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# Journal of Parapsychology

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## Editorial: Errors of the Third Kind <sup>1</sup>

Etzel Cardeña

Just like tidal unveilings of flotsam, science discovers “anew” errors of the third kind, Schlaiffer’s term for the misuse and misinterpretation of statistical procedures besides the Type I and II errors (Schlaiffer, 1959, in Bakan, 1966). In this issue, Jessica Utts and Patrizio Tressoldi mention the alarm cries of a “credibility revolution” or the “replicability crisis,” to which could be added the bugaboo of “questionable research practices” (QRP). Have scientists become more insightful recently about the problems of mindless applications of statistical and research procedures? No, they are just reiterating ideas that have been around for more than a half century. As I mentioned in a previous Editorial (Cardeña, 2017), paraphrasing the famous quotation by Jorge Santayana (1905), science is condemned to repeat what it cannot remember.

Let me take a few “recent” ideas and verify whether they had already been discussed in a 1966 paper by my former mentor David Bakan: File drawer effect because most journals will not publish failures to replicate? Check! Misunderstanding of the real meaning of the  $p$  statistic, with some authors inferring a lot more from it than is warranted? Check! Selecting one of multiple analyses without reporting the others? Check! And there are more checks, but I will not tire the readers and instead recommend that they read Bakan’s insightful work. He also made a clear distinction between general and aggregate functions, the first one referring to values that are true for all members of the group, whereas the second (e.g., measures of central tendency) refers to an aggregate of values and may reflect few if any of the actual values of the members of that group (Bakan, 1967). This is an essential point that clarifies why the sciences of living, sentient, (and, in the case of humans, historical) beings, typically based on aggregate statistics, will never approach the precision of the exact sciences, which includes fully generalizable results in many areas. This issue also partly explains why the discourse of a replication “crisis” in psychology has been exaggerated and is not quite coherent (for a paper treating this problem and recommending multiple measures of the same individual in different contexts, an approach that psi research should do well to adopt whenever possible, see Epstein, 1980; for a more recent discussion of the exaggeration of the problem, see Barrett, 2015). Bakan also anticipated what I think is becoming an increasing problem, namely the use of large online surveys that produce significant  $p$  values (the  $p$  statistic is very sensitive to the size of  $N$ ) no matter how theoretically and practically negligible (and probably unreliable) those differences might be.

Which brings me to the recent and authoritative criticisms of the typical (mis)use of significance values. The American Statistical Association (ASA) has developed six principles to clarify  $p$ -values, which given their importance I transcribe:

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1. “*P*- values can indicate how incompatible the data are with a specified statistical model...
2. *P*-values do not measure the probability that the studied hypothesis is true, or the probability that the data were produced by random chance alone...
3. Scientific conclusions and business or policy decisions should not be based only on whether a *p*-value passes a specific threshold...
4. Proper inference requires full reporting and transparency...
5. A *p*-value, or statistical significance, does not measure the size of an effect or the importance of a result...
6. By itself, a *p*-value does not provide a good measure of evidence regarding a model or hypothesis.” (Wasserstein, 2016, pp. 131-132)

The ASA concludes that “Good statistical practice... emphasizes principles of good study design and conduct, a variety of numerical and graphical summaries of data, understanding of the phenomenon under study, interpretation of results in context, complete reporting and proper logical and quantitative understanding of what data summaries mean” (Wasserstein, 2016, p. 132). Instead of mindlessly adopting a somewhat arbitrary value for what is/is not of scientific significance, the ASA recommends fully grappling with the data, as well as accepting a level of uncertainty and ambiguity in the scientific process. Or, as wittily put by the eminent statistical psychologist Robert Rosenthal in various presentations and publications, “surely God[ess] loves the .06 as much as the .05” (e.g., Rosnow & Rosenthal, 1989, p. 1277).

