hit rate. Including the 13 simulated trades, the hit rate was 52%.

Run 3 began May 25, 2015 (Week 27), with a return to trading each weekday using the prediction provided by each group’s manager. Trading was aborted in Week 30 due to 5 misses in a row. By the end of Run 3, the accuracy of the 4 best viewers had dropped to between 50% and 54%. Run 3 ended after only 8 trades with a 25% hit rate.

Run 4 began July 6, 2015 (Week 31), with one of 5 groups/entities—not the best individual viewers any more—providing predictions and with trading each weekday. This run showed the only increase in the hit rate, ending after 25 trades with a 60% hit rate. Previously, trades had preselected entry times and preselected currency pairs. During Run 4, however, neither a trade entry time nor preselected currency pair was used. Instead, when the Trader got the group manager’s prediction, he searched FOREX charts of different currency pairs for the best trade opportunity. For instance, if the group manager submitted an “Up” prediction, the Trader searched (with intention) for the best “Up” move opportunity for a 1:1 risk-to-reward trade.

Run 5 began August 31, 2015 (Week 39), with one of 5 groups/entities providing predictions and with trading each weekday. Starting in Week 45, Traders used predictions from APPI entities (solo viewers with high hit rates). Run 5 ended after 48 trades with a 48% hit rate.

Wrapping Up Firefly

Once the end date arrived, Chris Georges hosted a webinar with Firefly investors. While some questioned what went wrong and suggested improvements for future projects, many expressed pride at having engaged in such a grand experiment.

During a January 2016 webinar, Grgić gave a breakdown of the phases with their various protocols, stats for all Firefly groups, and an explanation of decisions made.

In a subsequent presentation entitled “Proposal for Phase 3,” Grgić suggested keeping any future endeavor simple, to eliminate complexity, focus on individual calls, and use groups of 2 to achieve the best psi efficiency. To help eliminate complexity, he suggested operating Firefly with only one tasker (for financials/FOREX) and Trader. If needed, the Trader could report to an oversight committee.

“I think that a team of two or three Firefly General Managers/Traders is not good for functioning of psi and psi efficiency,” Grgić said. He suggested either using viewers from existing groups/solos with hit rates of 60% or greater, or creating several new entities/groups comprising two top viewers. To keep things simple, only one group would be active at a time. Runs would be short, with breaks between runs. A side would be called only if both viewers agreed; if one passed or if their predictions canceled each other out, the prediction would be a pass.

Rick D. was one Firefly’s highest-contributing investors. Despite his losses, he continued to be enthusiastic, with an attitude of “let’s understand what happened so we can make use of that knowledge and perhaps move on to Phase Three or a new large-group endeavor.” He also performed some

independent inquiries of the trading team, which left him satisfied that everyone had dealt with the monies and wagering in an ethical manner.

While a few others also expressed interest in continuing on to Phase Three or a new project, no one volunteered to manage it, all citing a lack of time. In early January 2016, Georges mailed investors their remaining funds, along with a final report and tax documents, and Project Firefly closed as an official entity.

Discussion

What Went Wrong?

This was an extremely complex project involving multiple groups of individuals producing predictions. These were aggregated to form meta-predictions, which were then wagered upon according to the Kelly wagering method, and finally input into a financial apparatus (FOREX). Ultimately, that complexity, more than any other factor, may be at the root of the problem.

As we will demonstrate below, decisions to initiate Project Firefly, as well as those involved in how to apply the Kelly wagering strategy, were based on preliminary performance statistics that were too “large-grained.” The outcomes from earlier projects had been aggregated into a single statistic (the 62% hit rate), but those results included variables and individual group outcomes that were either unknown or unanalyzed prior to Firefly’s initiation. The post-Firefly analysis of the earlier Zulutrade project is one such example.

Other factors examined below include the effect of Majority Vote, displacement within single groups and aggregate group predictions, the number of trials, and the judging method used.

Kelly wagering strategy. Project Firefly was based on the premise that the past is a strong predictor of the future. Mena initiated the project after he became aware that APP groups were achieving hit rates above 60%. In the field of parapsychology, success rates in precognitive-based trials tend to be around 53% (Bem 2011).

When invited to submit comments for this paper, Mena provided the following statement:

The Kelly wagering system was simply chosen as the mathematical framework to optimize our betting strategy. It is not a controversial method; it is the optimal strategy. “Aggressive creation of wealth” would be the natural consequence of using an optimal approach, as long as the groups were able to perform around the 60% level indicated by historical data.

Alexis Poquiz, an active APP member and Firefly investor, who posted the following to the Firefly Investment Club (FIC) Google page, echoed his sentiments:

To blame our failure . . . to the adoption of the Kelly wagering strategy would be a mistake. . . . The bottom line is that our project was a disaster because we failed spectacularly to achieve our expected hit rate. Going forward, I would make two adjustments. The first adjustment would be to use a Kelly factor that is based on a lower hit rate than 60 percent. The second adjustment would be to change how the project ends. Originally we ended the project based on a set date. Instead of a set date, I would end the project based on a set number of wagerable predictions. This will alleviate the tension of having to produce a prediction week in and week out. I wholeheartedly believe that we can achieve success using the Kelly wagering strategy.

The chart Rosenblatt had shared at conferences and online showed that the 62% hit rate was an aggregate of group statistics. Some groups predicted sporting events (i.e. the over/under scores of football, basketball, or baseball games), and others made financial predictions using the stock market or Zulutrade (FOREX).

Among APP groups that predicted sporting events, the methodologies and results varied widely. A closer look at the top-ranked APP groups showed one used a mixture of logic and remote viewing with self-judging, and another group viewed “live.” Its members included some of the top viewers. Other high-performing groups based their predictions on dreams or tuning-in to emotions.

Although it wasn't known prior to Firefly, many groups making financial-related predictions were operating much closer to chance levels and, in some cases, below chance. This raises the question of whether measuring only groups mostly involved in financial predictions might have been a more accurate predictor of future performance than including higher-performing groups, many involved in other types of events.

Analysis of Zulutrade project. One way to assess ARV groups' future predictive behavior is to look at the most recent statistically significant historical data. Such data was collected by APP during the Zulutrade project, which lasted from April 28, 2014, to October 17, 2014.

Zulutrade is an online platform where one can execute FOREX trades without risk in a demo account and perform as a “FOREX signal provider.” Other investors can follow these trades.

After Firefly ended, Grgić and APP member Mark Samuelson completed an assessment of APP data from that prior six-month project, which shared some similarities with Firefly. According to Grgić, 7 APP groups

TABLE 6
Zulutrade Project – APP FOREX Groups April 28, 2014, to October 17, 2014

Group Name	Hit	Miss	Pass	ARV Protocol
Croatorum	2	5	16	Standard binary ARV
Financial	2	1	2	W.E.
FirstGroove	8	6	3	W.E.
LaurSolo	3	1	0	Standard binary ARV
Omega	2	5	10	W.E.
P7B	3	1	1	Standard binary ARV
Pegasus	7	7	4	W.E.
Sage	3	4	4	W.E.
Sublime	1	0	0	Standard binary ARV
TOTALS	31	30	40	

Results through 101 total Zulutrade trials: 51% Hit Rate

that participated in the Zulutrade project switched to Firefly, maintaining essentially the same structure in both projects (e.g., the remote viewers involved, protocol used, etc.). A technically identical ARV tasking was used to predict FOREX currency pair moves, and the trading team executed one trade per day / 5 trades per week. ARV groups were scheduled per trade day. Both projects had defined goals. In the earlier project, the goal—which wasn't achieved—was to rank among the top-performing Zulutraders; the project's 51% hit rate reflected 31 hits and 30 misses.

The data show, to put it simply, that the Zulutrade ARV groups did not produce a combined hit rate above 60%, as needed for Firefly success (Table 6).

The majority of the Zulutrade groups used what is referred to as the Winning Entanglements (WE) protocol. These group statistics were easier to access than those for groups using other protocols because WE automatically collects the data, which viewers input into the online system. Predictions and outcomes are published to the APP "predictions email list" that full members can access, which allowed for easy assessment.

Most WE viewers did self-judging and didn't have to wait for independent judges to assess their sessions. That allowed more viewers to participate, and WE managers tasked more sessions (68 WE Zulutrade sessions vs. 33 by other groups). Additionally, APP often placed new

TABLE 7
Comparison of WE Firefly Groups and Other Groups/Entities

	Winning Entanglements	Other
Hits	66	60
Misses	66	60
Passes	68	75
Total predictions	200	195

viewers into WE groups, so more inexperienced viewers may have been in these groups.

An assessment of Project Firefly's data showed many of these same WE groups went on to contribute slightly more predictions than other groups (Table 7) despite their lower hit rates during the earlier, pre-Firefly Zulutrade trials. Table 8 lists all the groups and protocols used in Project Firefly, with their hit rates.

Consequently, the commonly cited 62% pre-Firefly hit rate, while deemed an accurate statistic by Grgić and Samuelson, was not well enough defined nor understood to serve as a predictor of success, as mandated by the Kelly wagering method. Based on this analysis, a more conservative approach than investing 20% of all monies should have been applied at the start of the project.

Majority Vote: Single Group vs. Multiple Groups

Project Firefly had an aggressive wagering schedule driven by 5 predictions a week. At first, it was thought having input from 2 or more groups might lend strength to a prediction. That made it desirable to have more than one group of viewers contribute predictions each day so Traders could get trading direction based on majority vote (MV).

Mena told the authors,

Project Firefly provides an important insight into the effect and inner workings of Majority Vote procedures applied to psi. Redundancy methods in general, and MV procedures in particular, are techniques designed to improve the reliability of psi to a level suitable for practical application. Redundancy provides the basis for the methods of increasing the accuracy of signals in normal communications systems, and many techniques proposed to enhance the reliability of psi follow this same path. The 'signal-enhancement' hypothesis holds that if a low-level psi effect occurs on the

TABLE 8
Firefly Hit Rates by Group for October 20, 2014, to December 18, 2015

Group Name	Hit	Miss	Pass	Protocol	Group Type	Judging Type	Hit Rate
Mark S	2	0	0	Binary*	Solo	Indep.	100.0%
SuperSolos	1	0	0	Binary*	Group	Indep. & Self	100.0%
SHARP	9	4	3	Binary*/ ARV Creator	Solo	Self	69.2%
Sublime	9	4	12	CAS, live binary ARV	Group	Indep.	69.2%
Mwsolo	8	5	5	Binary*/ ARV Creator	Solo	Self	61.5%
FirstGroove	22	15	13	W.E.**	Group	Self	59.5%
PSI-SOLO	9	8	8	Other binary ARV	Solo	Self	52.9%
Financial	19	17	11	W.E.**	Group	Self	52.8%
P7B	9	9	15	Binary*/ ARV Studio	Group	Indep.	50.0%
APPI/other	5	6	1	Various	Group	Indep. & Self	45.5%
Sage	5	6	14	W.E.**	Group	Self	45.5%
Pegasus	12	15	21	W.E.**	Group	Self	44.4%
SURVEY	3	4	22	Survey	Group	Survey	42.9%
Omega	8	12	9	W.E.**	Group	Self	40.0%
JFK	4	10	3	Binary*	Solo	Indep.	28.6%
Transcendent	1	6	6	CAS (modified)	Group	Indep.	14.3%
Alpha Omega	0	2	0	Binary*	Group	Indep.	0.0%
Live	0	1	0	Binary*	Group	Indep.	0.0%
SuperBinary	0	1	0	Binary*	Group	Indep.	0.0%
SuperWE	0	1	0	W.E.**	Group	Self	0.0%
TOTAL:	126	126	143				50.0%

* Standard binary ARV

** Winning Entanglements

individual predictions, then Majority Vote procedures will be expected to increase the accuracy of psi to a high level. This did not happen in Firefly.

In fact, the only run that reached a 60% hit rate was Phase Two, Run 4. Grgić partially attributed its success to having a prediction from only one entity per day. He also cited a new-to-APP trading protocol used only during Run 4 (described previously).

Displacement Affects Single Group and Aggregate Group Predictions

Another factor affecting Firefly's results was displacement, a common and troubling phenomenon where remote viewers accurately describe something other than the intended target. It occurs in ARV and other experimental parapsychology projects that use sets of photos as a judging method. Dr. Patrizio Tressoldi, a parapsychologist who has conducted extensive meta-analysis in areas such as the Ganzfeld body of research, advised in email correspondence with the authors that displacement is one of the most perplexing issues he and other researchers continue to witness. At face value, it makes it appear statistically that psi was not present, when in actuality psi may have been operating in full force but toward the wrong subject matter.

This happened 6 times between October 2014 and July 2015. In these 6 instances, all groups submitting predictions on a specific Firefly trade day were in agreement (no passes), but they predicted the unactualized side. After July 2015, the trading team abandoned the approach of having more than one group make a prediction for the same trade. Afterward, predictions from only one Firefly entity (group or solo) per trade day were used.

Additionally, other examples address possible displacement within a single group. Thirty-nine instances of strong consensus predictions occurred at the group level, resulting in a 48% hit rate. Strong consensus occurred when there was a 3-point spread difference or advantage for one side, such as 3 sessions predicting one side and 0 sessions for other side.

Number of trials. Jon Knowles, who served as an "Apprentice Trader" from October 2014 through March 2015, posted to the Firefly Investment Club Google page:

The mandate to have 240 or so trades in the course of 15 months placed a heavy burden on the project in a variety of ways. Making so many trades means lots of taskings each week, lots of sessions, and lots of analysis.

In support of Knowles' observation, studies have shown that fewer trials seem to be more effective than too many close together. In 1984, Russell Targ and Keith Harary completed two ARV studies (Harary & Targ

1985). The first, featured in *The Wall Street Journal*, yielded \$120,000. On a second, unsuccessful attempt, they shortened the intervals between trials and viewers sometimes started a new trial before receiving feedback on an earlier one (Targ 2012). In 1995, Targ repeated the study with the earlier protocol's less-frequent trials and results were highly significant (Targ, Kantra, Brown, & Wiegand 1995).

These researchers suggested too many trials in a short period of time may lead to both viewer and manager fatigue.

Judging. Outside of Project Firefly, fluctuations in judging have been observed in independent tests performed by Grgić, as well as those conducted by Poquiz, creator of the Dung Beetle Method of scoring (Poquiz 2013). While these exploratory trials did not include large sample sizes, their results demonstrated the need for further evaluation of differences in judging styles and predictive decision-making. Various factors can lead to misjudging: judging style and experience, taking into account AOLs (analytical overlays), or relying on late-session data. (Some argue that first impressions or the first gestalts are usually correct.) Accurate judging can also be impaired or derailed when photo targets are too similar to each other or when they differ in entropy or numinosity (May, Spottiswoode, & Faith 2000).

Grgić found instances where scores for both photo targets (whether actualized or unactualized) were high (each above 3.5 on the 7-point SRI/Targ scale) and when scores for both sides were too close, with less than two points of separation between them. Despite that, sometimes a judge made a call for one side when he should have passed because of a mixed signal, as evidenced by data in transcripts matching both sides.

Within Project Firefly, no quality control measures ensured the accuracy of group managers' judging or predictions. The Traders did not generally question the group managers' predictions, particularly in earlier runs when most of the losses were sustained.

Self-judging. In ARV projects where viewers are tasked with describing the feedback photo they will see after the outcome of the event is known, self-judging is controversial because it also exposes viewers to the unactualized photo. Over the years, on many remote viewing email lists and online forums, numerous APP members and others involved in ARV have repeatedly commented that self-judging derailed their sessions. However, Rosenblatt suggested this belief only serves as a self-fulfilling prophecy for some viewers, citing instances where viewers were able to overcome displacement with practice and self-discipline.

With so many other variables to consider, the effect of self-judging on the outcome of Project Firefly, if any, cannot be determined. As noted earlier, most, but not all, Winning Entanglements groups used self-judging.

WE groups use an online system Rosenblatt developed that automates the ARV process. Viewers see their coordinates in the system, upload their transcripts, and most self-judge them against the photo sets. The overall hit rates for those groups ranged from FirstGroove's 59.5% to Omega's 40%. At one point, a self-judging solo viewer had 9 hits in a row with only one pass. Non-WE groups that used independent judging had hit rates ranging from Sublime's 69.2% to Transcendent's 14.3%, as shown in Table 8.

Conclusions and Future Study

In summary, the consensus among this paper's authors, supported by the extensive contributions made by other Firefly key participants, is as follows:

First, predictions based on aggregate groups on a single trade day did not fare as well as single entities (groups or solos). Instead, the data generally support using the best viewers and teams, as per their hit rates listed in Table 8, and keeping the protocol simple. An exception to this was seen in Phase Two, Runs 2 and 3, when the top solo viewers' hit rates dropped from around 70% to roughly 50%. Those data was not statistically significant, however, because no solo viewer did more than 11 non-passing predictions during those runs.

Second, the goal of having 240 trades in a single year placed a great deal of stress on the trading team. Of 249 predictions, 72 were passes. This may be an example of too many predictions in too short a timespan, as seen in the Targ/Harary study (Targ 2012).

Third, an independent Oversight Committee could provide valuable support for the trading team by serving as a check and balance on trading activity, monitoring protocol, and implementing a process to make changes with greater transparency for the viewer/investors. This could be critical if an aggressive wagering method is being used and early losses are incurred.

Fourth, the Kelly wagering method should be used only after verifying the hit rate for the specific viewers and a specific protocol. In this instance, subsequent examination of the pre-Firefly data showed many of the entities used in Firefly had hit rates below chance for similar financial predictions. In such cases, a more conservative approach than investing 20% of all monies should be applied. Further study on the hit rates of different protocols is needed.

Post-Firefly

Since the conclusion of Project Firefly, APP has continued to gain members and flourish. At APP's annual conference in June 2016, Rosenblatt included Firefly's hit rate in the charts shown, but he focused on APP's successes. He often repeated two of his favorite sayings: "Wager wisely, if you wager."

and “Get rich slowly.” He also wrote, “What seems most important is to use what we believe we have learned to improve our personal ARV/RV skills and group applications.”

When asked about Grgić’s and Samuelson’s study of pre-Firefly data, which showed the financial groups’ overall hit rate was only 51%, Rosenblatt indicated he had never assessed the data in that way before. In a February 3, 2016, email response to the first draft of this paper, he stated: “I believe the FF [Firefly] low hit rate is due to internal money issues, plus the intensity/stress unwittingly placed on the project at the beginning.”

Mena said he believes other factors were at play:

I disagree with any hypothesis that states that unconscious money issues related to this aggressive wealth approach are behind the group’s inconsistent results. Historically, inconsistent psi effects were attributed to unconscious processes. It is time this meme is recognized and discarded as useless. This approach has provided little explanatory or predictive value after 70 years of discussion and research. More specific hypotheses are needed.

In a February 5, 2015, post to the Firefly Investment Club Google list, Georges said:

[The] project was not a financial success. In terms of organization and coordination involving many people throughout the world with varying tasks, it was a monumental achievement in the ARV community. Surely something to be proud and part of. The knowledge obtained and the experiences realized will continue leading us in paths of discovery.

In a similar vein, APP member Poquiz posted:

Financial success is but a mere step in our journey of elevating global consciousness to the reality of precognition. We must not allow this temporary failure to weaken our resolve. Albert Einstein once said, “Failure is success in progress.” And on that account, we have made very good progress toward success. We need only continue our efforts.

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Disclaimer

As with any project involving multiple “players,” this paper reflects diverse viewpoints, opinions, interests, and concerns. We, the authors, have done our best to create a balanced picture by soliciting and including comments from those who were both longtime members of APP and most intimately involved with the project from start to finish. Earlier drafts of this paper underwent extensive peer review within and outside of the Applied Precognition Project. That being said, any opinions presented within this article should be read as reflective of the authors’ own viewpoints (as both project participants and subsequent investigators) and/or of belonging to those specifically quoted within the article itself, rather than as representative of the former Firefly management team members or Applied Precognition Project’s owners. It is our sincere hope that this paper will encourage further productive discussion for and between all those who were involved.

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Appendix A

ARV Methodologies Used in Project Firefly

Binary ARV. Binary ARV is the standard protocol within the ARV subculture. It has two possible outcomes, and a photo is attached to each outcome. The viewer does one session per trial with the intention of describing the feedback photo they will see after the event, which is the photo connected only to the winning outcome.

Binary ARV—"ARV Studio" software. During and following Project Firefly, Igor Grgić used the "ARV Studio" software he developed to manage the P7B group (Grgić 2015). The full-featured computer program automates and simplifies all phases of a standard binary ARV trial. Those phases include: tasking, photo target selection and pairing, judging, and feedback.

The software features ARV task creation, random coordinate number (Task Reference Number) generation, automated task sending to remote viewers' emails, random and double-blind photo target selection, random and double-blind association of the outcomes to the photo targets, judging and scoring sheet, automated ARV prediction email sending, feedback photo email delivery, and data-keeping. It can be used for both solo and group projects.

Built-in algorithms ensure dissimilarity of computer-selected photo targets from a large pool of photo files, and also ensure non-repetition of selected photo targets for a pre-defined number of ARV trials (www.arv-studio.com).

Binary ARV–“ARV Creator” scripted spreadsheet. Two of Firefly’s solo remote viewers, Gary Gholson and Mark White, used “ARV Creator.” Over many years, White developed and refined this scripted Excel file, which enables a user to quickly and easily generate a standard binary ARV project.

ARV Creator automatically generates Target Reference Numbers (TRN), randomly selects two photographs by category from a very large photo set, and creates a project with the click of a button. The customizable spreadsheet can be used solo or by a team of viewers. The user interface and accompanying target set are very user-friendly.

Lively ARV (‘Live’ Binary ARV). “Lively” is a term Sublime’s group manager borrowed from group manager Mark Samuelson to designate “live” viewing sessions. During Project Firefly, Sublime group members met online via webinar. They started by socializing, seeing each other on video, then turned off the video while their group manager led them through an opening meditation involving light running through the body. Then they completed their viewing sessions. It is unknown how many of Sublime’s predictions for Project Firefly used the Lively method compared with the other reported methods.

Winning Entanglements (WE) software. Prior to and during Project Firefly, APP leader Marty Rosenblatt personally managed several groups that used his Winning Entanglements (WE) software. It has a varied photo pool of locations, activities, objects, etc., which allows for double-blind conditions, given that the project manager doesn’t see the photo choices prior to the viewer completing the session. Most WE groups in Project Firefly used self-judging. Over the years Rosenblatt has conducted numerous, in-depth free webinars demonstrating WE. These videos are available on the APP website and can provide further insight into the general protocols and technology WE groups use (www.appliedprecog.com). During Project Firefly, Rosenblatt exclusively used the WE software for the following groups: Omega, Financial, and Pegasus. Scott Williams used either WE or CAS (see below) for his Sage and Transcendent groups. A few individuals acting as a group of one used WE, with modifications. Those who used WE ranged from inexperienced through advanced viewers.

Computer Assisted Scoring (CAS) software. The Sublime Group, Transcendent, and Sage used the CAS software/protocols. “CAS” is the acronym APP group managers gave to the computer software system designed by Dr. Edwin May, who does not refer to it as “CAS.” His system is based on Fuzzy Set Theory, and on the decades of research he and his colleagues performed at SRI aimed at overcoming errors and challenges

in human judging and target selection (May 2006). One distinctive feature of this system is its use of a specific target pool comprising solely photos of locations collected from *National Geographic* archives and “cleansed” of people, animals, and transportation devices. This system was used by Bierman (2013) and by a few APP group managers for about one year prior to its use in Project Firefly.

CAS is designed to eliminate the need for a human judge to actually see the photo options. However, it does require an independent “rater” to look at the viewer’s transcript and indicate on a scoresheet if a pre-determined set of descriptors are present. This information is input into a computer. According to APP group managers, informal trials using CAS prior to Firefly showed mixed results. Software glitches at times resulted in missed trials, and raters required a learning curve to understand the items they were scoring. The efficacy of the CAS method in Project Firefly cannot be determined because groups that used CAS also used other protocols. A breakdown was not available of how many predictions were made using each protocol.

Survey. Carlos Mena devised a “Survey” based on parapsychological studies that suggest spontaneous occurrences of psi occur from quick, unconscious responses. Rather than pair photos with the direction of the FOREX moves, it used nonsensical word lists. The premise was to use the unconscious somatic responses of a viewer, who was advised to rapidly select the best word from a list of multiple-choice options. Because it took very little time to complete, Mena sent the Survey to all willing Firefly participants, not to one particular group.

APPENDIX B

**Scoring, Prediction Criteria, Errors Related to Metagroup
Communications, Table Hit Comparison, Additional Information
(self-reported by group managers)** [Tables created by Igor Grgić]

Manager Name	Group/Solo Name	Group Type	Number of Viewers	Judging Type	Manager's Other Roles
Gary Gholson	Sharp	Solo	1	Self-judge	No
John Kovacs	JFK	Solo	1	Independent judge	No
Russ Evans	Psichisensi	Solo	1	Self-judge	No
Igor Grgić	P7B	Group	7	Independent judge (group manager)	Trader, Firefly manager
Nancy Smith	Sublime	Group	7	Independent judge (group manager)	Judge for another group
Marty Rosenblatt	Omega, Financial, Pegasus, Firstgroove, APPI groups	Group	5 to 10 per group	Self-judge	Trader, Firefly manager
Scott Williams	Sage, Transcendent	Group	Several	Self-judge, independent judge	no

Manager/ Group	Descriptions of the ARV Protocol(s) Used	Target Pool Description	Target Selection and Randomization
Gary Gholson / Sharp	Binary ARV using <i>ARV Creator</i> (scripted Excel spreadsheet)	Locations and Activities, Simple Objects	<i>ARV creator</i> randomly picked target pairings blind
John Kovacs / JFK	Binary ARV	Simple Objects	Independent judge
Russ Evans / Psichisensi	High volume of data, sketch input direction, 3 advance visuals. Great data separation 20+ target direction. Advance image priority, regular sketches.	Locations and Activities	Solo/Viewer
Igor Grgić / P7B	Binary ARV using <i>ARV Studio</i> software. Software selects photo targets double blind.	Locations and Activities, All: lifeforms, structures, landscapes, activity	Prepared by indep. judge; ARV Studio randomly selects pairings blind
Nancy Smith / Sublime	CAS, Binary ARV - 'Lively' method where remote viewer's cooldown and do RV online live	Locations and Activities, Simple Objects, CAS (Ed May's Pool), Other types of targets	Independent judge (group manager); viewers; CAS
Marty Rosenblatt / 5 groups	WE. Online system sends two blind coordinates to viewer's email. Viewer submits two sessions and selfjudges.	Locations and Activities, Simple Objects	WE system randomly selects prepared target pairs
Scott Williams / 2 groups	WE (see above), CAS (Computer Assisted Scoring)	Locations and Activities, Simple Objects, CAS target pool	WE system randomly selects prepared target pairs

Manager/ Group	Target Selection Guidelines	Viewer's Blindness to the Target at Viewing Time	Manager's Blindness to the Target Prior Viewing Time
Gary Gholson / Sharp	Random photosites using <i>ARV Creator</i>	Yes, at all times	Yes, at all times
John Kovacs / JFK	Private guidelines based off of 10 yrs of private signal line data	(not answered)	(not answered)
Russ Evans / Psichisensi	Divergent aspects	(not answered)	(not answered)
Igor Grgić / P7B	Dissimilar as possible in all aspects	Yes, at all times	Yes, at all times
Nancy Smith / Sublime	(not answered)	Yes, at all times	(not answered)
Marty Rosenblatt / 5 groups	(not answered)	Yes, at all times	Yes, at all times
Scott Williams / 2 groups	(not answered)	Yes, at all times	(not answered)

Manager/ Group	Scoring / Rating Method	Rules or Criteria for Making Prediction	Occurrence of Judging and Protocol Errors
Gary Gholson / Sharp	Initial impression, feel, and knowing	(not answered)	No
John Kovacs / JFK	CR Scores 1–7	Use a specific criteria or rule of a particular point spread to make predictions	No
Russ Evans / Psichisensi	Simple matching - matches one or the other, no scores	Use a specific criteria or rule of a particular point spread to make predictions	No
Igor Grgic / P7B	CR Scores 1–7	Using all sessions. Predictions based on majority vote. Sometimes majority vote but with 2 point spread rule.	Yes (judging error two times)
Nancy Smith / Sublime	CR Scores 1–7; 3 point scale; Figure of Merit (CAS)	Use a specific criteria or rule of a particular point spread to make predictions.	Yes
Marty Rosenblatt / 5 groups	CR Scores 1–7	(not answered)	(not answered)
Scott Williams / 2 groups	CR Scores 1–7, Figure of Merit (CAS)	(not answered)	(not answered)

Manager/ Group	Predictions per Week	Prediction Communication to the Trader	Outcome Communication from the Trader	Feedback Sent to Viewers	Private Wagering
Gary Gholson / Sharp	1	Email	Email	Within 24 hours of <i>viewing</i> time	No
John Kovacs / JFK	1	Email	Email	Within 24 hours of <i>viewing</i> time	No
Russ Evans / Psychisensi	1	Traders / managers did as they chose regardless of input	Email	Within 24 hours of <i>viewing</i> time	No
Igor Grgić / P7B	1	Email	Trader - direct outcome access via trading platform	Within 48 hours of <i>viewing</i> time	Yes, GM and some viewers
Nancy Smith / Sublime	1	Email	Email. Sometimes made personal outcome decision.	Within few days of <i>viewing</i> time	Yes, GM
Marty Rosenblatt / 5 groups	1 per each of the groups	Email	Trader - direct outcome access via trading platform	Within few days of <i>viewing</i> time	Yes, some viewers
Scott Williams / 2 groups	1	Email	Email	(not answered)	(not answered)

Manager/ Group	Experience Level of the Viewer(s)	RV Techniques Used by Viewer(s)	Acquaintance with Viewers	Firefly Participation — Impact on Group	Group Performance during Firefly
Gary Gholson / Sharp	10 years	Loose and simplified CRV	Very well	It was fun, but I quickly lost motivation when I was personally doing well, yet the group was not.	Stayed the same
John Kovacs / JFK	10+ years	CRV	Very well	I didn't like the energy of it and told it was doomed for failure, too many overlapping intentions . . .	Decreased
Russ Evans / Psichisensi	Plenty	ERV, dowsing, mental images	Very well	Not positively	Improved
Igor Grgić / P7B	Most 5-10 yrs of experience; 1 or 2 novices	Simple CRV, freestyle ARV	Very well	Performance was same as in our other projects	Stayed the same
Nancy Smith / Sublime	Experienced, advanced	(not answered)	Very well	It was a long project that encouraged a little boredom.	Don't know
Marty Rosenblatt / 5 groups	From novices to very experienced	Various RV techniques	(not answered)	(not answered)	(not answered)
Scott Williams / 2 groups	(not answered)	(not answered)	(not answered)	(not answered)	(not answered)

HISTORICAL PERSPECTIVE

Fragments of a Life in Psychical Research: The Case of Charles Richet

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Abstract—In this paper I present a translation of an autobiographical essay French physiologist Charles Richet wrote about his involvement in psychical research in his *Souvenirs d'un Physiologiste* (1933). In the essay Richet presented an outline of aspects of his psychic career, including: Early interest in hypnosis and hypnotic lucidity, encounters with gifted individuals such as Eusapia Palladino and Stephan Ossowiecki, contact with the Society for Psychical Research, his *Traité de Métapsychique* (1922) and his lack of belief in survival of death. Richet's account will be of particular interest for those who are not acquainted with his career. However, the essay is succinct and lacks important events that need to be supplemented with other sources of information. An examination of this autobiographical essay illustrates the limitations of autobiographies to reconstruct the past, but also provides an opportunity to discuss aspects of Richet's psychical research.

Keywords: autobiography—Charles Richet—history of psychical research—French psychical research—Eusapia Palladino—*Traité de Métapsychique*

Introduction

Past autobiographies of researchers in and students of parapsychology have been of particular interest, as seen in those authored by Oliver J. Lodge (1931: Chapters 22–24) and Louisa E. Rhine (1983), as well as recollections compiled more recently (Pilkington 2013).

Following on this interest, I present here a reprint and a translation of an autobiographical account authored by French physiologist Charles Richet, arguably one of the most interesting figures in the history of psychical research. His work in this area has received attention in recent books about French psychic studies, among them the work of Brower (2010), Evrard (2016), Lachapelle (2011), and Plas (2000). Aspects of Richet's psychic work have also been discussed in many other writings (e.g., Alvarado 2008, 2016, Carroy 2015, Edelman 2007, Le Maléfan 2002, Magalhães 2007, Tabori 1972:98–132). One of the purposes of the present article is to present



Figure 1. Charles Richet

information about Richet's interest in psychic phenomena via his own, admittedly brief, account.

It is my impression that most contemporary workers in parapsychology, although aware of Richet's existence, know little about his actual work. Being short, and personal, the excerpt presented below may be of more relevance to workers in parapsychology than the more academic writings cited above. The reprint of the excerpt is also an opportunity to give Richet a voice never heard before in English, since the excerpt in

question originally was published in French.

Furthermore, I hope to use the example of Richet's essay to highlight the problems of autobiographies in the study of parapsychology's past.

Charles Richet

Charles Robert Richet was a well-known physiologist who was born in Paris in 1850, and died there in 1935 (Figure 1). Inheriting both wealth and a high social position in French society from both the maternal and paternal sides, Richet qualified as a physician (1869) and a doctor of sciences (1878), and later became Professor of Physiology at the prestigious Faculté de Médecine of Paris (1887), a position he held until his retirement. The celebration of his retirement in 1926 was a major event that included many scientists and other eminent people (Le Gruyon 1926).

Richet received many honors, among them memberships in the Académie de Médecine (1898) and the Académie des Sciences (1914), the presidency of the Society for Psychical Research (1905), the presidency of the Institut Métapsychique International (Honorary, 1919; President, 1930–1935), and a Legion of Honor Award (1926). But he is better known for his Nobel Prize in 1913 for his work in anaphylaxis (for overviews of Richet's life and work see Osty 1936, van Wijland 2015, and Wolf 1993).

In his study of Richet, Wolf (1993) presents his bibliography of physiological topics, showing many investigations and discussions of

animal heat, gastric juice, muscle excitability, and serum therapy, among other subjects. But Richet was active in many other areas as well. He has been called one of the great thinkers of France (Painlevé 1926) and discussed as a person who “was often at the forefront of modernity in various forms: He was an inventor, explorer, defender of justice, and a man of letters” (Carroy 2004:245).

Richet wrote poetry and plays, many under the name of Ch. Epheyre. But he also wrote about general history, medical bibliography, philosophical issues, psychical research, psychology, social problems, and world peace, and was involved in aviation (Carroy 2004, Wolf 1993). Many specific examples of Richet’s work could be mentioned. An early one dealing with physiology was his book *Physiologie des Muscles et des Nerfs* (Richet 1882), collecting lectures given in courses at the Faculté de Médecine of Paris on such topics as muscle contraction, muscle heat and electricity, irritability and excitability of nerves, and reflex action. Other works include his first paper about anaphylaxis “De l’Action Anaphylactique de Certains Venins” (Portier & Richet 1902), as well as *Le Chaleur Animale* (Richet 1889a), and his editorship of the unfinished *Dictionnaire de Physiologie* (Richet 1895–1928), a prodigious ten-volume reference work about the existing knowledge in physiology and related topics. Work in other areas included his *Essai de Psychologie Générale* (Richet 1887), *Les Guerres et la Paix* (Richet 1899a), *Circé* (a play, Richet & Brunel 1903), *Le Savant* (Richet 1923b), and his *Abrégé d’Histoire Générale* (Richet 1919a).

In the last book, he discussed topics such as the Church, science, and World War I. He said he was guided in his study by two ideas: respect for individuals, and faith in science. “History,” he wrote, “is but a long list of martyrdom. Poor humanity has suffered countless evils . . . Our mind is made up. We are for the martyrs against the executioners, for the oppressed against the oppressors . . .” (Richet 1919a:ii, this and other translations are mine). But other works resonate less with many modern readers, particularly those in which Richet (1919b, 1919c) presented arguments for the inferiority of blacks and the applications of eugenic principles to “improve” the race.

In addition to espousing physiological ideas in psychology (Richet 1887), Richet was known for his pioneering studies in hypnosis (Richet 1875, 1883). He also helped in the professional organization of psychological studies in France, being one of the organizers in 1885 and the General Secretary of the Société de Psychologie Physiologique. Furthermore, he was behind the organization of the Congrès International de Psychologie Physiologique that met in Paris during the Universal Exposition in 1889 and was also a participant in later congresses.

Richet has been considered by many a Renaissance man. A colleague psychical researcher commented that Richet was a well-balanced man and an ideal European (Sudre 1935). He was, in the view of fairly recent writers,

independent, open and tolerant, engaging with courage in science, in thought, and in noble causes even though the positions exposed him to public opinion because he had courage. *He remained always himself . . .*, physician, researcher and humanist, his successes and mistakes indicating his time. (Richet & Estingoy 2003:509)

In recent years there have been several scholarly writings about Richet. Two major efforts have been Wolf's (1993) study and the papers of a conference about him organized by the Académie Nationale de Médecine in November of 2013 (Evrard 2014, van Wijland 2015). In addition, there have been various articles, among them those of Carroy (2004), Estingoy and Ardiet (2005), Richet and Estingoy (2003), and Schneider (2001).

Richet and Psychical Research

By the time Richet started publishing about psychic phenomena, there was a large literature about mesmerism, Spiritualism, and psychic phenomena in general, as seen in Inglis (1992). Among other institutions, the Society for Psychical Research (SPR) was founded in England in 1882, bringing about many studies about telepathy, apparitions, mediumship, and dissociative phenomena of different sorts (Alvarado 2002, Gauld 1968). This period produced much empirical work such as thought-transference experiments (Guthrie & Birchall 1884), and analyses of cases (Gurney, Myers, & Podmore 1886). In addition there were many important observations and ideas during the late Nineteenth Century of non-conscious currents of thought coming from observations of hysteria, hypnosis, secondary personalities, and mediumship, some of which were summarized in a review article as the "unconscious activity of the mind" (Héricourt 1889). These developments have received much study by various historians (e.g., Crabtree 1993, Gauld 1992), developments of which psychical research was an integral part (see also Alvarado 2002, Plas 2000).

Richet was part of this movement, particularly strong in France, that explored the existence and range of non-conscious human functioning and that included both conventional and unconventional phenomena (Plas 2000). This is seen in his writings about personality changes in hypnosis, unconscious movements, and the induction of trance at a distance (Richet 1883, 1886a, 1886b).

An important early contribution, and a classic of Nineteenth-Century

ESP literature, was Richet's article about mental suggestion, or the "influence that an individual's thought exerts over a specific sense, without an appreciable exterior phenomenon on our senses, over the thought of a nearby individual" (Richet 1884b:615). This included transmission of thoughts and images, as well as other effects such as the induction of trance at a distance. In the paper, Richet described his use of statistical analyses in several guessing tasks with various targets, as well as discussions of conceptual ideas such as the unconscious nature of the process (see also Alvarado 2008).



Figure 2. Bien Boa

In later papers Richet continued testing various gifted individuals (Richet 1888, 1889b), something that continued into the Twentieth Century and included observations of Polish psychic Stephan Ossowiecki (1877–1944) (Richet no date c circa 1928).

There were also many experiences with various mediums and psychics. Examples were séances with Eusapia Palladino (1854–1918, Richet 1893a) and Leonora E. Piper (1857–1950, Leaf 1890:618–620). Richet's (1905a) materialization séances with medium Marthe Béraud are well-known, an episode that generated many controversies (Le Maléfan 2002). Here both full and partial materializations were observed, a frequent one was Bien Boa, covered in a white cloak, with both a helmet and a beard.

The best known of his works was the highly influential *Traité de Métapsychique* (Richet 1922), where instead of psychical research he used the term "métapsychique" (metapsychics), a word he had suggested before (Richet 1905c). In the *Traité*, and elsewhere, Richet frequently expressed hope that future developments in science would allow us to understand psychic phenomena. His popularization and discussion of psychical research not only continued in other books (e.g., Richet no date a circa 1931, no date c circa 1928), but also in articles in non-psychic journals (e.g., Richet 1923a) and in newspapers (e.g., Richet 1921). In addition to the above-mentioned examples, Richet's articles in psychic journals included topics such as statistical analyses of ESP tests (Richet 1893b), recurrent doubts in the study of psychic phenomena (Richet 1899b), the decimal indexing of

psychic literature (Richet 1905b), xenoglossy (Richet 1905e), an ancient case of near-death experience (Richet 1909), premonitions (Richet 1920), and survival of death (Richet 1924a).

Richet did much to support psychical research in various forums of conventional science. He opened the door to, and defended the importance of, psychical research in the international congresses of psychology (Alvarado 2011b). At the International Congress of Physiologists, held at Edinburgh in 1923, Richet discussed the possibility that “there may be a knowledge of reality obtained by other means than the ordinary channels of the senses” (Richet 1923a:493). Similarly, Richet (1925) discussed the topic in one of the lectures on the occasion of his retirement that he presented in 1925 at the Faculté de Médecine of Paris.

He was also one of the founders of a very important French journal, the *Annales des Sciences Psychiques*, first published in 1891, where not only French but also authors from other countries discussed psychic phenomena (Alvarado & Evrard 2012). Furthermore, Richet was a supporter of the Institut Métapsychique International since its beginnings. Interestingly, Richet recognized the inability of science to explain psychic phenomena beyond some general speculations (e.g., Richet 1905c, 1922). In addition, and reflecting his training in physiology, he referred to mental psychic phenomena as “a new chapter in physiology” (Richet 1923a:496).

Many of the phenomena of metapsychics, Richet affirmed more than once, were real. He stated in his *Traité*:

1. there is in us a faculty of knowledge that is absolutely different from our common sensory faculties of knowledge (cryptesthesia);
2. movement of objects without contact are produced, even in plain light (telekinesis);
3. there are hands, bodies, objects, that appear to be formed completely from a cloud and show all the appearances of life (ectoplasmy);
4. there are presentiments that neither perspicacity nor chance can explain, and sometimes they are verified to their smallest details. (Richet 1922:761)

He admitted there were difficulties in the study of the phenomena, but was hopeful about the future.

However, Richet was convinced that metapsychics would “not overthrow the laws that science has established,” only that they would introduce new facts (Richet no date b circa 1933:246). The new facts “may be unforeseen, but they will never be contradictory” (Richet 1905d:xvii). Instead the field would bring new ideas and facts that “despite their enormous unlikelihood, do not absolutely contradict any of the classic phenomena of physics and physiology” (Richet no date a circa 1931:30).

While Richet was praised by many psychical researchers (e.g., Sudre 1935, Osty 1936), he was criticized by others, and particularly by individuals who were outside psychical research (e.g., Anonymous 1888, Janet 1923). A commentator stated that Richet seemed to show a contradiction between his persona as a savant and his credulity regarding metapsychics, but that we should remember that high intelligence could go hand in hand with credulity (de Fleury 1922). The critic saw Richet as one of those highly capable and intelligent men who nonetheless showed much credulity and who had problems distinguishing good from bad ideas, or, because of their good nature, could not accept the bad faith of others intent on deception.

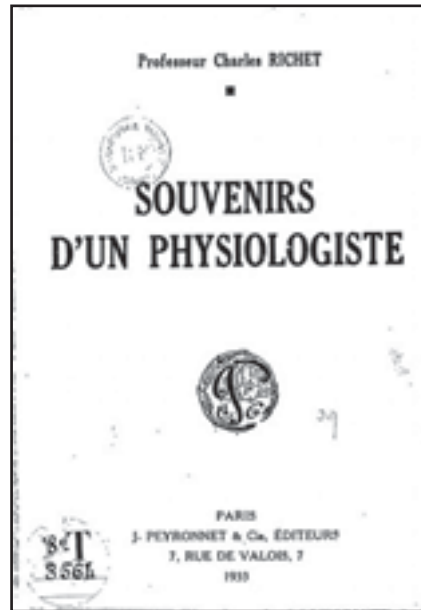


Figure 3. Title Page of Richet's *Souvenirs d'un Physiologiste* [1933]

Richet's Autobiographical Comments

Souvenirs d'un Physiologiste

The essay reprinted here was taken from Richet's *Souvenirs d'un Physiologiste* (1933), an autobiographical account of various aspects of his career, but with little information about his family (Figure 3). The book was described by a reviewer as the product of a "long and passionate experience of life" (Pierret 1935).

He stated in the first chapter that it was pleasurable for him to recollect "the persons as well as the uncertainties, the obstacles, the satisfactions and disappointments that have crossed my path" (Richet 1933:7). Richet also expressed hope that his recollections could show young people the ways by which a physiologist could establish new facts.

The book has 20 chapters full of interesting anecdotes of Richet's early, middle, and later life, anecdotes touching on many personalities and incidents, and on research and publications that illustrate his interests in

many topics. An example of one of them is Richet's statement that during a cruise he read his play *Circé* to Albert I, Prince of Monaco (1848–1922), who had it presented in Monte Carlo. The lead role went to the famous Sarah Bernhardt (1844–1923), whom Richet knew. Some other topics discussed by Richet were his initial research on anaphylaxis with Paul Portier (1866–1962), his work with serotherapy, his passion for medical and physiological bibliography, female workers in his laboratory, his editorship of the *Revue Scientifique*, his *Dictionnaire de Physiologie*, his anti-war activities, and his interest in airplanes and their development.

In addition, Richet commented on the scientific enterprise. In one chapter he argued that science does not advance if it is not audacious. He wrote: "We must construct the most incredible, the most reckless hypotheses, even if they contradict the most classic universally accepted facts" (p. 128).

Psychic phenomena were commented on in the last chapter (pp. 147–156). A translation of this section follows.