Just some weeks ago I witnessed how widespread is the problem with the over-reliance and misinterpretation of *p*. A young psychologist was giving a presentation on how a certain group of parents was “significantly” more likely to produce psychological problems in their offspring than another. S/he had a slide with a graph showing the distribution of the scores in question. Given that the distributions of both groups overlapped considerably, I asked him/her about the effect size of the difference. She had no answer other than that the difference was “significant,” so I asked then how clinically/practically relevant was the difference between the two groups, and s/he again had no response. Of course, other researchers have been using meta-analytical, Bayesian, and other approaches as alternatives to the mindless use of the null hypothesis significance testing approach.

I was fortunate to learn from Bakan to reflect critically about *p* values and other scientific automaticities, and because of that I started using effect sizes before they became fashionable. Thanks to him I also became aware of the Bayesian approach decades before it was better known. This general awareness, aided by the expertise of Utts and Tressoldi (2015) informed the statistical guidelines for this journal, which I will ask authors and reviewers to enforce more strongly. I am not ready to proscribe the use of “significance” language, as some (Hurlburt, Levine, & Utts, 2019) have done, but will require from authors a justification of why any result with a  $p < .05$  is trustworthy and important, as well as asking them to discuss relevant results even with a larger *p*. Also, following the current trend in academic journals, from 2020 onwards the *Journal of Parapsychology* will follow a hybrid open access model in which authors will be able to keep the copyright of their contributions provided they pay a fee (for details see the “Guidelines for Authors” in this issue).

I hope that David Bakan can somehow know that indirectly he continues to help keep the epistemological beach clean from “errors of the third kind.”

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p.s.: See also in the Correspondence section a letter by Caroline Watt and Jim Kennedy on current discussions of confirmatory versus exploratory analyses.

p.p.s.: This issue contains the abstracts of the last meeting of the Parapsychological Association. Because many of them were quite a bit longer, I shortened them and did some light copy-editing for grammatical and other problems. The email of the address of the first authors is included for those wanting more details of their work.

## Invited Editorial

### Methodological and Statistical Recommendations: Option or Necessity? <sup>1</sup>

**Jessica Utts**

University of California, Irvine

**Patrizio E. Tressoldi**

Università di Padova

In 2015 we published the chapter *Statistical Guidelines for Empirical Studies* (Utts & Tressoldi, 2015, p. 83) with the aim “to convince the reader of the importance of adopting sound methodological and statistical principles as described in this paper.”

We ended up our chapter with these methodological and statistical recommendations:

- “Make explicit the difference between exploratory or pilot experiments and formal ones;
- Make explicit the primary and the secondary hypotheses to be tested before collecting any data;
- Report all experimental conditions, including failed manipulations;
- Make explicit the initial choice of the sample size(s), and provide an explanation if it was not met;
- If possible, explain the rationale for the sample size(s), including a power analysis;
- Whenever possible, report confidence intervals and effect sizes along with or instead of  $p$ -values;
- If Bayesian methods are used, be explicit about all priors, including the prior distribution represented in the alternative hypothesis;
- Exact and conceptual replications are welcomed, but explain which one is being attempted;
- Pre-registration of confirmatory hypotheses is recommended, for example posting them on [www.openscienceframework.org](http://www.openscienceframework.org) and/or [www.koestler\\_parapsychology.psy.ed.ac.uk/TrialRegistry.html](http://www.koestler_parapsychology.psy.ed.ac.uk/TrialRegistry.html)

Statistical analyses: When using the frequentist Null Hypothesis Significant Testing approach, adopt the APA 2010 and APS statistical guidelines (Cumming, 2014): “Consideration of whether or not to reject the null hypothesis should be carried out using parameters’ confidence intervals, equivalence

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testing or model comparison procedures (see suggested readings and resources), except for hypotheses that are not about a single parameter, such as chi-square goodness-of-fit tests or tests based on the sum of ranks.”

Two years later, Etzel Cardeña, one of the editors of the *Handbook*, was appointed Editor of the *Journal of Parapsychology (JP)* and, among the changes introduced to the *JP*, the following statistical guidelines were presented to the authors:

Descriptive statistics (e.g., mean, standard deviation) must be reported in addition to inferential statistics (e.g., *t* tests), which should also include the specific *p* value and measures of effect size (authors might consider consulting the Statistical Guidelines for Empirical Studies by Tressoldi and Utts published in the *Parapsychology: A handbook for the 21<sup>st</sup> century* edited by Cardeña, Palmer, and Marcusson-Clavertz, 2015). Although not mandatory, it is strongly recommended that all research, exploratory and even more so confirmatory, be preregistered, for instance through [koestlerunit.wordpress.com/study-registry](http://koestlerunit.wordpress.com/study-registry) and that data be made available to other potential researchers through a depository such as [data.world](http://data.world). Meta-analyses are encouraged when multiple studies have used the same variables.

In the meantime, what was happening in the scientific world? Most of the scientific fields, from psychology to medicine, ecology, and economics, were and still are in the middle of the so-called “credibility revolution” (Vazire, 2018) as a consequence of the “replicability crisis” (Fanelli, 2018; Munafò et al., 2017; Pashler & Wagenmakers, 2012), which exploded literally around 2011 even if the “symptoms” were present many years before (Ioannidis, 2005).

What are many scientific journals doing to “cure” the replicability crisis and favor the credibility revolution? Among other changes, they are requesting new methodological and statistical requirements to submitted papers. In the Appendix, we have added the links of some of the top-tier scientific journals. A rapid comparison with those of the *JP* confirm that they are very similar (emphasizing descriptive statistics, effect size, confidence intervals, statistical power, maximum transparency in all choices, etc.) and consequently that the *JP* is contributing to the credibility revolution.

Are the *JP* methodological and statistical recommendations an option or a necessity? If we want *JP* papers to reach the quality standards of those published in the most prestigious scientific journals, the answer is quite simple, they must be adopted by the authors and checked by the reviewers.

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## **Appendix**

### **Statistical Guidelines of some of the Top-tier Scientific Journals**

**Psychological Science, the flagship journal of the Association for Psychological Science:**

[www.psychologicalscience.org/publications/psychological\\_science/ps-submissions#STAT](http://www.psychologicalscience.org/publications/psychological_science/ps-submissions#STAT)

**Nature:**

[www.nature.com/nature/for-authors/initial-submission](http://www.nature.com/nature/for-authors/initial-submission)

**Science**

Statistical Analysis

[www.sciencemag.org/authors/science-journals-editorial-policies](http://www.sciencemag.org/authors/science-journals-editorial-policies)

**Psychonomic Society Statistical Guidelines**

[featuredcontent.psychonomic.org/psychonomic-society-statistical-guidelines-updated](http://featuredcontent.psychonomic.org/psychonomic-society-statistical-guidelines-updated)

## In Memoriam: Elizabeth A. Rauscher (1937-2019)

Marilyn Schlitz <sup>1</sup>

Sofia University

Elizabeth A. Rauscher, an American physicist and parapsychologist, died on July 3, 2019 in the hospital from respiratory failure. Elizabeth was always interested in science and built her own telescopes as a child. She attended the University of California, Berkeley for her various degrees. As an undergraduate student, she was the only woman in her class. She received her master's in nuclear physics in 1965 and a Ph. D. in 1978 on "Coupled Channel Alpha Decay Theory for Even and Odd-Mass Light and Heavy Nuclei." Over her remarkable career, she was a former researcher with the Lawrence Berkeley National Laboratory, NASA, and the Stanford Research Institute. Her work was chronicled in *How the Hippies Saved Physics* (2011) by David Kaiser, who noted that Elizabeth coped with being one of the only women in physics by wearing tweedy dresses and keeping her hair short.