Richet's Essay

A close relationship perhaps may be found between the occultist psycho-physiology I have cultivated with zeal and the normal psycho-physiology that I have taught with no less zeal. Because I give here my recollections as a physiologist, I am forced to speak a little about the so-called occult sciences, nearly taboo, which have taken a large part of my time, which I have at heart, and which inspire my old soul with a great hope.¹

My interest had quite a singular beginning. Being very young then, a student of philosophy at the Lycée Condorcet, I had the opportunity to attend a session of somnambulism and hypnotism given by a magnetizer named Cannelle who put his very pretty wife to sleep and demonstrated that she had become insensitive.

I was very struck by this experience and one day I put one of the friends of my sister to sleep. (I was but sixteen years old.) After a few passes she closed her eyes, and was unable to open them. My sister and I were extremely upset, thinking that we would be scolded by our parents. We did not talk then, but I promised to myself to resume, when the opportunity arose, this experience which had amazed me.

Three years later . . . I magnetized a few patients. At the time I had a very distinct power for hypnotizing but after nearly fifty years I have, it seems, lost all that power.²

Here is a memory that is also present in my mind as if the thing had happened yesterday (although it would seem it is from sixty years ago). There was, in a room, quite a young girl, of 16 years of age, barely sick, whom I put to sleep easily. I tried to have one of my friends witness this, a young American, a medical student like me. He had never [before] come to the Hôtel-Dieu.³ I put little Adrienne to sleep and once she was asleep I wanted to examine whether she would show some phenomena of lucidity. So I asked her to tell me the name of the friend who was with me, which made her laugh because she did not know him at all.—"Look," I told her, "read his name." I did not write the name, of course, I limited myself to thinking about it, and she said "H. E. and then a letter I do not see, then R. and N." My friend was called Hearn.

Alas! Alas! I refused to admit the reality of this admirable experience. She had to convince me that lucidity exists. But I took no account of it. It is rather sad that we do not see except that which we are accustomed to see and that we want to see.

My 1872 blindness gives me a great understanding for those who, today, despite clear evidence of lucidity that we have presented, continue to deny it stubbornly.

I doubted lucidity, I had no doubt of anything from hypnotism, and I would have continued my research at the Hôtel-Dieu if my teacher and friend Henri Liouville,⁴ who was then head of the clinic at Behier, had not formally prohibited it. I protested strongly, but in vain. So I had to wait for more favorable conditions.

They were not long in coming. I entered the service as an intern of Professor Léon Le Fort⁵ at the Beaujon Hospital. There I was almost my own teacher, in the service of women who were mildly ill patients, and then, for six months, in follow-up visits every night, I put one or two patients to sleep, sometimes more. Hypnotic sleep was easily achieved, but I was not concerned about lucidity and occultism, a phenomena I did not *want* to believe, as I was trying only to obtain an hypnotic state. The rooms of the Beaujon Hospital had become like a court of miracles. I could do many experiments that showed me the absolute reality of induced somnambulism.

I wished then to publish these facts that seemed to me to be new and remarkable. At that time, in 1875, we looked with scorn and indignation on all that was written about somnambulism. In his great encyclopedic dictionary of the medical sciences, Dechambre presented a paper about somnambulism and it ended with these words printed in large letters, the largest in the whole book: "*ultimately animal magnetism does not exist.*"⁶

In my paper, I demonstrated that it does exist.

When I spoke of my project to my father, he told me these simple words; "*You therefore want to waste yourself?—Is it that one is wasted telling the truth?—You are right,*" he responded after a long silence, "*do as you will.*"

Very liberally Professor Charles Robin accepted the publication of my paper in his journal.⁷ A few months after, a paper by the great physiologist Heidenhain confirmed what I had said. And then the experiences of Charcot, partially inspired by me (then an intern at the Salpêtrière), and especially by Ruault, . . . [in training with] Charcot, and a powerful hypnotist.⁸

So at the same time I was pursuing my physiological chemistry experiments, I studied somnambulism.⁹ I had some rather remarkable subjects, and then I made experiments (which had some impact) on personality changes, phenomena which I called—although the name is a little barbaric—the objectification of types. Somnambulists, when asleep, forget everything becoming the character they are induced to be and this change is so deep that we are always amazed. I said to Alice, "*you are an old woman. Tell me what you feel? . . .*" "*What!—speak louder, I am hard of hearing.*" Sometimes the change is to something that is funny. Having hypnotized my dear friend Henry Ferrari, and having changed him into a parrot, I noticed that he was a little uneasy; "*Did I eat,*" he asked, "*the grain that is in my cage?*" These experiences are recounted with details in a long paper which Th. Ribot published in his *Revue Philosophique*.¹⁰

I was conducting my research, when I received a visit from a prominent Russian psychologist, Aksakoff, who reproached me for not knowing the facts of spiritualism, facts made much more interesting, according to him, than all of somnambulism. "*To*



Figure 4. Séance with Palladino in Milan 1892. Controlling the medium (sitting Lombroso left and Richet right). Published in Richet (1893:7).

see one of these facts," I said, "I would go to the end of the world." He only smiled. But some time later he wrote to me: "it is not about going to the end of the world, but only to Milan."¹¹

I went to Milan.

There I saw a quite extraordinary woman, Eusapia Paladino. I cannot speak about her without a real recognition of her importance to me, as it is mainly to her that I owe becoming so interested in the occult sciences.

In Milan, with Lombroso, Schiaparelli, Gerosa, and mainly Finzi, I saw some remarkable things which did not bring me absolute conviction, but which made me lean strongly toward acceptance of occult facts (see Figure 4).¹²

I decided to continue to seek new experiences with Eusapia and since that time, that is after almost forty-five years, I have conducted an uninterrupted series of studies on occultism.¹³

First, I had the chance to experiment on one of my charming and loyal friends, Gaston Fournier, who was a remarkable medium.

The decisive experiment I did with him was the following. A table was prepared so that movements were indicated by an electric bell. The alphabet, placed at the end of the room, was in semi-darkness. Gaston had his back turned. He put his hands on the table and made it move, in accordance with the letters over which we silently passed a pencil. We then got precise answers that had no great interest by themselves, except to show Gaston's lucidity because he could not see the letters of the alphabet. I called this the *hidden alphabet*.¹⁴

At that time a psychic society was founded in England which soon became, thanks to the eminent persons who founded it, the most important psychological society in the world. I came into close relations with the founding scholars of the new society: Gurney, Myers, Sedgwick [sic], Oliver Lodge. It was also at this time that their admirable book was published, *Phantasms of the Living*, which is like the breviary of serious occultism.¹⁵

Eusapia exhibited some very curious phenomena. But that did not satisfy me. I decided to begin again. So I had her come to a tiny Mediterranean island that I owned, on which I was the only inhabitant.

Aided by my learned friend Julien Ochorowicz, I devoted three months to experimenting with Eusapia.¹⁶ Every two days we spent several hours (overnight) studying the strange phenomena that Eusapia presented.

This woman, great and prodigious, was also scrutinized elsewhere in the most penetrating way by leading scholars, the most learned Italian physiologists, by Bottazzi, Foa, Herlitzka, Feeding [sic], Myers, Schrenck-Notzing, Albert de Rochas, Flammarion, d'Arnsval, Curie, Mme. Curie, Courtier, etc., etc.¹⁷

I do not believe that any medium has ever been subjected to such severe surveillance, which was also repeated. However, she was accused of fraud, and Myers was tempted to believe in fraud. While at home one day in Paris, after a brilliant experience, I said to Myers: "This time are you sure of the reality of the phenomena, you will never look back on this belief?" And he swore it to me.¹⁸

I had close ties with Fr. Myers for whom I professed as much affection as admiration. We made many psychological trips to see renowned mediums in Zwickau (Saxony), in Rome, in Kalmar, Sweden, but I cannot relate them here . . .¹⁹

It has often been said that I was deceived and an ineradicable legend of the mystification that I was subjected to in Algiers was formed.²⁰

Here is exactly what happened: at General Noël's, commander of the artillery of Algiers, there were wonderful séances that took place in a small locked room. A red light lit up the room and allowed all of us to see well. We were six people. The room was not very big, rather it was a square of about 5 meters wide. Therefore it was physically impossible for someone to come in without being seen by any of us.

However, the general had a coach driver who boldly stole the general's horses' oats in order to resell them. The general dismissed him. The thief A . . . wanted revenge, and he claimed that he had played the phantom. Unfortunately he found reporters, a medical doctor, and a theater director, who believed the words of this scoundrel. A . . . appeared on stage waving a cloth, as in the *Cloches de Corneville* [a French operetta]. That is all. Will I be believed when I say that this is not serious?

I wanted to give a name to this new science. As I had been chosen for president of the *Society for Psychical Research*, in the presidential address that I presented in 1885 [sic] I named it metapsychic science, without knowing that elsewhere some months before, in a small Polish pamphlet, the Polish psychologist Mr. Lutołowski had proposed the same term.²¹

The word metapsychic has had a rapid acceptance, which I find extraordinary, and it is commonly used and understood.²²

I wrote a big book I called *Traité de Métapsychique*.²³ This book has been translated into English, Spanish, and German. I analyzed and discussed the occult sciences according to the strict discipline of classical science. I give here my main conclusions.

1. There is a mental metapsychics, that is to say, the phenomena of lucidity, premonition, monition, and telepathy. Human intelligence can know realities that are unknown to the senses.

2. There are phenomena of telekinesis, that is to say movement of objects at a distance. In other words, there is a mechanical metapsychics. It is as if, at times, some forms may come out from the organism (forms I have called ectoplasm²⁴); and this ectoplasm can be the basis of phantoms.

This beautiful new science—even though it is still embryonic and so can barely be called a science—is the science of the unusual. It starts with the unshakable experiments of William Crookes;²⁵ it continues with the research of Flammarion, Myers, Schrenck-Notzing, of Ochorowicz, and with that of my famous and dear friend Sir Oliver Lodge. I cannot state here all my admiration for these brave, shrewd,



Figure 5. Stephan Ossowiecki

prudent men, who have not hesitated to compromise by maintaining unpopular views, facing the dismissive sarcasm of an ignorant and malicious public. Alas! Almost all have preceded me in the great journey toward what they believed to be survival. My friend Sir Oliver Lodge happily bravely continues his apostolate in spiritualism.

I have known many mediums. With some I have experimented only once or twice, with Eglinton, with

Slade, with Mrs. Piper,²⁶ but, as interesting as the observations I made about these great mediums are, I do not have to talk about them here, because I maintain that an opinion cannot be formed from two or three seances.

I have experimented often with Stephan Ossovietzki [sic].²⁷

If Eusapia is the type of medium who produces physical effects, Stephan is the type of medium who produces mental metapsychics. *His lucidity is dazzling.* I challenge a man of good faith who experiments with Stephan not to be convinced that the intellect can know about realities that the senses have not perceived.

It is quite interesting to note that Stephan has no telekinesis effects and on the other hand Eusapia has no phenomena of lucidity.²⁸

I have often been accused of being a spiritist, that is to say of believing that deceased individuals can communicate their thoughts and memories to mediums, and sometimes reappear and revive, preserving all the materiality of their old earthly life. In truth, I cannot accept the reality of those reports, but I must admit that some strange phenomena do happen that are absolutely inexplicable by the meager data of current science.²⁹ It is therefore appropriate to go beyond and look for the laws of the unusual, because *the unusual exists*. Metapsychics is still in a beginning stage, but I am convinced that it is the science of the future.

A very generous man, Mr. Jean Meyer, founded an international metapsychic institute where remarkable work has been done in this semi-infernal domain by Geley, Osty, Warcollier, J.-C. Roux, and by some men without prejudice who believe in the superior virtue of science.³⁰

In my old age I return to my starting point. While young I worshiped the science of life and in my final days I worship this science again. But I understand this in a broader way than when I started. The science of life merges with the science of thought, and I foresee a future of magnificent horizons.³¹

I may be wrong, but the honor of being able to conduct such research gives some value to life.³²

Concluding Remarks

In his essay Richet reminds us of many important aspects of his career related to psychical research. Among them are his early hypnosis work, his work with the “hidden alphabet,” studies of Palladino, contact with SPR workers, and his *Traité de Métapsychique*. It is clear that the amount of work invested by Richet showed a deep interest in the topic. He in fact said in the essay that he believed metapsychics was “the science of the future.”

While Richet’s outline of his psychical research career is useful, the account is very brief, barely consisting of mentions of topics and incidents with little or no description. While we cannot expect to have a very detailed account in a chapter, my impression is that Richet presents more details in the book about other topics than about metapsychics. Unfortunately this succinctness produces an account with important omissions. For example, Richet does not mention his early—now classic—use of statistics to evaluate what we would refer today as ESP (Richet 1884b), nor his writings about chance and the calculation of probability in later years (e.g., Richet 1888:25–30, 1893b, 1922:63–68).

The same can be said of his Nineteenth-Century ESP work with various individuals (Richet 1888, 1889b), among them Léonie Leboulanger (born 1837). In addition to conducting his own tests, Richet was present when Pierre Janet (1886:217) conducted some of his famous tests of induction of trance at a distance with Leboulanger, but he also omitted this information from his essay. Anyone unfamiliar with Richet’s publications would not be able to tell that he was a leader of French studies of mental suggestion in general, something that is clear in contemporary (Ochorowicz 1887) and later accounts (Plas 2000).

In addition, this account omits various other things. This includes the importance Richet gave to specific phenomena he observed with various gifted individuals—Stella, Alice, and Palladino (Richet 1922:759), and accounts of various spontaneous ESP experiences that were related to him in various ways. The latter includes two veridical experiences related to the death of his maternal grandfather in 1878 (Richet 1888:162–163) and his mother in 1884 (Richet 1922:457–458).

Such omissions—as well as those regarding speculations about the “sixth sense” in terms of unknown vibrations (Richet no date c circa 1928), involvement in the early psychology congresses, and in the founding of the *Annales des Sciences Psychiques* (Alvarado 2011b, Alvarado & Evrard 2012)—show the limitations of the essay to provide us with a good view of Richet activities regarding psychic phenomena.

While no autobiography can be complete, the succinctness of essays such as this one cautions us about the use of autobiographical documents as single sources of information to trace someone's life work. Like all human accounts, they are based on personal perspectives about what was important or not, something that may distort the record. Autobiographies, like history in general, are reconstructions of the past, but reconstructions based on one person's perspective and motivations, on their priorities at the moment of ordering the recollections of a lifetime.

The latter is particularly an issue when recollecting controversies. Richet's account of the accusations of fraud surrounding the materialization séances he had in Algiers (Richet 1905a; see Note 20) is incomplete. The issue was not *only* that Areski said he faked the phenomena, as Richet simply stated in the essay. There were other issues that went unmentioned, such as the supposed confession of the medium, and the existence of a trap door (for overviews and references, see Brower 2010:84–92, Evrard 2016:172–199, and Le Maléfan 2002). Regardless of the validity of the critiques, and Richet dealt with them at the time, a modern reader unfamiliar with the situation will find that Richet was very selective in his account of the events.

Such selectivity extends to Richet's gloss of critiques about his best-known work, the *Traité de Métapsychique*. Readers of Richet's autobiographical essay will not realize the differences of opinion that the book elicited. Some of these critiques were negative, not only putting in doubt Richet's conclusions, but casting doubts over metapsychics as a discipline (Janet 1923, Pieron 1922). At the other extreme were the critiques of others, among them Gustave Geley (1922) and Oliver Lodge (1923), who accepted metapsychic phenomena, but took issue with Richet's materialistic ideology, including his doubts about the possibility of discarnate action.

Furthermore, there is the problem of correct recollection of facts, since the whole account is based on memory. A few statements in the essay illustrate the problems with memory reconstruction. For one, there is the mistake of saying that the SPR Presidential Address was presented in 1885, when this took place in 1905 (Richet 1905c), although this could have been a typographical mistake. More important is the lack of perspective when Richet stated in the essay about Palladino that "it is mainly to her that I owe being so interested in the occult sciences." While there is no question that the séances with the medium had a great impact on him, we cannot forget that by the time that Richet had his first séances in 1892 he had already shown much interest in psychic phenomena, particularly what we refer today as ESP (Richet 1884b, 1886a, 1888, 1889b).

This problem with perspective is also evident with the lack of a chronological sequence of events mentioned in the essay. The reader is

not informed about the year, or time period, when Palladino, Piper, and Ossowiecki are mentioned. The same can be said of Richet's *Traité*. Not all readers will know that this was published in 1922.³³

My intention has not been to criticize Richet. Instead, I believe that all these problems, typical of the writings of others than Richet's, alert us to the limitations of autobiographical documents when they are used to understand lives and the history of a field, something that extends to the autobiographies of mediums and psychics (Alvarado 2011a). Nonetheless, when used together with other sources of information they are not only informative, but illuminating of a time period.

Acknowledgments

I wish to thank Renaud Evrard for various suggestions and references to improve this paper. Massimo Biondi provided me with some information about Italian researchers mentioned in the footnotes, and Nancy L. Zingrone offered numerous useful editorial suggestions.

Notes

- ¹ Richet stated before that there are occult phenomena but in the sense of being unknown (Richet 1891:2). In other publications he rejected the term occultism (Richet 1907:423, 1922:2).
- ² Probably refers to French physician Louis Jules Béhier (1813–1876). Regarding his ability to hypnotize, Richet (1922:121) wrote years earlier that he used to induce trance with ease in the old days but that at present it was the opposite. He also pointed out that he had heard the same from other hypnotizers.
- ³ One of the oldest hospitals in Paris.
- ⁴ French physician Henri Liouville (1837–1887), who taught at the Faculté de Médecine, Paris.
- ⁵ This probably is French surgeon Léon Clément Le Fort (1829–1893). See Richet's (1886a) report of the tests with the woman, a patient of about 25 years of age.
- ⁶ This was French physician Amédée Dechambre (1812–1886). In his article he concluded that because the effects in question were produced by "a cause other than a special agent called magnetism, we conclude with this radical conclusion: ANIMAL MAGNETISM DOES NOT EXIST" (Dechambre 1873:207). What Dechambre opposed was the explanation of phenomena via the concept of the force referred to as animal magnetism. He believed that an overexcited imagination, affected as well by the social contagion involved in rituals, could have "repercussions on the nervous

system, and . . . on organic actions,” enhancing or diminishing sensibility, and “exerting a real action on the course of disease” (Dechambre 1873:206). As for Richet, he did not say what he believed, but we know from his writings (e.g., Richet 1884a) that he did not believe in a magnetic force. I have not found evidence that he interpreted his difficulties in using hypnosis in later years as evidence for the existence of such a force. In later years Richet (1922:121–122) expressed doubts about magnetism, pointing out the difficulty in controlling for suggestion.

- ⁷ Richet’s first sentence in the paper was: “It takes some courage to utter aloud the word somnambulism” (Richet 1875:348). This paper has been considered very important in the history of French hypnosis (e.g., Estingoy & Ardiet 2005). Charles-Philippe Robin (1821–1885) held at one point a chair of histology at the Faculty of Medicine of Paris. The article in question was published in the *Journal de l’Anatomie et de la Physiologie Normales et Pathologiques de l’Homme et des Animaux* edited by Robin. On Richet and hypnosis, see Estingoy and Ardiet (2005) and Gauld (1992:298–302).
- ⁸ This is a reference to German physiologist Rudolf Heidenhain (1834–1897). Richet refers to Jean-Martin Charcot’s (1825–1893) famous and highly influential hypnosis work (e.g., Charcot 1882), which founded a theoretical approach to hypnosis that caused many controversies (see Nicolas 2004). Physician Albert Ruault (1850–1928) later became known as a skeptic of the phenomena of mental suggestion (Ruault 1886).
- ⁹ For a bibliography of Richet’s early physiological work, see Richet (1894; see also Wolf 1993).
- ¹⁰ See Richet (1883). Théodule Ribot (1839–1916) was a French philosopher who had much influence on the rise of empirical psychology in Nineteenth-Century France. He edited the *Revue Philosophique de la France et de l’Étranger*, an important French forum for articles about philosophy, psychology, and various social sciences, and one which was unusually open during the Nineteenth Century to discussions of psychic phenomena (Alvarado & Evrard 2013, Nicolas & Murray 1999).
- ¹¹ Once a Councilor to the Czar, Russian Alexander Aksakof (1832–1903), whose name has various spellings in the literature, did much work in psychical research. He is not generally considered to be a psychologist. Perhaps Richet referred to him as a psychologist due to his interest in phenomena such as mediumship.
- ¹² Palladino not only influenced Richet’s beliefs, but those of many other individuals as well, not to mention the development of research techniques and theoretical concepts (Alvarado 1993). Early overviews of her mediumship were presented by Carrington (1909) and by de Rochas

(1896:1–315). Aksakof was one of the organizers of the famous 1892 séances with this medium (Aksakof et al. 1893, Richet 1893a), which brought her mediumship to international attention. The names Richet mentioned were Italian scientists who attended some or most of the séances: criminologist and psychiatrist Cesare Lombroso (1836–1909), astronomer Giovanni Schiaparelli (1835–1910), physicist Giuseppe Gerosa (1857–1910), and physicist Giorgio Finzi (1868–1958). In addition to Aksakof, others attended as well but were not mentioned by Richet: Italian philosopher Angelo Brofferio (1846–1894), German philosopher Carl du Prel (1839–1899), and Italian physicist Giovanni Battista Ermacora (1858–1898).

¹³ On these séances, see Lodge (1894) and Richet (1895). It may be that after the Palladino seances Richet became more involved with psychic phenomena, but readers should be aware that before these sittings he had shown considerable interest in psychic phenomena (Richet 1884b, 1888, 1889b).

¹⁴ This was reported by Richet (1884b:651–653, see also Richet no date circa 1928:87–89). A clearer description of this test was presented by Richet elsewhere:

G., the medium, placed his hands on the table, every tilt setting in motion an electric bell. C. and D. also had their hands on the table but did not influence it. At three or four yards' distance on another table, and behind; on a sheet of cardboard, the alphabet was placed so that G., who had his back turned to it, could not see it. A. and B. sit at this table runs over the alphabet with a pencil, B. writes down the letter at which the table tilts, he being made aware of this by the sound of the bell. The letters indicated by this method give intelligible sentences; therefore, the tilts being due to unconscious muscular pressure by G., these pressures, indicating the letter required, must be due to lucidity. Everything happens as if G., wanting to send a message, could see the alphabet to which his back is turned and which is hidden by the cardboard sheet. The movement of the pencil over the letters is both silent and irregular, and during these experiments we intentionally talk, sing, recite verses, and in fact make such a noise that B., who writes down the letters, can hardly hear the stroke of the bell. (Richet 1923c:168–169)

¹⁵ Richet here refers to the SPR, founded in London in 1882 (Gauld 1968). The persons mentioned are among the most important early members of the Society: intellectual Edmund Gurney (1847–1888), classical scholar Frederic W. H. Myers (1843–1901), moral philosopher Henry Sidgwick (1838–1900), and physicist Oliver J. Lodge (1851–1940). The first major work of the SPR was *Phantasms of the Living* (Gurney, Myers, &

Podmore 1886), an examination of possible cases of telepathy, presenting hundreds of cases of veridical manifestations.

- ¹⁶ Ochorowicz (1850–1917) was a Polish psychologist and philosopher, as well as a psychological researcher. On his séances with Richet, see Lodge (1894) and Richet (1895).
- ¹⁷ This is a reference to Italian physiologist Filippo Bottazzi (1867–1941), Italian pathologist Pio Foà (1848–1923), Italian physiologist Amedeo Herlitzka (1872–1949), English barrister Everard Feilding (1867–1936), the above-mentioned Frederic W. H. Myers, German physician Albert Schrenck-Notzing (1862–1929), French military engineer Albert de Rochas (1837–1914), French astronomer Camille Flammarion (1842–1925), French physiologist Jacques-Arsène d’Arnsval (1851–1940), French physicists Pierre Curie (1859–1906) and Marie Curie (1867–1934), and French psychologist Jules Courtier (1860–1938).
- ¹⁸ In a paper published by the SPR, Richet said that after his initial Milan séances he was convinced of the reality of the phenomena but that about a fortnight after the events he had doubts (Richet 1899b:156).
- ¹⁹ Richet (1901) expressed his admiration for Myers in an obituary. He believed Myers’ work “perhaps will eclipse all other human knowledge” (p. 178).
- ²⁰ This sentence, and the next two paragraphs were in a footnote of which the call number appeared at the end of the previous paragraph in this paper (ending with footnote 19). Here Richet referred to his materialization séances with Marthe Béraud (Richet 1905a), which brought much skepticism and many controversies at the time, too extensive to review here (for summaries and references, see Brower 2010:84–92, Evrard 2016:172–199, and Le Maléfan 2002). The séances took place in Algiers at the villa of General Elie Noël (1835–1915) and his wife Carmencita (1846–1907). The A. referred to in the account is the coachman Areski. Richet’s account in *Souvenirs* presented here in translation does not include many other details and accusations, including his contemporary counter-critiques, which I have avoided discussing here (see Evrard 2016:172–199). Regardless of the interpretation of the incident, these accusations, and the séances in general, caused much skepticism and affected Richet’s reputation, something that is not evident in Richet’s short comment. He defended the validity of his observations in several publications (e.g., Richet 1922:599, 642–650, 1925:861).
- ²¹ The address, entitled “La Métapsychique,” was presented in 1905, not in 1885, and published in the SPR *Proceedings* (Richet 1905b). In a footnote in the address (p. 13) Richet acknowledged the prior use of the term by Polish philosopher Wincenty Lutosławski (1863–1954).

- ²² The term was used mainly in France, and to some extent in a few other (mainly European) countries, but it was not widely used in English.
- ²³ On this book (Richet 1922), translated into English from its second French edition (Richet 1923b), see Alvarado (2010).
- ²⁴ The actual first appearance of the term ectoplasm is uncertain, even though Richet has been credited with it repeatedly and Richet (1922:656) himself claimed he invented it in relationship to his observations with Palladino (see Granger 2014). He wrote about early séances he had with this medium (see Lodge 1894, Richet 1895): “In séances with Lodge, Myers, Ochorowicz, every time we were touched, we said, half jokingly, ‘an ectoplasm again!’” (Richet 1922:637, footnote).
- ²⁵ As is well-known, Crookes (1832–1919) was an English chemist and physicist interested in the phenomena of Spiritualism, particularly the physical ones. Richet (1905c:7) admired Crookes’ scientific courage in discussing controversial topics, and believed that Crookes’ studies were of fundamental importance for physical mediumship (Richet 1922:35).
- ²⁶ This refers to English medium William Eglinton (1857–1933), and American mediums Henry Slade (1835–1905) and Leonora E. Piper (1857–1950).
- ²⁷ Ossowiecki was a famous Polish psychic. Richet (no date c circa 1928:148–162) gave a summary of his experiences with this psychic.
- ²⁸ Actually, some mental phenomena have been discussed with Palladino (Venzano 1906). Similarly there were rare physical phenomena with Ossowiecki (Barrington, Stevenson, & Weaver 2005:23).
- ²⁹ Richet (e.g., 1922, 1924b) wrote repeatedly about his views about survival. For example, he argued that cryptesthesia from the mind of a medium “is much simpler than survival, because survival supposes incredible amounts of facts, unheard of, which collide in front of all accepted physiological truths which are contrary also to logic, and which warns us that what is born must die” (Richet 1922:261). Commenting about discarnate and human agency explanations of phenomena, Richet stated near the end of his life that “we face monstrous improbabilities; we swim in the inhabitual, the miraculous, the prodigious” (Richet no date b circa 1933:289). His views on the topic are summarized by Alvarado (2016). I am grateful to Renaud Evrard for pointing out to me that Carroy (2015) has argued that Richet was more positive about spiritist interpretations in his literary fiction works dealing with psychic phenomena (on the latter see also Carroy 2004).
- ³⁰ Meyer (1855–1931) was a French industrialist and spiritist who funded the Institut Métapsychique International (1919). The other men, all involved with psychical research in France, were physician Gustave Geley (1868–

1924), physician Eugène Osty (1874–1938), chemical engineer René Warcollier (1881–1962), and physician Jean-Charles Roux (1872–1942).

³¹ This paragraph and the next sentence are separated from the text and may have been meant as a short conclusion to the book, and not as a commentary about metapsychics.

³² At the end of his *Traité*, Richet stated that regardless of difficulties in understanding psychic phenomena there “is no reason for not increasing our efforts and labors. . . . The task is so beautiful that, even if we fail, the honor of having undertaken it gives some value to life” (Richet 1922:793).

³³ Renaud Evrard suggested to me that it would be interesting to compare the chapter presented here with Richet’s previously written but unpublished *Mémoires sur Moi et sur les Autres*, held at the Fonds Richet of the Académie National de Médecine (<http://www.calames.abes.fr/pub/anm.aspx#details?id=FileId-363>), which I have not seen. In fact Evrard, who has done much research about Richet (Evrard 2016:Chapter 5), suggested the possibility that Richet used the *Mémoires* to write *Souvenirs*.

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HISTORICAL PERSPECTIVE

Mediumistic Phenomena by Julian Ochorowicz

TRANSLATED BY CASIMIR BERNARD AND ZOFIA WEAVER, EDITED BY ZOFIA WEAVER

Part I, published here, includes the sections Introduction, Excursion in Search of New Truths, and A New Category of Phenomena.

Part II, to be published in the Summer 2018 *JSE* issue 32:2, includes the sections Warsaw Experiments with Eusapia Palladino, Official Sitzings, Conclusions Drawn from the Warsaw Experiments.

Introduction by Zofia Weaver

Mediumistic Phenomena by Julian Ochorowicz is the title of a series of booklets, in six parts, published in Polish from 1913 to 1915 (Ochorowicz 1913—first encounter with Eusapia Palladino in Italy in 1893, and her subsequent visit to Warsaw. Ochorowicz wrote these accounts immediately after the events they describe, but because of the hostility to the subject of mediumship in Poland they remained unpublished in his desk for 19 years. The next four parts, not translated here, cover other material, mostly experiments with Stanisława Tomczyk (who was to become Mrs. Everard Feilding in 1919) and the controversy over the photographs relating to them.

Julian Ochorowicz was a charismatic personality, active at the very center of Warsaw's intellectual and artistic life. Even after he moved away from Warsaw to the far south of Poland, he drew many distinguished visitors to his new abode, and his presence there helped to turn it into a very popular resort. However, his interests (and perhaps his uncompromising manner of promoting them) did not make him popular with the orthodox scientific community.

By now his contribution in many branches of learning, particularly psychology, has been recognized in Poland, and his reputation restored. However, as in the case of many other prominent figures, his “belief in the reality of mediumistic phenomena” is presented as a misguided aberration, especially when “Hugo Münsterberg, in an extremely simple and clever way, proved her [Eusapia] to be fraudulent in moving a table with her foot in 1909” (Ochorowicz 1996). While Münsterberg did nothing of the sort, Ochorowicz knew a great deal about cheating and was always on the lookout for it, as the following text makes clear. There is caution, there is objectivity, but there is also an exuberance and a vitality in these early encounters between Ochorowicz and Eusapia's phenomena which I think make fascinating reading.

More than half of this translation was the work of Casimir Bernard, a Polish researcher now deceased. He lived in the USA and did the translation because he thought it was worth doing, and sent it to me many years ago. Since then, the relevant parts of *Mediumistic Phenomena* have been reprinted in Poland, which meant that I could obtain the Polish text and translate the missing parts—because I also think it is worth doing. However, not everything seemed relevant, and for this reason parts of the text are omitted and parts are summarized. The omissions are indicated by [. . .], while the summaries are in italics and in square brackets.

— Zofia Weaver

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Excursion in Search of New Truths

A number of acquaintances, interested in hypnotism, gathered at my home in June 1892, in order to examine a boy purportedly exhibiting the phenomenon of possession by the ‘spirit’ of a woman, which would not leave him in peace, scaring and tormenting him, causing various noises which would be troublesome even to the neighbors. Briefly, the home of this boy was ‘haunted’. We were interested in taking a closer look.

Having sat down, according to all the rules of a spiritualist séance, we quickly determined that the boy rapidly enters a hypnotic trance, and in that state drops to the floor, crawls on all fours and undresses, throwing the items of clothing all around. Finally, he demands that the lights be turned off, all along complaining about the alleged woman, yet promising in her name that frightening events will occur.

And so indeed, after the lights were turned off, ‘frightening’ things began to occur. Chairs turned over, the easy chair bounced up and down, shoes flew through the air. I finally had enough of this—lit a match and caught the perpetrating ‘medium’ red-handed. I put him into a deeper trance, while holding his hands and feet.

Even the second session did not bring out anything beyond the fact that this ‘possessed’ boy would freely enter into ‘active somnambulism’ through the autosuggestion that he was ‘possessed’. Upon awakening, he had no memory of what had transpired.

I decided to free him from this bondage which, while giving nothing to science, interfered with his work. While in a hypnotic state, I gave him the

following suggestion: "From this moment on, your 'lady' has no power over you. She has left, never to return."

In an awakened state, but still sleepy, the boy was taken home. Several days later we had the opportunity to ascertain that all phenomena had stopped and as of that morning humanity woke up the poorer, having lost one 'medium'.

I would not be telling this story if not for the following circumstance. Among those present at the sessions was a certain luminary who, in answer to my sceptical views of 'mediumship' in general, made the following remark: "and yet, in the presence of a certain Neapolitan woman, I have seen occurrences which I cannot explain to myself in any way." And he began to tell the story, which I will relate later.

When he finished, I answered: "You know, for the past 20 years I have believed in magnetism and hypnotism, but I have never been a spiritualist, and I hope that I will never turn into one, for the simple reason that all I have seen in this regard (and I wanted to see everything possible) led me either to unmasking fraud, or to uncertain results of no scientific value. Finally, it led me to the admission of certain facts, extraordinary only superficially, such as: the gyration of tables as a result of unconscious pressure by those present, or the so-called 'cumberlandism', caused also by involuntary muscular movements under the influence of the prevailing thought. Besides, even Slade did not show a thing that could indeed be considered a new group of phenomena. Upon my return home I was able to imitate his automatic writing so successfully that several persons assumed that I also had contact with the spirits."

I hear and read that others were more lucky, that they experienced this exquisite emotion which results from sensing a new truth, but as far as I was concerned, I initially experienced it with 'magnetism'. I had such experiences during some of the electrical experiments, and again in some psychological phenomena, but never in the so-called spiritualism, in the course of which naïve people converse with their own unconscious self, assuming that they converse with the spirits. I will not say, as Bouillaud did: "I believe because you tell me so, but I would not believe if I saw it myself"; however, I will tell you this:

"That which you tell me astounds me. I have no reason not to believe you; I do, however, have reason not to include among my beliefs that which I have not been in a position to ascertain through personal observation (I will not call it 'understanding' for I would consider that stupid conceit). Convince me!"

"In that case you will have to come to Rome if the occasion presents itself for conducting experiments with this remarkable woman."

“I will come.”

Several months later I received from Siemiradzki the following letter (Henryk Siemiradzki, 1843–1902, a successful painter, mainly of scenes from antiquity; recipient of awards and distinctions, including a Gold Medal at the Paris World’s fair in 1878; from a noble family, he had studied natural sciences as well as painting. He settled in Rome in 1872, but visited Poland frequently and was part of its intellectual and artistic community):

Rome, September 21, 1892

During my stay in Warsaw I told you about the unusual phenomena which I witnessed at the sessions conducted in Rome with Eusapia Paladino under conditions which definitely excluded any possibility of subterfuge and fraud. I enclose a clipping from the daily *Popolo Romano*, from which you will learn that a group of scientists (there is among them the famous astronomer Schiaparelli and the former minister of commerce and industry, Colombo) had the opportunity to ascertain these facts. Eusapia, on her way to Milan, knocked on my door. Unfortunately I was not home and she apparently was in a hurry. So it is only today that I learned from the paper the purpose of her journey. In any case, I will advise you when a convenient opportunity arises to spend several days with her.

My best regards, Henryk Siemiradzki

The enclosed clipping reported from Milan that spiritualistic sessions of a scientific nature had been held at the home of Professor Finzi, a well-known expert on electricity, and that the object of these studies was the Neapolitan medium Eusapia Paladino, who was purposely brought from Naples by Mr. Chiaia, a well-known spiritualist, and that Lombroso called these phenomena ‘astonishing and inexplicable’, that all possibility of deception had been excluded, and that, finally, the public was awaiting the results of these experiments with great interest.

Clearly, I could not judge the import of these events on the basis of this report.

Newspaper accounts had been contradictory for some time; it had been reported that deception was unmasked, that the scientists declined to sign the report, etc., until, finally, on October 31, the daily *Italia del Popolo*, and then other newspapers, published a report by the scientists that ended with an acknowledgment of the reality of these phenomena, this “inconvenient truth,” and an expression of encouragement for conducting further studies.

This report, in addition to the already known spiritualists’ reports, was signed by four naturalists and a professor of philosophy. It ended with the statement that some of the sessions were attended by Cesare Lombroso, the well-known psychiatrist, and professor at the Medical School in Torino,

and Charles Richet, physiologist and professor at the Paris Medical School.

Because they did not attend all the sessions, they declined to sign the report. Was that the only reason?

As far as Lombroso was concerned, I knew that he was already convinced on the basis of previous experiments with Eusapia, and that he attempted to explain the phenomena from a psychiatric point of view. I was more interested in Richet's opinion, firstly because here was a cautious mind, thoroughly acquainted with hypnotism, and secondly, because I knew him well, having worked with him for several months. I knew that no theory would entice him and that he would be strict with regard to the facts.

Richet's report appeared in *Annales des Sciences Psychiques* in February of this year. It was less positive than the former ones. Richet did not discover fraud, did not interpret the phenomena as hallucinations, but at the same time he did not consider the experiments to be fully convincing.

At a time when I was trying to reconcile du Prel's assertive statements with Richet's doubts, and with Torelli's outright accusations of Eusapia manipulating an instrument hidden under her skirt, I received the following letter from Siemiradzki:

Dear Julian,

Eusapia is at your beck and call. Could you not come now? It would be of great importance. I again had, unexpectedly, a session with this powerful medium. That evening I had a visit from the painter [Karol] Miller and my cousin Ludomir Prószyński. Eusapia dropped by, I asked for a small table, a lantern, and some 'magic devices' to be brought in, and we had a séance. We held Eusapia's hands. Apart from her, there were five of us, four at the table and my wife outside the circle, at the window.

Chairs were moving around the room, transferring onto the top of the table. One of them placed itself on top of Prószyński's head. The piano played at the touch of an invisible hand, and then, when I demanded that the other hand should make its presence known, we simultaneously heard the bass and the high notes, while a third hand beat the rhythm and drums on the table.

Mysterious hands brushed against our faces, squeezed our hands, and one of them, at my request, left the imprint of five fingers on a soot-covered plate (the fingerprints were clearly visible while the hands of those present were clean). Little lights floated between us in different directions, the hierophone played and moved from place to place, steps resounded all around us, and for the finale a hand took my wife's hand and led her to the circle, placing her hands between mine and Eusapia's. A bearded face touched mine and Miller's blowing kisses. Finally, a table leg rapped out the word *Addio* and a powerful pounding of the table ended the session.

We parted. Miller and Pruszyński were almost in a state of shock, having never in their lives had such an experience. I also had great difficulty

in falling asleep, pondering over the lack of knowledge and study of such interesting and undeniable facts.

It would be a sin for you not to take advantage of this opportunity. Advise us only the date of your arrival and we will bring Eusapia from Naples. She promised that she would gladly come.

H. Siemiradzki

I thought to myself: They have gone insane, or there is something in it, at least some exceptional method of deceiving people.

I simultaneously received two articles from *Nowości Warszawskie*, the daily, where the author, analyzing both reports in detail and basing his conclusions on the speculations by Torelli (editor of *Corriere della Sera* in Milan), and doubts expressed by Richet, reaches the conclusion that it is all a fraud with the aid of some accomplice.

In view of such an interpretation of Richet's report, I decided to obtain a statement from him privately. I therefore wrote to him, asking whether or not there was anything in it.

Richet answered that he intended to study Eusapia's 'productions' further, and he wanted to bring her to Paris. He ended the letter with the following remark: "That which I saw was not unconditionally conclusive but very worthy of further attention."

If that was so, then I would go. I telegraphed Siemiradzki and Richet that I would be in Rome on 12 May, and was getting ready for the trip. I added that I had already demanded previously that Eusapia arrive in Rome alone, and that the experiments should take place in a private home.

Leaving Warsaw on Tuesday night, traveling via Vienna, one can reach Rome on Friday morning, no earlier. I relieved travel boredom by studying Italian grammar and deliberating on the possible outcome of my trip.

My thoughts ran along the following lines: Some maintain that Eusapia has a device with the aid of which she lifts tables. There is no great difficulty in determining that. Others do not suspect fraud but cannot make up their minds. Richet, for instance, is sitting on a fence. What the hell, these things can be resolved. As far as I was concerned, I would be content if fraud was unmasked. So many fraudulent mediums had already been unmasked that catching one more, a famous one this time, who has managed to convince so many scientists, would bring me satisfaction and peace of mind, because I would stop bothering with spiritualists' claims once and for all. This may not be entirely fair, because a hundred contradictory facts do not negate one favorable one, but in the eyes of the majority of investigators, and to some degree in mine, I would be justified.

If, on the other hand, it was possible to verify the reality of the phenomena, I would also be satisfied, because although it would destroy my

current worldview—what an upheaval in that worldview this would bring, what an unexpected widening of the horizon, and frightening to consider.

What I was afraid of most was to return undecided . . .

Italy! What a fabulous country! Rain—the first in many weeks—is falling on the fields of Campania. Hay already in stacks, wheat up to the knees, poppies so purple, like nowhere else. Only the sky is not Italian yet—it is grey.

Rome! At the end of via Gaeta, adjacent to Rudini's (the former prime minister) villa stands Siemiradzki's colorful little mansion, surrounded by a garden on both sides. I look to see whether it is twirling or rising—but no.

Palms, eucalyptus trees, cypresses, give me a friendly and peaceful greeting, only the mastif Orso bares his teeth.

“Is signor Siemiradzki at home?” “Yes, signor.”

We greet each other. “What about Eusapia?”

“Just imagine! She wrote to me yesterday that she is indisposed and cannot arrive before Tuesday.”

“Confound it, it's always like that with women. But maybe her device is being repaired?”

“But I do have a letter for you from Richet.”

At this point I must mention that in listing the circumstances which compelled me to become interested in Eusapia, I omitted the most important one. Several weeks previously, I was able to confirm a rare and thus far unrecognized hypnotic manifestation, that of sightless ‘seeing’. Such a fact, seemingly, belongs in the realm of the miraculous, and thus the possibility of something even more miraculous (such as Eusapia's phenomena) became a question of degree. I had mentioned these discoveries to Richet when inviting him to come to Rome. This was his answer:

My dear friend! It is impossible for me to come to Rome at this time. My family and professorial duties are many. They have shackled me to such a degree that escaping from Paris at this time is impossible. I regret it bitterly.

I am truly delighted that you were able to ascertain this manifestation. What a tremendous step and progress it would be if you were able to discover the conditions under which it occurs.

You would then undoubtedly publish your findings. If so, then do it in *Annales des Sciences Psychiques*, which I edit.

In this way I think the matter will gain greater publicity than through any other channel.

Best regards, Charles Richet

This communication improved my mood, spoiled by Eusapia, who responded to another telegraphic enquiry that she could not come earlier

than the 16th of that month.

“Can’t do a thing about it,” I said to Henryk, “take me to your studio. Let me console myself with the sight of the theatre curtain you are painting.”

It was excellent. There were three sections to it. With colors of the spring, not too many figures, but each beautiful and clear. It is certain that Cracow will have a curtain like no other in Europe.

But, in addition to the curtain, there were other canvases worth seeing.

The first one was titled *At the Well*, showing a young couple. In front of the well is a basin—and I’ll be darned if that water does not look wet.

The other one, related to the first one, could very well be Siemiradzki’s best, in that category. *The Peddler* sits on the ground with a variety of trinkets spread in front of him. There are two girls facing him. I look at the face of one of them, and see that she has already picked her choice and is now only enquiring about the price, while the other one cannot make up her mind. I turn my eyes to the hands and am convinced that the faces told the truth. The sunburnt peddler, sleepy in the scorching sun, barely condescends to answer these paltry customers. The sun is sifting the noonday swelter through cracks between the leaves. The air, the distant panorama—what delights!

If this painting warms, then the next one, just started, titled *The Demolished Villa*, in the vicinity of Rome after a robbery, sends a chill. There are no people here, but the sky looks so grim as to send a cold wave.

In the fourth one, a small one, a girl is watering a delightful bouquet of flowers. “She is not attractive,” I told Henryk.

I returned to the studio half an hour later and saw that Henryk put a dab of white paint around the mouth and nose. She became pretty.

“Listen,” I told him, “maybe you and Eusapia are playing tricks? You swish your finger through the air and something strange happens? But I warn you, if I catch you red-handed you will be buried forever. I will announce it in *Kurier Warszawski* and you had better not show your face in Warsaw.”

“Wait, wait,” he says. “Wait until Eusapia arrives.”

In the meantime, though, there is no Eusapia!

I swing in the hammock in the shade of the eucalyptus tree, read *Popolo Romano* and sigh, or climb the twisting staircase to the platform of the palace, send a yearning gaze beyond the southeastern hills, or, finally, ask the mastif Orso to give me his paw. He, forgetting his former prejudices, complies. Henryk tells me that I have charmed the savage. What of it, if there is no Eusapia?

Tuesday finally arrived. We waited until noon—nothing, we waited until the evening—still nothing. We sat down to dinner in a sour mood. I taunted Henryk by saying that Eusapia feared proper controls and apparently

would not come.

At that moment someone knocked on the door. "Come in!"

A small, corpulent but quite shapely figure rushed in, wearing a rakish hat, out of breath, cheerful, and greeted her acquaintances. She related, in her Neapolitan Italian, that, being scatterbrained, she missed the morning train and has only just arrived.

I was angry because I understood little, but gradually and with the help of the Siemiradzki I was initiated into the secrets of the Neapolitan dialect.

Eusapia is no longer young, nor is she pretty, yet with her liveliness and pleasing facial features she gives the impression of a likable rascal. The large black eyes flash and sparkle when she livens up, while the hands gesticulate in the lively manner of a southerner. In moments of excitement she is very funny: She grabs her neighbors by their lapels, bounces up and down, and at the mention of Torelli she shakes with anger. At the same time she betrays more sensitive emotions and gets easily moved when wrong is done to others.

In order not to lose time, I put aside for another time my plans for the specific testing of Eusapia. Meanwhile, we ask that the table be cleared and get down to the first session.

The servants, sensing what this was about, ran out and locked themselves upstairs, and because there was no one else in the house, we were completely isolated. In spite of that, to make doubly certain, I locked the door myself and looked into all the corners.

The table, which had been specially constructed for such experiments, was quite sizable, rectangular, and made of white wood. First of all I checked it thoroughly, testing all the mechanical possibilities of moving it. Six persons could sit at it comfortably. There was no overhang of the tabletop; there was no way that a foot could push it upward, while a hand on top of the table could move it under certain conditions, but not from the side of the person pressing it.

The table stood by the window, with six wicker chairs placed around it. In the center of the room, on a stone floor, stood a large dining table, upon which I placed a variety of instruments and devices I needed for the experiments. Among them was a magnet which intrigued Eusapia.

"What is it?" she asked. "Una calamita!" I answered. "What purpose does it serve?"

I showed her that it attracted iron. So she tried—with the naïvete of a child she tested whether it would attract her fingers. Upon seeing that it did not, she cast the magnet aside with disdain.

Besides Siemiradzki and Prószyński, no other persons taking part in this first session had ever met Eusapia before. Prior to that session I subjected

all the participants to a hypnoscope test, in order to determine whether they are susceptible to suggestion. Only one person turned out to be sensitive, but to a degree which would not result in hallucinations. Siemiradzki and Prószyński were not sensitive.

The room was full of light.

Eusapia sat down at the narrow end of the table. We held her hands and legs from both sides, so that no movement on her part would escape our attention.

From the moment Eusapia sat down at the table she became serious. No more than 30 seconds passed when the table became restless. It moved, tipped, lifted somewhat and finally all four legs lifted off the floor rapidly; and just as rapidly the table dropped to the ground with a lot of noise.

Throughout this entire process, Eusapia barely touched the surface of the table with her fingertips, sometimes even letting it go momentarily, and her legs did not change their position (I held one at the knee). Only her face would show as if in an expression of pain, she sighed and her grunts would increase with the intensity of the table movement.

At the time I sat on her right side, and it seemed though that all the movement originated on the left side. As if reading my thoughts, Eusapia demanded that I change seats, which I did. It was then, while holding her left hand and touching her left leg, from the knee down to the foot which I held down with my foot, that I felt the brush of her skirt billowing and nudging the table leg. At that moment I grabbed the fold of the dress, but there was nothing underneath.

Levitation of the table occurred a few more times (I saw it in total 15 times) under various conditions. The less light there was, the easier were the manifestations.

Under one of the conditions, Eusapia pulled both her legs from under the table and put them in my lap. With one hand I held both her knees, with the other I held both palms, while Siemiradzki, who sat next to me, held her feet by the tips of her shoes. In spite of that, the table levitated as before.

Another experiment was made under the following circumstances: I asked that the unseen force press down on a dynamometer which was in the center of the table (in the form of a weighing scale with a plate). In full light nothing happened. In a weak red light nothing occurred either. While we waited in vain, the table rose and the leg registered five taps, which in the conventional system means: 'less light'. We extinguished the lights and almost immediately heard that the dynamometer was depressed so powerfully that we heard the springs vibrate.

Because the indicator did not lock in at the highest reading, we did not have a record. I went for another dynamometer and requested that the

invisible hand give us a reading of its strength.

After a while (in the darkness), we heard movement of the instrument and suddenly something inserted one corner of it into my hand very carefully, so I would not touch the dynamometer's indicating arrow. I turned on the light and we got up. Eusapia, whose hands were held all along, also got up. I looked at the instrument and showed it to the others. The power indicator, which was depressed to its maximum reading, showed more than 200, the equivalent of 80 kg (an exceptional degree of masculine strength).

"This would be very convincing," I remarked, "for none of us has this much strength, if not for the fact that the indicator could have been moved by hand . . ."

At that moment, the table, which no one was touching anymore, bounced angrily twice, which in the table-bouncing parlance means "No."

"Therefore the dynamometer was pressed?" I asked. "Yes." (Three taps of the table leg.)

Seeing that the table tilted by itself, we asked that it levitate by itself. After a few attempts at lifting and side motion, the table elevated the leg closest to Eusapia and slid over to her. The leg touched her dress below the left knee, and for several seconds the entire table was off the ground.

I was not quite certain whether Eusapia touched the table with her hand, for I was concentrating on her legs. *I did not see the table levitate without actual contact.* When I demanded that the table levitate with Eusapia on top, the table answered that this was not possible.

Table levitation is also not possible if the medium sits along its longer side, that is farther from the table legs (later experiments convinced me that such assurances were not to be accepted unquestioningly).

Since the stronger levitations occurred only in very weak light, we set up, with the aid of the well-known painter Mr. Bakalowicz, an instant camera with an automatic magnesium lamp. At the moment of levitation, on a signal, Mr. Bakalowicz would step on a rubber ball that injects magnesium into a continuously burning alcohol lamp. This would result in a flash of light allowing the camera to capture on film everything that was visible at that moment.

During one of those exposures, we all raised our hands off the table except Eusapia, whose hand (the one I held) remained in contact with the table. Eusapia maintained that she was unable to part from it, and indeed I felt that it was as if glued to the table.

During another levitation Siemiradzki asked that the table become heavier. Putting our hands under the table we attempted to lift the table higher than where it was suspended. This turned out to be difficult. The table, which weighed no more than 7–8 kg, hung in the air and would rise

a little, as if there was a strong, elastic pressure from the top. After that, as usual, it noisily dropped to the floor.

As I did not share the “spirits” preference for tables, and assuming that simpler experiments can be more convincing, I brought a compass, which was tightly sealed behind glass, and placed it on the table, demanding that instead of the dynamometer, she try to move only the magnetic needle, which should be much easier.

For a while nothing happened. Eusapia held her right hand, with fingers held together, just over the compass, but the needle did not budge. Several times she withdrew her hand, maintaining that her fingers hurt, but angry that although she really wanted it there was no movement.

After several minutes the needle deflected about 15 degrees in one direction, then in the other, and swung back and forth slowly. At that moment Eusapia withdrew her hand, complaining about a strong pain in the fingers, which I had to massage for quite a while in order to bring them to the normal state.

The movement did not resemble magnetic or electrical influence. It was a mechanical move elicited on a basis unknown in physics. The electroscope which stood on the table did not detect the presence of electricity either. In the darkness various evolutive actions were occurring within the unit, but these were mechanical in nature.

In a similar manner, a lamp-black coated sheet of paper was transferred to a cupboard behind the medium, and placed under a glass fruit plate, while we all held hands. I found no fingerprints on the paper.

A second session was held after a short pause. Manifestations came ever more easily and even at the beginning we heard several strong blows to the table; one of the hands coming from above brushed against my waistcoat.

After a while the chair upon which I sat next to Eusapia was tugged, while I continuously held her hand. At that time I sat near the window, with the curtain allowing a little light on the floor. At the moment of tugging I saw the billowing of her dress and as if a hand was moving along the ground from under Eusapia toward the chair leg.

I instantly felt the medium’s legs from both sides and searched thoroughly, but in the pocket I found only a few copper liras wrapped in a handkerchief. These Eusapia took out and placed on the dresser.

After a while the chair I sat upon began to be pulled from under me, forcing me to stand up, and suddenly I sensed it going over my head, coming to rest on the table. There is no need to add that while this was happening we checked continuously, verbally and through touch, for any breaks in the chain of hands, the position of the medium, and personal impressions.

Besides us, there was no one else in the room, and the doors were

locked. Additionally, the corner of the table at which I sat was in the corner of the room, so no one could enter from either side without jostling me or moving Eusapia aside.

As I stood up, Eusapia moved closer and clasped one of my legs between her knees, giving me both hands to control. Under these conditions, in answer to my question as to what I was supposed to sit on, I felt a reassuring tap on my arm above the elbow, while simultaneously the chair came down from the table and was pushed under me, with an invisible hand pressing lightly from above and compelling me to sit down. *Behind me was a wall.* Eusapia again took her legs from under the table and placed them in my lap. *I held both her hands.*

At that moment the hierophone, which stood on the large table, was transferred to our table, slid along our hands to Eusapia's legs, lay there for a while, then dropped to the floor in the corner of the room.

"It is I who let it drop from my knees," said Eusapia, "but pay attention now, for it wants to move now at two widely separated points."

And so we simultaneously heard the rattling of the hierophone in the corner of the room and a pounding on the table.

Eusapia moaned "O Dio!", and lurched forward listlessly. I had to support her. Her head inclined toward mine, and then a hand, or maybe two (I felt one distinctly) brought our heads together, so that our temples touched, following which some very strong manifestations occurred: Our table flipped on its side, the drapes were pulled away from the window and pulled over above our heads, while at the same time I felt the touch of two, and at times four, fingers on my back, elbows, knees, and chin. These were always gentle and adroit; one wicker chair standing outside our circle was placed on the piano by the wall, the other one, a heavy stuffed chair, floated over our heads and then, as if the force weakened, it stopped. Next, the window curtain draped itself over me, as if to create shade, while the chair moved to the other end of the table.

Simultaneously, the others were being exposed to a variety of touches, and in the air one could hear clapping of hands, interrupted by snapping of fingers and heavy raps on the table, or audible pats on the hands or backs, which were heard by everyone.

When we praised the alleged spirit for treating us all gently despite the darkness, we could hear the clapping of two hands in the air.

A number of times, the invisible hand would tug at my hand (the one which was holding Eusapia) at the cuff, pulling both of our hands away from the medium and toward the center of the table.

All these manifestations occurred most frequently in the vicinity of the medium; however, even those sitting farthest away were touched.

At the moment when I questioned those present regarding these experiences, Prószyński, who sat at the other end of the table, announced that he felt a cool breeze on his face. When the breeze reached Countess E. (wife of a Hungarian diplomat), who was holding Eusapia's right hand, while I held the left, the countess offered her opinion that the cool breeze must be the result of waving the large photograph which lay on the table, for she simultaneously felt as if the photograph had touched her temple. But she barely said that when there was a double tap to deny this statement.

At the same time, I felt that something was slipping the photograph under my palm, moving it around, as if to say that the photo was still where it had been. Simultaneously I felt a cool breeze on my head. It was as distinct as if someone was blowing the bellows. I add here that I felt a similar breeze at experiments with Slade, while I held the hand under the table. That was the only manifestation which intrigued me, as it occurs occasionally during magnetization. It is in this manner that the apparently intelligent but unknown force tried to prove that the breeze phenomenon was independent from the movement of the photograph.

From this stormy session, there remains but one more item to underscore.

At the time that the chair clambered up to the top of the table and appeared to lose strength, one could hear snapping sounds in the air above the medium, or what sounded like the opening and closing of the hand, a method used by magnetists to "concentrate the fluid." Simultaneously, two hands began to lightly touch the medium and the person standing next to her, doing magnetic passes from the top down. Only then did the curtain, which was thrown over us, shield the chair and begin to tense, as if held by the medium's hands (these, however, as I instantly checked by touch, did not touch it at all, yet the pulling force seemed to emanate from under Eusapia's hands), and it was only then that the chair began to move again.

When we turned on the light, the chair was still on our small table. Another chair, a lighter one, was on the piano, while on the paper, and on the plate which was covered with carbon black, and which had been carried over from the large table to the dresser, there were marks, apparently made with a finger. On the paper this had the shape of a 3 or the letter E, while on the plate there were the letters J.O., which were not very well shaped (Eusapia cannot write but she does know letters).

Countess E., who held Eusapia together with me, took the first mark to be the initial of her name. I must mention, however, that a mark similar to J.O., or 70, had been seen previously in sessions with Eusapia.

The hands of all those present, including Eusapia, were clean.

Eusapia, very tired, kept shading her eyes for at least half an hour, and seemed dazed—"un po' stonata" [a little tired], as she expressed it.

That night I did not sleep more than 2 hours. It was not because I had been disunstrung by the experiments, for they did not unnerve me or those present. Everything took place in such an easy and natural manner, that with the exception of the sudden, strong raps of the table with a fist, which might alarm one for a moment, everything appeared to be an exceptional, original, pastime, during which we constantly spoke in French, Polish, and Italian, laughing and sharing our observations.

That which disturbed my ability to sleep was simply the desire to orient myself in this chaos of sensations, unfortunately left unsatisfied.

Before we continue with the description of the séances that followed, we must get better acquainted with their 'priestess'.

Eusapia is 38 years old (she assures us that up to the age of 40 she will speak the truth), and she does not appear to be any older. In the dimmer night-time illumination I would consider her even younger. In daytime, the salt and pepper temples and a solid grey streak from the crown of her head betray her age. Her face is swarthy if slightly marred by traces of smallpox, but the features are regular. The chin is substantial and rounded. The forehead is intelligent. Facial expressions are regular, somewhat sour, but pleasant when smiling, and slightly gruff. The voice is not very resonant, with a hint of bass. The eyes are large, the eyesight average. She sees newspaper headline letters from a distance of one meter with the right eye, and 1.25 meters with the left. The pupils are moderately contractible, somewhat widened. I did not check her field of vision.

With the left ear she hears the ticking of a clock one-quarter of a meter farther than with the right ear. She senses the smell of perfume better with the left nostril. The sense of pain in the entire left half of the body seems clearly greater than in the right side. Discernment of points of contact, when using Weber's aesthesiometer, is more or less normal, but rather unsteady. Left ovary is sensitive to pressure.

The pulse is rather elevated, but also constantly changing. Before the session: 90–110; after the session 88 and full. During stronger experiments it weakens, and at times disappears completely.

At 13 she was fully developed. In this respect she presents no abnormalities. She miscarried twice, with no ill consequences.

Right knee reflex is normal, none in the left. When the hypnoscope is applied to the right hand, it evokes a lasting feeling of cold, and somewhat dulls the sensitivity. The effect is the same in the left hand, but to a greater degree. There is an insensitivity to pain, without rigidity. All this indicates the medium's sensitivity to hypnosis, which is greater in the left half of the body.

She suffers from dizziness before storms, and senses pressure and an unpleasant irritation in the left half of the head, particularly in the scar

which she obtained in childhood, on the left side of the crown of the head, parallel to the cranial plate junction. Pressure at this point causes a tingling sensation through the entire left half of the body. Sensitivity to metal is weak: tin, zinc, and new silver appear to be somewhat warmer than others. She wears a nickel ring.

Muscle strength of the hands: before the session: right = 40; left = 51
 after the session: right = 31, left = 49
 after magnetizing the right hand: right = 65
 (feminine strength rather lower than normal)

During the experiments she senses an effort and pain on the left side of the pit of the stomach; following movement of the objects being attracted, she feels muscular pain in her arms and forearms.

Eusapia has no education at all. I could see for myself that she could not read when I witnessed her trying to decipher a word that interested her. She dictates letters to friends and they are quite well-structured. By profession she is a seamstress (she sews shirts), and her current husband is a machine operator in a theater in Naples. Her first husband died of tuberculosis. She has no children; eight years ago she adopted a 10-year-old orphan whom she married off.

She conducts no public séances, and private ones only through her friends as intermediaries. These she gives seldom, as she tires easily. She does not ask for any fees and is not mercenary.

When the touch of the person who asks is unpleasant to her, she declines the invitation to experiment, for she knows that they will not succeed. Neither do they succeed when she is ill or irritated.

She said that at times when she is angry with a person, she wants to play a prank on them, in the form of manifestations occurring in trance. It does not work. She has to be well-disposed toward the participants, and they likewise toward her. A simple feeling of being indisposed also interferes with experiments, and that was the reason for delaying her arrival.

She has no memory of the more important experiments and so cannot give any explanations. By nature she is sensitive and hot-tempered, sober in her outlook, strong-willed, determined and stubborn, not very idealistic but not practical, not a dreamer. She is sincere in showing sympathy and antipathy, not a coquette; she is ambitious and revengeful—at least in theory.

She does not suffer from attacks of hysteria and has not had any nervous disorders.

Such is the roughly outlined (if I have managed to grasp it) psycho-medical portrait of this small figure, who has already succeeded in upsetting

the scientific opinion of a number of biologists, philosophers, and doctors in various European countries.

The following day, during the next séance, I controlled Eusapia's left hand and leg. The right side was controlled by Dr. Soulier, author of a work on Heraclitus (*Saggi di filosofia ante-socratica, Eraclito Efesio*, Roma 1885).

In addition to several levitations, which were captured on photographic film, and other previously mentioned manifestations, we had the following:

Prior to the session, I myself placed a heavy piano right up against the wall, with the keyboard against the wall, so the piano keyboard cover could not be lifted without moving the entire piano away from the wall. The piano was two to three meters away from our table.

Following a few introductory manifestations, the table began making sizable turns and approached the piano in such a manner that Eusapia and the several persons near her, while continuing to hold hands, were placed with their backs a short distance from the piano. Suddenly, the piano began moving away from the wall and, turning one side toward us, slid toward our backs and began pushing us all toward the center of the room.

I turned my head (of course without breaking our hand-holding chain and feeling with my entire right side Eusapia's presence), and it was then that, thanks to the reflection of a beam of light on the piano's highly polished surface, I saw the keyboard cover open and close several times, *without seeing a hand*.

On demand we heard a few chords being played simultaneously which were humanly impossible, apparently by inexperienced hands (Eusapia does not know how to play), bass and treble simultaneously. Following that, our table began to express the desire to transfer to a different, darker, corner of the room. Seeing that, we wanted to carry it in the indicated direction, but at that moment the table angrily rapped twice, and reared up on two legs, in the manner (please do not laugh) of a circus horse. Then, lightly touched by our fingers, it began its march toward the door. Here it dropped down and at that moment I felt above my head a large box, which turned out to be the box for Bakałowicz's camera, left by him in another corner of the room, at a distance of 5–6 metres. Shortly after, the tambourine lifted from the large dining room table and rattled and drummed for a few minutes, seeming to be fairly high above the table; then, going over our heads, it landed on our table. Owing to a beam of light penetrating through the crack under the door, I saw its shadow in the air.

Again, because of the light coming through that crack, I saw Eusapia's hand raised, along with her neighbor's hand hanging on, as he was holding it, in the direction of the center of the room, i.e. toward the large dining

room table—large enough to accommodate a dozen or so persons. When Eusapia, showing signs of pain and strain, flicked her hand, the table moved and with a great deal of noise took a step toward us. With the second flick of her ‘pulling’ (attracting) hand, the table took another two steps and then I felt that it moved right up to me, as the table-top bumped into me lightly.

On demand, a pencil which was placed in the middle of our table made a few squiggles on a piece of paper placed on the table (instead of writing what I had requested), after which the paper was inserted between Eusapia’s and my heads, and two hands brought our heads together so that the paper would remain in place.

The table tapped 7 times, which meant ‘light!’. The paper was still found to be between our heads; the piano was still in the center of the room, and the dining table was next to our séance table.

I am omitting the fourth session as less important, and in part already covered by the first session. From the fifth session, I will describe only the following manifestation:

On demand, tiny lights began to appear over our heads. They were clear and similar to fireflies. The ones I saw, and I could not see all as they would quickly disappear, were gold in color. They seemed to originate above the medium’s head, would travel in a straight line toward the center of the room, then they would make a sweep, similar to the squiggles on the paper, or in the shape of a carelessly drawn letter O. They would then circle in one spot and disappear. I saw three such lights and followed them step by step. These lights could not be made by phosphorus, neither were they similar to sparks, but rather to tiny golden spheres, gleaming but not sparkling.

The sixth session began with an investigation of various table rappings, which repeated themselves many times in full light. In addition to the mechanical raps, which would occur when the table would tip sideways and then fall back, there were raps which were generally known and which can be explained (although seldom in the case of Eusapia) as being the result of the pressure of hands on one side, followed by a rapid removal of hands—in addition to these raps there were sounds and murmurs within the table, which were independent of the mechanical raps.

Whenever one of us would tap the table a certain number of times, or would drum out the rhythm of a melody, with the request that it be repeated, there would follow after a while the same (although considerably weaker) pattern of raps in the table top, coming as if from the underside. If Eusapia performed the movement of rapping or scratching the table top, without touching it, but also expressing the wish that it be repeated, then after a while there would be a weak performance of sounds (which in reality did not occur). It seemed as if someone indeed tapped or scratched the table’s

underside.

There was always some delay in these manifestations, as happens with a physical echo. The less light there was in the room, the stronger the sound would be.

Upon seeing how conscientiously I placed my ear to the table top in order to determine where the sound originated, Eusapia performed the same movements immediately above my hand which lay on the table. I heard the echo right under my hand. The echo would occur only if the taps or movements were accompanied by the thought, the visualization of the sound which was to manifest. These experiments took place in bright light. At times, the sounds as well as touches occurred immediately after mentally expressing the desire. For example, the touch would occur in the mentally suggested location.

Remembering that during one of the first sessions it seemed that bringing my head close to Eusapia's would intensify the manifestations, I performed the following experiment: Mentally, I formulated a request that unseen hands give a sign, whether the contact of my head with Eusapia's is or is not helpful at this time. Having projected that thought, I inclined my head toward Eusapia's, whose hands continued to be held, but I inclined it in such a way that in the complete darkness there would be nothing to indicate that move. Several seconds later two hands gently separated them.

When in the course of various banal manifestations I mentally expressed the wish that, regardless of the degree of expenditure of my energy, experiments could be conducted that were objectively certain and proved the impossibility of ordinary mechanical action, at that moment I would feel the familiar three taps on the arm of my left hand, the one which held Eusapia's right hand. I am completely certain that I did not let go of it at that time, but at the same time I must add that Eusapia used the same gesture when animated.

An unknown force, even in this case, appeared to be a reflection of Eusapia's own individuality.

Should I really put down all of this?

A man of science, who relates matters of this kind, of necessity risks two censures:

- 1) that he is easily fooled;
- 2) that he messes up others.

It would therefore be safer to omit the stranger portion of facts, and relate the less controversial part of the story in such a manner that the reader would gain a high regard for the author's cleverness in solving the most complex puzzles. This would not present any difficulty to someone acquainted with hypnotism, electricity, and sleight of hand (I should add

here that I also studied this latter manifestation, which is of great interest to psychologists). One needs only to stretch some facts, drop certain others, here and there round out certain details with assumptions, and end with a tirade against the gullibility of certain scientists. It would then be said that the subject is of interest and very soberly written.

But because flattery of prevailing concepts, scientific or otherwise, does not lie in my nature, and I am convinced of my strictness in judging these so-called marvels, besides the positive method which I embraced, I prefer to err on the side of good faith, rather than weigh in in favor of tendencies and theories over presentation of facts; thus after consideration of the matter I decided to tell all.

Did I do the right thing? The future will decide that.

As far as the second criticism is concerned, that would be appropriate were I stating facts of which I was not sufficiently certain.

In the meantime, as long as I was not certain, as long as I knew mediumistic phenomena only second-hand or as a result of insufficiently strict and clear observations, I kept quiet.

As recently as this year I was asked to write an article on the topic of spiritualism. I declined. If I write now, it is because of facts that I observed and I see no reason why I should withhold telling the truth.

Those times, when truth had to be withheld from the masses because it was deemed an indigestible fruit, have passed. As far as any moral harm that I may suffer as a result of being accused of mysticism and gullibility—I don't really care.

However, at the same time, I emphatically and clearly state that all I have mentioned above refers to facts and not theories. Mediumistic phenomena are one thing—spiritualism as a theory, as an interpretation of such phenomena, as a certain type of faith—that is another matter. I relate exclusively facts, and these, the more shocking, the more they serve to encourage minds to investigate—the more desirable they are in the cause of progress.

And so—let us plunge deeper!

This time, there were no strangers at the table. Siemiradzki controlled the medium from one side, I from the other. We instantly obtained levitations and rocking of the table in the air, and, what was most amusing, we witnessed what I would call the vitalization of the table, which began to behave as a living, feeling, thinking entity. We spoke Polish almost exclusively.

The table, now and again halfway raised off the floor, would answer our questions by nodding, if in the affirmative, or by sliding horizontally, as one would with the hand, if in the negative.

When the table demanded that we speak (four taps of the table),

someone in our group suggested that maybe we should sing—so we began to sing *Santa Lucia*. It was then that something unusual began to happen in the table: It began *to tremble with emotion*. It was of course taking it from Eusapia, who was unconscious, while the table was very animated, and both trembled as a tuning fork would after being hit. Do not, however, assume that Eusapia was moving around—she sat peacefully, but if touched, one could feel a tiny vibration through her entire body. Her pulse, however, could not be detected. When we finished, one could hear throughout the room, as if above us, the laughter of satisfaction. Following the laughter, we heard, seemingly above the table, a voice which attempted, with difficulty, to pronounce my last name. (Eusapia, when asked later, after coming out of her trance, whether she liked the song *Santa Lucia*, answered “So, so,” and simultaneously one could hear clapping.)

The trembling of the table during those voices was indeed a moving experience.

As far as the voice itself is concerned, although I did not have the impression that it emanated from Eusapia, that in itself is not yet proof, for in the dark orientation as to directionality is very difficult.

I should add that Eusapia continuously complained and murmured “O Dio!”, and every now and then had hiccups, which did not leave her during the trance.

After a while the table began to be restless. We surmised that it wanted us to recite the alphabet, following which it spelt (not without difficulty) *riposo* (rest).

Because I had to hurry back to Warsaw, we conducted several séances per day. Today, the promise of a convincing manifestation was to be fulfilled. We sat in darkness, which apparently was insufficient for our table, for it moved to another corner of the room where there was no longer any reflection of the light. In the center of the room, on the large table, stood a large bowl filled with sculpting clay, and there were several pieces of carbon black-covered paper.

I held the medium’s right hand, while Countess L. held her left. After a while Eusapia began to be restless and to moan. Suddenly she said in Italian, in the name of the supposed spirit: *I am going to lift my medium, along with the chair, to the top of the table.*

We concentrated our attention. I am positive that I did not let go of Eusapia’s hand and that she did not lean against mine—she only began to moan more and hiccupped. Before I realized what was going on, and how it happened, I felt that she was on top of the table along with her chair.

Countess L. assured me that she did not let go of Eusapia’s hand.

And so several minutes passed, when my right hand, which was above

the table, was lightly touched by some hard object. I fingered it—it was the bowl with clay which we had left in the center of the room.

I thought to myself that there must be an impression left in the clay. I therefore doubled my attention and continuously monitored Eusapia's movement. She was writhing but not leaning over, and without a considerable leaning over there was no way in which she could put her hand into the bowl. Suddenly she drew herself up, stood up, and stretched her hand forward.

"Catalepsy . . ." she stammered.

I did not hold her motionless, but purposely fingered her arm continuously. Her arms were stiff and I could feel no pulse. I kept asking Countess L. for the position of her left hand and kept getting told that she was holding her left hand, but suddenly the Countess announced: "Eusapia slid out her hand . . ."

"Look for it," I said.

"It is stretched upward and stiff."

I was angry because for a moment I did not know where it was. If therefore the imprint in clay was of the left hand, the experiment would be of no value. But what could I do except to wait?

"I will lift my medium into the air," said the "spirit" through Eusapia's lips, speaking quite good French, which she does not know in her normal state.

Indeed she was lifted, and for several seconds; sliding my hand under her shoes, I sensed that she was in the air, about five or six inches above the table. Then she dropped down. She asked everyone to hold hands, and the two of us who were next to her were to hold the sides of the chair with the other hand.

I had assumed that she would be brought down along with the chair; meanwhile she slid to the floor, on my side. I do not know how the chair came down. Upon turning on the light we found, as if through a scarf, a deep impression of the right hand in the clay.

I am certain that I did not let go of her right hand at any time; besides, the one in the clay was larger than Eusapia's and had longer nails. Eusapia's scarf did not show any marks of clay.

I asked later, after the experiment, that Eusapia's hand create an impression in the same position, with her own scarf, for the purposes of comparison. A plaster of Paris cast was made of the impressions, and these were photographed. We obtained in addition another impression of the hand holding the leg of the chair, while it was lifted to the table, also an impression of five fingers, and other marks on carbon black-coated paper, which we fixed with varnish.

Immediately following these experiments, everyone's hands were

examined by all those present, and found to be clean.

On the paper we found various pencil marks, which could be reduced to three types: 1. a question mark, 2. a ditto sign, and 3. as if of a finger. On the backs of three persons there were chalk marks, most frequently in the shape of a question mark. On Siemiradzki's and my shirtcuffs were numerous s-shaped pencil marks. The direction of the marks varied greatly. Finally, on the inside of two slates which were one on top of the other, on the table, there was a very clear chalk mark which looked like "87", with a dot over "8". We do not know what this was supposed to mean.

After the session, my muscle strength dropped from 135 to 60, although I did not feel the kind of tiredness that comes after magnetizing a dozen or so persons. Siemiradzki was so tired that it was noticed by Eusapia's "spirit", who asked him to leave the circle before the end of the session, and his place was taken by Prószyński, who had not yet taken part that day. I do not need to add that Eusapia was the one who was most tired. The room temperature was in excess of 20 °C, but due to the need for control the room had to be completely closed off.

When we sat down to the last session, Eusapia almost immediately asked that we break up the chain, as she wanted some water. At this time, the table rapped twice, which meant that it was opposed to it. Not many minutes later I heard in the dark that Eusapia was drinking water. I held her right hand. "Mr. Prószyński, are you holding her left hand?" I asked. "Yes, I am holding it, but Eusapia is drinking water and we would like to have some too."

He had barely said that when he added that something was holding a glass of water to his lips. After a while I felt the same, but before I was able to drink some water the glass withdrew. "May I have it again?" I asked.

The glass came back immediately; I drank some water, and at the same time imperceptibly let go of my neighbor's hand and grabbed the hand which was serving me water—but fast as my movement was, the invisible hand slipped out even faster, gave me a light slap and spilled water on my fingers. I accurately sensed only that the hand was rather large, somewhat bony, not cold, and that it held the glass from the bottom and not the sides.

I asked John King (for that is the name of Eusapia's "spirit", most likely a cousin of Katie King, who was photographed by Crookes. Later studies have shown that there were no family ties, not even a spiritual entity, and that the said John King, who by the way, did not understand a word of English, was merely a suggestion of the spiritualists) that he allow me to touch his hand simultaneously from both sides—for I became convinced that he could see perfectly well in the dark, and I could not match his adroitness.

He promised, but as many times as I tried to grab for it, it would

disappear. I thought therefore that he would not keep his promise, especially since, when requested that he extend his hand for a handshake, he would pull our hands (not Eusapia's) across the table and bring them close together, as if to say "shake each others' hands." Only toward the end of the last session did he allow me to touch the hand from both sides, but only very briefly, so that all I could check was the thickness of the middle finger of a man's hand, nothing more. Others were even less fortunate.

"In any case," I said to John, "I know you have hands. Do you also have legs?"

At that moment one could hear the stomping of feet in boots, behind, on Eusapia's left side. Some of us also heard a few steps. I was not certain whether it was stomping in one place, or walking. I pressed both of Eusapia's feet with mine, therefore I am certain that she did not move them.

I already see my readers laughing at my "spirit" boots. I am also laughing, but what can I do? I must relate things as they happened.

In other words, John was a "person" who had palms without arms or torso, for he never touched anyone with another part of the body, not even the elbow, although he continually moved among us from one side to another, on the table or under. Sometimes the feet (in boots) and a bearded head joined in (it brushed against my forehead), although I would not bet my head on that, for it could have been Eusapia's hair. In all fairness I must say though that I did not see any suspect movements on her part, and John's lips kissed the hand of one of the ladies loudly, and from a distance Eusapia could not possibly reach.

Such was our parting with John King. "Are we going to see each other again?" I asked. "Yes." "In Rome?" "No." "In Paris?" "No." "In Warsaw?" "No." Someone remarked: "Maybe in Petersburg?" "Yes."

This answer was probably the result of the news that a circle of some wealthy persons was proposing to Eusapia a trip to St. Petersburg. As far as I was concerned, I had not the slightest intention at that time to accompany her on that journey. The future would show whether John prognosticated correctly. In any case, if I did go there, it would not have been to confirm his prophecy. (He was wrong, for we saw each other in Warsaw, and I did not make it to Petersburg).

The following detail from this session deserves attention, in connection with what I said regarding the rappings. Because all the doors around the house were locked, two houseguests returning from a walk were unable to get from the entrance hall to the antechamber. We did not hear their clamoring, but they unanimously relate that when they knocked on the door they heard, in the form of an answer, three knocks on the door from the inside. Assuming that someone was at the door, they vocally demanded that

the door be opened. Instead, they again heard three raps.

I assume that if John was an entity who could hear the pounding on the door and answer it by knocking on the door, then, judging by his expressions of courtesy, he would have advised us or opened the door himself. Nevertheless, if this was mediumistic knocking, it is noteworthy that it took place at a considerable distance from the medium.

Having exhausted Eusapia totally, I wanted her to rest, and seeing that she was sitting on the sofa in a dazed state, I put her to sleep and had her stretch out comfortably. Half an hour later we had to wake her up for supper; her rest thus was not sufficiently long, and she was still dazed. Slowly, her complexion became normal. Her eyes regained their expressiveness, and she began answering questions.

After we sat down to supper, in full light, and after Eusapia was fully awake, in the midst of a lively conversation, from time to time one could still hear occasional raps within the large table, and two members of the group maintained that they had been touched a number of times. These observations, however, were passed around quietly, in order not to frighten the servants, as they had already come out of their hiding places.

Shortly afterward things became quiet; except that at night, in the room where Eusapia's dress lay (for the experiment she was asked to change into a dress we provided), there were still some raps, but these were chaotic and unintelligent. Apparently a residue of the "spirit" had remained in the dress. There were no phenomena in my room.

Because, as I already mentioned, we thoroughly exhausted Eusapia, who on her part had shown total willingness to being subjected to all forms of control, I wanted to thank her and for that purpose offered her a brooch, with an appropriate inscription. She was very curious about the inscription, and because "it was not written down in her presence," her attempts were in vain. The thought then came to my mind to determine whether the inscription could be projected mentally. Thus, two of us holding her hands thought about the inscription. Eusapia spelled out in syllables: "Re . . . sta . . . te . . . Si . . .," but she could go no further. The inscription was: *Restate Sincera* (remain sincere/honest) 18/V 1893.

I was already in my carriage when, saying farewell to Henryk Siemiradzki, I said: "You know what? I don't think I will go directly to Warsaw, but instead stop off at Tworki [an asylum for the insane—translator's note], because when I start telling people what I saw here they are bound to send me there anyway."

In a while the train was speeding in the direction of Ancona, and I was busy with a chicken leg provided by Mrs. Siemiradzki and sipping a Chianti . . . Was I really eating a chicken? Was I really drinking a Chianti? It seemed so.

Crowds of noisy passengers entered and left the train. How different did these people look to me on that day. First, I noticed that in addition to hands they also had bodies. But that was insignificant. It was their preoccupied air that puzzled me the most. They thought of nothing else but their personal affairs. No face betrayed any curiosity as to how a table could rise without visible support. But was it truly without support?

Maybe Eusapia has an unusual left leg which splits in two, so that one part can press upward, while the other presses down. Maybe. My head turned into some mechanical workshop in which the four-legged hero of the past several days tilted every-which way, seeking Archimedean support . . .

It was of no use. Between the closely spaced white buildings of Falconara I saw the sea—quiet, majestic sea, toward which I always felt a great attraction. Greyish-green, separated from the now steel-colored sky by a now dark and then light line of the horizon, it swayed in its stillness, as Victor Hugo would have described it. The train raced along the shore, forming a boundary between two worlds: the dry one and the wet one.

The wet one must have had a medium of its own, for it undulated constantly; however, if one looked only out of the window on the right side of the carriage, one could reach the conclusion that there was no sea at all.

It was already dark when we reached Ancona. I asked to be taken directly from the railway station to the ship, as I intended to make the whole trip with no interruption. The porters responded to my Italian with a highly attentive “yes” . . . How courteous they are! Apparently they took me for an average Englishman—did not my face betray that I was going to the insane asylum in Tworki?

The ship which was to take me across the Adriatic did not have much beauty or comfort, but it did make a great deal of noise trying to attract travelers. However, as it was the night before Whit Sunday, the travelers were not arriving and it turned out that I was the only passenger on the ship!

Even John King would have been company! But, undoubtedly, he had long ago fallen asleep in the unconscious circumvolutions of Eusapia’s brain. On the adjacent ship someone sang a lively canzonetta to the accompaniment of flute and harmonica, and our ship’s cook danced in circles. I sat down on the deck and, resting my chin on the railings, looking out at the city. Houses rose on the steep slopes, here and there street lamps shone and windows reflected their light. Bells rang in several churches, calling the faithful to late prayer . . . (maybe I sold my soul to the Devil?). The sounds of the city gradually faded, only that traveling artist kept finding new songs with which he tried to move heaven and earth. Neither took his melodies to heart.

What was missing was our kind-hearted table, which could get very

emotional, to the depth of its drawers.

Ancona, according to the *Baedeker* [travel guidebook], is famous for its beautiful women. So what! But I would like to know whether within its walls there is anyone who knows that one can be levitated without any support. If there is someone like that, he must be a fool who will believe anything . . .

I turned my gaze skyward.

The moon, following the custom of the Italian *lazzarone* (rascals) turned its horns up, and dozed among the clouds, which did not show any desire to move on either. In reality, why should I be so surprised that a table could float in the air? After all, it did nothing more than the much larger solid objects: the stars, the moon. After all, who was supporting them?

Finally, we were on our way. A white lantern was raised on the main mast, and a green one was ‘pinned’ to the side of the ship, like a boutonniere. The ship gave its final farewell blast, the propeller turned, and we were on our way.

“We are having a pleasant journey,” said the captain—a poor medium, for the moment he said it the sky turned black, the waves began to churn, and a wet wind picked up my hat.

It was time to go to bed. To tell the truth, I had not slept well the whole week. Well, perhaps that is an exaggeration—what is more important, I have learnt a lot.

In the midst of countless levitations, I fell asleep. I slept like an angel, non-ideational sleep. Suddenly . . .

Suddenly I heard a dull thud, as if a table, raised to the ceiling, dropped to the ground. I slid the curtain out of the way: everything was in its place, and the table could not have bounced, for it was screwed to the floor. In its turn, the sun, which would not be held back by any spirits, rose out of the water as peacefully as it had gone down last night. To the left, the yellow shores of Dalmatia were becoming clearer and more visible.

Fiume! We disembarked.

“Haben Sie was zu verzollen?” (anything to declare?), asked one of the customs men in German.

I showed him one of the photographs of levitation. He told me to close the trunk and waved me on—just as if he were a member of some distinguished Academy.

There was a four-hour wait for the train, so I decided to visit the city. I looked around and it seemed to me that by going to the left and then to the right I would reach the center.

However, I kept going up and up, with sweat rolling down my forehead, passing ox-drawn carts, hundreds of them, and still there was no road to the

right. Finally I reached the conclusion that if I continued along that road I would end up in the mountains without ever seeing the city. Let us imagine Fiume to be a mediumistic manifestation, and this road to be the chosen path to knowledge. If one were not to deviate from this road, one would never attain knowledge. Maybe in the future the paths will be straighter.

I entered the carriage which was to take me directly to Budapest, and read Brofferio's *Per lo Spiritismo* with interest all day. Professor Brofferio is one of those converted by Eusapia—converted too well, for he forgot that within the human soul there remain yet forces which have not been studied, and there is no rationale for invoking “spirits” until we know more about those, even if one has photographs of the “spirits.” But that is a complex question. My dear reader, would you not prefer me to discuss it at a later date? If I hurry too much, I may get things wrong.

And again, the night was upon us. John King was already far away, across the sea, and yet how I would love to discuss these questions with him! Spiritualism condemns itself by one circumstance: For all the thousands of spirits who sent their communications to the mortals, none have thus far answered simple questions, such as: By what means do the tables lift?

Dear reader, do not despair. Science will not be lost; it will reform, or at any rate expand.

Hypnotism has shown that today's physiology is but the skeleton of the living body. Spiritualism, when finally explored, will add muscle to the skeleton. Who knows whether, in the near future, the mediumistic phenomena will not show themselves to be simply a higher level and a new category of hypnotic manifestations. In the meantime, the one thing I find certain: *Man does not end at the surface of his body . . .*

But I promised to hold my tongue . . . besides, I must gather up my belongings. Some dashing Hungarian cavalryman gallops on the suburban meadows. We should be in Budapest soon.

I found myself in Budapest on a great national holiday. The unveiling of a monument to those who died in 1848, in the battle to capture Buda. The entire city was draped in flags, and along the streets, under colorful banners, marched societies of gymnasts—boys, straight like ramrods. I also saw the surviving remnants of those heroes of 1848. My God, what they looked like today. . . . How different they must have looked forty years ago.

Time . . . what an ugly invention! and to think that in a few years they will be no more or, what is worse, they will start entering tables and perform those antics. . . . What a glorious fate!

The locomotive blew its whistle impatiently. Only one more sleepless night and one more day . . . Oderberg! The border! Ever closer to Tworki . . . God! how my heart is pounding! . . .

Oh well! Whatever happens, happens! I am returning to Warsaw. . . .
After all, they won't cut my head off!

A New Category of Phenomena

What Is Impossible?

When, in 1878, Hughes announced the discovery of the microphone, I was studying philosophy of physics in Lvov and considered it my duty to check the reality of the discovery: three pieces of coke, arranged in a certain way and connected through an electric battery with the telephone, were to send speech over a distance. At least, that is how the papers reported it.

Together with an engineer, Mr. Abakanowicz, and Mr. Bodaszewski, an assistant at the Department of Physics, we began our experiments. It seems that we did everything according to the description, but our attempts turned out to be a fiasco. "Humbug," I thought to myself, "how could a piece of coal transmit speech?"

Several days later it turned out that the pieces of carbon were poorly connected and under better conditions the microphone did transmit speech.

When Edison's phonograph came into being I was more cautious and did not grab by the throat the one who turned the crank, accusing him of ventriloquism, as did Professor Bouillaud—this despite the fact that several days earlier I would have also claimed, as did that physiologist, that a metal plate could never imitate an instrument as complicated as the human larynx.

I was also more cautious until I saw, with my own eyes, Crookes's radiometer, a mill turning by exposure to light, although until recently I considered mechanical action by light alone to be impossible. However, when I read in books by magnetists (I, who have been involved in magnetism from the age of 16) that motions and actions can be initiated in some persons by thought alone, without the use of microphones or radiometers, I said: "Humbug! This is against our knowledge of physiology."

In 1885 I became convinced of the reality of the phenomenon and wrote a book about it. There, I did not as yet acknowledge *translocation of senses*, which the old magnetists talked about, and *mediumistic phenomena*, of which spiritualists told wondrous tales. In April of this year (1893) I confirmed the possibility of the first, and in May of the others. From that moment I became as humble as a lamb.

I began to recall previously observed facts which scientific incredulity would not allow me to understand—and I reached the conclusion that, were it not for the artificial blindness bestowed upon me by my schooling, I would have by now attained much greater advances, and I would not have ignored people who, at the cost of their careers, proclaimed new truths.

When I recall that there was a moment when I considered Crookes—that great inventor of the radiometer and discoverer of the fourth state of matter—insane, only because he had the courage to recognize the reality of mediumistic phenomena and submit them to strict scrutiny, and that I read his articles with the same stupid grin with which his colleagues at the Royal Society avoided the supposed madness, I burn with shame for myself and others.

Unfortunately, the story repeats itself whenever it comes to a great discovery.

It was the same with blood circulation, with the acceptance of fossilization and of meteorites, with the introduction of steam locomotives and telegraphs. Acceptance of Bell's telephone was denied by a commission of the Paris Academy on the grounds that it had no practical application, and Viennese doctors argue even today about the reality of elementary hypnotic manifestations, verified long ago.

In my book in French, I had to vindicate the brilliant Mesmer who within the human body discovered a natural healing power; I did this in spite of the beliefs inculcated in me over the years by my schooling. This caused some surprise in the camp of writers on hypnotism, who after appropriating Mesmer's discoveries, thought it right to give him a kicking, out of respect for Learning.

One could assume that more tangible discoveries would not be subject to such blind opposition, and that it would be of short duration.

"I am attacked from both sides," said the discoverer of galvanic action, "by scientists and the ignoramuses. Both laugh at me, calling me 'Frog dancemaster'. Yet I know that I discovered one of the greatest forces in nature."

No longer than ten years ago, despite much work on galvanic action, if someone had asked me whether it was possible to hold up a heavy object in the air with the aid of electromagnetism, I would have answered in the negative. Meanwhile, at the last exhibition in Paris, I saw S. Thomson's electromagnet, activated by alternating current, vertically repelling a copper ring or disk with such force that the heavy bodies seemed to float over it. An incandescent lamp brought close to such an electromagnet would light up even if immersed in water, without any wired connection. Was that possible? I think so, since it happened.