In addition to her mainstream scientific research, Elizabeth was always one to challenge conventional ideas. She was involved in developing the Fundamental Fysics Group, where she collaborated with other young scientists who sought to engage in speculative research. She explored various altered states of consciousness and sought to combine Eastern mysticism with quantum physics in order to create a new paradigm for science. She held positions as professor of physics and general science at John F. Kennedy University from 1978-1984; research consultant to NASA from 1983-1985; and Professor in the Department of Physics at the University of Nevada, Reno from 1990-1998. She was involved with the initiation of the International Tesla Society and the U.S. Psychotronics Association, seeking to advance our understanding of physics and metaphysics. She was an active contributor to research on psi and sought to develop a theory of multidimensional geometry to account for remote viewing experiences and the nature of consciousness. Elizabeth also sought to advance clean energy systems, reduce nuclear waste, and develop sensitive sensors for monitoring the ionosphere, and held a deep reverence for indigenous worldviews and searched for connections between science and philosophy.

I had the privilege of knowing and working with Elizabeth for several decades. I was her junior by many years, but she always treated me with respect and collegiality. She was a kind and thoughtful

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person who maintained an open mind and playful nature. We attended conferences together and had delightful conversations in the hot tubs of the Esalen Institute. In keeping with her personal philosophy, Elizabeth requested that she be cremated and her ashes spread in a pine forest to be truly free in spirit and returned to nature in flesh. Her family invites those who knew the scholar, or who were impacted by her work, to visit her online memorial page and post their stories of triumph and disaster, of laughter and sorrow, of those eureka! moments that were shared with this remarkable woman. [www.mykeeper.com/profile/ElizabethRauscher/](http://www.mykeeper.com/profile/ElizabethRauscher/). Her contributions were deep, fundamental, and enduring; she will live on in our hearts and minds.

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## **Abstracts of the 62<sup>nd</sup> Annual Convention of the Parapsychological Association**

### **Full Papers**

#### **Getting the Facts Straight: A Reassessment of some Micro-PK Results**

Peter A. Bancel

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Progress in parapsychology, as in all of science, depends on data that are both valid and correctly interpreted. The process goes by fits and starts and backtrackings. Consensus comes slowly and often sports an asterisk (and rightly so). But the point of reassessing interpretation is not simply to get things right. An updated view can sharpen priorities, highlight promising directions or pose new questions. This paper takes a broad look at micro-PK research with random number generators and attempts to clarify some selected issues. Some results are drawn from previous publications and others are presented for the first time. I hope that, by bringing them together in one paper, one can glean a coherence to what otherwise might appear as disparate results. I begin by recalling some contributions of Helmut Schmidt that I feel are still relevant today. Next, there is a new look at the well-known PEAR Consortium replication, which I believe has been misinterpreted. Likewise, for the meta-analysis of Bösch et al., a work that drew considerable attention in 2006 by virtue of appearing in *The Psychological Bulletin*. Lastly, I turn to the Global Consciousness Project and show how, when its main result is correctly interpreted, it harkens back to a key insight of Schmidt.

#### **What is the Evidence that Alterations of Consciousness Relate to Enhanced Functioning?**

Etzel Cardeña

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The relation of alterations of consciousness (and techniques to achieve them) to enhanced function has often been described in one of two poles, either proposing that altered consciousness is necessarily pathological or at least a falsification of reality, or proposing that extraordinary feats can be achieved through them. This presentation critically summarizes and integrates the research literature on the relation between altered states and traits of consciousness and enhanced psychophysiological and psi functioning. A literature review was conducted on spontaneous or induced (e.g., through meditation,