Is it possible for a person who is awake to turn on a lamp merely through nervous and muscular currents—and to turn it off just by the act of falling asleep? It was impossible last year, prior to Edison's ideas, but it is possible now.

Similarly, it is also possible to replace telephone wires with the rays of

the sun (radiophone), and with Lippmann's discovery color photography begins to be a possibility—etc., etc. [All this was written in 1893, that is, before the discovery of X-rays by Roentgen, radioactive materials, and the wireless telegraph, all of which of course was considered impossible at the time.]

Impossible is only that $2 \times 2 = 5$. It is impossible to go against the so-called laws of nature. However, since we do not know all the laws of nature, which also mutually limit one another, it is safer to study the facts first, and only then to consider the possibility of their existence. Let us not try to be greater than nature itself, and let us remember the caution of the astronomer Arago: "He who, beyond pure mathematics, uses the word 'impossible', is simply imprudent." Of course this does not mean that one should be gullible.

The Question of Fraud

It has been said that the proper judges of such phenomena should not be scientists but masters of the sleight of hand. There is some truth in that. Mediumistic phenomena thus far have escaped the rigors of scientific analysis; this was the case with hypnotic manifestations until they began to be studied on a larger scale—it is therefore not strange that today's scientists view mediumship the way they used to view hypnosis.

Firstly, there is a need to exclude from experiment that which could be the result of either conscious or somnambulistic cheating, and to that effect the help of those versed in magic tricks would be very valuable. Luckily, while still in my childhood, I was interested in that art, and I even possess a two-volume "masterpiece," which I wrote as a schoolboy, entitled *The Secrets of White Magic*. I remember with what pride I showed my classmates that neither Hermann nor Bellachini could fool me. This was one of the manifestations of my passion for understanding everything that had a semblance of the miraculous.

Thus, I saw nothing in Eusapia's behavior that would allow me to utilize my knowledge of magic tricks. She displayed neither the dexterity nor even the presence of mind which is essential for such productions. She would simply say under what conditions the experiment would not succeed—which no magician would do and, contrary to the custom of magicians, she would draw attention to the direction in which one would really see something happening, and not in the opposite one. Very often, while we sat at the table, Eusapia—half asleep—would lay her head on my hand, or, in order not to break the hand-chain, would scratch her face with my hand with the lack of self-awareness of a sleepy child.

During all the more important experiments, she was either completely

unconscious and limp, or she would only momentarily gain a somnambulistic consciousness, which she would not remember later. As to the external conditions of control and external possibilities of fraud, please consider the following:

First of all, the question of a permanent accomplice does not arise, since she came from Naples to Rome by herself and no one introduced by her took part in the experiments.

As to the possibility of one of my friends being an accomplice, they were trustworthy persons who wanted to test the reality of the manifestations, and none of them attended every session, yet manifestations took place every time.

It could thus only be Eusapia herself who could be cheating, but how?

The suspicion that she could be hiding some kinds of instruments under her skirts turned out to be unfounded. I would examine her prior to and during the sessions. Before starting a session, Eusapia had to change into clothing provided by us, and she was so lightly clad there was no question that she could hide something. Neither could I possibly imagine the kind of mechanical device that could help her with the experiments.

During the entire session I would not release her hand, not even for one moment. Sometimes I held both palms with one hand, while others held both knees, while with my foot I would press down on both of her feet, which were brought close together. There would always be a similar, simultaneous control by someone on her other side.

One could assume that at times the control would be insufficient—but the control was focused on at least when the manifestations were announced ahead of time, concentrating everyone's attention in the given direction. We never used any partitions for the medium, and everyone, holding hands in a closed circle of 3 to 7 persons, would control one another.

During several sessions there was no one outside the circle; the doors were locked with the key and, in addition, some of the sessions were conducted in full light, both natural and artificial. The room was in Siemiradzki's private quarters. The table was constructed especially for the sessions—it was smooth, with the top not extending beyond the supports, and it stood firmly and evenly on a stone tile floor.

I should add that although the greater part of the manifestations took place in close proximity to the medium, some took place at a distance which was out of reach of Eusapia and the others. Finally, there were manifestations which no manual intervention could explain.

Possibly, then, Eusapia is just an excellent hypnotist, who puts everyone in a state of stupor and orders them to see and hear non-existent things. To that, I will answer thus:

1. None of the persons who took part in the first session was hypnotically sensitive.

2. Manifestations began to occur immediately, in the midst of a lively conversation, with everyone seeing and hearing the same occurrences. Eusapia was the only one in a stupor.

3. Some of the manifestations left permanent traces in photographs, drawings, and clay impressions. One would thus have to assume that inanimate objects were also subject to her suggestion.

For those who witnessed the manifestations brought about by Eusapia even once, the hypothesis of hallucination would be inconceivable. The manifestations were completely unlike those which occur with the average medium after a lengthy wait and a great deal of concentration.

And if all the manifestations, or even only some, have to be accepted as true, then the question arises: What can be said about them? To what category should they be assigned?

Before attempting to answer these questions, I must describe in greater detail some of the fundamental experiments.

Experiments with a Compass

I placed on the table a box, covered by a tight-fitting glass plate, within which lay a compass, and requested of Eusapia that she attempt to move the needle from a distance. The table could not be affected by any shocks, and the needle was absolutely motionless. The experiment was being conducted in full light.

Eusapia stretched out her hand in the direction of the compass, with fingers held together, but there was no movement. Impatiently she withdrew her hand and then brought it forward again, holding it there for a number of seconds. At the instant when she hissed with pain, the needle moved about 15 degrees to the right, then to the left, and began slowly to sway back and forth.

Eusapia's hand became numb. I had to massage it for a fairly long time before it returned to normal. I am certain that there was no mechanical jolt. This fact is brand new to science and merits a closer evaluation, for normal action of a human hand on a compass needle is possible only in two cases:

1. The hand conceals a magnet—the action then is at a distance, immediate, fast, clearly repelling one of the poles. None of this occurred, and I am certain that Eusapia did not have a magnet or a piece of iron in her hand. If there were a piece of iron, the action would be that of attraction, and thus also different.

2. The needle is electrified—the attraction then would be from a shorter distance, and the motion of the needle would be of a different kind. Such a

case is also inconceivable.

Science knows of no other way of manually acting on a compass needle. Therefore we must be dealing with a new phenomenon.

The assumption that Eusapia's body was highly charged does not stand up either. If that were so, the results would be identical with the second point, and the reaction would have been instantaneous. In this instance, the result apparently depended on a certain state of her fingers, a state which appeared after a certain lapse of time, at the expense of normal strength and normal feeling, but also under the influence of strenuous thought concentrating on the manifestation to be produced. It appeared as if Eusapia's fingers became longer, passed through the glass, and lightly nudged the needle. There was no magnetic or electrical action.

That Eusapia's fingers can effect mechanical action over distance is borne out by the following experiment, which took place in the presence of Siemiradzki and Bakalowicz:

Two slates were placed, one atop the other, on the floor in front of Eusapia's chair. After having concentrated for a moment, Eusapia made a sweeping motion with her finger in the direction of the slates. The slates were removed and on the inside was found a sweeping mark, as if scratched with a fingernail.

As far as the experiment with the compass is concerned, I would like to add that this phenomenon had already been reported by Fechner with Mrs. Ruf, and by Zollner with Slade.

These facts, and many more, attest to the fact that *under certain conditions, a medium's hand can operate mechanically at a distance as if it were stretched beyond its normal length.*

Table Levitation

There is no need to speak here about the ordinary swayings of a table which are caused by involuntary and unconscious pressure of hands against the table. These are known and have been studied. I speak here of the complete levitations of a table, where all four legs are off the floor, without any apparent support.

These I have seen quite a few times in full light or I felt them in the dark. In the latter case we would photograph them in a magnesium flash at the moment of occurrence. We took four such pictures while in a smaller or larger circle of participants. Two of them represent drawings made from photographs. The third is also a copy of a photograph, obtained in the presence of Richet, Schiaparelli, and others. Richet is holding Eusapia's knees, while the table is floating horizontally—while in our photos the table is always somewhat tilted toward Eusapia, who sits on the left side.

During one of these levitations everyone took their hands off the table, except Eusapia and myself, with my hands holding hers. The medium's hand seemed grown into the table, and, as she remarked herself, she could not tear her hand away. I looked at her knees under the table. They were motionless, but the table's left leg was touching her skirt. This touching of the skirt is an amusing fact that had been mentioned in the Milan experiments. I noticed the following: At the instant that the table was about to levitate, Eusapia's skirt billowed out and began to stroke the table leg with its fold, sometimes stroking mine as it was close. At that moment I grabbed the fold of the dress; there was nothing in it. It appeared that contact with the dress was necessary, or also as if a shade was needed, the shielding of the table leg by the dress—which of course was bound to arouse suspicion. Nevertheless, I must add that I felt nothing like that in the darkened room, and that the table levitated at times when Eusapia's legs were not under the table, but on my knees, while I also held both of her hands. Finally, once the table levitated by itself, in full light, when we had already risen after completing the session. However, the table leg was touching Eusapia's dress.

In a similar manner, we once obtained a suspension of the table in the air when, having become too heavy, it could not rise any farther.

Thus far this manifestation has not been studied sufficiently to attempt explanation. I will only suggest the direction in which clarification ought to be sought.

If one believes in universal gravitation as a separate mystical force, acting from a distance, or comparably as attraction toward the center of the earth, as taught by physics today, one will struggle in vain. In my treatise, titled *Force as Motion*, published by *Ateneum* in 1879, I attempted to prove that attraction toward the center of the earth is merely an illusion, resulting from the pressure of the ether whose particles, in ceaselessly pressing against the body, are pushing it toward the surface of the Earth.

If, for whatever reason, such as Thomson's electromagnet, the density of ether could be reduced from above, and the motion of its particles increased from below, then a solid body would be propelled away from the Earth's center instead of dropping toward it. It is possible thus, that even here, due to unknown relationships, resulting from the combination of forces of the medium and the participants, something similar takes place under the influence of visualizing such a manifestation.

Dependence upon light is apparent: The table levitates much more readily in darkness, a condition which also favors teleportation of other objects. If, however, the same circle of participants conducts experiments more frequently, then with each session the manifestations become easier, and that which previously was possible only in darkness occurs later in full

light.

Even more apparent is the psychic state of mind of those present. When, as a result of a temporary disagreement, pertaining to the need for strict control, we were somewhat irritated, the table, which during the previous sessions reacted immediately, asked that we wait for some minutes. Eusapia also assured us that when she is angry or depressed there are no manifestations at all, or they are rather weak.

Among other conditions, one needs to emphasize tiredness as a paralyzing factor, and a certain sequence within the circle of participants, which at times favors and at other times slows or stops manifestations, depending on the individual characteristics of the participants.

Frequently, Eusapia, either directly or indirectly, through unconscious rappings of the table, demands changes in the order of seating. She also states that if certain persons, whose handshake gives her an unpleasant sensation, invite her, she inevitably refuses, for she knows from experience that nothing will come of the experiments.

I have not noted the effect of lack of belief on the part of the participants, but what is certain is that if the participants were hostile toward the medium, and all of them treated her with derision, there could be no manifestation at all. This happens also in the more subtle manifestations of the magnetic trance, which also usually failed in the presence of academic commissions.

Sudden turning on of light greatly unnerves the medium, who remains very sensitive to light for quite a while after the session has ended.

Clothing which is too warm appears to harm the medium. On one occasion changing the dress from silk to linen improved the session, but I cannot tell whether it was because the other one was silken or whether the new one was lighter.

Although no mechanical support of the table by Eusapia was ever uncovered, nevertheless it was apparent that levitating the table did demand a certain amount of effort on her part. All our photographs show this expenditure of energy in her facial expressions. In one of our experiments, Eusapia pulled a piano close to our table, and then a heavy table which stood in the center of the room. The next day she had pain in her arms and shoulders, as if she had really pulled them. The pain ceased after magnetizing.

Detailed observations of the levitation phenomenon brought me to the conclusion that it depended on a variety of causes, where sometimes some outweighed others.

The strongest impression of mechanical effects was given by those levitations (in good light) where the table rose tilting toward the medium.

Let us imagine that beyond Eusapia's left leg there was some support on which the left leg of the table could rest; if then the left hand of the medium, adhering closely to the table, pulled it toward herself at the same time pressing from above, then with a degree of strength and dexterity the table could be held up mechanically in this manner, i.e. without any unknown force, for a short while. However, I never found any such support and the only other supposition might be that the left leg of the table held on to Eusapia's left hip by some special attraction.

It is worth noting that Eusapia herself considers levitating a table in full light to be impossible when sitting at the longer side of the table rather than the shorter end. This is possibly caused by the fact that she is farther from the table legs, and the skirt to leg contact is not possible (but later experiments with Eusapia in Warsaw showed that levitation was possible even under those conditions). The significance of contact of Eusapia's dress with the table or the floor, which occurred during a number of experiments, as an essential element of success, is not known. If, however, I am not mistaken, in exceptionally favorable circumstances this requirement seems unnecessary.

Descent of a levitated table is of two kinds: Most frequently it drops to the floor immediately, as if a support were removed. On some occasions, though, it formally floats in the air and, swaying back and forth, it gradually comes down. In spite of the instantaneous dropping in the dark, no one was ever jostled by it.

If I am to trust the dynamometer that had been compressed in the dark, then the force occurring during these experiments would correspond to more than 80 kg. That force is at least three times greater than that exhibited by Eusapia in her normal state—but it is known that in the hypnotic state the force can be considerably amplified. For example, I saw a weak girl who in a hypnotic trance broke a stick 3 fingers thick on command. In addition, although the actual muscular exertion does not enter here, there is no doubt that during these experiments the strength of the medium combines with the strength of the participants. Following one of these sessions, despite the fact that subjectively I did not feel tired, I noted a drop in my muscle strength from 135 to some 60 degrees.

I am inclined to assume that the mechanical mediumistic manifestations consume considerably more energy of both medium and participants than the same exertion done in the normal way. In any case, nothing in these manifestations can be construed as running counter to laws of mutual exchange of forces.

Soffio Freddo (a Breath of Cool Air)

The idea of possible changes in the density of ether during mediumistic experiments finds confirmation, or at least support, in the following interesting manifestation:

When manifestations are about to start, and also independently in the course of the manifestations, one can clearly feel a cool breeze blowing on one's hands and face. It is very much like the coolness one can feel on the hands when bringing them close to an electrostatic machine in use. It is also similar to the cool breeze one feels when a sharp-pointed piece of metal is brought close to the body by the person who is electrifying one.

The same cool breeze occurs very frequently in the course of magnetizing. There are heads from which a breeze is "blowing," as if from a cellar. There are legs (exhausted) around which a magnetist (who is healthy and strong) holds his own, and from which there is a coldness which leads at times to an unpleasant and long-lasting irritation for the magnetist. When this cool breeze ceases and the extremities of the patient begin to radiate heat (as should normally happen), then one may be certain that a positive change has taken place in the patient's condition. The coolness, occurring in various areas of the body, is also a very accurate indicator of the patient's pathological state, a mathematically certain indicator of whether there has been any improvement, where and for how long the hand should be held in order to obtain an improvement.

I deem these matters to be so important, and so useful in augmenting our crude methods of analysis, which in nervous disorders are seldom sufficient, that I expect medicine to undertake studies in this direction in about 50 years. (For further details see my book *De la Suggestion Mentale*, Paris, 1887, p. 178, etc., and 1889, 2nd edition, p. 178, etc.).

I observed similar manifestations some 20 years ago, when doing experiments with tables. Some individuals, and occasionally I myself, felt this cool breeze on our hands—yet this blindness, so characteristic of all school-attained education, had me rather assume that this was merely a subjective illusion, so I stopped pursuing it further. When in 1884 or 1885 I assisted in the Parisian experiments with Slade, at the home of Count de V., I was rather skeptical of all other manifestations, but intrigued by one, in that at the moment of Slade passing to me, under the table, a slate, I felt a distinct breeze. This puzzled me, but then I thought that Slade may have had bellows hidden somewhere on his body, so, again, I decided to drop the matter.

It was not until our more precise experiments with Eusapia and the "cool breeze" that began to flow above us that I finally became convinced that it is an objective manifestation, possibly resulting from the movement of air as a result of changes in the density of the ether. This interpretation does not clash with the notion of a "spirit" blowing cool air or fanning—

more on this below. Thus far, however, I have not been able to pinpoint the conditions under which this blowing occurs. I assume, through analogy with magnetic facts, that it is an indicator of loss of neuro-muscular strength of those present, in favor of the manifestations, or a flow-through of etheric waves.

Crookes has said that movements of a table (and virtually all other manifestations) were usually preceded by a flow of cool air, which at times reached the strength of real wind. He has seen this wind blowing around pieces of light paper. It even reduced the temperature of a thermometer by several degrees. At other times—adds Crookes—he noticed not only the actual movements of air but also a penetrating cold which could only be compared with holding one's hand over frozen mercury.

It is thus an interesting manifestation which is even more worthy of notice in that it provides a point of departure for more precise studies.

The following should be ascertained:

1. its analogy with electrostatic "breezes"
2. its analogy with physiological "breezes" during magnetizing
3. its dependence on states of mind, especially ideoplasty.

At this point in time I judge that this phenomenon is not of an electrostatic nature, for I found no traces of electricity during the experiments with Eusapia.

How Are Spirits Created?

In addition to simple facts, such as moving a compass needle from a distance, moving heavy objects, changes in the weight of objects, breezes and cooling, etc., which could be counted as purely physical, one should mention also that they are, to a degree, dependent on the attitude of those present. There are additional phenomena that occur in the presence of Eusapia, as well as of other mediums, that indicate the presence of an independent intelligence. As we know, a table not only levitates and drops, but with the aid of signs agreed by convention, it also answers questions.

This fact, together with the feeling that they themselves do not move the table and do not expect an answer, is sufficient for many people to assume the existence of a separate personality which causes these movements—i.e. the participation of spirits. Unfortunately, for the spirit theory, there is not sufficient evidence for it.

Very precise psycho-physiological studies have shown—and hypnotism confirms this—that our awareness represents only a thin surface layer of the wave that makes up our psychic life. They have shown that deeper levels of psychic life can act externally without our awareness; that our personality, being the sum of certain associations, is not quite stable. That there is more

than one personality within an individual, and that experimentally we can produce personalities within personalities, giving them individual names.

In mediumistic phenomena of the lower kind, subconscious factors of psychic life act through the medium of involuntary contractions. Table gyrations, pendulums, cumberlandism, planchette writing, normally belong to this category. These muscular contractions need not be only involuntary, but they can also be logically combined.

Some years ago I was conducting, with Dr. Świątkowski, a series of experiments on involuntary moving of tables. We reached the point where, as the table moved under our four hands, we were able to observe on each other which muscles would involuntarily contract as a result of being tired of the same position, and having exhausted the accumulated strength of one group of muscles, the loosening of these muscles caused a movement of another group of muscles. Finally, we saw how our unconscious daydreams were reflected in the answers given by the table. After we attained a certain degree of proficiency, we were able to guess the answers, although sometimes it was contrary to our conscious thoughts. Most often, however, it was our own conscious notions that would be reflected. This went as far as the “spirit” of the table answering in the negative the question “Are there spirits?”

When in experiments with a planchette we used two persons who knew only one language each, the answers would come out in bits and pieces, now in one language then in the other, depending on who had the greatest influence at the time. When the person holding the planchette did not know how to write, the writing was replaced by zigzags, which would then convert into letters by the mere touch of a literate person. Most amusing were the answers where the person holding the planchette would betray their consciously hidden romantic interest. In this respect one could describe the planchette as the exposé of secret thoughts.

To show how far the separation between conscious and involuntary movements can go, let me relate the following experiment in the area of cumberlandism.

Mrs. D., a very enlightened lady, a writer, would hide some small item in any corner of the room. I had to find it, on condition that she would think of it constantly. For this purpose I chose to lightly hold her hand. I would find these items so quickly that she was convinced that I could really read her thoughts. I kept explaining to her that it simply was not so; that I sensed only the minute movements of her hand, which involuntarily indicated the direction and location of the hidden item. She would not believe and challenged me, assuring me that this time she would make sure there were no movements of the hand. She hid a small card under a flower pot on the

window sill. Because, despite her attempts to control herself, Mrs. D's hand would markedly stiffen in the direction of the window, I walked up to it and began touching the flowers, assuming that she wanted me to pick a flower.

At that moment I noticed that Mrs. D's hand, which I held lightly between my fingers, was making a negating motion, and then using the index finger was making a downward motion, letting me know that I should lift the flower pot. I looked at Mrs. D., thinking that she was joking. She was fully absorbed in the action, and so I lifted the pot and picked up the card.

"Well," said my "medium," "now I am fully convinced you read my thoughts, because I was very careful not to make a movement with my hand."

Conscious thought tried to keep the hand motionless, but the subconscious thought betrayed her. On a large scale, such doubling is presented by the various hypnotic states.

In general, a person in hypnotic sleep cannot be regarded as the same person when awake; the differences are considerable, sometimes there are even conflicts.

I have seen so-called clairvoyants who, when in a trance, would recommend for their own health measures or medication that ran counter to their preferences when awake. When in a trance they would recommend that they be forced to follow the recommended actions. Feelings, tendencies, opinions, all these can be different in a magnetic sleep from the conscious state. Various similar examples may be found in my other treatise, *O zjawiskach zdwojenia w życiu duchowym człowieka (On the Phenomenon of Doubling in the Psychic Life of Man)*, published in Lvov in 1877.

It is easy to understand that with the help of suggestion this dualism may be even more emphasized. A certain naïve magnetist, Prof. Dr. Dumonpailier, the head doctor at La Pitié Hospital, showed me years ago in Paris his medium who, as he maintained, was being alternately entered by several spirits. The girl changed her face, voice, disposition, fitting the appropriate role that was unconsciously suggested to her. This was simply a personality change, which was minutely examined by Richet, and currently investigated in even more depth by Krafft-Ebing. He moved his hypnotic subject through her childhood and young adult stages, reawakening complete complexes of associations of former feelings, voice, gestures, writing, etc.

That case introduced fictional personalities into the real personality—here we secrete from the sphere of memory, mainly subconscious, one's own personalities, albeit lost, and crystallize them anew into concrete forms.

On one occasion I was able to put this knowledge of psychic incarnation to practical use. A female patient, in Paris, suffered from attacks of hysterical lunacy, in the course of which she would slip out from under my control. At

those times I would not be able to put her into a trance, at least not without great difficulty and not without personal danger, for she would then possess tremendous strength, and defend herself like a lioness.

On the other hand, between those attacks, she would go into a trance easily and present several different personalities, one of which was distinguished by great sensibility, submissiveness, and kindness.

Thus, with the aid of a hypnotic method, I separated this state from others, as a separate person. I associated it closely with all sensible instincts, and gave this hypnotically created person the name "Anita," from an expression which, through an accidental natural association, best fitted this aim. In this way I had in my hands a hook with the aid of which I was able to fish out from the soul of this patient the instinct needed at a particular moment.

It so happened that, on a certain morning, I received a panic call from the hospital that the patient, in the course of an attack, had locked herself in, with the declared intention of committing suicide. It was very early in the morning, when the world around was still asleep.

I ran up the stairs, pounded on the door, announced my name, all to no avail. A locksmith was sent for, but he was nowhere to be found. I lost ten minutes in this way, when suddenly the thought came to me to call out the locked-in spirit.

"Anita," I called, "Anita, open up!"

After a while, I could hear slow, hesitant steps behind the door . . . then the key turned and the door opened. Before me stood my patient, as motionless as a statue, and on her face the gentle expression of Anita alternated with the insane look of the patient. The patient won out, and I had to use force to overcome and save her. If not for the kind-hearted Anita, who took to me like to a father, I would not have been able to do it. When I finally put her to sleep, following some wild attempts to scratch out my eyes, the spirit of contrition came through again: "Please forgive me and thank you," she said, squeezing my hand. "The other one would have thrown me out of the window."

Thus, spirits can be artificially created. *The fact of distinct, separate intelligences occurring in mediumistic phenomena, which may even conflict with the conscious intelligence of those present, still does not provide proof of anything, for such artificial "persons" may develop as a group within the consciousness of one person, or through the group consciousness of several mutually complementing persons.*

Can't Tell Whose Hands

This undoubtedly occurs in mediumistic phenomena of the lower kind, or relatively common ones. The mania of levitating tables, justly condemned by priests and doctors, furnished thousands of examples of this kind: involuntary phantasizing in answer to consciously produced questions, nervous breakdowns, at times insanity for the more sensitive persons—these are the results of fooling around by the gullible and the unprepared. Despite millions of sessions of this kind, not a single case of scientific proof has been presented for the existence of spirits and their contact with the world of the living.

Does it appear any different with mediumistic phenomena of a higher order? Let us look at it step by step. For the moment, I will only add that, if the ordinary spiritualist sessions are dangerous for some people, then sessions where the terror of other-worldly factors occurs with a hundredfold greater semblance of reality are that much more dangerous.

The puzzling touches and taps belonged to the most common manifestations in the experiments with Eusapia. But talking about them is the least likely way to convince the listener. The facts are so childish, and ostensibly so easy to produce through deception, that unless one has verified them under such strict controls as I have, it will always be possible to say “You were duped and made a fool of.”

Unfortunately, my conscience does not allow me to do otherwise than declare, at the risk of ridicule: *The touching was not a simple hallucination, and the hands that were touching us were not Eusapia’s hands, or our own, but some other hands.*

It would seem that such a confession supports the spiritualist interpretation. But no. I ask you only to wait patiently and not be surprised if the explanation of these specific facts is not as clear as their existence. We are but at the threshold of these manifestations, and we are only exploring possible positions.

Even at the first sitting, when it was still quite light and when all of us, a small number of those involved, together with Eusapia, were holding hands, I suddenly felt that someone was pulling on my sleeve. This happened three times, about 25 inches from Eusapia’s right hand (which I held in my left hand, at the same time pressing on both her feet with my leg). Immediately I made a grabbing movement in that direction, which frightened Eusapia but gave me nothing, since there was nobody there and no hand could have reached that area.

I have felt several dozen of such touches, being particularly favored by the “spirits”: At times I felt two fingers, at times four, sometimes the whole palm, on my head, on my chin, on my back, hand and knees, sometimes quite powerful slapping on my shoulder *in response to my thought* or,

finally, the pulling on the sleeve on the hand with which I held Eusapia, in the direction from her and upward.

This was an ordinary human hand, a male, bony one, almost warm, capable of subtle movements but hanging in the air, without an elbow, forearm, or a body that could be touched.

Sometimes the two hands of my neighbors would be simultaneously touched by the same hand. Sometimes two hands would be present simultaneously (for example, at the piano), but more often just one.

Most often the touches would occur close to the medium, but there were occasions that the person touched would be the one farthest away, while the person sitting closer would not be touched in spite of asking for it, as if some subjective conditions were necessary for it.

Some persons were always touched gently, others always with some reluctance or carelessly.

A “spirit” which particularly persecuted one of the ladies with clapping and tugging, loudly kissed her hand at the end.

Touches occurred at the expense of other manifestations; that is when they began, other phenomena would weaken or disappear. All the manifestations were always of short duration.

The invisible hand only once allowed me to touch it from two sides (i.e. I had the large finger between my fingers. That finger was larger and thicker than Eusapia’s), and it was at my request, for it was so nimble and aware, at other times, that the mere intention of grasping it would be answered with a slap and a disappearance.

In our experiments, the disappearance was always an adroit slipping out, but, as Crookes recounts, when he once grabbed such a hand with the intention of not letting it go, it did not resist but simply melted away between his fingers. Crookes would also experience being touched by a cold hand—those that I touched were never clearly cold. Touches in our experience never made an unpleasant impression. When one of us would get clapped on the shoulder, everyone would hear the sound, and in this regard there were never any contradictions in our impressions. The same hands would clap in the air above us and snap their fingers, imitating magnetizing passes. Double magnetic passes were being simultaneously done from both sides of the medium, with both hands, and at a normal distance.

Once, two hands were moving the objects on the table at the window, and on the floor, which were at a distance somewhat greater than the length of human hands. One of these hands kept hitting our table, with either the fist or flat hand, with such force that everything around us shook. One time, when hitting the edge of the table, the large finger of this mysterious hand lightly touched my waistcoat. On demand, this same hand would tap out,

on the table, the rhythm of an indicated melody, although it would be weak and not quite precise.

Hitting a dynamometer with the fist, indicating a maximum of only 6 kg, caused the spring to bottom out with a great force and a resounding twang of the spring. Another dynamometer was bottomed out indicating a force of more than 80 kg, after which this strength indicator was passed to me, in complete darkness so adroitly that I could not hit the indicator needle, and I could grasp it between my two fingers without breaking our chain.

I have not seen glowing hands, although I did see points of light that would emanate as if from the medium's head. Only once did I see a dark hand, like the shadow of a real hand, which moved in semi-darkness from under Eusapia's chair, in the direction of my chair's leg, which was then tugged. I instantly searched Eusapia, and found nothing but a few copper liras and a handkerchief. Several times this unseen hand took the chair from under me and, lifting it over my head, placed it on the table, and then on demand brought the chair down onto the floor, placed it behind me and, pressing down gently on my shoulder, indicated that I should sit down.

Once, in a situation where no one's hand could reach my knees, my knee was grabbed and pulled three times, at a time when I pressed down on both of Eusapia's feet, and had both her hands in mine. Another time, this hand made chalk marks on the backs of two participants sitting on Eusapia's right side, and of one person sitting on her left. The marks were so light that we saw them only after the session. It also turned out that Siemiradzki's and my cuffs were marked with a pencil in various directions.

The same pencil zigzags were obtained on white paper, with a finger on a soot-covered paper, and on a slate that was covered by another one, a mark was made with chalk, which most closely resembled the digits "87" with a dot over the "8". On the soot-covered paper there were also impressions of four fingers, except the large one, which were so clear that one could see the fingerprints under a magnifying glass. These were fixed by Siemiradzki with Du-Rosier fixative. Immediately after the session everybody's fingers were examined and no trace of soot was found.

We received no written messages. The keys on the piano were struck helter-skelter. Eusapia was then two steps away from the piano, with her back to it. I held her up with one hand around her waist, as she was swaying. With my other hand I held her left hand, while with my foot I pressed down on her left foot. Simultaneously, Mr. Bakałowicz held her right hand and touched her right leg.

I saw the piano cover come up, as I noticed a reflection of light from the window, but I did not see any playing hands. The same hands placed a

chair on top of the piano, which was outside our circle, and pulled it away from the wall, pushing it in our direction. Each movement of the piano was accompanied by convulsive jerks, or movements of Eusapia's hands through the air, with signs of great pain and strain as she continued to be held by us.

At times, during the transfer of heavy objects, such as a chair, the unseen force would weaken halfway across, and the mysterious hands would remove the curtain from the window, shade the chair, and only then continue to move it forward doing other tricks, such as touching a face with the curtain.

The general impression was: *The mysterious hands emanated from Eusapia's body, either totally unseen, or as a shadow, and the only touchable parts were the tips of their fingers, then the palm, but never the elbows or arms. The longer the duration of the session, and the darker the room, the greater was the semblance of reality of the hand and the ability to act mechanically; always, however, at the cost of the strength and the consciousness of the medium, who would become half-alive, with no pulse and no control in her fingers during some of the stronger manifestations.*

It was, of course, important for us to take a close look at the hands, and because a direct look was impossible (the later Warsaw experiments showed this to be relative), we asked that impressions be made in clay. For this purpose we would place a large bowl with thoroughly mixed sculptor's clay and wait in the dark. We waited in vain for a long time. Once, the bowl was transported to our table and I assumed that making an impression would follow; however, we found only unclear traces of contact with the clay.

Worth mentioning is the fact that my electroscope stood on our little table when the bowl moved onto our table. Sensing that the bowl took its place, I expressed my concern that the electroscope might be broken or dropped on the floor. At that moment, unseen fingers handed the electroscope to me. Its glass leg was covered with clay in the place that the unseen hand had held it. Eusapia's hands were clean.

It was only at the last session that we obtained two impressions of the mysterious hand. One also had the impression of the leg of the chair, which the hand held at the time it was lifting the chair onto our table. The second one was of the hand itself. It was pressed deep into the clay, as if it wanted to remove a handful. There were traces of clay on the chair, which later came down from the table by itself. The impression of the hand in both cases did not show direct contact, but rather through thin material of unknown origin.

Suspecting that it was Eusapia's scarf, we looked at it immediately: It was clean. For the purpose of comparison, I later asked Eusapia to make an

impression of her hand, through her scarf, in the same clay, and as much as possible in the same position. We made plaster of Paris casts of these forms. These I have, and I have photographs of them.

The photographs are not sufficiently clear, in that their reduction has reduced the differences that were obvious in life-size, but they can be verified on the plaster casts using a magnifying glass; thus:

1. Eusapia's hand is smaller;
2. The fingernail of the mysterious hand's large finger is considerably longer and wider;
3. The base of Eusapia's hand is flatter and less muscular;
4. The texture of the cloth on the mysterious hand's impression is evenly thin, while Eusapia's scarf has thinner and thicker threads.

There is a different photograph, deemed to represent John King's hand, impressed in Naples in the presence of Countess Kapnist. Here the fingers show up clearly and the entire hand is decidedly larger and more bony and muscular than Eusapia's.

Why did we use clay, instead of paraffin, which is recommended by many authors?

The drawback of paraffin is that, because it flows all around, the cast then has to be cut through. When casts showed up empty and not cut through, this was regarded by some as proof that they had been produced by mysterious hands which "dematerialized." Unfortunately, spiritualist conjurers found a very good method for dematerializing hands. They began producing them out of collodion, in the shape of gloves, which they would blow up with air and, after the cast was made, all they had to do was let out the air. However, this cannot be done with hard clay, which means that paraffin moulds would not be more convincing.

The greatest feat achieved by the mysterious hands, or force, was to transport Eusapia, sitting in her chair, to the top of the table, and then levitating her, standing up, several inches above the table. At that moment Eusapia seemed to suffer the most; her joints were rigid (in a partly contracted shape), she moaned and hiccupped. The levitation took place so quickly that, although it had been announced ahead of time, and so minutely observed, I would not be able to describe it precisely. The levitation did take several seconds, therefore there was enough time to slide my hand under Eusapia's right foot to check whether she was indeed levitating. Lowering her to the ground took longer, and she lightly leaned against me (with her side, not the hands), as if the force that was reducing her weight was being exhausted. Eusapia is short but stocky, weighing about 60 kg. First the right leg of the table came down, then left, then Eusapia's body slid down my side. We kept holding on to her hands. A moment before levitating above

the table, she asked that we all touch her hands. This could, of course, have no mechanical effect, but possibly a magnetic one. It reminded me of one of my hypnotic subjects, who, when in active somnambulism, wanted to slice meat that was handed to her on a tray. Not feeling sufficient strength in her hands, she asked that I touch her right hand with my fingers. Her movements then were stronger and bolder.

It appears that the medium's levitation occurred on the same principles as the levitation of the table. There we held our hands on the table, here we touched Eusapia's hands. In both cases one may assume that it was the change in the density of ether that surrounds the body that caused the bodies to rise. This would be similar to a situation where an item placed in water sinks or floats depending on the temperature, and therefore the density, of water.

However, to the question as to by what miracle the levitation occurred, the table would answer: by hands; Whose hands? The hands of . . . John King.

John King

The force that is employed in experiments with Eusapia most frequently takes on the name of John King. Where did this English name come from? Well, it came about in this way.

Manifestations were already occurring around Eusapia when she was only 14 years old. Knocks could be heard, something seemed to move around her. These manifestations were only occasional and occurred only under certain conditions. The name of John King had not been mentioned at that stage. The "spirit" was in the process of being born, but had not been baptised.

It so happened that a certain spiritualist from Florence, by the name of P. Damiani, arrived in Naples. Damiani had spent some time in London, and was involved with Williams, an English medium well-known in spiritualistic experiments at that time. Williams's "spirit" was John King. John King, on taking leave of Damiani, told him: "You will find a medium in Naples, and you will recognize me when I play the *reveille* by drumming it out on a table with my fingers."

Damiani thus had a suggestion implanted in his mind that the spirit that would announce itself by drumming the *reveille* would be the spirit of John King. Upon arriving in Naples, some time around 1887, he heard of a house that was "haunted." There he found Eusapia. Because various rhythmic knocks are a common mediumistic manifestation, there is nothing strange about the fact that they occurred in a séance with Eusapia. Because he had John King on his mind, it is not unusual that Damiani heard the *reveille* in

this knocking, and assumed this to be the work of John King.

A more accurate proof was difficult to obtain, for, as we know, Eusapia could not read or write. However, the suggestion had been made, and Eusapia believed that John King acted through her. Her subconscious personality crystalized under that name; various associations united under the banner of a new self, inspired externally, similar to the manner in which the kindly "Anita" formed in the soul of my Parisian patient.

If, however, an examining magistrate wanted to ascertain the identity of John King, he would find himself in a considerable quandary. This personality is very elastic, and its components are dependent not only upon the original suggestion by Damiani and Eusapia's own mental sphere, but also upon the nervous disposition and knowledge of the session's participants.

When the circle of participants is joined by another medium, John King is suddenly able to write, as happened recently before our experiments, in Naples, at the home of Countess K., whose daughter is a writing medium. Because the daughter was able to write Russian, John also wrote Russian—and because somewhere in her mind were lodged some Ukrainian legends, John turned into a Cossack. In London he spoke English, in Naples Italian, and when we sat down in Rome in a purely Polish circle, he appropriated from our conversations some snippets of knowledge and began understanding Polish. When asked how he suddenly understood Polish, his answer was that, in the days when he lived on earth, he met some Poles during his wanderings in America.

But a different explanation seems to be simpler—*our thoughts were reflected in Eusapia's mind*. When we sat down in a circle which primarily spoke French, John also said a few sentences in French, despite the fact that Eusapia does not speak the language when out of trance.

Although a Protestant, he cried from emotion when one of the ladies talked about children's first communion in church. Although an Englishman, he jumped for joy when we sang the Neapolitan song *Santa Lucia*. Besides, he had become so familiar with Eusapia that he adopted her gestures; for example, he learned to pat the interlocutor's arm above the elbow and say "O Dio!" very frequently, in the so-called trance, through the lips of the medium.

It is easy to understand that a young girl, having been told that the spirit of a deceased Englishman speaks through her, began in her imagination to give the spirit a face, and if the features do not show English characteristics, it is because she did not know such a person.

Looking at the impressions made in clay of the faces of those "spirits," instead of radiating some higher vitality, some non-material free facial expression, they simply remind one of death masks. However, since we

do not know how one looks after death, let us not criticize. Yet I cannot ignore a certain physiognomic licence that even a personality as elastic as John King should not perpetrate. He, who complying with requests, rubs his thick beard across the faces of those present, is shown in all portraits as cleanly shaven, possibly even lacking any beard at all! Could it be that, not stopping at his psychic metamorphoses, he also uses fancy dress materials?

It seems to me that in Eusapia's mind the image of John's beard has thus far insufficiently correlated with the image of the face of a dead person she had seen in childhood, and which left a strong impression. She calls this the face of John, following Damiani's suggestion. Certainly, out of trance, she says nothing concrete about it, for she does not remember what happens during the more difficult manifestations. All she says is that the majority of these faces "is to be" a likeness of John's face, and also that one of them reminds her of her mother. All the others seem to reflect the same physiognomy. The shape of the ear, nose, and cheekbone speak in favor of this claim. None of them resemble Eusapia, she cannot then be accused of making an impression of her own face . . . which of course is prevented by the usual control anyway. One detail in these impressions deserves particular attention: All the faces, as well as the hands in the previous impressions (with the exception of traces on soot) are not created by direct contact, but rather through some thin cloth of unknown origin.

On some of the impressions, the cloth is hardly seen, and if not for some folds on the eyes and the nose one would not discover them even through a magnifying glass. However, on one, which is supposed to be similar to Eusapia's mother's face, there are many folds of the cloth all over, imperceptibly covering the entire face. Finally, the sixth imprint shows the impression of the right hand above the face, pulling on the veil, at the moment of making contact with the clay. This had to be attempted twice, as indicated by the double impress of the ear. The left hand, also pulling down on the veil, was impressed on a smaller piece of clay, which was number seven.

What can one say about all this? As I was not present when these impressions were made, I must therefore accept them on faith (the reader will find my own later experiments in the description of the Warsaw sessions, which also somewhat modified my opinion regarding the separate types), especially of Ercole Chiaia, a wealthy supporter of spiritism, who kindly sent me this collection, produced under varying conditions and with different persons present. John's larger portrait is at the Roman Spiritualist Society (the *Lux* editorial offices), as an impress in clay. Its plaster of Paris cast is in Siemiradzki's possession. Bakalowicz's photograph reproduces it very well. In the opinion of sculptors, its physiognomy has all the

appearances of naturalness.

Two hypotheses are possible:

Either Eusapia, in some unknown manner, hides some artificial death mask made of rubber, and a veil which shields it, and presses these into the clay at an appropriate moment, having freed one of her hands from control; or it is a natural phenomenon, taking place in accordance with a general mediumistic mechanism.

In the latter case it would be immaterial whether the face that is being impressed is the materialized face of the “spirit,” or a materialized image emanating from Eusapia’s brain—although it is obvious that theoretically these are two widely diverse notions.

I might suspect the authenticity of all the impressions, had it not been for the fact that I myself was witness to hands being impressed (and later also a face), that these same hands appeared by the heads, and that since we have felt these faces, as well as hands, and these left an impression, there is no good reason why the faces could not create an impression.

Varying circumstances indicate that facial impressions belong to the more difficult and rarer phenomena. In the Milanese experiments, only a trace of an ear was obtained—John was complaining that the clay was too hard.

I must emphasize here that parts of the body which tend to cool faster and grow numb (hands and ears) seem to appear more readily in manifestations of materialization. The feet also. And what is most amusing is the following: When I asked John whether, having hands, he also has feet, I heard on the left side of Eusapia the distinct tramping of boot-shod feet. This could not be a bit of fun by Eusapia, for at that moment I was pressing down on both her feet, apart from which the sound of her shoes hitting the floor is very different.

May the other-worldly creator of Eusapia’s miracles forgive me, but I would sooner believe that the medium’s imagination, under certain conditions (of which more below) can evoke aural, visual, and even tactile effects, than believe that spirits walk in this world in boots.

Thus, to me, John is not at all a deceased person, but merely Damiani’s suggestion grafted from Williams’s mind onto Eusapia’s, and indirectly onto her observers—a suggestion brought out of Eusapia’s subconscious as a group of associations, responding to some extent to her ideas about a deceased man, supposedly an Englishman. He has a gaunt face (borrowed from who knows where), a bony, man’s hand, certain preferences and habits, naturally related to Eusapia’s own, and, secondarily and in an unstable manner, to the feelings, opinions, and conscious daydreams of the participants in the session.

John's personality has no individual limits; it flows in this or that direction, spreads out, shrinks, reshapes, enriches in knowledge or becomes limited, spiritual or vulgar, with no internal consistency, retaining only a certain general type, resulting from a combination of Damiani's suggestion as a seed, and Eusapia as the soil where the seed fell and rooted. John is a person only to the degree that Anita, whom I created, was a person. Anita even had some very individual psychological traits, and as such she was more of a person than John—on the other hand John is more tactile, more externalized.

On this latter property depends the entire difference between purely hypnotic incarnations and spiritualistic incarnations—*and the entire question of spiritualism*.

To explain and clarify the possibility of tactile exteriorizations of such spiritual doubling will be tantamount to explaining spiritualism—that is if there are no facts that go beyond the scope of mediumship, which I do not anticipate. John King, if he indeed exists, has the right to exact revenge for the above insults. Not only does he have the right, but I personally empower him to punish me in the most convincing and hurtful manner—to mess up my apartment, break the windows and the mirror, break the table and the chairs (I only ask that he does not rip up books and manuscripts). I authorize him to attack me in the dark, alone or with the assistance of other spirits. To grab me by the throat and leave permanent marks on my body as reminders of his revenge. The strength that he exhibited at Siemiradzki's should be sufficient for this purpose. I will seek no compensation for damages. It would be sufficient "compensation" to solve one of the great mysteries with which humanity has comforted itself for centuries, but which science does not want to study. Therefore, Mr. King—until our encounter in the dark!

Trance and Hypnosis

Before the duel with the spirits takes place, let us continue.

Let us first emphasize that the presence of a medium is an absolute prerequisite for mediumistic phenomena to manifest. That is acknowledged by the more sober spiritualists. But the mere presence of a medium does not suffice. Just as one may spend a lifetime with a person who is highly susceptible to hypnosis and not be aware of it until a hypnotist performs certain appropriate tests, so a highly qualified person may not be aware of their mediumistic potential, and not display it for a long time.

We detect hypnotic sensitivity with a hypnoscope. Having placed a magnet on a finger, after two minutes we can determine, by comparison, the loss of sensitivity to pricking the finger with a pin, which occurs in those sensitive to hypnosis. There is no change in those who are insensitive. There

are some infrequent exceptions, but those are due to other causes.

Thus far there is no simple criterion for the detection of mediumistic aptitude. However, if I am not mistaken, it occurs only in those who are hypnotically sensitive to a greater or lesser degree, although the majority of them is not able to manifest phenomena of the higher kind.

Higher levels of hypnosis may manifest independently of mediumship proper, but mediumship of the higher kind always appears only against the background of hypnotism, and, along with appropriate special powers of an *active* character, it must present also certain *passive* features, which belong to higher levels of hypnosis, namely, the ability to *see in the dark* and the ability to *read thoughts*.

Let us assume that everything that happened during the sessions with Eusapia was sleight of hand. Having assumed that, we must at the same time admit that the conjurer who manifested these phenomena has perfect vision in the dark. This would be the first conclusion limiting the conjuring hypothesis and leading us beyond it.

There is no question that one can place one hand beyond another, tug at clothing, pat backs, deceive as to the source of sounds etc.—but to do this for several days in a row, with frequent changes in the seating arrangements, in total darkness, to perform hundreds of complex movements either with fingers alone, such as the removal of glasses, passing glasses of drinking water, or moving heavy objects, such as chairs and bowls with clay, over the heads of the participants standing next to each other—yet never jostle anyone or step on their toes—for that one needs to be extremely adroit, and able to see in the dark.

Whatever one says regarding the ability to see contours of objects in very weak light, the darkness which existed in the room on a number of occasions was such that it would be insufficient for those with even the best eyesight.

Fortunately, the ability to see in the dark under abnormal conditions has been identified. There are two categories of facts of this kind in hypnosis:

1. Ability to see in the dark as a result of visual super-sensitivity;
2. Ability to see in the dark (or in the light) without the use of sight.

In the first case, the eye becomes exceptionally sensitive, at the expense of the other senses which become de-sensitized. Upon coming out of the trance, the subject continues to be oversensitive to light for some time.

In the second case, which belongs to very rare ones, the eye is completely desensitized, and its function is taken over by a special body-surface sensitivity, which transfers subtle impressions to the brain, which on the basis of hidden relationships translates them into visual language.

Upon coming out of the trance, such a person is not only insensitive to

light, but for a while does not see at all. This is the exceptional phenomenon I did not mention when writing the article *Excursion in Search of New Truths*, published in *Kurier Warszawski* this June. The reader may not accept this, for with Eusapia it was the first category that occurred mostly, or even exclusively. On completion of a session, while she was coming to, her eyes were still very sensitive to light for some minutes.

Of course, I am talking here about the sessions conducted in the dark. As a rule though, we began our sessions in the light, and the first manifestations, namely the movements of the table and at times also the touches, started rapidly, when the medium was still in an almost normal state. I say *almost*, because from the first moment Eusapia would become serious, begin to lose sharpness of expression, her face would become paler, and she would become less conscious of her answers. This state would last only for a moment, then she would return to her normal state, and finally the trance state would take over. If one did not watch her closely, it would seem that she was still in the watchful state.

The longer the session, especially when the light became more subdued, the abnormal state became more pronounced, her pupils would enlarge, her eyes would roll up, and internally, as in hypnosis, her entire body would become desensitized, her pulse would weaken, her complexion would be lifeless and her legs weak.

Yet even this deeper state would temporarily struggle with the watchful state, more frequently than in during hypnosis. This would be finally followed by a deep lethargic sleep, with no memory recall, but without the total lack of control over the physical body, as is true in the actual state of lethargy, when the medium drops to the floor like a log.

I also suspect that we did not obtain all that can be obtained with Eusapia, but unfortunately we were short of time.

This quasi-lethargic state is known as trance, which differs from plain hypnosis in the following ways:

1. It occurs and disappears spontaneously.
2. It is more unstable and changeable.
3. It is always physically exhausting.
4. It is active, rather than passive.
5. It is active beyond the limits of the body.

This last trait is vital. Nevertheless, as we have seen, active mediumistic manifestations would not be possible without the participation of some higher, passive hypnotic powers.

Regarding the abnormal vision, I must cite here the following observations from the days of my experiments with Slade.

We sat at a large oval table. I sat opposite Slade, at a distance of at least

5 feet from him. I asked that the slate which Slade held under the table be passed to me, and for this purpose I slid my hand under the table.

It was evening, and the lamp was burning on the table. Having slipped my hand under the table, with my hand and forearm I made a slight movement to the left, maintaining a steady position of my arm and shoulder, which were visible. My reasons for this were as follows: If the slate was being carried by a spirit, it would see the hand and accomplish the transfer. If, on the other hand, it was being transferred by Slade, either by his leg or some other method unknown to me, then remembering my previous movement to the right and not knowing about the change of position to the left, he would make a mistake.

As it happened, he did. It was very amusing, for the slate stormed several times in the direction where my hand had been, became impatient, struck my knee, and finally out of pity I took it from the "spirit's" hand.

It was then, before the transfer of the slate, that I felt a cool breeze. Despite that (the aim was to establish whether the spirits were blind), I rather suspected a sleight of hand—today, not daring to say that everything was a fraud, I just point out that, if the transfer of the slate was a mediumistic phenomenon, then in any case Slade, who was responsible for this manifestation, did not see what was happening under the table. *The translocation occurred under the influence of his notion regarding the previous position of my hand.*

Or Slade was not in a trance state at the time. Eusapia, when in trance, did not make such mistakes. When I asked for a glass of water, it was brought precisely up to my lips. The electroscope was placed precisely under my two free fingertips in complete darkness. There remains therefore one more possibility, namely that the ability to see under abnormal conditions demands that the medium be in a complete quasi-lethargic state.

There is still another way in which Slade could have recognized a change in the position of my hand—he could have read my mind. Apparently, though, at that time he did not have this ability either. It is thus not surprising that he did not convince me of the reality of his mediumship. I do not want to prejudge whether he tried to imitate phenomena that did not come when asked for, or whether I looked upon it in a biased manner.

On the other hand, with Eusapia, who could have been a weaker medium in other respects, I immediately checked out her ability to see in the dark, and the ability to read thoughts. This then very quickly eliminated the original assumption of sleight of hand. The table, remaining under her inspiration, gave answers to questions posed in French, and even Polish (while Eusapia knows only the Neapolitan dialect); at times she would answer questions formulated only in one's mind. Unquestionably there was

what has recently been confirmed scientifically, an inductive, mutual action of two brains, in a manner similar to the inductive action of two telegraph wires over a considerable distance. Those who wish to study this subject in more depth are referred to my book *De la Suggestion Mentale*.

During the sessions with Eusapia I tried, in addition to specific thought transfer, the general influence of will. Without formulating any specific thoughts, I tried to affect the manifestations through strong exertion of my will. If I am not mistaken, the result was that Eusapia suffered from cramps, and in a complaining tone cried out "*No stringete!*" (Do not squeeze!), although in doing this experiment I tried to hold her hand as lightly as possible, in order not to draw her attention. Sometime later I repeated this exertion of will experiment, and again heard her pleading: "No stringete!" Beyond these two experiments, my behavior was neutral, so as not to change or paralyze the natural course of the manifestations.

Regarding Eusapia's hypnotic sensitivity, I had additional proof. To begin with, the test with a hypnoscope indicated a dulling of the sensitivity of the right hand and a total loss of it in the left hand, along with the perception of cold. Next, when the day after the tiring manifestations of moving the piano or the large table she felt pain in her shoulders, I attempted to eliminate it by laying on of one hand. I would place it at the painful points until I received a thermal (warming) reaction, that is until the pain ceased. I would keep talking to Eusapia while writing down her answers with the other hand.

Thus, when, having removed the pain in the right shoulder, I moved my hand to the left shoulder, and when Eusapia announced that it no longer hurt, she would simultaneously begin to complain that she was losing control in her left arm. This happens after an extended holding of the hand only in hypnotically sensitive persons. I had to use a light massage to bring back the control. Finally, after the last session, when she could not come to for a while, exhausted by the experiments, I would put her to sleep and leave her lying on the sofa for about twenty minutes, in order to rest her nerves. For while a trance exhausts, magnetic sleep strengthens. I was sorry that I had to wake her up earlier than I should, because supper was being served and it was already late. It took some more minutes for her to fully come to.

All these experiments indicated a median hypnotic sensitivity, which seems to indicate that all mediumistic manifestations occur with the need for this exceptional suggestibility that ordinary, highly sensitive hypnotic subjects possess. Maybe even that special form of hypnosis known as trance is to some degree contraindicated for hypnotic subjects? In effect, to succumb to suggestion and to work as a medium are two completely different matters.

As I have already mentioned, a trance comes close to hypnotic lethargy, but generally it is a rapidly changing form, and it can momentarily assume different traits, i.e. active somnambulism or ecstasy. The latter even seems to predominate in a complete trance, combining with lethargy and catalepsy. In ecstasy the patient is lost within himself and cut off from the surroundings, while in hypnotic ecstasy he has visions and in mediumistic ecstasy he creates apparitions.

In general, we consider trance to be a special form of magnetic sleep, created with the participation of several non-volitional magnetists—the participants in the session. As a result, the medium finds herself in a “relationship” not only with one magnetist but with the entire circle.

The Indian fakirs seem to be self-sufficient, but Eusapia maintains that without one or two participants she cannot manifest some of the more difficult phenomena; moreover, some persons aid and others detract from the effectiveness of the manifestations, and finally there are those whose hand gives her an unpleasant impression. They completely paralyze the manifestations.

The influence of the chain, that is the holding of hands, is more or less apparent. It appears to be decidedly helpful, and may even be essential at the start of a session, by setting up a kind of dynamic harmony between the medium and the surroundings.

Thanks to this harmony, the medium becomes like a center collecting within it the energies of the participants, being a mirror reflecting their thoughts, while at the same time ejecting the resultant combination of these forces.

Later, when a shared psycho-physical atmosphere has been stabilized, the chain appears to be superfluous. At times, in the dark, I would break it to have one hand free for purposes of control without detriment to the manifestations. On photographs of levitation this is also visible when it was necessary to expose the table to the camera. Nevertheless some authors, such as Dr. Gibier in his report on experiments with Slade, state that manifestations (in light) ceased at the instant when the chain was broken, and started up again when the hands rejoined.

The fact of the influence of those present during mediumistic experiments presents analogies with certain magnetic sleep manifestations. Following tradition, I call magnetic sleep a form of hypnosis, in which the patient is “in tune” only with his magnetist and not, as it is in ordinary hypnosis elicited by staring at an inanimate object, a blind instrument of anyone who wants to present suggestions. In addition, he does not have his own, new spiritual independence, which appears in magnetic sleep. In this latter case, if the magnetist wants the person in magnetic sleep to hear

another person, he must not only join their hands, which sometimes shocks the “sleeping” persons excessively, but must join them with his own hand, for the purpose of facilitating and soothing the action. It also often happens that the “sleeper” ceases to hear the other person if the magnetist pulls back his hand, but begins to hear again if the hand contact is renewed.

In other words, from what I have said thus far, one can assume that mediumistic phenomena can, with time, be brought into hypnotic and magnetic ones as a special case.

Let us now proceed to the most difficult issues.

Beyond the Body's Physical Limits

The possibility of eventually bringing mediumship into the field of hypnosis should not make us unaware of the difficulty of such an undertaking. The difficulty arises mainly because of the fact that mediumistic manifestations go beyond the limits of the physical organism, at least as it is understood at present.

As long as the spiritual influence operates within the boundaries of the physical body the physiologist concedes the facts. But when he is told to admit the possibility of the psyche operating externally as well, as has been claimed by Van Helmont and Paracelsus in the past when writing about the power of imagination, then the physiologist becomes indignant. This opposition is quite natural and justified.

Unfortunately, we only have two paths to choose from: either to acknowledge the entire world of spirits with its phantasmagories and contradictions, or to attempt to explain the ascertained manifestations through some thus-far-unknown psychological mechanism of our being. This attempt would have to be taken to the limit and shown to be a failure before we could be justified in seeking totally new factors.

Let us then try. Does man really end on the surface of the body?

Col. de Rochas recently announced a series of hypnotic experiments which indicate that dermal sensing on the surface may be moved outside the organism several centimeters beyond the organism, and even several meters away from the surface of the body.

Pricking appropriate points in space causes pain to the hypnotic object, while pricking of the skin causes no pain. De Rochas calls this phenomenon the exteriorization of feeling.

These are undoubtedly interesting experiments but despite partial, recent corroborations by Dr. Crocq, they have not been critically analyzed and therefore I will not use them. De Rochas reported them in a way that is too general, most likely exaggerated, and he insufficiently shielded himself

from mixing in mental suggestions, which causes the hypnotist to find support in the more docile subjects for whatever theory he has in mind.

For the same reason, I will not cite the work of Baron von Reichenbach and his odic force. I will only quote some already well-known and confirmed facts.

Some persons in a magnetic sleep, in addition to the usual skin anaesthesia, exhibit such sensitivity that they cannot stand the approach of anyone except the magnetist, even for a distance of several steps. They do not see and hear the approaching person, but when that person comes too close, they become restless, they twitch, feel cold, their entire body quivers, stiffens, and the more subtle manifestations of their condition may be paralyzed.

It happens that a person with such sensitivity may walk around a room in a state of active somnambulism, and if he happens to enter the personal sphere of some stranger, even if he did not know about that presence, he experiences the same depressing sensations.

We may therefore surmise that the human body extends a kind of more or less subtle atmosphere, and that because of various sensing manifestations it is of a nervous nature. Besides, it is possible that this stock of life energy which in a normally active state is held only within the physical confines of an organism, flows out over this organic atmosphere during the abnormal state and, as in a similar manner we feel through gloves, and as the blind sense through a layer of air, here even more subtle layers of matter (maybe ether?) mediate in the reception of impressions.

We know from physiology that nervous energy, which energizes all the senses, concentrates in some and is inactive in others. Here we would have an even more radical conversion: nervous energy leaving all the senses and going beyond the body; and if the brain is sufficiently sensitive to minimal stimuli (because of the absence of the ordinary, coarse ones) it is supplied with them directly from a distant environment.

In support of this hypothesis I could quote a series of facts, but they would draw us away from the subject. It should suffice that, on the grounds of hypnosis itself, we arrive at acknowledging that as far as the passive control (i.e. sensing) is concerned, man does not end at the body's surface.

It is now essential to show that active control can also reach farther.

When people sleep, their muscles rest and are not used. A person plunged into a mediumistic sleep also sleeps, and is also motionless—yet his energy is being depleted, he struggles, exhausts himself and weakens. Why? What is happening to his energy? There are various mechanical manifestations going on around him, after which he is tired. Is it not more rational to assume that the force emanates from him, rather than bringing it

down from the clouds?

And if it is so, then we are forced to acknowledge that not only the sensory energy, but also the motive–nervo–muscular energy may, under certain conditions, flow beyond the organism’s limits, owing to the etheric link which fills and joins everything, bringing about the entire thinking, feeling, moving human being, stretching beyond his physical body. Basically, we are forced to accord to the dynamic atmosphere surrounding human beings certain properties of the entire creature, properties that are individual and decreasing as the distance from the body increases.

Acknowledging the dynamic atmosphere is the first point; now, for the second one.

Manifestations of transfer are known in hypnotism. Hysterical paralysis of the right hand or of the right side of the body can be transferred to the left, and conversely. This phenomenon, discovered by the Biological Society of Paris some years ago did not elicit much surprise, because of the body’s well-known symmetry of the nervous system. In any case, it indicated the ability of the nervous energy to flow back and forth within the confines of the body. Great amazement, however, was caused a few years ago by Charcot’s assistant, Dr. Babiński, when he announced the possibility of transferring energy from one person to another, and thus creating a new healing method (which, by the way, is impractical). I saw these experiments and I cannot say that they have fully satisfied me. Dr. Babiński, ignoring the Nantes School (Bernheim), did not sufficiently protect his hysterical patients from the unintentional influence of suggestion. Later observations led me to suspect that, independent of suggestion, such a transfer is possible.

If the lack of control of a hand or larynx (aphonia) can be transferred from one person to another, then by the same token we must acknowledge the possibility of externalizing of neuro–muscular states, for obviously a foreign organism is external with reference to our organism, and the connector between them can no longer be nerves but ether. Let us take one step further and say: Mediumistic phenomena depend on a temporary transfer of neuro–muscular energy from the organism to its environment.

The neuro–muscular energy (I am using this concept in the meaning given it by Bain, of “unintentional energy”) accumulated in the organism, and having no outlet, pours outside the body as a result of a temporary idleness and inertia of the tissues. As alertness and activity of the body return, mediumistic manifestations cease. This “pouring out” of energy is, however, not such a purely physical process as, for example, the pouring of liquids. It generally takes place under the direction of the imagination, and only thanks to that takes on a purposeful and coherent character.

Assuming the imagination to be the method, let us now move on to

the third point, which needs to be considered more closely. In order to understand the possibility of action by imagination beyond the boundaries of the organism, let us consider the following:

First of all, until very recent times, even the action of imagination within the limits of the body, upon its bodily functions, was considered impossible. Only imaginary changes in function were admitted.

It has, however, been shown that the influence of the imagination can be very real, and not only on the functions but indirectly on the tissues. In this way the fact of stigmata became a physiological phenomenon. I myself have observed swelling, reddening, and even bloody effusions appearing in a matter of minutes on the skin through suggestion—even defined shapes, appearing almost on command. In one of the experiments at Dr. August Voisin's in Salpêtrière, through a simple suggestion, the letter V appeared on the patient's forearm, as if cut with a sharp lancet, within 20 minutes.

Experiments by the apothecary Fauchon are also well-known. It is confirmed by many doctors that true vesicants may not be effective if they are countered by suggestion, while imaginary vesicants may be effective if suggestion demands it. These are exceptional facts that cannot be repeated with everyone, but they do exist, and there is no doubt for me that the imagined, under certain conditions, may act upon all functions and all tissues.

On what basis is this possible? Let us take a simple example.

I say to the patient whose hands are hot: "Your hands are cold," and after a while the hands cool down. Why? Imagining the cold after multiple exposures to the state of cold creates this cold state. There is no need to consider the basis for this. It suffices to know that the imagination created a single associational link and that, like the freezing of hands many times resulted in the imagining of freezing hands, so conversely, the imagining that the hands are freezing could cause the freezing of hands.

I call such facts *ideoplasty*, a realization of such an idea (visualization), while the connection enabling such a realization is the *ideo-organic association*, or the joining of the imagining of a certain organic state and the organic state itself (the reader will find more detailed information relating to ideo-organic connections in my communiques to the Biological Society in Paris, which were reprinted in the supplement to the second edition of *De la Suggestion Mentale*).

On a similar basis, the picturing, the visualization of a movement may result in a movement, the visualization of lack of bodily control—in lack of control, picturing goose pimples—goose pimples, and so on.

In the latter cases the associational connector is hidden deeper: We do not know in what way the changes on the skin connect internally with the

visualisation of these changes, but this is only a question of degree, for even with the simple wagging of a finger we do not subjectively know which muscles and tendons must be moved in order to result in the movement; we ascertain only that imagining wagging causes wagging, imagining a yawn results in a yawn, and so on.

The higher degree of ideoplasty manifestations consists of those in which the action of the imagination is reflected in another organism, which is dependent on the previous one. I am referring to the consequences of the so-called imprints; I know facts that are undoubtedly of this type; that imagining a mouse which frightened the mother was reflected in the child's body, as a protuberance covered with mouse-like hair and endowed with the tail of a mouse; a mother's sudden strong desire specifically for raspberries resulted in a child being born with a raspberry-like protuberance on its forehead, etc.

Those who are not sufficiently familiar with the evidence may not accept these facts, but if they are acknowledged, one must admit:

1. that a lively imagining of a certain shape may create that shape on the body of a newborn.

2. that such an action may take place without the nerves being involved, for the body of the fetus is not connected to the mother by the nerves.

This therefore will be the first level of action by imagination from a relative distance.

The question now arises as to whether a similar phenomenon can occur over a greater distance and on non-living objects.

If, theoretically, we had to declare ourselves for or against, we could say "no", and find all kinds of rationale for this denial; but here we are dealing with facts, and facts exist, and what is involved is the explanation of the existing facts. For me it has already become a certainty that Eusapia's mental imaging may cause the movement of a compass needle, that imaging of a knock may result in knocks, imaging of light—light, and even imaging of a hand may be the stimulus for the formation of something like a hand.

By using this method we are undoubtedly entering the sphere of ancient magic. We are erasing the clear separation between thought and object, renewing Platonic ideas as prototypes of things. . . . But what else can we do? Either the facts are true and then one must talk about them in this way, or else they are delusions—and then it is necessary to explain the possibility of such an illusion, and that I do not feel qualified to do.

Having declared myself on the side of accepting the reality of these facts, I must accept the consequences. Let us try to examine those.

Our sensory worldview demands that we believe that human beings, as "objects among objects," have a strictly limited surface. We have seen,

however, that some of the hypnotic phenomena already speak against this limitation. An organism is the abode of constant motion, constant conversion of matter internally and exchange of matter between it and the environment; it is a dynamic center of activity which must radiate to the outside; it does, therefore, have its own atmosphere, both material (Jaeger) and dynamic (Richardson), which extend the individual boundaries to a greater or lesser degree.

Besides, being the seat of various forces, the organism must be in some kind of relationship with the forces of the environment.

In my work on mental suggestion I have analyzed these questions minutely; here I will develop only one significant point, while adding that it will be an expansion of our view of psycho-physical matters in a manner that is possibly somewhat risky.

Let us imagine that in a particular organism arose the thought A. That thought is something we do not know, but we may speak of it as an occurrence, similarly as we speak of other occurrences, although we do not know their nature. That thought is itself either a state of mind, or it is accompanied by a certain state of mind. The dynamic state of the brain must be reflected in the state of the ether, the invisible matter that fills everything. Thought, whatever it is in itself, is simultaneously a certain movement of ether, and ether is not limited to the body's surface.

And if this is so, then we must acknowledge that for every thought A there is in the ether a certain corresponding state a. We do not know what it is, but we may assume that, similarly, as with the organic states of our bodies, and with the organic states of the fetus, the dynamic state of the ether unites with the state of the mind/brain which corresponds to it, that is known as thought. We may assume, on the one hand, that we continuously receive from the entire world millions of impressions, which generate subconscious impressions within our psyche, in addition to those conscious and subconscious ones that are generated by the ordinary, rough sensory impulses. On the other hand, there is a certain cosmic state that corresponds to every imagining of our soul.

This means that both in the centripetal and centrifugal direction we are an indivisible, continuous part of the universe, and it is our sensory worldview, which is based on coarse, incompetent senses, that sets the constraining limits.

Under normal conditions, all these activities and influences are imperceptible.

Let us assume though that (as it pertains to the sensory set of facts, action in the centripetal direction) ordinary impressions and thoughts, which dampen these minimal universal impulses, disappear. What is going

to happen? These minimal impulses, imperceptible up to now, will become factors that are meaningful and influence the remaining course of thoughts. It is owing to them that mental suggestion, sightless seeing, and distance sensing, etc., will manifest.

Similarly (as it pertains to the motor set of facts, action in the centrifugal direction), if we assume that, thanks to a particular organic state (trance) which facilitates the dissociation of forces from the tissues, thanks to the narrowing of the psychic field, a single image (monoideism) will enter with an exceptional force, and, losing its organic association, due to the paralysis of its tissues, it will regain its cosmic associations—then this single ruling image, concept, for instance of a sound that is to occur, will reproduce in the environment those vibrations of the air with which it was frequently associated, moving from the body of the medium and participants to the environment the energy needed for this purpose. (For a precise understanding of this hypothesis, acquaintance with the general theory of ideoplasty is necessary. This is given in the supplements to the second edition of *De la Suggestion Mentale* (Paris, 1889)).

According to today's concepts, the various states of ether may only be in the form of changes in density—but the changes in its density may also explain everything: the motion of heavy bodies, changes in weight, light effects, and the formation of etheric haze that develops into appropriate bodily forms with an unstable existence.

And now, dear reader, laugh as much as you like at this hypothesis, calling it a fantasy bridge between imagination and reality, between spirit and matter. I will tell you only this: If this hypothesis is basically false, then there is no other. It may be insufficiently precise in details, that is true; it is fairly difficult to understand and too general—that is also true, but there is no other. Alleging mass hallucinations (which can be photographed and produce impressions in clay), as is done by Hartmann, is even more difficult to conceive.

And, dear reader, do not be under the impression that the spiritualist, calling in the “spirits” for help, explains more. The difficulty encountered by the “ghost” in creating an impression in clay is as difficult as it is for the imagery coming from the medium's head. Both are facts of the psyche, and both require ideo-cosmic associations in order to be in contact with the environment; in the same way, materialization can take place only through the mediation of cosmic ideoplasty, no matter what you choose to call it.

The spiritualist adds a third, totally unknown factor, that of spirits, to the two insufficiently known ones. I must say that, even independently of the question of the *existence* of spirits, it does not appear to me rational to think it easier for a spirit, who is disembodied, to materialize, than to

imagine such a spirit that still possesses a body.

Such materialization takes place at the expense of the medium's and participants' strength. That is obvious. After our experiments in Rome, the participants were so exhausted that they rested for three days, while Eusapia was so tired that she canceled an already accepted and financially rewarding invitation and returned to Naples. As for myself, although I did not feel tired, owing to a strong constitution and being used to magnetizing a great many patients, which is even more exhausting, I ascertained a 50% drop in muscle strength.

Yet, after all, we seemed not to do any physical work. We merely sat at the table or walked about the room. "John" did not exhaust himself for us, it was we who did it for him, and Eusapia even suffered for him. "John" was merely a name adopted through convention for the work done, under the direction of conscious and unconscious imagination, by the secret forces of our own making . . .

"But those hands!" you the reader will cry, "These faces firm enough to make an impression in the clay!"

We shall come back to this. In the meantime, we will perform a number of unusual experiments, mentally climbing the rungs of the ladder of wonders.

Up the Rungs of the Ladder of Wonders

Looking for an explanation of how imagining a manifestation may lead to it becoming real, let us examine the information available at present.

1. Imagination may hide reality.

On a certain evening in Paris, in the apartment of Anna Bilińska, a highly talented artist who died prematurely, I was putting Mrs. G. into hypnotic sleep. Shortly before awakening her, I suggested: "When you wake up, Władysław (the artist's brother) will be invisible." "And where is Władysław?" asked Mrs. G. when woken up. "He left," I said. Shortly after, I asked him to play the violin; he stood up and played it in the center of the room. Mrs. G., who had already watched with some disquiet the movement of the violin without a violinist, became scared when it began to play and asked the meaning of this. Was she hallucinating? Was the violin really playing?

At another time, through suggestion, I made myself invisible. I was smoking a cigarette at the time. It, as well as everything I had on myself, was invisible. After a while, however, I lit another cigarette (which was not under the spell of the suggestion). Mrs. G., who was still not aware of my presence despite the fact that I was pacing back and forth in front of her, suddenly saw the cigarette, bobbing up and down in the air and smoking. Slowly, she became accustomed to these unusual experiences, and, no

longer taking them to heart, would only say with a smile: "Eh, the doctor is undoubtedly playing pranks again!"

Another hypnotic subject, a Mr. S., whom I told that upon awakening he would see me without my head was so terrified by the sight that he threw himself toward the door to the balcony, wanting to jump down to the street. Fortunately he was restrained in time. I hypnotized him instantly and with a counter-suggestion removed the previous delusion and the memory of it.

In persons who are exceptionally susceptible (at most 10% of the population), this kind of effect can be evoked through simple suggestion that it is so. Objects may levitate in the air, and the most ordinary fraud may not be noticed, thanks to a suggestion.

2. Imagining a delusion may hide reality.

Positive hallucinations can be produced in addition to negative ones.

In 1881, at the Warsaw Medical Society, I showed, alongside others, the following experiment:

I suggested to Miss H. W. that after coming out of a hypnotic trance she would see a very strong electric light in the corner of the hall, where there was nothing. Upon coming out of the trance, Miss H. W. not only stated that she saw a lamp, but she was also shading her eyes and her pupils were shrinking from the would-be radiance (this was reported in *Kuryer Warszawski* by B. Reichman).

I gave the following suggestion to another hypnotic subject, a Mr. X who was in love with a certain Miss Y but was unable to see her: "Tomorrow at 11 am you will meet Miss Y at the corner of Senator Street and Theatre Square. She will greet you politely, ask for your hand, and chatting pleasantly you will cross Theatre Square. At the corner of Wierzbowa she will bid you farewell and go in her direction."

Next morning Mr. X showed up in excellent spirits. "I saw her and when parting she gave me her hand to kiss." That hand-kissing was added by him.

3. Imagining may bind delusion to reality to such an extent that the delusion seems to leave a trace in it.

Several years ago newspapers reported with disbelief the following experiment by Professor Charcot. He showed a hypnotized woman, who suffered from hysteria, a dozen or so stiff white paper cards, telling her that on one, but only one, there was a portrait of him. Partly through his detailed suggestion, and partly through her imagination completing the rest, the hypnotized hysteric saw the portrait. She described it in detail, was happy with it, and asked that she be given it as a memento. This then was an evocation of a clear hallucination, but it does not end there.

Secretly, without the woman knowing, Prof. Charcot put a barely visible

mark on the back of the “portrait” card, to differentiate it from the others. When he passed the card back to her, she continued to see his portrait in it, only now she maintained that it was upside down—which was correct, because of the way in which it was handed back to her. The “portrait” card was mixed in with the others several times, yet each time the patient would select the “portrait” card, and discard the others. Each time she would also recognize whether it was the the right way up. It was always the same and only card. When the cards were slid across in front of a mirror, she would also select only the one card which “showed the portrait” of Charcot. In other words, this imaginary “portrait,” in its exteriorization, acted upon her totally in the way it would if it were real. She put it away as a memento. The following day she still saw it clearly, but in two days she complained that it was fading, and several days later it disappeared completely.

What was it?

Those who would find here a “denial of all laws of physics” would be surprised at Charcot allowing himself to be duped by a hysterical woman. However, there was neither miracle nor fraud; the phenomenon was a natural one, in accord with the laws of physiology, and demanded unusual conditions only because it was so unusual.

A person, a portion of whose senses is put to sleep, and whose total attention is concentrated in one direction (as here on a single sheet of paper) sees much better than we do. She sees variations in the paper’s weave, in its dots and flaws, that we do not notice. Hallucinations begin on these dots and flaws and link with them, and, according to the well-known law of association, one picture linked with another develops it in the consciousness. The hysterical person thus, having seen the same arrangement on a sheet of paper, sees in it also a portrait.

If this explanation turned out to be unsatisfactory in some circumstances, we would have to accept that attention indeed leaves some traces on an object which has been concentrated upon.

All previous experiments had been conducted with the aid of hypnosis, but with persons who are exceptionally susceptible (5%) they are successful under certain conditions also without hypnosis.

If I am not mistaken, in 1883 I was invited by Dr. B. to attend hypnotic experiments with Miss X. Having noticed, on the basis of hypnosopic tests that the person was extremely susceptible, I asked Dr. B. for permission to perform several experiments without placing her in a hypnotic sleep.

On the table there were an ink-well, a flacon of eau de cologne, and a key.

“I will show you some magic tricks,” I said. “What is this?” I asked, taking the flacon of cologne in my hand.

“That is eau de cologne.

“Yes, but pay attention now,” and, having said that, I covered up the flacon with my hand. “I raise my hand, what is it?”

“I already told you, cologne,” answered the patient after a moment of reflection.

“You are mistaken, this is an ink-well with ink in it . . . and the cologne, it is over there, where previously stood the ink-well. This is ink.”

The patient looked at me, somewhat alarmed, became serious and, transferring her glance from the ink-well to the flacon said: “Indeed! . . . how did you do it? but maybe it only seems so to me? . . . “

“In order to convince you that it is so, I am going to pour the ink on your dress . . . ”

The patient jumped away, wanting to avoid damage, but the would-be ink was already on her light-colored dress, and made large spots, which Miss X **saw** clearly, unable to hide her anger at my flippant way of conducting experiments. I calmed her down by telling her that I would remove the spots easily, but in the meantime I asked her to turn her attention to the table, where lay the key.

“The key is here, is that right?” I said. “I am covering it with my left hand, and I am keeping the right one far away. Tell me, where is the key now?” I said, lifting both hands.

Miss X instantly saw the key where it was not, but did not see where it was. Suggestion became real on the basis of a guess.

And all this happened quite openly. If this is so, if this type of deception is possible quite openly, then the reader will ask why I do not explain all mediumistic materializations and telekinesis of objects in this way? I do not explain them in this way because that would not be the truth.

There are so few persons who are susceptible to such a degree that to have two of them around at the same time is next to impossible. Explaining away all this already large evidence as a kind of mass hallucination cannot be justified. Especially in our case, all the persons taking part in the first session with Eusapia were tested by me in this regard, and none of them showed susceptibility to this kind of illusion. Finally, photographs and casts rule out purely subjective explanations.

4. Externalized illusion (hallucination) can fall prey to deviations under the influence of physical factors.

30 years ago, Dr. P. Despine noticed that a patient, hallucinating that a person was levitating in clouds in front of her, saw the person double if he pressed her eyeballs in a certain way, or if he asked her to gaze at an object from a close distance. It is well-known that if we hold our finger close to the face and focus on it we shall see more distant objects double.

And so, in this instance the apparition behaved as real objects do.

Several years ago, Dr. Fere performed an analogous experiment using a prism. He called forth an external phantom in the mind of the hypnotic subject: a hallucination of a bird up in the clouds. Then, placing a prism between the eye of the patient and the phantom bird, he determined that the patient was seeing two birds.

This can be explained in much the same manner as Charcot's "portrait." The picture of the bird, when hallucinating, links with a certain background of clouds, and because these clouds split into two as they go through the prism, the image of the bird, which is linked to them, also splits into two.

If this explanation was unsatisfactory under certain conditions, i.e. the background was absolutely flat, we would then have to accept that hallucinations are not always purely subjective phenomena, and that exteriorization of images produces some subtle, physical changes in a given direction in space, changes which link with the image itself and are subject to external influences.

Two instances would then be permissible:

1. Either this hallucino-physical current would emanate from the subject itself, and as a consequence it would possibly appear that in each externalized image there is a tendency to materialize that image, just as in each image of motion there is a drive toward the realization of that motion—which basically would explain mediumistic phenomena.

2. Or this hallucino-physical current would be going in the reverse direction and emanate from another person, as it seems in the so-called phantasms of the living, a subject which was studied by the Society for Psychical Research in London—which again would explain telepathic phenomena.

In these latter circumstances, a hallucination has some external stimulus of an unknown nature, and it is in itself something more than an illusion, i.e. it is a veridical hallucination.

5. Imagination, feelings, urges, and movements of a given person leave their traces on the object to which that person's attention was directed over a period of time, or which was worn by that person for a longer period of time.

This, seemingly mystical, assertion will undoubtedly meet with much skepticism. I also was a skeptic for many years; however, facts forced me to acknowledge that this type of infecting of objects with our individuality through the medium of our etheric atmosphere cannot be denied. First of all, the magnetizing of objects belongs here, and that is not easy to prove, for suggestion or autosuggestion usually erases much more subtle influences, but in some higher levels of hypnotic sleep this occurs prominently.

For example, Mrs. G. could not stand her brother's touch when in a hypnotic sleep, but she took it perfectly when he was hypnotized by me without her knowledge. In hypnotic sleep, she would pull out the calling cards of persons who were repugnant to her from among many others and toss them away, despite the fact that she could not see the names. She did not hear anyone except me, her hypnotist, but she would hear a person who was hypnotized by me. She did not hear when someone played the piano, but she heard when I pounded the keys in the next room etc. . . .

Miss G., Miss B., and several other persons who ate in a hypnotic trance could enjoy eating and drinking only when the food or drink were magnetized by me—and they would not be fooled.

Mrs. de W. and Miss H. were put into a trance at different times, and having been given a letter from a person totally unknown to them, and a foreigner at that, described that person's character, and likes and dislikes, so perfectly and in agreement that I could not have done it better myself. It was only years later that I verified certain traits of character as correctly sensed from the letter.

Here, then, belongs the entire battery of experiments in what is known as psychometry, in which an object applied to the forehead, the solar plexus, or simply held in the hand, wakes up a whole series of pictorial traces of unknown nature, with which the object is connected. The first attempts of this kind were reported by Dr. Korner in his *The Seeress of Prevost*, and by Denton in 1891.

We need to take only one more step forward, in order to accept that:

6. Sensory imagining may, under certain exceptional circumstances, realize its essence with all appearances of objectivity.

This means, for example, that imagining a sound may evoke a sound, that of warmth—warmth, imagining light—light, and so forth.

Physical Ideoplasty

The most common manifestation of the higher mediumistic properties is raps on the table without the table moving.

I heard and read about it many times, but it never occurred in my own experiments. I heard it for the first time in Paris, during a séance with the “clairvoyant” Eugenia Garcia, but the raps were so weak and uncertain that they did not convince me. Later, at the home of Princess de Komar I met Madame Blavatsky, the famous initiator of the theosophical movement in Europe, and when I asked her to demonstrate any fact that would go beyond the range of the known phenomena, I heard those raps in a somewhat unusual form.

Parenthetically I will add here that even then I considered Madame Blavatsky to be a very intelligent person, but one not selective in the means of getting results. A fairly romantic story has been woven around her, according to which she had been a strong medium in her youth, but a magnetist whom she spurned cast a spell on her in revenge, and through suggestion took away her mediumistic abilities. Only traces remained, those which she showed me—the rest she made up through sleight of hand.

The phenomena showed to me were as follows:

1. Madame Blavatsky would stand in front of a wall, or a mirror, and make movements simulating knocking on a wall or a mirror, without actually doing it. Despite this, very distinct raps could be heard.

2. Madame Blavatsky would place both her hands on my head, and after a while I would feel clicks under her fingers, as if of one fingernail against another, yet she did not move her fingers.

In addition, Professor Charles Richet told me that he heard a sound of tiny bells when she moved her hands through the air. Later on I heard of similar manifestations of sound produced by a private medium, but mixed in with movements of a table. Slade did it, too, although clearer, and yet again without sufficient controls. Cumberland's productions (he imitated raps by clicking his toes inside his boots) convinced me that everything was sleight of hand. It was only with Eusapia that I could study this manifestation in various ways and convince myself that indeed an illusion of rapping—real rapping—could be heard without mechanical means—weaker in full light, stronger in twilight, and very strong in the dark.

These noises are by no means limited to rapping. Crookes quotes a score of variations of murmurs and sounds. I myself have heard a dozen or so. Sometimes they occur by themselves, and then it is possible to study them.

From the many observations of this kind, I will quote one from the exhaustive study by Aksakov, first published in German under the title *Animismus und Spiritismus*, then in Russian (in the St. Petersburg edition, Volume II, page 368). This is an excerpt from an extensive treatise on mediumistic phenomena observed in the V. A. Shchapov family in 1870.

... One night, when Akutin sat guarding the medium who was in a deep sleep, he called us from the adjacent room in order for us to determine what he had been hearing. He explained that there was an inexplicable rustling, as if along the pillow and the covering of the medium, which attracted his attention. It occurred to him to scratch the pillow with his fingernail and then, to his great surprise, the same scratching noise repeated itself in the same spot. Not wanting to trust himself, he called us in to confirm, and in fact, as soon as he scratched the quilt covering the medium, the same

sound repeated itself immediately. When he scratched the quilt twice, the scratching was repeated twice. When two scratches were stronger and the third weaker, the combination was repeated with striking precision. The same thing happened in the wood of the bed, on the wall, and farther from the medium. All the noises were immediately imitated . . .

This manifestation could be called a mediumistic echolalia, through analogy with hypnotic or spontaneous echolalia, which can be found in certain mental disorders.

Recently I observed echolalia in one of my hypnotic subjects, along with a translocation of hearing. Hypnotized, she sat motionless in an armchair. She murmured something in her sleep, but did not hear my questions at all—when, however, I leaned over and spoke to her cleavage, she would repeat my questions like an automaton: “Why don’t you answer?”; “Why don’t you answer?”; “What did you see?”; “What did you see?” and so forth.

Echolalia is sometimes so precise that the subject repeats entire sentences in a foreign language, showing absolutely no consciousness of the fact. In both cases we are dealing with the monoideic state; one mental image, or a series of mental images rules the mind to the exclusion of all other associations, comparisons, and remembrances, and, at the same time, of awareness and reflection.

Such a mental image, losing its psychic associations, regains its organic associations (as in the instance of the occurrence of certain cramps of the laryngeal, mouth, and tongue muscles) and for that reason must externalize itself, like the hypnotic subject who has to repeat the words heard.

Let us move one step further and let us assume that the organic associations are also canceled as a result of a temporary lifelessness of the body. What will follow then? The mental image, losing its psychic and organic associations, regains its cosmic and physical associations, discussed in Chapter 10. It is a most subtle union, and for that reason it may manifest only when it is not hampered by stronger physiological associations, and even stronger psychic associations occurring between the mental images themselves.

In these exceptional instances, the image of the noise will ring out in the air surrounding the same vibrations with which it was associated many times in the act of perception—thus the mental image will be materialized. This will be physical ideoplasty.

For example, then, if “John,” in answer to our request, let us hear the stomping of his boots, this does not mean that he really had boots on, only that the mental image of stomping, once it took over Eusapia’s mind, became externalized through physical ideoplasty through such vibrations as

to recreate in our ears the well-known sound of stomping boots. In this case, Eusapia's mind played the role of Edison's phonograph, with the difference that in the latter case the sounds are recorded on a sheet of tinfoil, whereas in Eusapia's case they were recorded in her own brain.

However, a word of caution is in order. The above explanation (if indeed making a reference to a new principle can be called explanation) does not suffice. For example, the hand which made impressions in the clay, knocked on the table with its fingers—if it could make an impression in the clay, then it could also knock on the table. In that case the knocking was already quite natural, and in order to explain it there is no need to bring in physical ideoplasty. The sound made by the knocking does not need an explanation here, but the creation of the hand itself, which was real enough to knock. Explanation of how such a hand came about is the second, and harder, part of the task. At this point I will only say that, for me, in order to explain mediumistic sound manifestations, two principles are needed: physical ideoplasty, which we already know, and material ideoplasty, otherwise known as materialization by the spiritists, which we are about to discuss.

In theory, they have to be separated—in manifestations, one is joined to the other; at times they blend into one, at other times they occur independently. Let us ignore other groups of impressions (visual, tactile, etc.) in order to avoid repetition, and ask whether in reality physical ideoplasty is such a new principle as it seems to be. In the next chapter I will attempt to demonstrate that it is only a specific instance of a general law of nature that can be verified at every step of the way.

[Chapter 13 on the law of reversibility is omitted.]

How Is a "Spirit" Body Produced?

After the experiments with Eusapia, I have no doubt that mediumistic phantoms can not only represent a semblance of a figure, i.e. light rays combined in such a way as to give an *impression* of a figure, like a mirror reflection, but that they can achieve a greater degree of reality than a reflection or an illusion.

Degree of reality! . . . At this point the reader may well shrug and ask: Are there degrees of reality?

Undoubtedly so, from the point of view of our senses.

The situation with mediumistic figures is as follows:

The first degree is a simple hallucination by the medium. The medium claims that she sees a figure. This also happens under hypnosis, but since other people see nothing, we regard it as a simple hallucination.

Second degree—another medium, not just the one who calls up the phantom, can see it. Others present, not being psychic, see nothing, but

a photograph confirms that the sensitives saw something with a form corresponding to their description.

This time we have to admit that something objective, something real, corresponded to the medium's hallucination. Aksakov calls such photographs of figures invisible to the general public, "transcendental."

At the third degree, the figure, or just the hands, are visible to everyone, but only as a transparent shadow, or as luminous, nebulous forms that cannot be touched and offer no resistance.

At the fourth degree, the phantom becomes not only visible, but touchable. Hands, or body in general, can be touched and give the impression of being a real body; it leaves an imprint on blackened paper, on clay, in paraffin, and feels like real skin to touch.

Finally, at the fifth degree—and here I rely on the opinions of other experimenters—the body of the phantom does not differ in any way from a real body apart from the fact that it disappears after a time. Such a phantom can not only be touched, but *weighed!*

Since I have seen four degrees of this marvellous creation, I have no reason to doubt the fifth. "John's" hand undoubtedly gave the impression of a living hand; it hit the table, made an impression in the clay, pressed the dynamometer, so presumably it must have had weight.

In any case I have an outline of its epidermis imprinted in soot.

This was not the hand of anyone present, because only a trustworthy circle was present. It was not Eusapia's hand, because I held it in mine, and anyway the imprint was made at a distance inaccessible to her, and in the second experiment inaccessible even to the hands of the participants.

There is thus no point in trying to avoid the issue—it was a real hand, which did not belong to any of us, and it is the appearance of this hand, without an elbow or a body, in a locked room, which needs to be explained.

But how?

The first thing to ask is: How do things of this kind happen in nature? What is the history of their development?

I did not see the formation of that hand and these faces; they touched us when they were already formed, and we saw nothing beforehand. I only saw a shadow of an arm, which at that time could not be touched, but I did not see its genesis. [Footnote added at a later date: In my recent experiments with Stanisława Tomczyk, I succeeded in obtaining photographic evidence of degrees of materialization of hands—see my articles in *Annales des Sciences Psychiques* from 1912, i.e. "Radiographies des mains" and "Les mains fluidiques et la photographie de la pensée.]

[Description of the evidence provided by Messrs Beattie and Thomson, reported by Aksakov]

Theoretically we would ascribe these changes to *physical ideoplasty* stimulated by the dream images of the medium or other participants, which causes in the environment such a combination of light rays that tries to realize the phantoms existing in the monoideic human mind.

Is this sufficient to explain the phenomenon?

No, because the arrangement of light rays by itself, i.e. the vibrations of the ether, does not explain the formation of hands that are resistant, touchable, and leave impressions in clay; also in the photographs we see not only the evolution of outlines and shapes, but some kind of *matter* that forms into a body, clusters, becomes dense, and organizes itself.

Where does it come from? Is it ether, which is present everywhere, or exceptional power of imagination? Or does that matter have specific origin and form, not necessarily dependent on the momentary influence of imagination?

I will try to show that both hypotheses are possible, but the second one is indispensable.

Summaries of Chapters 15–18:

Chapter 15, "Doubles," a discussion of amputees who feel pain in the missing leg maybe because the nervous system is aware of something we cannot see. Discussion of animals that reconstruct the missing part when it is cut off; human hair and nails; development of embryo—perhaps all of these provide a pattern, an etheric body of a kind. Impression of Eusapia's fingers elongating, as if the etheric hand had moved beyond the physical hand; same with knocks, clay impression, etc., at a distance. Appearance of full figures, quoting Crookes and Varley. All pointing to the conclusion that the human organism is double, and the etheric, more subtle form, can separate from the more dense physical form. Thus, the matter necessary for mediumistic phantoms is already there and has an outline corresponding to the medium.

The question of how this can be organized into a touchable body not similar to the medium is a matter of speculation until more evidence is available. Ochorowicz hypothesises that, while the concept of the etheric body is as old as the world (the double, the shadow, the spiritual body, the astral body, etc.), it is not at all supranatural—it has to be an unknown form of matter. He compares it to the effect of the magnet drawing iron filings into a specific shape—we cannot see the other pole of the magnet in mediumistic phenomena, but it needs to exist; he uses this metaphor to make the concept visual.

Chapter 16, "Materialization," discusses the formation of the etheric body, its reliance on the medium's body and the fact that it leads to exhaustion (Eglinton hemorrhaged after materializations). There is

also the fact that phantoms always appear dressed: The phantoms are not spirits, but creations of human imagination, and it would be interesting to compare phantoms from different cultures. The etheric body is not confined to humans, but is a feature of all bodies, everything that has finite form. Crystals have a form of etheric body, in that they form themselves according to a pattern.

Chapter 17, "Transfigurations," discusses John King; it quotes Aksakov on mediumistic photographs supposedly of John King, Crookes's experiments with Florence Cook, the production of phantoms different from the medium being possible because ideoplasty controls the form.

Chapter 18, "Conclusion," draws the conclusion that mediumistic phenomena exist, and are a new branch of psychophysical but not pathological or supernatural phenomena that needs to be studied. Ochorowicz came back from Rome a mediumist but not a spiritist, and nothing he saw constituted evidence for the existence of ghosts.

Part II of this article, to be published in the Summer 2018 *JSE* issue 32:2, will include the sections "Warsaw Experiments with Eusapia Palladino," "Official Sittings," and "Conclusions Drawn from the Warsaw Experiments."

COMMENTARY

***Transcendent Mind: Rethinking the Science of Consciousness*
by Imants Barušs and Julia Mossbridge****DAMIEN BRODERICK**

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Half a lifetime ago, George Lakoff and Mark Johnson dismantled one of the mental tools we use to understand our reality, usually bamboozling ourselves in the process. Their classic study *Metaphors We Live By* (1980) showed how powerfully certain very basic physical parameters bracket our emotional response to the world and other people. One routine metaphor draws on height as a privileged characteristic: her Highness, ascending a hierarchy, sheer physiological tallness as a marker of worth and attractiveness.

So what metaphors and metonymies are invoked by the term “transcendent mind”? Doesn’t it immediately exert a claim on us of *superior worth, purified of dross, even unearthly magnificence*? Certainly that is suggested by the Oxford Dictionary, which finds “transcendent” to convey “surpassing the ordinary; exceptional, existing apart from and not subject to the limitations of the material universe,” and even, drawing on Kant, “not realizable in experience.” On the whole, then, a transcendent mind would be far more wonderful than the coarse, grubby, workaday thinking and feeling unit tucked away under our skulls. Look at the roots of the word, it’s that height thing again: from the Latin verb *transcendere*, “climbing up and over.”

Then again, haven’t I just glibly tossed in another standard metaphor for mind, that it’s a kind of mechanism, a “workaday thinking and feeling unit,” a sort of neural abacus? I admit it. Contemporary science finds no use for the traditional hypothesis of an immaterial soul extended downward to the world of *stuff* from an empyreal beyond, infusing the flesh and working the mindless physical abacus.

Could it be, though, that this canonical Enlightenment doctrine is under terminal stress, a dying paradigm unable in principle to reach beyond reductionism into the brilliant spatially nonlocal entangled timeless quantum reality, beyond equations that have nothing to set them blazing? That is the key claim made in this book’s quite important synoptic intervention: that “materialism” is kaput, getting by on borrowed time.

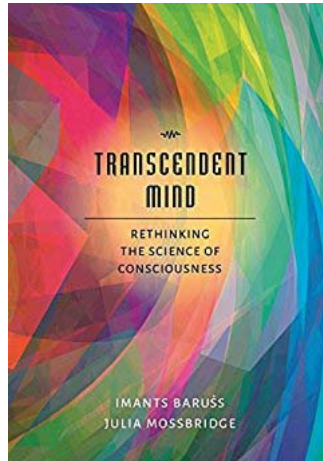
But what is this materialism we need to climb up over to reach the heights of better understanding? Psychology professor Imants Barušs and neuroscientist Dr. Julia Mossbridge define it in a curiously antique way, as if the billiard-ball rules of Newton still ruled the roost, and relativity and quantum theory, force fields and energy exchanges, had not actually been increasingly in charge of our *Zeitgeist*, our *Weltanschauung*, for a century.

The billiard-ball or “materialist” universe, they note, is marked by six features: it is *scalable*, with the same laws governing everything; *deterministic*, with all activity utterly predictable; *objective*, since subjective observation can have no direct effect on matter; *reductive*, with even consciousness explainable by the formal dance of atoms; and dependent on *absolute space* and *invariant time*. “Each of these six prongs of historical materialism,” the authors point out, “have been pretty much dismantled by now” (p. 8). Since this is indeed largely the case, and has been for many decades, they would seem to have removed the need for a book that argues the death of materialism. But they are poised for a bolder move than that: a call for its replacement by a reality not just *subject to* direct interventions by consciousness, but actually *made out of* consciousness (whatever that could mean). Indeed, this is how they end the book:

What if . . . consciousness of some sort is the fundamental substance of the universe and everything else is made out of consciousness? (p. 179) . . . that consciousness is the ultimate reality, that physical manifestation is the by-product of the mental, that anomalous phenomena occur, that the other anomalous means of acquiring knowledge . . . such a position ends up being largely supported by the evidence that we have discussed in this book . . . We think consciousness has an aspect that is a deep reality that we might only be able to partially know conceptually. . . . we think it is likely to exist ontologically prior to space and time. . . . We speculate that consciousness creates physical manifestation through which it then expresses itself in stepped-down, accessible form. (p. 195)

Is this position identical to the philosophical approach known as panpsychism, which claims that consciousness is fundamental, an elementary property of living matter, not to be derived from any other source, as neuroscientist Christof Koch (2012) puts it? Yet some of its adherents see even panpsychism as a materialist viewpoint, in which consciousness is dispersed throughout all the matter of the cosmos, somehow congealing in certain suitably complex arrangements that are aware of the world around them and of their own internal workings, just like we are. Here we are told, by contrast, that “materialism is on its way out . . . it appears that panpsychism is on its way in” (p. 20).

In the recent astonishing book *Other Minds: The Octopus, the Sea, and The Deep Origins of Consciousness* (2016), philosophy professor Peter Godfrey-Smith mentions the opinion that “all living things have a modicum of subjective experience,” a view, he says wryly, that “I don’t regard as insane, but surely one that would need a lot of defense” (p. 79). When this theoretical possibility is taken to the extremes of panpsychism (*everything* is aware, at least a little bit, including quarks and leptons), I’m less forgiving; I do regard it as insane, or at least pragmatically useless and theoretically preposterous.



But Barušs and Mossbridge do not reach their immaterialist conclusion from a desire to be interesting nor to *épater la bourgeoisie*. They provide a host of anomalies that remain verboten among most academics, notably the phenomena known in aggregate as psi: telepathy, clairvoyance, precognition, systemized remote viewing of events distant in time and space, presentiment instrument-registered by changes in physiological states not under the control of ordinary awareness and action.

I find this catalog of mysterious but statistically corroborated effects compelling (declaration of interest: Some of their references in this regard are drawn from the chapters written by expert experimenters for *Evidence for Psi*, edited by me and AI researcher Ben Goertzel). All of it seems to breach the boundaries of the known and accepted physical sciences, but none seems to me to require the ontological contortions needed to make consciousness (rather than, say, digestion or the ability to whistle Annie Laurie through a keyhole) the fundamental reality prior to time, space, information, and energy.

On the other hand, I am extremely skeptical of the anecdote offered by the authors (with suitable demurrals) in which one Thomaz Coutino purportedly had the ability to speed up biological processes, as if a local vortex of spacetime had wrapped itself around them. In one 1982 instance, witnessed by a psychiatrist, a physician, a judge, and the American journalist Gary Richman, and recorded by seven black-and-white photographs, Thomaz entered an altered state of consciousness and, one after another, held 15 newly purchased eggs to his forehead, cracked them open, spilled the contents into a flat bowl.

He then hyperventilated with “puffed” chest and “taut and crimson” face, and stretched his arms with “palms down over the eggs.” Within 5 minutes, the yolks solidified and darkened until the “fetal forms of baby chicks could be identified” . . . At 7 minutes, “the internal organs of the embryos could be seen through thin membranes.” And at 9 minutes, the cheeping of baby chicks could be heard. Nine of the 15 eggs hatched, four survived longer than 3 days, and a couple of them, from the series of experiments, lived in the backyard until they were eaten for dinner.” (pp. 141–142).

What’s that you say? Legerdemain? The wily conjurer had the baby birds up his sleeve? Perhaps not. Barušs and Mossbridge are stern: “It is precisely because of the degree to which this example challenges our ways of thinking about reality that could prove to be instructive” (p. 142). That is often a useful decree, but perhaps one might be forgiven for asking whether there is any limit to its application.

Perhaps the most wonderful aspect of this book is the identity of its publisher: the American Psychological Association, an austere defender of generally conventional viewpoints. In 2003, the APA had released an earlier Barušs book, *Alterations of Consciousness: An Empirical Analysis for Social Scientists*. That was something of a brave choice, at a time when the word “consciousness” could still cause alarm. Maybe we really are, as the authors suggest at the outset, “in the midst of a sea change” (p. 3). And maybe that implies “that there are healthy numbers of academics who reject materialism and think that consciousness is primary” (p. 28). Sea changes, of course, especially the unexpected kind, have been known to tip sailors into the briny, in which deep and uncomfortable element they tend to drown. But for bold readers willing to take the risk, *Transcendent Mind* is worth a careful inspection. Just keep one weather eye open for those dangerous metaphors.

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COMMENTARY

Mind-Boggling Chicks: Response to Broderick

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We very much appreciate Damien Broderick's kind comments about our book (Barušs, I., & Mossbridge, J. (2017). *Transcendent Mind: Rethinking the Science of Consciousness*. American Psychological Association) in his Commentary in this issue of the *Journal of Scientific Exploration*, and for this opportunity to engage in a discussion of its substance.

Each person has a boggle threshold, which we define in *Transcendent Mind* as “the degree to which a person is willing to deviate from normative beliefs” (p. 24). In Damien's case, that threshold appears to lie somewhere beyond laboratory-verified psi phenomena, but on this side of some of the more outrageous phenomena that have been observed in field studies, such as some of the phenomena ostensibly produced by Thomaz Coutinho. So let us start by saying a little bit about the inclusion of the Thomaz material.

Members of Society for Scientific Exploration (SSE) might remember that a number of years ago Canadian psychologist Lee Pulos gave a talk at an SSE Annual Meeting about his investigation of Thomaz that he and American journalist Gary Richman had conducted. As we point out in *Transcendent Mind*, they were careful to rule out conventional explanations for the phenomena produced by Thomaz. In addition, at the time we wrote the book, one of us (I. B.) called Lee Pulos on the phone, who verified that the phenomena were authentic. I. B. also contacted Thomaz's wife in Germany, where she and Thomaz were living at the time, to try to acquire additional confirmation. (Thomaz does not speak English but his wife does.) She referred I. B. back to Lee Pulos. We wanted to fly to Germany to witness the Thomaz phenomena for ourselves, but (as SSE members will know all too well) the funding for such an excursion was just not available. We could find no reason to discredit Gary Richman's account. (He is now deceased so that we could not speak to him directly—or at least, not through any ordinary means). So the only reason left for not taking these

reports seriously was that what happened cannot possibly have been what happened. In other words, the Thomaz phenomena fall way above or beside or outside or underneath (depending on the metaphor one chooses) most people's boggle thresholds. So we decided that we would include that material, with all the proper caveats, to give people's boggle thresholds a little exercise. The implications, of course, if these phenomena occurred as they appear to have occurred, are profound, including providing support for the primacy of consciousness.

For the purposes of our initial Book Prospectus which we sent to APA Books, we used "Transcendent Mind" as a placeholder for the title of the book with the intention of coming up with something "better" as we actually wrote the book. Over the next several years, we could not come up with anything "better" so the initial title stuck. It is worth remembering that metaphors are just metaphors, and that some version of dialectical reasoning is necessary to extract the meaning of juxtapositions of metaphors from any written text. I. B. is reminded that the Casimir effect has sometimes been "explained" as the action of waves but, at the subatomic level, "waves" are no more appropriate than "particles." Also, there was the handwringing in the 1960s about whether "transhumanistic psychology" should be associated with "height" or "depth." In the end it became "transpersonal psychology."

For the purposes of clarification, the billiard-ball model of the universe is just one of 4 definitions of materialism that we introduce in *Transcendent Mind*. Damien Broderick knows that physical reality does not conform to such a model, but we would like to assure him that students sure think it does. I. B. has now used *Transcendent Mind* twice as a textbook for his third year undergraduate Consciousness course, and when he goes over the physics, the students are shocked. They cannot believe what they are learning.

A second point that we raise in the book is that the billiard-ball model has become introjected into people's psyches so that it functions as a nonconscious schema that helps them to organize their experience. Such nonconscious schemata set boggle thresholds. The implication of this is that while there are certainly some people who know that the universe does not function like a set of billiard balls, those same people can often use the billiard-ball assumption as a basis for their reasoning. So that makes it difficult to imagine that, within minutes, chicks could hatch from unfertilized eggs and run around. I. B. had this same conversation with co-author J. M. multiple times, until J. M. realized that giving their readers exercises for their boggle thresholds when there was no reasonable reason to exclude data was a noble thing to do. We all need practice grappling with the fact that, at least historically, reality has always ended up being more interesting than we think it is.

ESSAY

Toward a “Science of the Subjective”: Reminiscences and Speculations in Memory and in Honor of Bob Jahn

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Abstract—To accommodate, explain, understand the range of phenomena often described as parapsychological or as anomalous human–machine interactions, Jahn and Dunne discussed the characteristics needed to establish a “science of the subjective,” capable of dealing with both subjective and objective information as well as transfer of information. It is suggested that work in history, or practices in the legal system, rather than the physical sciences, might offer a suitable role model; together with the substitution of Bayesian approaches for the commonly used frequentist methods of statistical analysis.

Keywords: science of the subjective—Bayesian statistical analysis

Reminiscences

In the 1970s I began to make the study of scientific anomalies my chief academic focus. Through Marcello Truzzi (who had been a reviewer of the manuscript of my book [Bauer 1984] about the Velikovsky Affair), I learned about the founding of the Society for Scientific Exploration and was able to become one of its first members. I learned a great deal over the years from many fellow members, from no one more than from Bob Jahn. I was perpetually astonished at his ability to fashion intriguing modes of description and analysis and to construct ingenious metaphors to serve as approaches toward understanding otherwise incomprehensible things. Bob Jahn gave me unceasingly fascinating food for thought.

Bob and I were, as far as I know, the only members of early SSE Councils who had also been deans in academe. The latter experience brings all sorts of insights into the behavior of human beings, especially perhaps those who work at intellectual matters. For one thing, how individually brilliant minds manage in committee-like settings to forsake the logical facilities displayed in their individual work and to succumb to unfocused irrelevancies, wishful thinking, and ignoring of empirical realities—as they

say, camels are horses designed by a committee; suggestions continually offered for “what ought to be done,” all too rarely joined to the speaker’s offer to actually do them. At any rate, among my many fond memories of Bob Jahn are the not-infrequent times in Council meetings when we would exchange brief glances of mildly amused frustration.

Above all, though, I feel it as a very great compliment that Bob Jahn accepted me as a friend and did me the honor on several occasions to solicit my opinion on aspects of his work. My appreciation of Bob, my gratitude for our association, is illustrated by that well-known quote from W. B. Yeats: *Think where man’s glory most begins and ends, and say my glory was I had such friends.*

When once I spoke about friendships with my daughters, I remarked that I had come to respect people from a very varied range of backgrounds, among them a Chinese ship’s steward, a British auto mechanic, an American distinguished professor of operational research, a Xerox service man . . . and what I had realized was that the decisive characteristic they all had was *integrity*. So with Bob Jahn. His work on human–machine anomalies brought less than approval from the administration of his university, as well as defamation from a variety of sources, but at all times it was clear that Bob Jahn was following the evidence and seeking the truth to the best of his abilities, with unquestionable integrity.

Speculations

In the course of working on my last book (Bauer 2017), some trains of thought had led me to re-read Bob and Brenda’s “Science of the Subjective” (Jahn & Dunne 1997). At one point they say, accurately,

most of the classical physical sciences . . . strive to embody precisely measurable, unambiguously quantifiable, and strictly replicable properties, with minimal statistical variance. In the quantum-based physical sciences, however, as well as the biological, medical, psychological, and social sciences, progressively more reliance has come to be placed upon statistical rather than uniquely deterministic measurables.

Indeed; and “strictly replicable” has come to be an almost universally accepted criterion for being credited with being scientific. But what is required if observations or measurements are to be reproducible?

Surely observations can be replicable only if the phenomenon being observed is reproducible. Now what is truly reproducible in the circumstances of a human being? (Or for that matter of any living thing.) We change instant by instant, not necessarily learning, perhaps, but certainly experiencing and

responding. I don't think one's physical, mental, and emotional state is reproducible, it is not precisely the same at different times.

That would seem to exclude the possibility of discovering direct cause-and-effect relationships. Those can be found in physical science because the studied objects do not change *inherently* over time; and, just as significant, the studied objects form a class of identical things—all electrons (of a given spin) are the same, all atoms of carbon-12 are the same, and so on.

All human beings are not the same, and they change over time. So in medicine and in social science, studies can yield only statistical information. That is a different kind of thing than a cause-and-effect relationship. Statistical correlations never establish causation.

So, it seems to me, any "science of the subjective" cannot take as its role model the physical sciences with their demand for replicable results. That a repetition of a "statistically significant" result might also yield a "statistically significant" result, even at the same level of significance, is not at all the same sort of thing as being able, say, to repeatedly precipitate silver chloride by adding sodium chloride to silver nitrate.

Statistical analyses offer us only probabilities, whereas through "science" we are seeking certainty.

Jahn and Dunne pointed out that the desired "science of the subjective" must somehow manage to include, to mesh, objective information and subjective information:

Inclusion of subjective information within the framework of science clearly constitutes a huge analytical challenge [calling for] a viable mechanics that can enable profitable dialogue between empirical experience and theoretical predictors.

Physical science is not an appropriate role model for this task. But other human ventures may be: the legal system (of most democratic nations), for example; and what historians do. In our legal system, tangible objective material plays an important role; but so too does the subjective input from eyewitnesses and the subjectively revealing process of cross-examination. Somehow the human judgment exercised by juries and judges effects a synthesis of objective and subjective information.

Similarly in the work of historians. Tangible evidence in the way of artefacts, their dating by physicochemical means, and evidence from archaeological digs are combined with subjective information from such human creations as writings and maps. Judgment is applied by the historian to forge a unified narrative relying on both objective and subjective information.

Those who cannot learn from history are doomed to repeat it, is an insight attributed to George Santayana, often quoted in various versions. But how can we learn from history? There is no overarching paradigm or theory of history; there are no “constants of Nature” pertaining to history; there are no universal laws applicable throughout history. And yet Santayana’s insight is widely acknowledged as valid.

On the whole, historians regard themselves as just that, historians, not “social scientists”; and they strive not for theory construction as, say, sociologists do, but rather they strive to accomplish “thick” descriptions of actual happenings: descriptions so rich in context and detail that readers can think themselves into that time and place and those actions. The richness of detail and context permits the making of connections by judging what is meaningfully similar in another time, another place, and other actions. So, for example, observers (though unfortunately not enough participants) were able to learn from the French experience in Vietnam what went wrong with the American intervention in Vietnam; and even to extrapolate meaningfully to American mis-steps in Iraq and Afghanistan.

Not everyone agrees about that, of course. But then not everyone agrees over all the things in the physical sciences either, even though “the scientific method” supposedly enables definitive “objective” conclusions. Over biological evolution, over origins of the universe and of life, even over quite specific matters like the Tunguska event or the nature of ball lightning, competent and informed experts disagree. In the physical sciences the shibboleth asserts that disputes can be settled, in principle and eventually, by sheer evidence, by *facts*. There is no corresponding claim in history, and yet we can and do learn from history in ways that facilitate often reliable projections, predictions, extrapolations.

This train of thought suggests that a “science of the subjective” might be constructed not on the “scientific” lines of experimental protocols but, as in historical studies, on the basis of thick descriptions of reported happenings. The interplay “between empirical experience and theoretical predictors” that Jahn and Dunne call for I would re-phrase as interplay between empirical experience and *understanding*, gaining sufficient insights into the contextual connections in and among the accumulated thick descriptions to allow reasonable projections of a range of likely future happenings. Or more succinctly: Exercising judgment based on an understanding of past experience must and can, in studies where human activities are concerned, take the place of the cause-and-effect deterministic experimentation and observation that is possible with phenomena that involve only inanimate objects.

The absolute necessity of a “science of the subjective” follows, too,

from the fact that what matters to human beings is *meaning*, and the physical-science approach cannot deliver that; as Steven Weinberg put it so neatly, “The more the universe seems comprehensible, the more it also seems pointless” (Rigden 1994). Objective knowledge, analogous to what maps can deliver, is devoid of human meaning; it is stories, tales, parables that convey meaningful human information about values, about how to behave (Bauer 1995).

Jahn and Dunne observe, accurately, that “more reliance has come to be placed upon statistical rather than uniquely deterministic measurables,” and statistical analysis of accumulated experiences is surely a useful adjunct to the exercise of human judgment. But I would enter a plea as to the nature of the appropriate statistical analysis.

In social science and medicine, and also in parapsychology and anomalistics, the commonly applied statistical analysis follows Fisherian, frequentist, lines with the calculation of “p values” as the most common procedure. A number of people have pointed out, however, that this approach is flawed, perhaps even fatally flawed when the quest is for something like causative relationships.

Gigerenzer (2004) has shown in considerable detail how misleading it can be to assert a statistical significance on the basis of p values. Most fundamentally, though, the trouble is that this approach estimates the likelihood that given effects are *not owing to chance*, which tells us nothing about the likelihood that any given explanation is valid (Matthews 1998). Bayesian statistical analysis, by contrast, affords a way of estimating directly the probability that a given hypothesis fits the bill (Sturrock 1994). Matthews (1999) has also pointed out how misleading p-value inferences can be by contrast to Bayesian approaches, in particular when a priori estimates of probability are very low, which is commonly the case with anomalies.

In this connection, I recommend an article by Jack Good (1980) on the paranormal and parascience. Good is often credited with the modern revival of interest in Bayesian statistics, but his intellectual interests ranged everywhere. In the cited article, he discusses, among other things, a priori estimates of the reality of spontaneous and of non-spontaneous “psychic” phenomena, and he tackles head-on the critical issue of coincidences, not hesitating to recount a quite extraordinary “coincidence” he himself experienced. Good’s writings often make enjoyable reading also because of his gentle humor, as when he remarks that a full understanding of physics’ elementary particles has not been attained, “although it seems to be established that they are neither particles nor elementary” (Good 1966).

I regret deeply no longer being able to benefit from Bob Jahn’s

discussions of such matters. Yet his writings continue to afford a treasure trove of food for thought. I—we all—have benefited immeasurably from knowing him and learning from him.

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ESSAY

A Tribute to Robert Jahn

YORK DOBYNS

Professional

By now the story of the PEAR lab's founding has been told many times, but it has been long enough since Bob Jahn retired that there may be readers who don't know it. In the 1970s, Dean Jahn of the Princeton University School of Engineering and Applied Science made a speech welcoming freshmen to the engineering program, in which he promised that if they did good work and maintained a good academic standing, they could do their senior thesis (a major project required for graduation at Princeton) on any topic they wished. Three years later a student held him to that promise. That student wanted to do a senior thesis on replicating Helmut Schmidt's experiments in psychokinesis—experiments that had produced positive results. No faculty member was willing to serve as an advisor for such a thesis. So Dean Jahn honored his word and served as this student's thesis advisor himself. Somewhat to his own surprise, the student's apparatus broadly replicated Schmidt's results: an electronic noise generator showed shifts in its output distribution in accordance with human intention. The student graduated, but Dean Jahn decided he couldn't leave matters standing thus. The phenomenon needed deeper investigation. He went searching for somebody with a background more oriented to this field of research in which he was himself a novice, and found Brenda Dunne; together the two of them founded the Princeton Engineering Anomalies Research program—PEAR.

Bob's interest in this research field was not conjured up by a single anomalous result in a student experiment. Not yet 50, he had arguably reached the pinnacle of his chosen profession. He was in charge of the School of Engineering at one of the most prestigious universities in America—his own beloved alma mater, no less—and had established a highly successful Electric Propulsion Laboratory already doing groundbreaking research for NASA. It was hard to see how he could advance further along the same track, save by moving inexorably into administration rather than actually doing science. Like Alexander but more pragmatic, he was already pondering what other scientific worlds there might be for him to conquer when the

student's experiment pointed out an area that seemed ripe for rigorous, systematic investigation.

Bob's choice of Brenda Dunne as collaborator and co-founder for the new research program was unquestionably one of the wisest decisions of his career. A personality very different from himself, Brenda proved complementary to Bob not only in skills but in attitude and intuition. The two of them together made a team far greater than the sum of its parts, and many of PEAR's most essential features emerged from the synthesis of these two highly disparate minds rather than being readily attributable to one or the other separately. Although this essay will continue to speak of Bob Jahn's work, it should be borne in mind that little or nothing happened at PEAR that didn't also bear the imprint of Brenda's attention and efforts. At the same time, and without in any way meaning to diminish the monumental impact of Brenda's career, in this tribute to Bob's memory I have to say that without Bob's deep insight and tremendous good sense in choosing Brenda for his laboratory manager, anomalies research at Princeton University would have yielded few results.

One of the first publications to emerge from PEAR was Bob's seminal paper "The Persistent Paradox of Psychic Phenomena: An Engineering Perspective," published in the *Proceedings of the IEEE* in 1982 (February, 70(2):136–170). Although the program was barely three years old at that point, the paper shows apparatus for six psychokinesis experiments and sample data from an ongoing experiment in remote perception. Of those six early experiments, two—the REG and RMC—went on to become mainstays of the program, while the Fabry-Perot interferometer, the dual-thermistor experiment, the photoelastic stress experiment, and the glow discharge experiment never generated formal data. One of many baseless accusations aimed at Bob's work is that failed experiments like these were ways of burying null or insignificant results so that the published experiments were products of data selection. Nothing could be farther from the truth; failed experiments were those that could never be brought to a level of stability or reliability that would allow formal data to be collected at all. Bob was keenly aware that any apparatus had to be able to reliably and repeatably generate the null-hypothesis data distribution under null-hypothesis conditions—calibrations, in other words—before it could be used for meaningful experiments. PEAR, over the years, explored many different physical genres of "psychokinesis" experiment, and a fair number of them failed in the above sense of not being able to generate well-qualified calibration data.

Having raised the topic of baseless accusations, this is a good place to mention that the PEAR program met with bitter hostility from its

earliest days. While many people (including, thankfully, some generous philanthropic donors) thought it was marvelous that a laboratory at Princeton was seriously investigating these phenomena, many others reacted with horror, fury, or some blend of the two. Eyewitness accounts attest that one prominent faculty member (who shall remain nameless here) could be reduced to red-faced, incoherent rage by the mere mention of Bob Jahn's research. Part of this was simple academic politics and jealousy; Bob won no friends at Princeton by his insistence on funding PEAR exclusively through philanthropic gifts rather than grants, so that the Administration could charge no overhead expenses to PEAR's budget. Much of it, however, was the outrage of people already convinced beyond any argument or evidence that the kinds of phenomena Bob Jahn was studying couldn't possibly be real, and furious with him for daring to claim otherwise. Bob's patience, restraint, and endurance in dealing with these attacks were in themselves a testament to his character.

I don't know whether Bob was taken by surprise by the viciousness and determination of the attacks on his work. I hadn't met him in those early days. Many scientists with successful careers in mainstream fields do get surprised by the vituperation that greets them when they become interested in psychic phenomena or other anomalous fields—unless, of course, they report uniformly negative or null results in those areas. Any number of interested researchers have backed away from such research after learning how many enemies it will create for them. Bob, to his credit, did not.

One beneficial consequence of Bob's encounter with organized hostility was that it helped motivate him to create the Society for Scientific Exploration. In an alliance with eminent researchers who had had their own encounters in other fields with observations that didn't fit the consensus paradigm, Bob became one of the visionaries who created the SSE and established its *Journal* as a place where sound scientific research could be published regardless of its adherence to consensus scientific opinion. Having helped found the SSE, Bob continued to shepherd and guide it for the rest of his life, serving for many years as Vice-President of the Society and continuing to show up for Annual Meetings after his nominal retirement. There is every reason to hope that the Society he helped create will remain an enduring refuge for sound science that faces illegitimate rejection.

Sadly, some of the hostility to Bob, Brenda, and PEAR came from the parapsychological community. One might have hoped and expected that parapsychologists would have appreciated the value of a prominent research program that was presenting hard evidence in support of a number of long-held parapsychological claims. In fairness, many parapsychologists took exactly that attitude, but far too many subjected Bob and PEAR to

calumnies second only to those received from self-proclaimed “skeptics.” Some of this, as far as I can tell, was pure personal animosity, which it would be useless to dissect here. But a portion, sadly, was a consequence of Bob’s (and Brenda’s) groundbreaking insights that shaped PEAR’s research from the very beginning of the program. This resulted in PEAR’s adoption of practices that differed sharply from parapsychological norms in a number of areas. The most crucial of these practices were:

- **PEAR studied the phenomena, not the people.** PEAR worked from an engineering perspective, not an explicitly psychological one. The target of inquiry was the anomalous phenomenon, not the people who produced it. The consequences of this shift of emphasis pervaded the entire experimental practice of PEAR. A minor consequence was PEAR’s insistence on referring to the participants in experiments as “operators” rather than “subjects”—a simple way of reminding everyone involved that the human participants were not the subjects of investigation. A major consequence was that PEAR never subjected operators to any kind of psychological testing or screening. I can attest from firsthand conversations that some parapsychologists regarded this as obstructive and damaging to the field, by “hiding” data they considered to be essential.

- **PEAR operators were strictly anonymous.** From the viewpoint of some parapsychologists this was adding insult to injury; not only did PEAR refuse to test their operators, no one else could test them either, because no one knew who they were. In fact, the anonymity rule served a dual and very valuable purpose. Along with the principle of studying the phenomena rather than the people, it meant that PEAR experiments were a “safe space” for operators; their privacy was assured and they could not suffer any social consequences for displaying unconventional talents. It also eliminated a primary motivation for operator fraud. Over the years PEAR was approached by many self-identified psychics who wanted to have their abilities confirmed or certified by a prominent laboratory, but such people always lost interest when the anonymity rule was explained to them.

- **PEAR rejected the term “paranormal” and all related vocabulary.** The word “paranormal” was coined in the early 20th century as a neutral term for referring to various kinds of “psychic” phenomena without the baggage of existing terminology. Unfortunately, as with all euphemisms, the public perception of the word became contaminated by its referent and by the late 20th century it was seen by “skeptics” and many mainstream scientists as a pejorative term just as offensive as its predecessors. Moreover, “paranormal” by its construction refers to things aside or apart from the normal course of nature. In contrast, a tremendously important part of PEAR’s philosophical underpinning was the premise that *if these*

phenomena exist, they are entirely natural and part of the normal range of human abilities. Bob, in other words, completely agreed with mainstream scientists that there are no paranormal phenomena; the only point of disagreement was that he was willing to consider “normal,” and seriously investigate, observable phenomena that were not explained by any currently accepted theories.

• **PEAR never sought out “special” or “gifted” operators.** Part and parcel of the premise of normality was the expectation that all human beings should exhibit these abilities to a greater or lesser degree. The only qualification for being a PEAR operator was the willingness to commit to generating data—one complete experimental series, at a minimum, although operators were always welcome to come back and generate more.

Each of these represented a substantial departure from common parapsychological practice, and each of these was sharply criticized within the field. Although PEAR never achieved some of Bob’s fondest ambitions, I feel that the record of what the program did accomplish speaks for itself. A large part of that success is attributable to these fundamental principles and approaches. To the extent that the parapsychological community rejected and attacked them, rather than understanding and adopting them, the field impoverished itself.

Other practices and policies established by Bob (and Brenda) were also departures from typical parapsychological practice, but didn’t carry the philosophical depth of these major innovations. To encourage operator productivity, for example, an operator’s total contribution to most experiments was not capped; an operator could return to generate a new experimental series as often as desired, as long as the operator was committed to finish any series he started. Adopted due to essentially social considerations regarding operator treatment and interaction, this policy was frequently criticized on statistical grounds, but the criticisms were fallacious.

As mentioned above, the ambitious program described in Bob’s 1982 IEEE publication contained six active experiments in psychokinesis, four of which never reached the point of generating formal data. This multiplicity of experiments had its origin in one of Bob’s deepest interests for PEAR: characterizing what kinds of physical systems could be affected by human intention, and to what extent. The two early experiments that went on to generate large formal databases were the REG or “random event generator” and the RMC or “random mechanical cascade.” The REG converted quantum noise in a diode to a stream of digital values that were collected and summed in groups of 20 to 2000 to form binomially distributed random numbers. The RMC dropped nine thousand polystyrene balls through an

array of nylon pegs into a row of 19 collecting bins; balls were counted by photoelectric sensors at the top of each bin as they arrived. The REG was a direct outgrowth of the original student experiment, which sought to replicate published parapsychological research using electronic noise sources. The RMC was the first fruit of Bob's ambition to test the possibility of intentional effects on other physical systems; here was a device where the basic element was, rather than a microscopic circuit buried inside a complicated electronic device, a macroscopic plastic ball that could be watched with the naked eye as it made its way through the apparatus. Nevertheless, the RMC also showed intentional effects. Indeed, although neither balls nor bins were made up of bits, if one analyzed the Shannon information content of a single ball's selection of one final bin out of 19 it was found that the anomalous effect per bit in the RMC was on about the same scale as that in the REG.

Over the years PEAR continued to explore different physical systems, as well as constructing variant versions of the electronic REG for various specialized purposes. After some years, a friction-damped pendulum and a vertical water jet had been added to the set of new physical systems that could be calibrated and generate formal data, and had produced some statistically significant results. By this time Bob (along with Brenda and everyone else at PEAR) had at least tentatively concluded that any physical system with a significant random component could at least in principle be affected by human intention, and the focus shifted at least partly onto methods of eliciting that response to intention which might be stronger and/or more reliable. This was at least in part the reason for the last years of the laboratory placing more emphasis on REG-driven experiments rather than attempting to develop yet more physical paradigms for experimentation.

Two generations of new electronic sources were developed under Bob's guidance: the "portable" REG, a much smaller and simpler device which still, however, required a mains power supply, and the "microREG," an even smaller device that drew its power from the same serial port that received its data. A third source was developed in the late 1990s for the "MegaREG" experiment, which was intended to explore the consequences of a ten-thousand-fold increase in data generation rate.

In addition to the new physical REG sources, PEAR also generated substantial databases from deterministic, pseudo-random sources that mimicked REG output. One of the more striking results of the late 1980s and early 1990s was the conclusion, from these databases, that while random sources could be affected by human intention, pseudo-random sources could not. Retrospective reanalyses shortly before PEAR's closure in 2007 suggested that this conclusion may have been premature, but these

could not be developed into a rigorous publication before PEAR closed.

The variety of new experiments was considerably greater than the variety of sources. Bob wanted the laboratory to explore any available venue for the dual purpose of searching for experiments with larger and more readily replicated effects, and exploring how operating conditions (possibly including the nature of the target) might modify the scale and replicability of the effect. Some of the more notable experiments and results are listed below.

- FieldREG explorations used the portable REGs and later microREGs. The conclusion of several years of FieldREG studies was that some types of group activities would detectably distort the behavior of nearby random sources. Moreover, the results of the first set of FieldREG studies led to a hypothesis that could be tested, and was confirmed, in later studies: The type of group activity that produced the observed effect was one where there was a shared state of strong emotion and at least some sense of community of purpose in the group. Primarily intellectual gatherings and groups with divided purposes (such as sports events with portions of the crowd rooting for opposed teams) produced no measureable effect. It is worth mentioning that the FieldREG studies helped to inspire Roger Nelson's Global Consciousness Project, although that project was never part of PEAR.

- The above-mentioned MegaREG found the still-puzzling result that increasing the bit rate by four orders of magnitude led to a strong, consistent anomalous effect with reversed intention (the intentional runs were meanshifted contrary to the operator's stated intention rather than in accordance with it), and a net effect size that was much stronger on a per-series basis but much weaker on a per-bit basis.

- "ProbREG" used a modified source that had a probability per bit of 0.125 (or 0.875), rather than the 0.5 of all the standard REG sources. The motivation was to test among several candidate models for the nature of the effect, which led to different predictions for an underlying process with a baseline probability far away from the symmetry point of 0.5 where $p = (1 - p)$. Results were unfortunately inconclusive, although the most radical of the proposed models could be ruled out.

- "ArtREG" used a completely different basis for operator feedback, with the random data stream driving an initially mixed, double-exposure-like image on the screen to be dominated by one or the other of the two images making it up. This experiment displayed the rather peculiar behavior that formal experiments managed by PEAR staff produced no significant overall results, while student projects using it as a basis (and also under the supervision of PEAR staff) generated highly significant results.

- "Yantra" produced a strong confirmation of its hypothesis by seeing

significant undirected changes in the REG output distribution while the operators observed a display of images intended to foster a meditative state rather than an intentional one.

- “Robot” used a modified microREG to drive a toy robot on a 2D random walk on a tabletop. It differed sharply from other REG experiments in that the recorded data for the experiments consisted not of the REG output itself but of the x and y positions of the robot as recorded by an overhead camera. This experiment showed a striking difference in performance between male and female operators.

- A competitive experiment (“circus” or “race”) pitted two operators against each other in a video-game-like interface that split REG output into two streams, each directing the progress of a notional “racecar” on a figure-eight track on the screen. This experiment showed null results except in a variant protocol where a single operator could race against the computer: in that mode, the human operator consistently won, but an analysis of the underlying REG data showed that the human operator’s data were null and victory had been achieved because the REG data directing the computer’s car were shifted strongly in the direction that would slow it down.

Another exploration launched in the late 1990s was the three-laboratory replication of the basic REG experiment, using portable (second-generation) REG sources throughout. This “MMI Consortium” experiment failed to replicate the basic intentional results of the original REG, although it contained substantial internal evidence for idiosyncratic performances by individual operators. It is perhaps instructive to consider that of the five individual operators who participated in both the original REG experiment and the MMI replication, four exactly repeated their performances between the two, while the fifth, who resented the replication but volunteered to generate data for it in response to PEAR’s request, reversed a strong positive effect in the original REG to a strong negative effect in the MMI replication.

In addition to the conclusions discussed above, some features of the phenomena could be inferred broadly from the experiments in aggregate:

- **Operators are idiosyncratic.** The notion of distinctive “signatures” for individual operators appears quite early in Bob’s (and Brenda’s) writings. Later experiments designed under their guidance explicitly took this into account, using a primary statistical measure that looked for idiosyncratic individual effects either in addition to, or in place of, an overall collective-average effect. Moreover, operators who had one signature on one experiment might have a completely different signature on another. At least one operator with a null signature on the REG, for example, displayed

a strong contra-intentional effect on the RMC. Other operators showed signatures that depended strongly on “secondary parameters” within a single experiment: The REG allowed several options for the mode of data generation (length of run, intention assigned by the machine vs. free choice by the operator, manual vs. automatic advance to the next trial in a run, and, in later years, style of feedback).

- **The ability to affect physical random processes is broadly distributed in the population.** This was mentioned as one of PEAR’s philosophical starting points but it was confirmed by experience. While there are some operators whose “signature” consists in the absence of any apparent anomalous effect, a substantial proportion of PEAR’s operator population had some impact on data generated under their attention.

- **The experimenters who supervise experiments in consciousness must, themselves, participate in data generation.** Everyone who worked at PEAR was an operator as well as an experimenter. This was partly to emphasize by the most direct of demonstrations that the operators were co-experimenters. They were collaborators in the science, not mere “subjects.” At least equally importantly, it meant that the experimenters who designed (and sometimes redesigned) the experiments had the experience of sitting through those same experiments to inform their decisions in protocol design.

- **Anomalous effects will not appear unless the operators feel a sense of security and trust.** Operators who feel that the environment is hostile to them, hostile to the phenomena, or who feel that the experimenters are suspicious of them, do not in general produce detectable anomalies. This applies even to internal mistrust; operators who are uncomfortable with the concept of psychic abilities, or who are comfortable with the abstract concept but distressed by the notion of personally having such abilities, tend not to produce detectable effects.

- **Replication is much harder than we would like to think.** Unfortunately, the atmosphere of trust and security mentioned in the last point may be a necessary condition for affecting random processes with conscious intention, but it proved not to be a sufficient condition. Recent discussions of replicability have revealed the fact that the replication rate in all sciences is much lower than researchers would like. “Decline” effects in which an initial strong departure from the null hypothesis grows weaker over time appear in many different fields, as SSE members learned from an invited presentation at the 2011 SSE Annual Meeting. From this perspective, the level of declines seen at PEAR becomes less frustrating than it felt at the time. I am grateful that Bob lived long enough to become aware of these intriguing results.

Remote Perception

In addition to many PK-type experiments discussed above, PEAR also maintained an active program in “PRP” or precognitive remote perception. This phenomenon is generally known as “remote viewing” in parapsychology, but Bob and Brenda both felt that that term was a misnomer, since the process often invoked sensory modalities other than vision. Of course, the “precognitive” part of “PRP” was also a slight misnomer, since about as many trials were retrocognitive as precognitive.

I note this program only briefly here, because PRP was very much more Brenda’s brainchild than Bob’s. Although he worked wholeheartedly in every part of the experiment—designing descriptors, designing statistical tools, generating data as an agent or as a percipient, building up target pools, and so forth—it was apparent that PRP captured Brenda’s heart and enthusiasm more than it did his.

In the early days of the PRP program, Bob and Brenda jointly developed an innovation that was eventually adopted in some form by a number of other research programs: analytical judging. Rather than having a human judge rank transcripts of perception sessions against a number of target scenes, both perceptions and targets were analyzed into a set of descriptors specifying salient features of the scene. A score could then be generated from the descriptor values for each possible pairing of perception and target, and the population of scores for perceptions against targets other than their own provided a ready-made empirical background distribution for the degree of correspondence between arbitrarily chosen scenes.

Although the analytical judging concept was unquestionably a brilliant innovation, in many ways it made the PRP program a victim of its own success. Over the years the descriptor systems became more refined and nuanced, but the actual perception transcripts grew briefer and less informative. In the earliest PRP experiments, the operator had a perception experience and described it in as much detail as possible, while a committee of people not otherwise involved in the trial read the resulting transcript and evaluated it in terms of the descriptors. By the last days of the program most PRP operators were scarcely troubling with a free-response transcript, treating a PRP trial as a matter of filling out a descriptor questionnaire. It is perhaps not surprising that the experiment showed a steadily shrinking effect size with each attempt to improve the protocol.

Theory

Construction of theoretical models was another major concern of Bob’s, which will again receive only a brief consideration here. While Bob labored

mightily on several theoretical models over PEAR's history, they cannot be evaluated as neatly as the experiments can be. The fundamental problem is that these models, which necessarily attempted to model consciousness itself as one of their primary constructs, inevitably referred to variables that we currently have no idea how to quantify, let alone measure.

Lacking quantitative inputs, none of these models could ever make testable quantitative predictions. The first major theoretical model, the Quantum Mechanics of Consciousness (QMC), was the subject of a major monograph, and informed experiments through the 1980s and early 1990s. Its fundamental concept was to analogize consciousness to a quantum mechanical system, and in particular to model anomalous interactions between consciousness and its environment using the paradigm of a covalent chemical bond. It was this model that led to the frequent use of the term "resonance" in PEAR papers. While it was never successfully quantified, its qualitative guidance suggested mental strategies for participation in anomalies experiments which some operators were able to apply with considerable success.

Dissatisfaction with shortcomings of the QMC model led to the exploration of a number of ideas which culminated in Bob's and Brenda's publication of the "M⁵" model, a shorthand term for "Modular Model of Mind/Matter Manifestations." The salient operational feature of this model was its premise that anomalous interactions were necessarily, as part of their very nature, mediated by the unconscious mind. As with QMC, quantitative tests of the M⁵ model are lacking. It did display some usefulness, as experiments designed with M⁵ concepts specifically taken into account proved generally more successful than others during PEAR's later years.

After PEAR

Bob's complete retirement from the University and the closing of the PEAR lab marked the end of his career as an active experimenter but not the end of his interest in and support for the field. As noted, he remained the Vice-President of the SSE for several years afterward. He was also vitally involved in the ongoing work of ICRL (International Consciousness Research Laboratories), which was founded about midway through PEAR's existence and is now primarily a small-press publishing house focused on anomalous phenomena. ICRL is another of Bob's co-creations that will continue past his death, in this case under the able guidance of Brenda Dunne.

Overview

Bob Jahn's insights into novel ways of rigorously researching "anomalous" topics, and his insights into who could best help him conduct that research, led to a program that spent just under 28 years extending our understanding of the powers of human consciousness. Along the way he helped found the SSE, which continues his efforts to call attention to sound research outside the currently popular paradigm. We may regret the fact that PEAR, unlike Bob's Electric Propulsion laboratory, did not become a permanent institution to be taken over by another faculty member after his retirement. For all his accomplishments, Bob was human and mortal, with a limited ability to overcome resistance and narrow-mindedness. Nonetheless, his achievements were extraordinary, and if they were not as great as he or we might have hoped he may still serve as an inspiration to others who will follow in his footsteps.

Personal

Before proceeding with this more personal memoir I wish to quote a brief tribute sent to me by Cara Richards, long-term SSE member, professor emerita of anthropology at Transylvania University, and invited speaker at the 2002 Annual Meeting:

Robert George Jahn, or Bob Jahn as I knew him for some 25 years, was a remarkable human being. When I first heard of him, he was Dean of the Engineering School at Princeton University. He was a scientist, of course, but also a man of wisdom. When he was researching an article about anomalies that were bedeviling his field, he discovered something of concern. Despite evidence of poor scientific research and even outright fraud and dishonesty, some anomalies remained unexplained. As a true scientist with integrity and considerable courage, he followed the evidence of those cases, refusing to ignore or simply dismiss information that violated the knowledge of the science he knew. He said that as our scientific instruments became more sensitive, these anomalies deserved serious research. Despite opposition, he founded the Princeton Engineering Anomalies Research lab (known as PEAR) and continued carefully designed research with a varied number of colleagues for more than two decades. The results are available in a large number of publications. When the results of these studies are more widely accepted, as they should be, his name will be mentioned as one of those individuals who have changed the paradigms of science. Despite all the opposition he encountered, he remained a kind and delightful individual, and a good friend. We miss him. — C. E. Richards

Bob came into this world on April 1, 1930. Given the vicious personal attacks directed at him in later life, I was mildly surprised that none of the people who impugned his judgment and ethics tasked him with living up

to the promise of birth on April Fools' Day. It can't have been restraint or civility; most of Bob's attackers showed neither. Perhaps they simply didn't know.

I first saw Bob Jahn on a TV screen, in a NOVA special about psychic research. One brief segment of that program showcased the PEAR lab and had Bob talking about the experiments. I saw it while pursuing a graduate degree at Princeton, and I was impressed that the Dean of Engineering at my own school had chosen to research such a topic. The impression I got from NOVA, however, was that Dean Jahn had become intrigued by the phenomenon, launched a research program, had answered his questions about the matter to his own satisfaction, and had shut the program down.

Fast-forward to 1985. I was still a graduate student, and saw a flyer for a campus lecture by Dean Jahn about his ongoing research into psychic phenomena. I attended that lecture in a near-trance of fascination, trying to commit every wonderful detail to memory. He was still conducting his research! There were multiple experiments and they were all showing significant effects! Within a week I had made an appointment to talk to the Dean about his research program. In fairly short order I had been shown the lab premises and current experiments, introduced to Brenda Dunne, and recruited as an operator.

My period as an operator involved little contact with Bob, but that changed in 1987 when I completed my degree and was looking for a job. Two realizations struck me: a member of the PEAR staff who was a physicist by training was leaving, and the research at PEAR was far more interesting to me than any of the postdoctoral positions I saw advertised for a newly minted physicist. After some intensive lobbying, I was hired for a one-year postdoctoral appointment that soon phased into a permanent staff position.

Working for Bob afforded much more and closer interaction than being an operator who visited his lab occasionally, when convenient. PEAR had a two-level management: Brenda managed the day-to-day running of the program, while Bob was our primary fundraiser and interface to the wider University, and had the ultimate authority to set policy and direct our efforts. That org-chart analysis, however, doesn't capture the crucial dynamic of PEAR. From its inception, the collaboration between Bob Jahn and Brenda Dunne was a partnership in which both participants were deeply and equally involved in the development of fundamental concepts and the design of future research, no matter how the University had them dividing up the administrative tasks.

Over the course of almost exactly twenty years as Bob's employee, I witnessed much of his personal life and personal style in addition to our professional interactions. I've heard claims that Bob was cold and distant

with his family. What I saw of him couldn't be more different. I saw a man who loved his children intensely and who positively doted on his grandchildren. He mourned deeply when his daughter Dawn succumbed to cancer some years ago. Perhaps his stoic upbringing left him unskilled at displaying his feelings in ways everyone could notice. Although slightly younger than the "Greatest Generation," Bob had fully imbibed that era's values of reticence about problems and uncomplaining diligence.

Despite the hostile treatment that Bob got from many people at Princeton, he retained a deep and lifelong affection for the institution where he had gotten his undergraduate education, and to which he returned after completing his advanced degrees to join the faculty. Rooting for Princeton sports teams, scattering tiger memorabilia around his house (though he personally liked giraffes rather better), he was almost the archetype of a devoted Princeton alumnus. I suspect that the vicious personal attacks he suffered from some in the University community hurt him badly—but I can't be sure, because of the same stoicism mentioned earlier.

Some of the features that come most strongly to mind as I reminisce about Bob are minor but distinctive quirks. He was the only academic I have ever seen use the word "discombobulate" in a formal paper. Despite the ubiquitous presence of cumulative deviation graphs in PEAR publications, Bob always used a nonstandard pronunciation of "cumulative," rhyming the first syllable with "hum" rather than with "fume," a variant that I have not found attested in any linguistic source. His commonest expression to describe something as inadequate for its purpose was to declare that it "doesn't feed the bulldog," a phrase that I must have heard hundreds of times.

Bob was a dog lover, but a choosy one: All of the dogs that shared his home were Labrador retrievers. In later years he also provided hospitality to a family of feral cats who took up residence in his backyard, but he was responsible about it, making sure that they were trapped for veterinary visits and neutering, and seeing the kittens to good homes if they were captured young enough to adapt to living in a human household.

Bob imbued PEAR with a strong sense of mission, a sense that the research we were doing was of paramount importance and was essential to extending human understanding of the world we live in. Brenda, of course, contributed greatly to that same sense of mission, which was no accident. As far as I can tell, she didn't learn it from him; rather, the fact that she shared that sense of mission was one of the important considerations in his choice of her to be his partner and chief lieutenant in trying to unravel some of the mysteries of consciousness. Despite that inspiration, they were challenging bosses to work for. Both possessed of strong opinions and hot tempers, they

frequently argued over matters both large and small, with each other or with their staff. A calm disposition and a thick skin were important survival tools at PEAR.

As a leader and supervisor, Bob frankly admitted that he had been raised and trained in a stoic tradition that did not lavish praise on successes but did sharply address and correct failures. Nonetheless, he always strove to be gracious and considerate, however much of an effort that might have been for him. In 1988, when I was transitioning from a one-year postdoctoral appointment to a long-term staff position, Bob was careful to warn me about the damage that a longer association with PEAR would do to my career prospects. Bob was always solicitous of the well-being of those who worked for him, and often expressed his regrets that he couldn't do more for us due to the limitations imposed by PEAR's budget and by University policy.

Working for Bob was in many ways a continuation of my education. I had learned to be a physicist in the process of getting my degree; solving the problems that were thrown at me in PEAR obliged me to learn multiple computer languages, user interface design, statistical analysis, experimental design, and more. The PEAR staff spanned several professional disciplines, and Bob wisely required that all of us participate in major ventures such as the design and launching of a new experiment. That practice in collaborating across disciplinary lines helped all of us to grow, both as professionals and as people.

In an interview years ago, at one of the media events that PEAR hosted over the years, I declared that what I saw as Bob's most important trait was his integrity. With years of additional hindsight, I stand by that declaration. Bob was never willing to lie about his scientific observations, not even to himself. In an environment filled with people ready to declare on a priori grounds that Bob's research results could not possibly be real no matter what evidence he produced, he stood firm and reported what his experiments showed. "Integrity" is probably too weak a word for a transcendent devotion to truth and honesty that fueled a boundless moral courage.

Bob became both a mentor and an inspiration to me during my years at PEAR. With his passing, I feel that I have lost a second father. One thought gives me solace in the void left by his absence. It is common for the grieving to declare of the deceased, "we will not see his like again." On the contrary, for all his great virtues and skills, the fact that Bob was so thoroughly human, never pretending to a perfection he didn't possess, inspires me to hope that we will see his like again, and the sooner the better.

ESSAY

Lab Coat and Turban, a Tribute to Robert G. Jahn

ROGER NELSON

We have lost a friend, a valued colleague, and an inspirational mentor in the passing of Professor Robert G. Jahn, the founder and director of Princeton Engineering Anomalies Research (PEAR). He was one of the prominent academics who came together to create the Society for Scientific Exploration in the early 1980s, and he served as SSE's Vice-President for more than three decades. His was a voice on the SSE Council that we listened to with special attention, because he was himself such a talented listener, able to summarize what was important for decisions that would affect the course of SSE's growth and its value to the research community.

Bob's career touched and influenced the farthest reaches of science, from the physics of electric propulsion for spacecraft to the extended capacities of human consciousness. A partial listing of his accomplishments and honors gives a hint of his breadth of interests. Bob was Dean of the School of Engineering and Applied Science at Princeton University from 1971 to 1986. He was a Fellow of the American Physical Society and of the American Institute of Aeronautics and Astronautics, and an influential member of numerous other technical organizations. He was Chairman of the Board of the International Consciousness Research Laboratories consortium. He was a member of the Board of Directors of Hercules, Inc., and Chairman of its Technology Committee, and Chairman of the Board of Trustees of Associated Universities, Inc. This is a small sample of the long list of Bob's achievements, but it is safe to say that with all his extraordinary contributions in science and technology, his deepest feelings of accomplishment were for the study of consciousness at the frontiers of our understanding.

The circumstances that led Bob to create the PEAR laboratory in 1979 provide a perfect example of his unusual character and his deep commitment to science in the service of understanding. As Dean of the Engineering School, he had welcomed new students with an encouragement to work hard to prepare themselves for their future work, mentioning that an important step would be an independent project on the topic of their choice. Two years later a student in electrical engineering and computer science came to him

for help when she found none of her professors would monitor her work attempting to replicate Helmut Schmidt's psychokinesis experiments. That was a bridge too far for her faculty, but not for Bob Jahn. He encouraged her to study the relevant professional literature and organizations, and helped her to design a fully rigorous experiment.

Her results and the background of literature and conference reports she had assembled were sufficiently persuasive that Bob decided to build a technically sophisticated lab focused on the possibility that consciousness might interact directly with physical systems. Careful experiments might reveal some fundamental error in what looked like good though sparsely supported research, or it could turn out that results from mind-machine experiments were pointing to aspects of the world that needed to be, but were not yet, accommodated in scientific models. Bob attended professional conferences himself to learn more and to meet people engaged in the work. He found a kindred spirit in Brenda Dunne and persuaded her to help build a laboratory. He turned to friends in the engineering and technology community and in the ranks of Princeton alumni to find support for a technically sophisticated laboratory. Among the major sources of support in the early years of the PEAR lab were James S. McDonnell, the founder of McDonnell Douglas Aircraft, and philanthropist Laurance Rockefeller, both fellow Princeton alumni.

Over its nearly three decades of operation, PEAR was acknowledged as one of the most productive psi research centers in the field. Together with Brenda, who managed the lab, and a team of scientists from several fields, Bob broke new ground while also confirming and replicating research from other scientists around the world. The lab became a beacon for people with a professional interest in psi research but equally for those with a personal interest in subtle aspects of consciousness. Our guests at the lab ranged from Nobel prize winners to celebrities, mathematicians to musicians. People looking for a solid source of information and an opportunity to directly experience psychic research could stop in to see and perhaps even participate in a controlled scientific experiment.

The PEAR lab focused on two empirical domains, one assessing mind-machine interaction (MMI) and one looking at remote viewing, most notably precognitive remote perception (PRP). A third aspect was theory and modeling, which was especially important to Bob. The mission of the lab was to first identify and confirm a phenomenon that needed attention, then to explore its dimensions and define its parameters. With such a foundation, an explanatory structure could be built.

Over its tenure, the lab built a number of highly refined physical experiments, and while others contributed, the seminal ideas were most

often from Bob's active, creative mind. By far the best known of these is the classic random event generator (REG) whose behavior participants attempted to influence by intention alone, replicating and extending the research stimulated by Helmut Schmidt. The REG instruments developed through three generations, eventually allowing expansion into the field for "natural" experiments looking at group consciousness.

Bob's aesthetic sense ensured that the physical experiments were not only precise, but beautiful. The "pinball machine" was worthy of a place in a technology museum, and the "linear pendulum" would be at home in a great modern art gallery. He and Brenda agreed that the place where people would be asked to attempt "impossible" tasks should be a comfortable, warm environment. PEAR was designed to ensure that the white lab coat and the white turban were equally influential, manifesting our operating assumption that successful mind-machine experiments would have to be a mutually respectful combination of the aesthetic and the scientific.

As Dean of Princeton's School of Engineering, Bob was a top-tier officer at a major Ivy League university. He was also a world class physicist running a NASA-funded plasma propulsion laboratory; some of the drives he envisioned are now onboard spacecraft exploring the solar system. He was nationally and internationally influential in science and engineering. Yet he commands our attention because he was a creative and broad-spectrum thinker who somehow escaped the dogmas of "scientific" education far enough to consider with equanimity the mysteries of mind as a part of the physical world. It was this expansive view that produced the PEAR lab and helped establish the SSE.

Bob Jahn was a thought leader, a careful scientist who understood the challenge of overcoming biases about research on subtle interactions of consciousness with its environment. He knew that any positive conclusions would have to be defended and that there was likely to be serious skepticism which only impeccable protocols could assuage. But it was equally clear that the implications of these experiments were important for both science and society. They were important to Bob personally as well. As he colorfully put it when I asked what motivated him to create a psi research lab: "I have accumulated a substantial pile of blue chips as a high technologist, and I am planning to spend them in research that matters deeply on the human scale."

That he did, and the result is a body of work that definitely matters.

ESSAY

Remembrance of Bob Jahn

TONY EDWARDS

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As a BBC television producer with a (wholly unauthorized and sub rosa) personal mission to inform the public of breakthrough discoveries rejected by the scientific establishment, my ears pricked up at the jungle drums coming from Princeton in the early 1980s. I had long wanted to make a program about ESP research, and it was Bob's data and academic status that helped convince my skeptical BBC bosses that it was high time *Horizon* (and its US sister *Nova*) took a look at the subject.

At the time, however, Bob was still Dean of the Faculty of Engineering, and, despite receiving a suitably effusive written invitation, he declined to take part. His reply was diplomatic, wishing me well with the TV program, but enabling me to read between the lines that he had been sat upon by the Princeton authorities. However, I did sneak in a reference to Bob in the final BBC program *The Case of ESP* [<https://youtu.be/h2Gog3xMluA>].

I finally "nailed" Bob televisually in 1993, when he agreed to be one of the candidates in my 6-part BBC series about dissident scientists. Called *Heretic*, the series also featured Linus Pauling, Rupert Sheldrake, Jacques Benveniste, Eric Laithwaite, and Hans Eysenck. Bob had by then been demoted from Dean, whereupon the University removed the publicity shackles, evidently deeming its reputation less vulnerable to the deranged research interests of a mere Professor. *Heretic: Robert Jahn* (1994) can be viewed on YouTube at <https://youtu.be/8A6pPLEzkhg>.

However, both the university and Bob's fellow scientists remained firmly tight-lipped about him, even off the record. The only senior colleague who agreed to an interview was Professor of Mathematics Geoffrey Watson. My impression was that Watson had a soft spot for Bob but regretted that a fine mind and career had been sacrificed on what he considered dead-end research. His view was brutally pragmatic: that, if no pharmaceutical drug would ever be approved on small deviations from chance results, how could Bob expect his similarly feeble findings to overturn the whole of science?

Bob himself was most welcoming, and very generous with his time and patience with a Limey producer/director who in retrospect was probably irritatingly demanding and over-enthusiastic. He completely opened up his

[in]famous PEAR laboratory to me and my New York camera crew.

Bob chose his private office as the location for recording the main interview. It was my first invitation to his inner sanctum, and I was staggered at what I beheld. It was like entering a child's playroom: Almost every shelf was peopled with 'cuddly toy' animals—not just teddy bears, but penguins, giraffes, lions, tigers. Any PR adviser would have kept TV cameras well at bay, as the spectacle was a clear own goal, exposing someone whose reputation was already on the floor to further potential ridicule.

I briefly contemplated pointing out his folly, but Bob was a man whose judgment one did not question. In any case, his office offered a privileged insight into the playful side of an otherwise somewhat austere public persona, which I decided my viewers should be made aware of. Nevertheless, I did most of the interview with close-ups (thus largely excluding the animals), finally revealing the soft-toy menagerie on a wide shot, and launching the obvious question. "I suppose this room expresses my delight at life, interesting things, pretty things, fun," explained Bob, "and when I was fortunate enough to bumble into a research topic that kept opening up such new ideas—such challenging ideas as this one did—there was a happiness there, too."

ESSAY

A Personal Tribute to Bob Jahn

WILLIAM BENGSTON

President of the Society for Scientific Exploration

Bob Jahn was the only person I ever met who spoke in complete, edited sentences. No, it was more than that; I think there were embedded paragraph structures when he spoke. A transcription of any of his talks would have the unsuspecting reader think that multiple iterations of his thoughts on paper had finally yielded the most parsimonious edited version of an intellectual tour de force. And after the pleasure of hearing him speak, it was not possible to read any of his voluminous written output without hearing the cadence and tone of his voice. Bob was not an ordinary guy.

His biography is well-known to us, from his lofty academic perch to his founding of the PEAR lab, to his central role in the founding of the SSE and becoming its longest-serving officer; to, to, to . . . There is little I could contribute that hasn't been adequately covered elsewhere. Instead, I want to make this a more personal expression of gratitude.

I first met Bob in person the same way many of you likely did; at an SSE conference. My first SSE was at the Albuquerque conference in 1999, where I gave my debut public talk on some anomalous healing data. As a newbie to the SSE, I was a bit starstruck by some of the luminaries I had only previously read from afar. Of course I had read *Margins of Reality*, but actually sitting behind Bob Jahn and Brenda Dunne in the flesh made me a bit wide-eyed. And that's not to mention seeing and hearing Peter Sturrock, the SSE president and founder, Larry Dossey, Hal Puthoff, Jacques Benveniste, John Mack, and so many others. The place was like a who's who among anomalies researchers. How would these folks take to my presentation?

Sometime the day after I spoke, Bob quietly came up to me to express interest in my data, and offered a few suggestions and words of encouragement to continue the work. He said he would think about how he could help me.

I was invited to give a longer presentation at the 2001 conference in La Jolla, California. And it was there that Bob first came to me with some

concrete ideas for funding sources that might be available to me from his personal network. He offered to spend some time contacting these sources to ensure that my needs were taken care of.

That, in essence, became a recurring pattern in our relationship for the next 17 years. It was always his question of “what can I do for you?” which he insisted be front and center whenever we talked or met. He simply would never try to discuss his latest projects unless I insisted. And insist I did, as I found his work to be so fundamentally important on so many levels. I believe without qualification that the work begun in the PEAR lab will stand the test of time and be fundamentally influential to our understanding of how the world works.

Yet here was this luminary always thinking about what he could do to help. And help he did indeed. Bob became a sounding board to me as my work progressed, and he networked me whenever possible. And he apparently also had some designs for me. At the 2007 SSE conference at the University of Virginia, Bob and Peter Sturrock buttonholed me in the astronomy building to ask me to run for the presidency of the SSE. I objected, suggesting that there was no way I was going to follow the two of them, and that Bob, then VP, would be the logical choice for the presidency. But they would have none of my protestations. Bob guaranteed me that he would mentor me through the SSE and would remain its VP. And, once again, mentor me he did. With his vast network, knowledge, and experience he could do much, and we formed a strong partnership and a deep friendship. I especially loved the friendship.

When Bob stepped down as the Vice-President of the SSE, over my objections, he did so because the consequences of time prevented him from working to his standards. But our friendship never waned, nor did his mentorship. I saw him for the last time a few months ago when I gave a talk in Princeton for ICRL (International Consciousness Research Laboratories). Despite failing health, Bob came to my talk in a wheelchair, eyes sparkling and intellect engaged. He of course wanted to know how my research was progressing and what he could do to help. Afterward we went to dinner with Brenda, and that would turn out to be our last time together.

I consider it to be one of my greatest joys to have worked with and befriended such an incredible man. His influence will live on in all those he so deeply touched.

BOOK REVIEW

No Return: The Gerry Irwin Story. UFO Abduction or Covert Operation? by David Booher. San Antonio, TX: Anomalist Books, 2017. 228 pp. ISBN: 978-1-938398-84-1.

When I was 12 or 13 years old I read a UFO story that set off a four-bell alarm in my head:

A young soldier named Gerry Irwin had a long drive ahead of him before he reached Fort Bliss, near El Paso, Texas. He was returning from leave after visiting family in Idaho and was now about halfway back to base, wending through a remote area of Utah on a cold February evening in 1959. A flash suddenly lit up the sky and the light glided down behind a nearby ridge. His first thought was it might be an airplane in trouble. Right or wrong, the responsible thing to do was to find out for sure, especially in a time before cell phones and at a place with no buildings or traffic in sight. He wrote “Stop” in shoe polish on the side of his car and left a note for any passer-by that he had gone to investigate a possible crash, please notify law enforcement. In his overcoat he climbed the ridge to see where the light had landed.

Later a search party found Irwin unconscious in the snow about a quarter-mile away. For nearly 24 hours he remained unconscious in the Cedar City hospital; no efforts by the doctors could waken him. During this time he muttered something about a jacket on a bush. When consciousness returned he learned that there was no plane crash, also that the jacket he had worn under his overcoat was not found. And he had no memory of anything that happened from the time he set off on foot from his car.

A few days later Irwin was flown to Fort Bliss, where he stayed in a psychiatric hospital ward for several days of observation before returning to duty. All seemed well until he began to suffer fainting spells, first while on base then again in downtown El Paso. Taken to a hospital, he awakened with few memories of the preceding three weeks. A month in the Army hospital followed, where he regained some of his memories and was released, but almost immediately went AWOL and took a bus back to Utah. There he walked miles into the desert straight to where his lost jacket hung on a bush. A piece of paper wrapped around a pencil protruded from a buttonhole of the jacket. He pulled out the paper and burned it without reading it. At that point he seemed to snap out of a trance that had controlled him, and realizing he was in trouble, turned himself in to the sheriff.

Back on base, he was disciplined then again returned to duty. Soon he reentered the Army hospital for another three weeks of observation, only to be released without the doctors finding anything wrong with him. The day after his release he went AWOL once more, was listed as a deserter at the end of August, and was never seen again.

An account of Irwin's story appeared in *Flying Saucers* magazine in 1962, three and a half years after the events occurred. The article was based on considerable newspaper coverage and extensive investigation by the leaders of APRO (Lorenzen 1962). Ray Palmer's *Flying Saucers* was the only newsstand magazine treating UFOs at the time. Jim Lorenzen and his wife Coral founded the Aerial Phenomena Research Organization (APRO) in 1952 and it lasted until Coral's death in 1988. This pioneering group took an early and enduring interest in close encounter, occupant, and abduction reports when other respectable research groups shied away from them. Coral and Jim Lorenzen, who had befriended Irwin, invited him into their home, and tried to provide civilian psychological help only to have it thwarted by military authorities. Jim Lorenzen authored the article, and while the UFO connection seemed tenuous, he sensed that something remarkable, something portentous, had befallen this young man. What this "something" was lacked form and definition at that time, but even at my age I shared a feeling that extraordinary events and fearsome causes hid beneath the surface of this strange and frustrating history. But the trail had already gone cold.

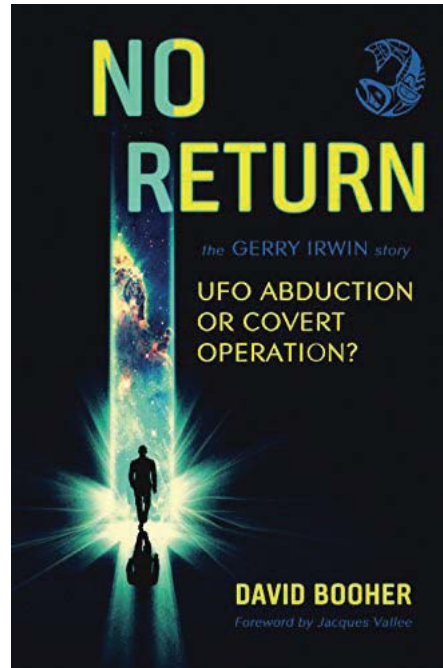
Twenty years later when I catalogued the UFO abduction cases known by the early 1980s and undertook a comparative study of their content (Bullard 1987), I had forgotten about Gerry Irwin. At some point too late for inclusion in that work, I remembered his case and kicked myself for omitting it: because this story laid out a near-blueprint for the very abduction accounts I was reading, yet happened years before the public learned of any examples. Here in eerie prescience appeared the phenomenology of a mystery yet to come—missing time, amnesia, inexplicable behaviors, compulsion to return to the site, external "control," and PTSD-like symptoms. Gerry Irwin suffered them all, the potential victim of a phenomenon before it even had a name.

By good fortune another reader discovered this story late in 2013, and better still decided to pursue it. The case was colder than that February night from nearly 60 years ago, but David Booher proved to be the right person for the job, a resourceful and tenacious investigator driven by curiosity rather than a preconceived agenda. Thanks to his efforts we now have answers to many of the questions that vexed Jim Lorenzen—and in their place an even deeper mystery.

The original story ended with the startling disappearance of Irwin, but finding the man at the center of the mystery turned out to be almost as easy as looking in a phone book. Irwin was enjoying a vigorous old age in the rural Idaho area where he grew up. He proved to be a genial man willing to meet with Booher and together they conversed at length about his life. Irwin had good biographic memory with one striking exception—the year and a half following his Utah experience. This memory loss was profound. He did not recall writing “stop” on the car, or the note to call police, being flown from Utah to Fort Bliss, his various hospital stays, meeting the Lorenzens, his return trip to Utah, or his court martial for desertion and its aftermath. The gap puzzled both men and directed the investigation toward every source that could fill in this hole.

Newspaper accounts proved informative. So did the APRO files on the case, including Coral Lorenzen’s correspondence concerning Irwin with psychologist Carl Jung. Irwin’s service records, which contained medical reports on his stays in Army hospitals, filled in many blanks, as did a letter written by Sheriff Otto Fife less than two weeks after the incident. Fife was the first person to question Irwin when the young man regained consciousness in Cedar City, and despite Irwin’s sketchy memories, some details are intriguing. According to the sheriff’s letter, Irwin described the object as large and shooting out light so that he thought it was on fire; passing overhead and continuing to send light upward from behind the ridge. He climbed the ridge in foot-deep snow expecting to see a burning airplane when he reached the top, and in fact the light grew brighter the nearer he came to the crest. Then he blacked out.

One thing certain was Irwin became all too familiar with hospitals over the five months after that night in February. Several days in the Utah hospital, more days in the Fort Bliss Army hospital, an El Paso hospital when he passed out on the street followed by 32 days back in the psych



ward at Fort Bliss, and finally three more weeks after he returned there at his own request in July—all in all Irwin spent about a third of his time under hospital care during those months. What happened during his stays, what the doctors found and the treatments they prescribed, comprise a clearly significant piece of the puzzle. And his case was truly puzzling: No physical injury or cause could be found. Tests for epilepsy were negative. The Utah doctors said he seemed to be asleep but simply wouldn't wake up. When Irwin entered the Fort Bliss hospital for a second time, a doctor expressed surprise that the soldier did not remember him after only a few weeks had passed. Strange too was Irwin asking, "Were there any survivors?" as soon as he regained consciousness in El Paso, and thinking it was February 20 when it was really March 16.

A part of the story hitherto unknown came to light in Irwin's service records. He went AWOL in July and was listed as a deserter, but he was not lost forever. By his own admission he went to the back country of Idaho in an effort to clear his head, having gotten no help from medical science. This self-therapy in the wilderness worked for him, insofar as he no longer suffered from compulsions or blackouts; and while memories lost during past months remained lost, he suffered fewer bouts of amnesia going forward. Whether he turned himself in or was apprehended remains uncertain, but in October he returned to the Army to face charges. Acquitted of desertion, he nevertheless served seven months in Leavenworth on lesser counts, after which he resumed his duties and remained in the Army until his enlistment ended in 1966.

Some possible solutions to Irwin's strange story already suggest themselves: Did he fake it? He was due back on base the same day he was driving through Utah, so he would arrive AWOL and thereby had motive to contrive an excuse. But the prospect of peeling a few potatoes and cleaning some latrines looks minor in comparison to the trouble his hoax, if it was a hoax, actually caused him. He stood to gain little and lose much. Then too, he kept up the ruse for months and deceived multiple doctors in an act so convincing that it surely deserved an Oscar. Or maybe he was "bucking for a discharge." His commanding officer seems to have thought so, and took such a dim view of mental problems in soldiers that he promised to make Irwin's life miserable. Moreover, Irwin wanted to stay in the Army. He had an excellent prior record and built an excellent record subsequent to Leavenworth, rising in rank to sergeant, entrusted with running a division radio school in Germany, commanded a reconnaissance patrol truck, and went to Austria as an instructor for American communications equipment. As a civilian he worked as a technician for Kodak and was promoted to a supervisory position. The whole course of his life contrasts so sharply with

his “forty miles of rough road” in 1959–1960 that a hoax seems wholly out of character.

Was he suffering from some deep psychological problem? Amnesia, blackouts, and trance-like behavior point that way, and an Army psychologist reported Irwin was hostile, argumentative, and paranoid during his second stay in the psych ward. Carl Jung offered ambulatory automatism, wherein someone suffering unconscious dissatisfaction with a situation may escape by forgetting a former life and starting a new one, as a possible solution for Irwin’s condition. The Lorenzens noted that he had become nervous and stammered as his memory lapses and hospital stays continued, while Irwin himself became sufficiently alarmed at his deteriorating mental state to request a third hospital confinement in July. Despite all these indications, Irwin’s hostility owed more to frustration over doctors unable to treat his condition and unwilling to take it seriously, than to elusive psychological causes. Moreover, the very characteristics noted by the psychologist are also characteristic of PTSD. Without doubt Irwin’s bouts of amnesia and inexplicable behaviors were psychological problems. The more important question is, did psychopathology cause them, or were they the effects of something else?

A matter worth remembering is that the government carried out mind- and behavior-control experiments during the 1950s. The CIA’s MKUltra program was perhaps the most notorious of these efforts, using soldiers, prisoners, and mental patients as human guinea pigs, voluntary or otherwise. The tools of the trade included drugs like sodium amytal, insulin, and LSD, electric shock, and hypnosis. Such experiments went on at Leavenworth. Any ties to Fort Bliss are uncertain, but Booher uncovered some disturbing clues among Irwin’s hospital records. His doctors gave him sodium amytal more than once and apparently learned no new facts about the Utah incident, but Irwin made strange claims about a “special intelligence” that had instructed him to reveal nothing. His memories also seemed to be “wiped clean” sometimes on an almost day-to-day basis. “Truth serum” and related drugs can do more than detect lies. They can also be used to erase memories, either wholesale or on a more limited scope, and make subjects more susceptible to suggestion. For information on mind-control experiments, see Booher (pp. 44–49, 146–148, 176–178) and Project MKUltra (https://en.wikipedia.org/wiki/Project_MKUltra). Post-hypnotic suggestion might also program a subject to take instructed actions while in a trance or fugue state. I usually hit the “off” button at the first hint of a conspiracy theory, but Booher’s evidence and arguments build a case that is circumstantial yet too plausible to dismiss out of hand.

If Irwin served as a “psyops” subject, he was likely an unwitting victim,

and any such “treatments” he received stayed off the record. This theory explains his striking lapses of memory, his entranced return to Utah, perhaps who instructed him to burn the paper in his jacket, and his personality change from a first-rate soldier into an erratic one. This situation he did not understand provided reason for his anger and frustration, also drove him to escape for self-preservation’s sake once he realized he was going in and out of hospitals and getting worse instead of better. A suggestive case can be made for mind-control activities, but did they serve as primary or secondary drivers behind Irwin’s story?

Irwin’s problems did not begin in the psych ward of an Army hospital. They began that night in Utah when he climbed a ridge to see if an aircraft had crashed. He passed out near the crest and wasn’t fully himself again for a year and a half. Irwin stated several times to his doctors that he thought the fiery object was responsible in some way for his condition, and maybe with good reason. The jacket that Irwin said he wore under his overcoat was not found by the search party, nor was he wearing it when he reached the hospital in Cedar City. He returned to Fort Bliss with no idea what happened to it. On April 18 he felt a compulsion to return to Utah, hopped a bus to Cedar City, and walked several miles into the desert along Route 14 and straight to the bush where his jacket hung. Only this site was not where he saw the object and lost consciousness. That place was along Route 20, some 40 miles to the northeast. The sheriff and the newspapers confirm the Route 20 site as the place where Irwin and his car were found, yet somehow the jacket reached a spot far removed and Irwin walked to it without conscious awareness of its location.

No one other than Irwin saw the jacket or the paper he said he burned. This lack of evidence casts doubt on his whole account of the return to Utah, though his presence in Cedar City was no fake since he turned himself in to the sheriff. He had no other apparent reason for going to Utah and spent no more time than he needed to walk to and from the site. A second possibility is that he was manipulated by mind control to seek an imaginary jacket, perhaps as nothing more than an experiment. A third option advocates the primacy of experience: that an aerial craft like a helicopter carried him from the Route 20 site to the Route 14 site, and there he left his jacket on a bush with a note before being returned to the original site. Searchers found no other footprints in the snow but Irwin’s, so no second party on the ground could have transported his jacket. The mysterious intelligence that compelled his return trip to Utah might belong to government agents who realized he had seen something he should not have seen, and sent him back to destroy whatever compromising evidence the note with the jacket contained.

The hoax solution for both the jacket episode and for the whole Irwin

story may best satisfy the skeptics. It is safe and conventional, but it leaves many questions unanswered. An appeal to psychological causes, or even to the more audacious psyops solution, may gain favor with others. Here again some parts fit while some do not. The flying object solution can explain the misplaced jacket, but the idea that a chance encounter with a helicopter turned Irwin's life upside down is hard to swallow. He suffered unconsciousness and amnesia even before he entered a military hospital, and manifested the characteristics of traumatic stress that his treatments may have exacerbated, but do not seem to have originated. Perhaps psyops operatives flew along remote roads and swooped down on hapless travelers to inject and torment them, but some parameters of possibility apply here, and such a scenario seems quite out of bounds.

Another kind of flying object offers a final possibility—an unidentified flying object, not in the neutral sense of an unrecognized conventional object but a UFO, a mysterious unknown that nevertheless manifests recurrent properties. This kind of object could account for the lighted object Irwin saw. It could have swept him away and back again; it would give him reason to leave the note in his jacket as a memorial of the event. All else that followed—the blackouts, amnesia, compulsions, the hidden agency intruding into his life, and the symptoms of traumatic stress—have become familiar aspects repeated in what we now call UFO abductions. Incomprehensible then, this sort of experience now has a name and a home. We can wonder if the Army wanted to “cure” Irwin of claiming to see a flying saucer, or to erase the memory of a UFO experience. We can also appreciate the criticism that “UFO” has come to mean a magical fiction that can adapt to explain anything, but counter to that at least in Irwin's case, we have an independent set of effects that reappeared in the Barney and Betty Hill abduction and many more to follow. Out of all the alternatives, only the UFO narrative covers all the bases.

Any summary of David Booher's cumulative evidence and argument can amount to no more than a pale shadow. A review can do feeble justice to his painstaking research, and only by a full reading of the book can the reader appreciate the force of the case he builds. The author got to know his subject, to understand Gerry Irwin as a person. He dug up documents and records long-lost and heretofore unexpected, looked at them from multiple angles and interrogated their possible meanings for the overall story. The writing is engaging and lucid, the thinking clear and rational, with no beating the drum for a pet theory. How to interpret the findings is left up to the readers; they can understand Irwin's case, UFO abduction, and the relationship between the two in whatever terms they choose. What matters here is to establish a solid scaffolding of facts, inferences, and theories from

which sound conclusions can follow. No final and iron-clad solution emerges from these long-removed events—there is a “fog of life” as confusing as the “fog of war”—but after the components of this remarkable story are weighed and examined, the answer that best makes sense turns out to be the most extraordinary. It wins by points rather than by knockout, and is sure to send the doubters running toward a hoax or psychological alternative; but the case for a unitary phenomenon between Irwin’s experience and UFO abductions, whatever they are, is hard to escape.

No Return is an exemplary case investigation and a model for careful argumentation amid abundant and sometimes contradictory evidence. I hope other investigators will profit from the author’s example, and that David Booher will get fired up over other mysterious anomalies and continue the fine work he accomplishes here.

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BOOK REVIEW

Perceptual Hypnosis: A Spiritual Journey Toward Expanding Awareness by Fredrick Woodard. Red Feather, 2017. 176 pp. ISBN: 13-978-0764353109.

Division 30 of the American Psychological Association (APA) defines hypnosis as: “A state of consciousness involving focused attention and reduced peripheral awareness characterized by an enhanced capacity for response to suggestion.” Yapko (2012) writes that “the field of hypnosis has been influenced by the need for empirically validated treatments” (p. 10).

Hypnosis has been associated with improved perceived stress (Fisch et al. 2017), and the lowering of pain, nausea, and fatigue (Montgomery et al. 2007). In a meta-analysis, hypnosis has been established as adjunctive treatment to medical and psychological interventions, increasing treatment efficacy (Mendoza & Capafons 2009). Empirically supported hypnosis scripts have been organized in a hypnosis medical manual for practicing hypnotherapists (Elkins 2017). Cutting-edge research, evaluating physiological changes in the brain, during hypnosis, led by senior Stanford researcher, Dr. David Spiegel (Jiang et al. 2016), used fMRI (functional magnetic resonance imaging) during hypnosis, and found changes in neural activity. Part of the conclusion summary reads: “These changes in neural activity underlie the focused attention, enhanced somatic and emotional control, and lack of self-consciousness that characterizes hypnosis.”

Grounded in phenomenological–perceptual theory, and building on Jung’s (1971) and Erickson’s (1980) work, among others, Dr. Woodard writes about the effects of hypnosis in the conscious and in the unconscious mind. *Perceptual Hypnosis: A Spiritual Journey Toward Expanding Awareness* includes an introduction, eleven chapters, and a conclusion, which provide a method and tools for self-help. At the end of each chapter, a summary of the main perceptual points and exercises to guide self-inquiry assist the reader in applying and deepening the learned content. The accompanying CD provides self-help recorded instruction for self-exploration.

Dr. Woodard outlines the foundational experiential and theoretical elements that led to the writing of his book, including his own various hypnotic experiences, and he theoretically proposes that hypnosis consists of differentiation, where certain aspects of the perceived Universe are magnified, while others settle in the background. He hypothesizes that

hypnosis works within three levels of awareness, including a higher self, a conscious mind, and a subconscious mind, stating that “perceptual hypnosis is a spiritual phenomenon” (p. 52).

Dr. Woodard describes the Christian experience of stigmata, or spontaneous bleeding in the body, corresponding to Jesus Christ’s wounds at crucifixion. He suggests that the physical manifestation of stigmata is a consequence of similar mechanisms found in hypnosis, where psychological factors cause physiological changes. He goes on to provide an overview of paranormal phenomena. Finally, he proposes five principles of perceptual hypnosis as guidelines for successful practice.

Dr. Woodard’s passion about the subject of hypnosis comes through his writing. A major issue with his book, however, is that although hypnosis has been established as an evidence-based intervention, Dr. Woodard’s writing does not reflect the current empirical literature. He tends to focus on his own experience and interpretations of complex human phenomena.

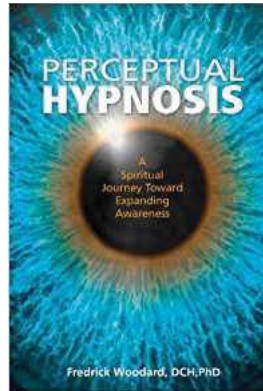
Dr. Woodard provides a useful introduction to hypnosis for beginners, for example by explaining the concepts of differentiation, expanded awareness, and perceptual changes in phenomenological–perceptual theory. However, these concepts are difficult to define and to measure; they are in need of empirical validation.

Similarly, the term “spiritual” lacks definition, and it is broadly used. Questions about the nature and characteristics of spirituality remain unanswered. Empirical studies are needed to begin to answer some of these questions. In addition, when discussing hypnosis, religion, and spirituality, Dr. Woodard tends to focus on the Christian experience, instead of including discussion about other religions as well. Chapter Nine’s title, which includes the words religion and spirituality, suggests that several religions would be discussed, however that is not the case. Dr. Woodard writes primarily about Christianity.

An example of a comprehensive overview of hypnotic practices in world religions is provided by Brugnoli (2014). She summarizes the beliefs and practices of mindfulness and meditation, in Buddhism, Zen Buddhism, Christian Meditation, Hinduism, Islam Meditation, Jainism, Judaism, Native Americans, and Taoism, in the context of providing hypnosis in palliative care.

An explanation of how perceptual hypnosis relates to contemporary hypnosis research would have made Dr. Woodard’s writing stronger from an academic perspective. A discussion about potential similarities or key differences between perceptual hypnosis and the empirical work from leading researchers, for example Gary Elkins, Guy Montgomery, or David Spiegel, would have enriched Dr. Woodard’s book.

In addition, an analysis about Dr. Woodard's perceptual hypnosis theory, compared with key historical perspectives on hypnosis would have provided context in Dr. Woodard's work. A discussion about how perceptual hypnosis was influenced, or not influenced, for example by Sigmund Freud's psychoanalysis (Bachner-Melman & Lichtenbert 2001), recognized as a precursor to contemporary hypnosis, or Pierre Janet's early hypnosis and dissociation work (Haule 1986), would have provided further insight into the theory of perceptual hypnosis. Dr. Woodard does state that differentiation is not dissociation (pp. 19, 20), however further inquiry into specific differences between the two terms, linking the discussion to well-known authors' works, would have explained further perceptual hypnosis theoretically.



Finally, even though Coe (2014) suggests the need for studies about readers' expectations to improve indexing practices, there is general agreement in the academic community that indexing reflects scholarly work, and it provides benefits to the end-users, such as easier access to specific themes, concepts, and information. Dr. Woodard's book would have benefitted from an index.

In conclusion, *Perceptual Hypnosis: A Spiritual Journey Toward Expanding Awareness* might be an appropriate introductory book for hypnosis beginners because it provides basic knowledge about the practice of hypnosis, useful summaries of perceptual points, a written hypnosis script, and a hypnosis CD recording. However, from an empirical standpoint, it lacks rigor and grounding in science. It does not add knowledge to the current scientific discussions in the field of hypnosis, such as the efficacy of hypnosis in treating various psychological and medical conditions, and the physiological effects of hypnosis in the brain. Also, empirical validation of how perceptual hypnosis is a spiritual phenomenon is needed, and indexing would have improved the book from an academic standpoint.

FLAVIO R. EPSTEIN

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BOOK REVIEW

Belgium in UFO Photographs, Volume 1 (1950–1988), FOTOCAT Report #7 by Vicente-Juan Ballester Olmos and Wim van Utrecht. Turin, Italy: UPIAR, 2017. 400 + xii large pages, 366 pictures. €40 (paperback). <http://www.upiar.com/index.cfm?language=en&artID=191&st=1>

Both authors of this important book, Vicente-Juan Ballester Olmos and Wim van Utrecht, are well-known and highly regarded in the field of ufology for the solid work they have done over decades. Van Utrecht has conducted many field investigations, co-founded an ongoing report-monitoring operation in Belgium (Belgisch UFO-meldpunt), and notably is the architect and custodian of the mighty CAELESTIA online research resource. Ballester Olmos has authored hundreds of articles and books, almost single-handedly mediated the declassification of Spanish Air Force UFO archives in the 1990s, and today maintains the colossal FOTOCAT Project database that is the foundation of this book.

Belgium in UFO Photographs is the first of a pair of volumes that together will form an exhaustive history of Belgian UFO photography from its inception. A chronological catalog of individual cases (84 in this volume) is followed by statistical breakdowns and some discussion of the quality and meaning of the evidence. As the authors immediately acknowledge, most readers will dismiss the majority of UFO photographs out of hand as merely plates and frisbees, birds, lens flares, stars, and the like. But they take nothing for granted:

The million-dollar question, of course, is to know if there are any images left that are not explainable as hoaxes or misinterpretations? It is the main goal of our project to find that out.

Volume 1 covers the years 1950–1988. Part 1 occupies the bulk of the book and contains the catalog of events, divided into three chapters: Chapter 1, 1950–1971, When UFOs Were Still Flying Saucers; Chapter 2, 1972–1980, Sightings Peak; and Chapter 3, 1981–1988, Calm Before the Storm. Part 2, Reviewing the Data, contains Chapter 4, 1950–1988, Statistics and Conclusions. There are 413 pages in total including Contents, Dedication, a Foreword by space journalist James Oberg, Bibliography, List of Acronyms, Acknowledgments, and an Appendix listing all the columns

and codes in the FOTOCAT database spreadsheet.

The production standard of a UPIAR (UFO Phenomena International Annual Review) monograph is always excellent, and the graphics here (by van Utrecht) deserve special mention for their ingenuity and clarity. Overall, the presentation is first rate. Neither author's first language is English, but their writing is generally a model of grammatical propriety and clarity that would put some native speakers to shame.

Let's look now at how the authors approach their task. The first point to make is that they use (to employ an apt photographic metaphor) both wide-angle and close-focus macro lenses to examine the topic. The wide-angle view means they take their material from every possible source, and they are scrupulous to give equal *prima facie* weight to all data—even to claims it would be easy, but lazy, to dismiss as obviously trivial. They then switch lenses to test each claim, even the most outlandish, with equal thoroughness. This is by no means wasted effort. It is about having proper respect for the process, and I applaud this philosophy wholeheartedly.

The first surprise in the catalog is that there is no extant record of a Belgian UFO snap prior to 1950. The honor of being number one goes to a photo dated **March 31, 1950, of a landed spaceship which according to the newspaper *Burgerwelzyn* had brought 26 one-eyed Martians to the town of Bruges**—as luck would have it, just in time to celebrate April Fool's Day. The last is a photo from **April 23, 1987, which the authors are able to explain, more tentatively, as a visitation of bugs**. In between we are treated to a cavalcade of mystifying, and often deeply obscure, images that exercise the considerable ingenuity of the authors (and their consultants—the name of Chilean analyst Andrés Duarte, in particular, occurs a number of times) through nearly 390 entertaining and instructive pages. Two or three cases are quite well-known, but the bulk will be completely unfamiliar to most readers.

One relatively well-known case crops up quite early on page 12. This is a pair of photos taken by professional **photographer Herman Chermanne near Bouffioulx in May, 1953, of something resembling a bright fried egg, or a flower at the top of a long, twisting stem of vapor** rising over some woods, suggestive of an exploding missile, perhaps, but with a curious appearance. The authors have collected several versions including the first-known published prints and meticulously traced their provenance, noting quite dramatic variations in shape and contrast from source to source, and the presence of crude retouching even on the first newspaper copies.

Such problems, combined with the absence of original negatives and certain inconsistencies in the collateral evidence, make it very difficult to prove anything with certainty. But a careful comparison of the two

prints, allegedly taken some seconds apart, shows that the wispy detail in the twisted smoke or exhaust trail is identical in both. The authors point out that a trail so stable from shot to shot is somewhat in tension with the witness's claim that it was sown by a spinning, soaring, exploding ellipsoid and that it dispersed in moments, suggesting that two copies of one original photograph—perhaps of an interesting but mundane vapor trail—have been adapted to create a fake pair of UFO shots.

This draws attention back to the retouching. Why—the authors ask—would a newspaper so crudely corrupt images it describes as “extraordinary” and as possibly the first meteor to have been photographed with such “remarkable precision”? One answer is that it would have been routine in the days of letterpress printing for ill-defined photographs to be airbrushed and/or hand-painted, and for halftone plates to be selectively masked with a ‘resist’ when being etched, all to improve contrast and detail. Retouchers and etchers were highly skilled and could work on conventional subjects quite discreetly, but if the nature of the original image was itself unclear the results might be crude and involve some guesswork. Editors had no real interest in scientific accuracy in such a case and would look for impact on their front page.

But that said, there is another factor.

The authors show that the moon ought to have appeared in the shot, very close to the trail, unless it just happens to have been obscured by the exploding UFO. And when they go on to demonstrate that a very good match to the strange “fried egg” effect can be created by chemical or thermal damage to a film negative, this starts to look like a rather convenient coincidence. Was the photographer attracted to a dramatic shot of the aircraft contrail crossing the moon? Did disappointment with the result lead to a botched attempt to retouch or fake-up the moon? Did he then realize he could pass off the failure as a UFO? Proof is lacking, but in the end an opportunistic hoax is a good theory which fits a broad range of facts.

The Namur case of June 1955 (see p. 38) is even better-known and will interest many readers. This series of photographs of a disc apparently cavorting in a clear sky, sometimes enveloped in its own vapor trail, was always, for my money, one of the most challenging photo cases, even in the absence of original negatives (“lost in the post”). Truly excellent work here leads to a fairly convincing explanation, not conclusive because the lapse of years does not permit it, but quite satisfying, particularly so because it preserves intact the instinctive impression of “this looks real” one has when seeing these pictures for the first time. If the authors are right, it was a real and rather extraordinary flying object, but I won't spoil the story by saying what it was.

A fine example of the authors' ingenuity and tenacity is the **March 24, 1973, Borgerhout photo of a bright object high in the sky** which, seen through binoculars, doubled in apparent size as it climbed, then disappeared (p. 183). The authors' hypothesis is that the witness observed the bursting at an altitude of >29,000 m of a rawinsonde balloon launched from the Royal Meteorological Institute at Uccle, Brussels. They offer an excellent reconstruction of the ascent using upper wind data from this very balloon showing that it would bring the balloon into a position where it could appear in the sky south of Borgerhout. Illuminated by the low sun in the East it could show as a bright spot like that seen and photographed by the witness.

So far, so good. However, the angular scale given by the house roof at a known distance immediately indicates a problem because the object in the photo would clearly be several tens of times the angular size of a 6-m radiosonde at a burst-height of 29,000 m, even allowing for glare and blurring. The balloon, some 45 km slant range from the camera, would be at best a tiny speck. The theory looks in trouble.

But we find the authors are ahead of us. Not only have they seen and addressed this issue, they have compounded the problem by noticing that the angular scale of the photo is inconsistent with the type of lens reportedly used, and correcting for this worsens the problem significantly: Not only does it make the size discrepancy even larger, the true angular elevation of the object means that it was near the zenith in the wrong part of the sky entirely. They correctly conclude that the object in the photo cannot after all have been the balloon.

But rather than giving up and recording a verdict of "unidentified," as less assiduous ufologists might have done, this setback only sends them back to the photo for a deeper look; and when FOTOCAT consultant Andrés Duarte examines the image he finds that the UFO spot does not exhibit the same distinctive motion blur as do other objects in the photo. Conclusion: the spot on the print is not an optically formed image at all. It is a coincidental defect in the emulsion.

Without the misleading photo to confuse things, the mystery is reduced to a simple visual sighting of a spot of light which may after all have been the Uccle weather balloon.

Some cases are less easy to tackle with the exact tools of geometry and optics. **On March 20, 1973, in Tarcienne (Namur), a lighted object was seen and photographed** by a 60-year-old lady from the window of her house. She also observed it through an optical device, an old brass WWI 'trench periscope' owned by her late husband, through which she allegedly discerned a 'man' or occupant inside the UFO, silhouetted against the light (p. 174).

The authors show that the strange-looking photo of a dome with an ‘antenna’ published in the press was a cropped and inverted image from an original negative which they argue shows a streetlight and its mounting bracket blurred by considerable camera motion during a long handheld exposure. They identify a type of streetlight bracket which may have been in use locally at the time. The photographer’s description of the flight of the object across the sky with its blinking lights and humanoid occupant is “littered with inconsistencies” and is put in the same category as her claim to have witnessed other ‘spaceships’ on numerous occasions (including another 25 that very night!).

One can cavil at small details of any analysis. For example the authors’ identification of certain photo features as reflections in window glass sounds reasonable, except that their argument for a closed window (that it would probably have been closed on what was a chilly night) is weakened by the report that the witness was “closing the shutters on the outside” at the time she spotted the object, implying the window was—initially at least—still open.

Howsoever, we only have her word for it that she was even near a window. In general, given that a convincing case is made for something on the borderline between hoax and delusion having little relation to anything outside the witness’s head at the time, what may or may not have been outside her window is perhaps academic. Nevertheless, it is proper to consider the evidence from all angles without favor, as the authors do.

These are just a few of the many types of explanation applied to the 84 cases in this volume, bringing in knowledge from fields as disparate as astronomy, meteorology, organic textiles, and entomology, one of the “best” being saved for last. Perhaps the prize for most unusual natural explanation goes to the **April 23, 1987, photo taken at rural Moorslede (West Flanders), which at first glance resembles a faint “light pillar.”** The authors consider various possibilities such as smoke or a contrail, but in the end they identify it as probably an “insect pillar,” a column of thousands of mosquitoes assembling for their evening mating dance over some woodland pool or other and illuminated by ground lights from a nearby farm (p. 366).

There are a few cases where this reviewer has some minor reservations about the treatment, with the emphases on few and minor. I’ll say a few words about these.

October, 1954, La Docherie (p. 34). A ‘big ball of fire’ like a ‘second sun’ was seen, initially far from the sun and ‘high in the sky’, which then moved abruptly to superimpose itself in a curiously obfuscatory fashion over the real sun (which at the time would have been low in the west), spinning and throwing out showers of sparks. As many as a hundred

witnesses gathered to watch. A movie was made, but was taken away by authorities. The authors indict a parheliion or 'mock sun' and afterimages of the true sun on the tired retinas of the viewers.

A poor still image taken from the movie was published in a local paper. The authors think this is inconsistent with the photographer's story that his film was confiscated before he could process it. The documentation is disappointingly sketchy and the details vague. But I did not follow this argument.

The photographer claimed that a pair of 'security' men who visited him and took the film were accompanied by a man he believed to have been an 'astronomer' from 'Uccle Observatory'. A detailed analysis of the film was later published in a professional journal by a scientist from Uccle Meteorological Institute, which is collocated with the Observatory. It seems possible that the 'astronomer' was this meteorologist, Prof. L. Poncelet, or an associate, and that this was the route by which the film itself entered this Institute, where it did indeed vanish from public ken. Although Poncelet's article explains that the images were not good enough for the journal, this does not mean poor prints were not made or that one could not have got out to the local paper, which duly published a blob. All of which does quite consistently explain the witness's story and the final destination of the film.

As for what was seen, the authors point out that Poncelet's theory of a 46° parheliion is mistaken, inasmuch as no such halo exists. They plausibly speculate that he may have meant 44° , where a very rare halo can be found; but this is hardly exculpatory since, as they also point out, this halo is invariably very faint and could hardly explain a 'ball of fire' that was 'blinding' like a 'second sun'. All in all, a disappointingly incoherent outcome for a professional evaluation based on what were claimed by Poncelet as 'precise indications' of the sighting geometry.

Discounting Poncelet's precisely indicated 46° , our authors gamely propose that the object was most probably a 22° halo or sundog. They adduce in support of Poncelet's own statement that a colleague had that very same day seen 'a classic 22° sundog' from Bassily, 44 km away. But by emphasizing that Poncelet seems to have understood the difference between 22° and 46° , this statement rather puts another twist into the contortion we are obliged to make in order to accommodate the 'precision' of those positional 'indications'. In short the evidence is a mess.

Unfortunately, there is no record at all of this object, whatever it was, because the film was exposed only during the 'second phase' of the event, when the true sun acquired a peculiar appearance after being obscured by the 'second sun', changing color and flinging out sparks; and the only record of *that* is a very poor photocopy of a newspaper reproduction of one frame

showing a blob. The description of this effect is not without precedent. Actually there is quite a history of related cases.

As the authors point out, the most famous examples are so-called ‘Miracles of the Sun’ like the 1917 event at Fatima, Portugal, but there are dozens of similar records that have no overt religious context, being found around the world and throughout history. There are hints of an ocular component to these visions in many cases, and of conventional atmospheric–optical components, too; but the proper explanation of all their class properties is in this writer’s opinion not yet certain. So for this reason the La Docherie case, though vague and very ill-documented, is still of minor interest to some of us.¹

July 19, 1972, Faymonville (p. 99). This incident was triggered by a sighting of a fuzzy, red, point of light in the southern sky which appeared to climb and approach before disappearing into the west. Momentarily what was interpreted as the same light reappeared in the west, now much bigger, fiery red, and looking like a pear, an oval, or a bar. A witness managed to obtain two blurred photographs before the object seemed to dissolve and vanish. From these photographs our authors were able to persuasively explain this latter object as the setting Moon, probably distorted by cloud.

They still needed to explain the light originally seen approaching from the southern horizon, which could not have been the moon. They suggest it was the planet Jupiter which was unusually bright at this time. Variable haze could make it brighten and appear to approach. Of course Jupiter’s change in elevation over the duration of the sighting would have been imperceptible (especially being near the meridian), yet the reported change in elevation of the ‘UFO’ was very large, between 25° and 30°, or 5 to 6 times the original horizon elevation estimated by both sets of witnesses. Jupiter or not, this large ratio is awkward to explain as an illusion. Moreover, the most reliable estimate of the light’s azimuth comes (arguably) from a witness who fixed it by its proximity to the prominent village church tower southwest of his home, measured at 195° (18° away from Jupiter), and the authors acknowledge that the consistently reported low initial elevation of the light is in itself difficult to square with Jupiter, inasmuch as witnesses almost invariably overestimate elevation angles—they do not dramatically underestimate them.

They still favor Jupiter, though. “Mr. Giet’s estimate of 30/35° would match Jupiter’s true elevation much better,” they suggest (it was actually 16°), but “faced with two different sets of elevations for what is supposed to be the same sighting” they despair of proving it. I wonder if they are being slightly disingenuous here. I do not see “two different sets of elevations.” I see one set of elevations from one witness group—“first seen at an elevation

of 5°. After it approached, its elevation was estimated to have been 30 or 35°—and from the other group an initial estimate of “more or less 4 to 5 degrees” followed by the qualitative statement that it “approached at a constant pace” and after 10 to 20 seconds “it had approached considerably.”

Of course these subjective impressions prove little, and might testify to nothing more than a shared delusion on the part of susceptible people primed by the recent rash of UFO stories in the papers. And the authors’ focus is on the photo, which they explain successfully. In any case, a simple moving light is hardly something for us to get excited about. But it would be honest to say that, while it may be possible to construe the two descriptions of this light in ways that imply an inconsistency, positions and motions reported are still in tension with the Jupiter theory. Indeed, the authors do conscientiously admit that they cannot be sure of the Jupiter identification.

So it is slightly unfortunate that James Oberg in his Foreword happens to focus on this particular detail of this very story as a paradigm of how “a plausible astronomical explanation” (Jupiter) accounts for a puzzling witness statement caused by “premature interpretation of visual stimuli.” However, this is a tiny criticism and not very material. Otherwise, the authors’ logical and photogrammetric dissection of the evidence is inventive and seems impeccable.

September 10, 1973 (p. 224). An anomaly in the form of two lights, apparently on the Moon, was photographed by an amateur astronomer, identified only as J. E., in Embourg (Liège), using an astronomical telescope. The photographer’s report, written up nine days later and submitted along with several prints, is a model of clarity. J. E. is today a “respected science and space writer” and still has no idea what it was he observed and recorded. Unfortunately, the photos themselves are not extant, and since J. E. naturally thought it superfluous to describe the attached prints in words we have little information about what they showed. So the authors’ commentary is limited.

Events like this are called Transient Lunar Phenomena (TLP) and have been recorded since at least the 6th century, but their origins and significance remain controversial. Not all apparent TLPs are really on the moon at all. Therefore, to seek corroboration for a real TLP the authors checked ‘the latest catalogue’ of TLP events, but they report finding no other corresponding record of a TLP event for that day.

They are correct. The source they reference (Winifred Sawtell Cameron, *Lunar Transient Phenomena, Catalog Extension*, July 2006) contains no record for September 10, 1973, and indeed none at all for the entire year of 1973. However, this is an ‘Extension’ to the main catalog first published in 1978, consisting mostly of events since that date with only a few pre-1978 additions. And of course it is possible for events on two consecutive dates—

either side of midnight—to be closer together than two events on the same calendar day.

The main NASA catalog² does have an entry (p. 105) for an observation recorded on September 11, 1973, 0223 UTC, or just 7 hours after J. E.'s event (which was “about 8:30 p.m.” local, Sep 10 = 1930 UTC). This was an observation of unusual variations in color and brightness in the crater Grimaldi, suspected to be a possible gas emission. Grimaldi is not near the Mare Crisium, however it is an interesting coincidence. This is the only record of any kind in the catalog for the month of September 1973.

But even this catalog of 1,468 reports is admitted to be far from exhaustive. In another specialist catalog published in 1984 and devoted specifically to the years 1972 and 1973,³ we find observation #88 by Pasternak, in the crater Aristarchus on September 11, 1973, 2048-2106 UTC. Aristarchus is not in the Mare Crisium either, but again it is interesting that this is the only event in the catalog for that month and it was within about 24 hours of J. E.'s observation.

These findings fall well short of corroboration but might be considered suggestive.

This is a potentially interesting case, and here I think the authors let themselves down a little. They acknowledge a range of proposed physical mechanisms for lunar anomalies including “volcanic eruptions, meteorite impacts, glints of sunlight on raised crater rims, pockets of gas released through tidal stresses, and friction in dust-clouds causing electrostatic glow discharges,” but then dismiss these in favor of what we might call a psychosocial theory of selenology, saying “[we] feel that a more plausible explanation is that those who report these sightings have been duped” by film flaws, telescope defects, and a range of coincidental phenomena in our own atmosphere.

At this point a faint alarm rings in the mind of this reader. TLPs clearly have a spectrum of causes, and it is widely recognized that some of these are probably mundane—not excluding wishful thinking by some over-excitable observers, and even outright fantasy (c.f. p. 277 & p. 283 of the book under review, discussing Willy de Groof's January 1975 and March 1975 photos of, respectively, a lunar “dome” and a “bright white ball,” and several sightings of glowing craters; see also April 22, 1975, p. 287). But the insouciance with which the authors would consign hundreds of professional observations and a body of serious academic study to the same epistemological bin as the bulk of saucer photos feels a little overweening.

For example, bright meteorite impacts certainly have been observed on the moon, as have surprising lighting effects on crater rims, etc. And there is no doubt that clouds of gaseous and/or particulate media of

various possible origins have been detected above the lunar surface, and might plausibly fluoresce, or scatter sunlight, especially at low angles of illumination—which fits a strong correlation between TLPs and lunar terminator conditions, usually at sunrise. As for proper lunar vulcanism, it is regarded as highly unlikely today; nevertheless, as selenology advances, the assumed complete geological inertia of the moon becomes less, not more, certain. The distribution of TLPs is very strongly correlated with a relatively small number of areas and types of terrain. This may be partly accounted for by observers being attracted to certain prominent features, and/or by the fact that random Earth-based artefacts in the line of sight may be more noticeable against smooth mare backgrounds than against chaotic, cratered terrain. But this does not convincingly explain an underlying correlation with radioactive radon outgassing sites, or area photometric anomalies, or the clustering of observations in time by independent observers, or observations by astronauts far beyond Earth's atmosphere, occasionally coinciding with sightings from Earth. There is also a hint of a correlation between some area-brightening events and solar activity.

Whatever the explanation of the (missing) Embourg photos—and the authors are entirely right to shelve the case as “insufficient information”—I feel that we should not be so dismissive of TLPs in general. This is the first hint in the book of what a pro-UFO anomalist might see as an underlying mindset more cynical than skeptical, the approach of men with a tried-and-tested hammer to whom every problem starts to look like an inviting nail.

Coming now to Part 2, *Reviewing the Data*, we find statistical distributions by year, month, day, time, geography, age, and number of witnesses, etc. There is some discussion, but one understands that this is in the nature of a preliminary sketch, the first part of a work in progress.

The meaning of most of the distributions seems likely to be trivial. But at one point in Chapter 7 (p. 381), when comparing the age distribution of photographers to that of the general Belgian population, the authors report a Pearson correlation coefficient of +0.044 which they say shows there is “no correlation” (there clearly is a degree of very broad correlation, however it is indeed a small result). The proportion of photographers under about 40 is far above expectation. They say this is a “significant bias and should be taken into consideration when evaluating the claims of UFO photographers.” I'm not sure precisely what this means. Nearly a third of the cases were hoaxes, and clearly a heightened tendency for children and adolescents to indulge in pranks is not unexpected. But clearly this is not the whole of the effect. Do they suggest something can be inferred more generally about a future claim from the age of the claimant?

Some unpacking of the implications would be useful, in particular

a discussion of possible selection factors affecting the test dataset. For example, many of the cases come from poorly compiled newspaper stories and the like, so that the photographer's age is not given at all in 42% of cases. Might there be a greater fastidiousness in discovering and/or specifying a witness's age if he or she (usually he) is below the age of majority? That would not help with the anomalous peak in the 20–39 year bracket, but there may be other factors here. The oldest reporters may be disproportionately coy about divulging their age, for example, especially in the decades of the 20th century under examination, when there may also have been an age-related likelihood of owning and operating a functional camera (as there is probably also a gender-related likelihood). The probability of reporting might also be related to age.

It would perhaps be useful to have the correlation tested against populations of general UFO reporters, and of people in other special-interest news sectors as well as the general population, paying attention to some of these other possible variables. Likewise it would be interesting to know how the 30% proportion of photographic hoaxes compares with the proportion of hoaxes in the general UFO report population. One suspects the latter percentage is very much smaller, and it would be interesting to probe the psychosociology of such a difference. Perhaps Volume 2 will go a little deeper when the complete catalog is available.

Another striking bias coming out of the statistics is that “In over one-third of all cases, we are dealing with photographers who claim to have spotted UFOs on more than one occasion,” which, say the authors, “inevitably raises questions about the fantasy-proneness of these individuals.” I would say there is certainly merit in this observation as applied to a database weighted with 30% hoaxers, but like any rule of thumb we need to be careful with it as a general principle because if we allow (for the sake of argument) that a person has had one opportunity to observe or photograph something they genuinely think exciting, it is quite reasonable to suppose they might be more alert and more inclined to notice/record/report similar phenomena in the future. This psychosocial effect does not presuppose anything about the nature of the stimuli. It would be consistent both with the authors' inference in this book, and also with a scenario where an original stimulus that is truly remarkable sensitizes an observer to be on the alert, leading to a trail of ambiguous or illusory sightings. That is not to say that any of the ‘repeater’ cases in this book fit this latter profile. But there may be such cases.

As mentioned, of 84 cases fully 30% turn out to be hoaxes, with most of the rest being film and camera artefacts (emulsion flaws, crimp marks, reflections, and the like), astronomical objects, or aircraft. Slightly unexpectedly, only 2 cases are resolved as natural “atmospheric

phenomena.” Tables and charts graphically display the various proportions. But the bottom-line figure for many ufologists will be the residuum labeled “unidentified.” One could say that the figure in this column is zero, but it would be more accurate—and revealing of the authors’ investigative philosophy—to observe that it is not *even* zero. They do not recognize such a category at all.

From one point of view this is not noteworthy. A rump of 7 cases (8%) remains without plausible resolution, but the authors are clear that this is only because they contain “insufficient information to attempt a classification.” The authors claim that their purpose is to hunt for ‘pay dirt’, and their objectivity in addressing the evidence here is hard to fault, even if one feels they do not expect to find any pay, only dirt. So why bother to list a category that has zero entries?

From another point of view, however, the omission shines like a supernova, and I think signifies a conscious wish to reframe the debate in terms that discourage the traditional dichotomy between ‘skeptics’ and ‘believers’. I think that for them ‘unidentified’ is a semantic trap, in that it fosters an illusion of qualitative difference, of settled status, where there may be only the intractable tail-end of a continuous distribution of random errors, or—just possibly—a few rare phenomena on or beyond the margins of current science that may have no common class-property other than the one we impose on them with the collective term ‘unidentified’. In the absence of proof to the contrary, this remains the rational position.

Looking at it the other way around, the analyst who does expect ‘UFOs’ of some type is invited to look within that 8% ‘insufficient information’. Are they there? Given the type of unpromising material on offer here, one would have to say that the hope is very slim.

In his Foreword, James Oberg observes that the evidence in this book “does not unambiguously require the existence of ANY new phenomena.” I tend to agree. Indeed I would go so far as to say that none, considered alone, requires a “new phenomenon” even ambiguously. But with reference to comments made previously about the “miracle-of-the-sun” type case (p. 34) and the possible Transient Lunar Phenomena of September 10, 1973 (p. 224), there is always a chance of small clues here assuming significance in the context of some wider investigation. So I would elect to keep a door open, if only because (by analogy with cosmology’s mediocrity principle, according to which one assumes we occupy no very atypical, special, or privileged position in space or time) it feels improbable to me that we should happen to find ourselves living, for the first time, in a moment of history at which there truly are no ‘new’ phenomena (with all the sociological, semantic, and epistemological caveats the adjective implies) in our everyday environment.

It may be argued that such a moment must come some day, and why should it not come now? However, I am not so sure that the ages-old pattern of discovery through anomalies of direct human experience has been—or, perhaps, ever will be—broken for good. Recent novelties like sprites, elves, and jets, thunderstorm crown flash, and the still-unresolved enigmas of ball lightning, earthquake luminescence, and so forth, give some comfort to this point of view. And let us not forget that where Belgian photographic evidence is concerned we are still at Volume 1. As the authors point out,

whether or not we will find real pay dirt (i.e. unexplained images accompanied by reliable eye-witness testimony) in the complete collection of reported data remains to be seen when we present the results of our analysis performed on the Belgian reports from after 1988. Up to the present, we have reviewed approximately one-third of all reported photo cases for the 1950–2005 period.

The title of Chapter 3, 1981–1988, *Calm Before the Storm*, alerts knowing readers to what to expect as the curtain-raiser in Volume 2. The great Belgian wave of 1989 unleashed hundreds of sightings of ‘flying triangles’ and other objects, famous photographs, exciting radar trackings, and fighter interceptions, bringing UFOs once again to prominence across the world in newspapers, books, and TV. After this comes the start of the commercial digital age, with the digital SLR supplanting the film camera during the 1990s, followed by the exponential growth of the Internet and the ubiquitous phone camera sweeping the world in the first decade of the new millenium. It was a new world for UFO photography:

The key question that will be addressed in our second and last volume is whether the abundance of modern cameras has actually produced better evidence for the existence of new phenomena not yet understood by science, or if this latest photographic revolution has only muddied the water further.

Of course this is something of a tease. I venture to predict that Volume 2 will add very considerably to the mud, and that no one is more aware of this than the authors! But it is equally safe to predict, on the evidence of Volume 1, that we will find very little mud indeed in the thinking of Ballester Olmos and van Utrecht.

Their respect for the process of objective analysis, as a worthy end, in and of itself, is an example to other researchers: This is how we keep our tools oiled and honed, and by the way it is how we demonstrate to scientists in conventional disciplines that thoroughly sound work really can

be done in ufology. The acuity of their investigation is forensic, the clarity of their analysis is salutary, and the quality of its presentation in this book is virtually impeccable. I recommend it to all who want to know what UFO photographs are really worth, and to those who simply want to see the best of ‘citizen science’ in action.

Notes

- ¹ See Martin Shough & Chris Aubeck, *Invasion Of the Solar Bubbles: A Catalogue for Researchers*, 2013, 85 p. (privately distributed).
- ² NSSDC/WDC-A-R&S78-03, Lunar Transient Phenomena Catalog, Winifred Sawtell Cameron, July 1978, National Space Science Data Center (NSSDC) / World Data Center A for Rockets and Satellites (WDC-A-R&S), NASA Goddard Space Flight Centre, Greenbelt, Maryland 20771. <https://ntrs.nasa.gov/archive/nasa/casi.ntrs.nasa.gov/19780022214.pdf>
- ³ Hilbrecht, H., & Küveler, G., Observations of Lunar Transient Phenomena (LTP) in 1972 and 1973, *Earth, Moon, and Planets* (ISSN 0167-9295), vol. 30, Feb. 1984, p. 53–61 (see p. 56). <http://adsabs.harvard.edu/full/1984EM%26P...30...53H>

MARTIN SHOUGH

BOOK REVIEW

The Final Choice—Death or Transcendence? by Michael Grosso. Hove, UK: White Crow Books, 2017. 226 pp. \$15.99 (paperback). ISBN 978-1-78677-029-5.

I remember being intrigued by the title of this book years ago, as it is a revised and updated version of an earlier work of Michael Grosso. The title seems to imply that we all have a choice as we are leaving the physical body, the option of expiring into nothingness or moving to a realm beyond the material world. I wondered why one would choose the former, and exactly who is making that choice? By the time one finishes the logical sequence of evidence, history, and theory that unfolds in the book, it becomes clear that the title's inference is not what some might expect. Grosso believes that there are no final choices. Accepting finality is not logical when one comes to believe that our consciousness survives bodily death, and he believes that physical death is not permanent extinction, but a gateway to more living.

The underlying and not so subtle message in the book has not only stood the test of time, but has become more relevant in view of today's state of affairs. Considering the increasing threat of nuclear obliteration, climatic shifts, world divisiveness and conflict, natural disasters, pollution, famine, mass shootings, drug epidemics, and refugees roaming the planet, are these potential calamities something that could jolt the collective mind into a greater spiritual reality? The author has an interesting theory based upon near-death experience research.

We know the transformative and lasting effects that an NDE can have for those individuals who have had such an experience. Grosso envisions a collective near-death experience, perhaps subtle at first, but a shift that has the power to evolve consciousness to the point that we move away from materialist reductionism and celebrate a new way of thinking. It is a theory worth pondering. We know that actually facing imminent death is not a prerequisite to having an NDE, and many report such experiences when put in dangerous situations where death or injury is possible. One can certainly make the argument that we are all collectively in an environment where such a catalyst to transformation is building. Grosso's hope is that this transcendence will move us away from fanaticism, self-preservation at all costs, and denial, and into an environment of diversity, compassion, and completeness. Perhaps our fears and problems stem from a feeling that

something is missing, that we are fragments of a greater self that is looking to once again become whole.

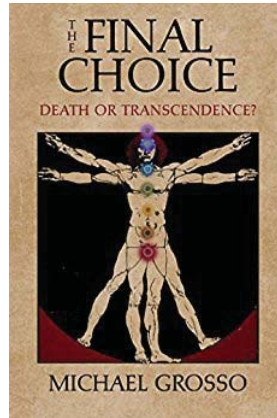
This raises an interesting question, and one that I have thought about for years. Does being immersed in a troubled world, an environment fraught with danger and an incubator of hopelessness, actually stimulate one to search for meaning and purpose? Or, do such circumstances cause people to throw up their hands, accept the fact that life is short, and live their lives in any fashion that gives them the most pleasure? My personal experience over the years, as well as observation of the bereaved, leads me to the conclusion that mental or physical trauma in a great many cases are triggers to exploration. When stripped down to nothing, when life is no longer what was expected, many are compelled to contemplate the big questions about the possibility of survival, meaning, and purpose. In that vein, we all may have already embarked upon Grosso's envisioned collective NDE, even though it may be only at the subconscious level.

Grosso believes that the mystery of death is a mystery mostly to fence-sitters and wishful thinkers, and clearly believes that we all need to be proactive in fostering personal non-local experiences. Essential to this quest is the concept of reduction, which Grosso warns should not be confused with psychophysical reductionism. Reduction, as Grosso uses the term, denotes a process that allows us to detach . . . "about truth, and frees us to simply observe and experience without explanations and evaluations." He points out that the mystics, yogis, shamans, etc., are masters of reduction, able to transcend restrictions of the physical world. Practices such as fasting and induced altered states allow spiritual energy to be directed elsewhere. He cites Henri Bergson, who believed that death removes a filter and allows transcendence. It reminds me of a comment I once made to a scientist who looked at me like I had two heads when I told him that the greatest obstacle to communication with other realms is the human brain.

To emphasize the danger of the nuclear age in which we presently reside, the author coined the term "technocalypse," which he defines as "the convergence of technology and the apocalyptic imagination." Science now has the capability to wipe people from the face of the earth with uncanny precision, and Grosso warns that "Science needs to recover its *conscience*, and its *consciousness*." He hopes that in the future, science, along with mythology and archetypes of death and enlightenment, will ring a new philosophy of life and death.

The subject of the nature of psi also is addressed in the book, specifically as it relates to evolution, life after death, and transcendence. The function of psychic abilities is probed, and uncovering the purpose of psi is a much bigger challenge than simply proving its existence. The author looks upon psi not from a biological perspective by measuring its practicality in the physical

realm, but as a mediating mechanism that allows the integration of other worldly influences. According to Grosso, “If the goal of life is more life, higher, freer, more complex forms of life, then our psychic potentials represent the power of life transcending its biological template.” I don’t necessarily agree that the effects of psi in our physical environment are marginal, even though it would appear so due to their elusive nature, but it makes sense to me that psi could be part of a design that gives us the capacity to prepare for and continue on in a non-physical environment. As the author suggests, “Psi, we may think of it as our passport to the next world.”



When we consider the empirical and anecdotal evidence from end-of-life experiences, it sure seems as if they are purposeful as compared with random biological expressions caused by a dying brain. Grosso is well aware of the importance of parapsychological research, but also recognizes the value of primordial imagery that manifest in dreams, visions, and mythologies. Like Jung, he believes that archetypes are an expression of collective experience and provide great insight into life and death. Death can be thought of as enlightenment, and the author uses the term ADE (Archetype of Death and Enlightenment). The concept of death as an “opening to transcendent consciousness” is certainly expressed through modern near-death experience research, but also is prevalent in past literature, the arts, and mystical and shamanic tradition.

The Final Choice is not so much an exercise in philosophical conjecture as it is a call to action. In this respect, it differs from previous works on the subject of death and transcendence. It is quite clear that Grosso firmly believes that we no longer can stand on the sidelines and refuse to acknowledge what our higher self knows to be true. Faith-based hope is no longer enough to change our worldview. Our planet can be viewed as being on life support, and a collective knowing and awakening is not only necessary, but within our reach. We need to look past materialist science and embrace our true nature and role in a continuum of life. As Grosso writes,

There may be a cosmic goal driving us, but we don’t know what it is or what our part is. So in the transition we are forced to improvise and write our own script, and put to the test the idea of transformative truth.

I intend to heed his advice and suggest that we all become part of his vision.

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Co-founder, Forever Family Foundation

BOOK REVIEW

The Final Choice: Death or Transcendence? by Michael Grosso. Hove, UK: White Crow Books, 2017. 208 pp. \$15.99 (paperback). ISBN 978-1-78677-029-5.

“In reality, there are no final choices,” says academic philosopher Michael Grosso, author of *The Final Choice*. “As long as we are conscious beings we are free to keep making new and hopefully better choices” (p. xiii). With this up-front qualification, Grosso embarks on an inspiring examination of *how* we might make new and better choices as a species, and *why* it is imperative for us to do so if we are to survive and thrive.

Here is the motif that informs Grosso’s narrative in *The Final Choice*:

What at bottom drives all living things? The goal of life seems to be more life, self-replication with infinite variations. . . . The tendency among mammals, and humans in particular, is toward greater mobility, freedom and detachment from the environment. Human life is especially mobile and already has begun to move beyond the planetary habitat to explore outer space habitats. If the goal of life is more life—in a word, survival—the function of our nonphysical psychic potential may be to mediate survival of bodily death. . . . If the goal of life is more life, higher, freer, more complex forms of life, then our psychic potentials represent the power of life transcending its biological template. Psi is the wedge of life driving against the constraints of physical reality, against the boundaries of time and space. Psi is the medium in which new forms of life carry us beyond the boundaries of physical environment. (p. 11)

Grosso considers the near-death experience (NDE) as “perhaps the most important psychological phenomenon of the 20th century, as shocking and counterintuitive as quantum mechanics. . . .” He adds, “We have millions of repetitions of the near-death experience . . . and can study and analyze it with the tools of science and other intellectual disciplines. The NDE experientially provides access to a greater mental, indeed *spiritual* sphere of being” (p. xii).

Grosso raises the possibility that, with environmental collapse now in sight, a global version of a near-death experience may be forming, analogous to a human approaching death. It’s the sort of thing one might predict from the life force, whose evolutionary vector is toward more life, more survival, a future. And just as individual NDEs result in a radical

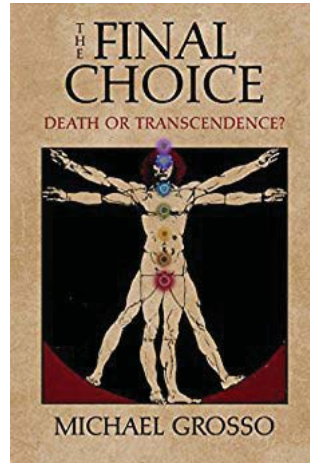
transformation and reorientation of the person undergoing them, our planetary citizenry, en masse, may similarly change channels in our priorities, values, and how we live our lives. If so, we just might squeak by. (I'm reminded of a hallway conversation I once had with the late physicist David Bohm. I asked him his opinion of the future of humankind: "Do you think we'll make it?" He paused, thinking intently, then said, "Yes. Barely.")

Grosso's stated goal in *The Final Choice* is "to create a new, fact-based mythology of transcendence." For him, this entails two aspects of transcendence: "the survival of consciousness after death and, no less momentous, the idea of an extended *transpersonal* mind. Pim van Lommel (2010) calls it 'endless consciousness' or following the Upanishads, Erwin Schrödinger (1983) referred to the *one mind*. Later, Larry Dossey (2013) coined the phrase 'nonlocal mind' and has described in detail how we can make sense of being part of the one mind in his book of that title" (pp. xi–xii). (Full disclosure: whether Grosso's favorable nod to my work influences this review is for the reader to decide.)

Grosso employs a *nonlocal* model of consciousness—consciousness that is not localized or confined to specific points in space, such as brains or bodies, nor to specific points in time, such as the present. Nonlocal mind is Mind at Large, as Aldous Huxley and others have called it. Survival follows, because mind that is boundless or nonlocal with respect to time is seemingly eternal or immortal; and mind nonlocal or boundless with respect to space is omnipresent. So the critical question becomes: What is the evidence that mind is nonlocal? Grosso shows how consciousness variously manifests nonlocally, making the case for Mind at Large, a universal or unitary mind of which each individual mind is a part.

Grosso wrote the first edition of *The Final Choice* in 1985. This revised edition takes into account a plethora of findings by consciousness researchers who have emerged in the three decades separating the two editions.

When the first edition of *The Final Choice* was published in 1985, the fear of nuclear war was palpable worldwide. Grosso points out that in Russia, at that time, Gorbachev's *glasnost* (openness) and *perestroika* (removal of barriers) lay in the future. The Berlin Wall and communism seemed permanent fixtures, and mutually assured destruction (MAD) was a strategic principle among the great powers. Here's how Grosso appraised



this planetary situation and how he responded to it:

I looked around at our fear-and-greed driven world and thought that maybe something like the near-death experience could be the template for the needed transformation.

I found it helpful as a model for speculating on what might happen to consciousness in the event of a near or actual global disaster.

The question I kept asking: Are we approaching a time when events of such enormous proportions may jolt the collective consciousness into new forms of awareness, perhaps a more vivid sense of human solidarity?

As to my aim in this book: Evidence exists of an array of extended human capacities—intellectual, moral, aesthetic, mystical, and superphysical. In the interests of life at large, we need to focus on the skills and rich potentials that human beings possess and think of new ways of mobilizing their creative uses. The times seem ripe for a new Manhattan Project about harnessing and our neglected human potentials.

There are times of crisis and transition when breakthroughs to a larger frame of reference, a new take on reality itself, can slip into focus, become viable, even inevitable. The discontents of civilization are finding their voices. Instability is magnified by information and communication technologies operating 24/7. . . .

We live in a strange time. Our fellows have unleashed destructive forces infinitely disproportionate to the moral IQ of the species. Nine nations on earth possess about 15 thousand nuclear weapons, most belonging to the United States and Russia. Such power in the employ of small groups of men or women of dubious mental and moral capacity is an unsettling thought. (pp. xii–xiii)

Grosso has long been one of our keenest science watchers. He has contributed to recent works examining the shortcomings of materialism, such as the seminal *Irreducible Mind* by Edward F. Kelly, Emily Williams Kelly, and others (2007). His concerns encompass one of the strangest twists and turns in our era: how materialistic science, which largely views itself triumphant in the search for knowledge, has sacrificed our own consciousness on the altar of materialism.

The overwhelming consensus among biologists and neuroscientists is that our brain somehow produces consciousness, although there are no adequate explanations how this could possibly be true. The logical consequence is that when our brain and body die, our mind or consciousness is totally annihilated. Other casualties occur before physical death. These include any deep sense of meaning, purpose, or direction to our existence. As Nobel Prize-winning physicist Steven Weinberg (1993) has said, “The more the universe seems comprehensible, the more it also seems pointless.” If consciousness results from the swarms of subatomic particles comprising

a physical brain, many see *self*-consciousness as merely an illusion. As philosopher Daniel Dennett (1992) asserts, “We’re all zombies. Nobody is conscious.” Of course, not everyone agrees with these presumptuous assertions. As philosopher Galen Strawson (2006) says, “This particular denial is the strangest thing that has ever happened in the whole history of human thought.” And computer scientist Bernardo Kastrup (2015) states, “Here we have consciousness trying to trick consciousness into believing that it doesn’t exist.”

However, against the materialist backdrop all talk of the survival of consciousness beyond physical death—Grosso’s position—is widely viewed as a cowardly conceit stoked by primitive fears of extinction. No paid-up scientist, it is often said, should take seriously any hint of transcendence. Rather, better to keep a courageous, stiff upper lip in the face of impending death. As Lord Bertrand Russell (1997) said, “I believe that when I die I shall rot, and nothing of my ego will survive. . . . I should scorn to shiver with terror at the thought of annihilation.”

Against this tide of materialism, Grosso explores the mythical, historical, and modern attitudes toward death and the evidence for our possible survival. Those who expect a gee-whiz, wide-eyed, new-age treatment of these issues will have to go elsewhere. Grosso carefully examines the major sides of the survival question. He considers the closed-mindedness of committed materialists toward survival as a dead-end. It is rare, he states, to find any skeptic of survival who has even read the relevant research in areas such as near-death experiences, telepathy, clairvoyance, remote viewing, precognition, and psychokinesis. For Grosso, these issues are not just academic. He acknowledges that personal experiences have made him “naturally more receptive to other people’s initially queer-sounding stories,” which range “from precognition to being physically attacked by a ghost in a haunted house” (p. xi–xii).

Good news: Grosso’s concern for our current dilemmas on this planet are catching. They are increasingly shared by thoughtful people in a variety of disciplines. One example from the diplomatic world will make the point.

Vaclav Havel (1990), the author, poet, and playwright who was the first president of the Czech Republic, saw a hell looming in our world and had the guts to say so on the international stage. As a solution, he endorsed a collective entry into a One-Mind type of awareness he called “responsibility to something higher.” As he said in a speech delivered to a joint meeting of the United States Congress on February 21, 1990:

Consciousness precedes Being, and not the other way around . . . for this reason, the salvation in this human world lies nowhere else than in the human heart. . . . Without a global revolution in the sphere of human con-

sciousness, nothing will change for the better in the sphere of our being as humans, and the catastrophe toward which this world is headed—be it ecological, social, demographic or a general breakdown of civilization—will be unavoidable. If we are no longer threatened by world war or by the danger that the absurd mountains of accumulated nuclear weapons might blow up the world, this does not mean that we have definitely won. We are still capable of understanding that the only genuine backbone of all our actions, if they are to be moral, is responsibility. Responsibility to something higher than my family, my country, my company, my success—responsibility to the order of being where all our actions are indelibly recorded and where and only where they will be properly judged.

In a subsequent speech in 1994 at Independence Hall in Philadelphia titled “The Need for Transcendence”—Grosso’s theme—Havel spoke of a unified humanity held together by a state of consciousness he called “transcendence”:

[I]n today’s multicultural world, the truly reliable path to coexistence, to peaceful coexistence and creative cooperation, must start from what is at the root of all cultures and what lies infinitely deeper in human hearts and minds than political opinion, convictions, antipathies, or sympathies—it must be rooted in self-transcendence: Transcendence as a hand reached out to those close to us, to foreigners, to the human community, to all living creatures, to nature, to the universe. Transcendence as a deeply and joyously experienced need to be in harmony even with what we ourselves are not, what we do not understand, what seems distant from us in time and space, but with which we are nevertheless mysteriously linked because, together with us, all this constitutes a single world. *Transcendence as the only real alternative to extinction* (emphasis added).

I personally find immense hope in Michael Grosso’s book. And I am pleased to report that his views are buttressed by many scientifically oriented physicians, some of whom who are my professional colleagues. I could cite many examples, but one shall suffice: the late physician Lewis Thomas (1913–1993). Thomas was dean of New York University Medical School and Yale School of Medicine and, later, director of research and president of the Sloan Kettering Institute in New York, now Memorial Sloan Kettering Cancer Center. Thomas was a no-nonsense physician and a hard-core researcher. Among the things he questioned was the destiny of consciousness following bodily death. In his 1974 award-winning book of essays, *The Lives of a Cell*, he wrote:

There is still that permanent vanishing of consciousness to be accounted for. Are we to be stuck forever with this problem? Where on Earth does it go? Is it simply stopped dead in its tracks, lost in humans, wasted? Considering

the tendency of nature to find uses for complex and intricate mechanisms, this seems to me unnatural. I prefer to think of it somehow as separated off at the filaments of its attachment, and drawn like an easy breath back into the membrane of its origin, a fresh memory for a biophysical nervous system. . . . (Thomas 1974)

Grosso's lively explorations of the various ways in which the life force "at bottom drives all living things" is of crucial importance for every human being. But will the life force be thwarted by the lagging "moral IQ of the species"? Will it be neutralized by some innate, unconscious, species-wide death wish or *thanatos*? That is the question with which Grosso leaves us.

Reviewers are obliged by custom to say something negative to demonstrate objectivity. Here it is: Although the book contains a glossary and an excellent list of references, it could benefit from an index.

The Final Choice is a deep literary dive, a rousing read appropriate for scholars and laypersons alike. I cannot imagine a book more relevant to the interests and personal quests of most members of the Society for Scientific Exploration and readers of the *Journal of Scientific Exploration*. I hope *The Final Choice* achieves wide readership—for all our sakes.

But if you are negatively disposed toward Grosso's arguments and find the case for the survival of bodily death unconvincing or impossible, perhaps you might consider the observation of Nobel Prize-winning scientist Charles Richet: "I never said it was possible. I only said it was true."

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