hypnosis, sensory homogenization, and psychoactive drug ingestion) alterations of consciousness and potential enhanced physiological, psychological, and psi functioning. From different levels of evidence, from systematic case studies to controlled randomized studies, there is consistent evidence for an association between altered consciousness and physiological phenomena such as: stigmata and bleeding control, heart rate control, reduced metabolism, ability to withstand cold temperature, analgesia, and change in somatic systems. Enhanced psychological functions that show a relation to altered consciousness include: perceptual sensitivity, attentional control and deautomatization, creativity, positive affect, personality change, and diagnosis and treatment of disorders. Altered consciousness has been found in conjunction with increased psi scoring in the following contexts: early mediumship studies, hypnosis, ganzfeld, meditation, and psychedelics ingestion. This review justifies a vigorous study of the potential relation between altered consciousness and enhanced functioning, although with some important caveats, among them: 1) the level of research rigor varies considerably across the literature, 2) alterations of consciousness have been frequently assumed rather than systematically assessed, 3) potential “active” ingredients of the relation between altered consciousness and enhanced functioning have been rarely evaluated, 4) state-trait interactions have been rarely evaluated.

## **How Smokers Change their World and How the World Responds: Testing the Oscillatory Nature of Micro-Psychokinetic Observer Effects on Addiction-Related Stimuli**

Moritz C. Dechamps and Markus A. Maier

Department of Psychology, LMU Munich, [moritz.dechamps@psy.lmu.de]

According to standard quantum theory, the occurrence of a specific outcome during a quantum measurement is completely random. However, attempts to replicate PK findings have often failed, a critique that is not exclusive to psi paradigms though. In an attempt to explain these failures, von Lucadou, Römer, and Walach (2007) proposed a theoretical model predicting unsystematic variations of such an influencing effect across replications, resulting in a decline of a predictable effect in micro-PK data over time. Maier, Dechamps, and Pflitsch (2018) slightly expanded this theory by proposing that the temporal variation of such an effect follows a systematic pattern, which can be tested and used for prediction making. In this research we generated such a prediction using data from two previous studies that initially demonstrated a strong micro-PK followed by a subsequent decline in the effect over the course of 297 participants (Maier & Dechamps 2018), we then put it to test with an additionally preregistered set of recollected data from 203 volunteers. We compared these results with 10,000 simulated data sets (each set with  $N = 203$ ) each comprising random data. Three tests were applied to the experimental data: an area under the curve analysis, a local maximum fit test, and an endpoint fit test. These tests revealed no significant fit of the real data regarding the predicted data pattern. Further analyses explored additional techniques, including an analysis of the highest reached Bayes Factor (BF) over the course of the experiments, the overall orientation of the BF curve, and its transformation into oscillatory components via a Fourier analysis. All these methods allowed for statistically significant differentiations between experimental data on the one side, and the control group and simulation data on the other.

We conclude that the analyses of the temporal development of an effect along these lines constitute a fruitful approach toward testing non-random and volatile time trends within micro-PK data.

## **A Transportable Bench to Research on Telekinetic Effects on a Spinning Mobile: New Results With a High Signal-To-Noise Ratio**

Eric Dullin and David Jamet

Psychophysics and Cognitive Dissonance Laboratory (LAPDC), France

We present in this paper a new approach for study the macro TK/PK (Telekinesis/Psychokinesis) phenomenon. Our objective here is to analyze precisely the starting conditions of the motion of a spinning target knowing that the focus is on the thermic/aerodynamic effects, others factors being eliminated. The core technique remains to evaluate the airflow speeds around the target with PIV (Particle Image Velocimetry) as described in our precedent publications. We aimed to:

- Improve as much as possible the signal-to-ratio by first using a heavier target (here we no longer focus on the speed of the target) and second, presenting a less noisy smoke generation for the PKer (person practicing telekinesis/psychokinesis) experiment.
- Develop an equipment that could be transportable and used at home,

These two directions drove us to create a “transportable PIV bench,” which represents a semi-confined environment easily disassembled and transportable. The smoke generation by simple incense sticks creates lower noise on the airflow speeds than the smoke generator machine used on the static bench. We then conducted reference experiments with our static bench, where the motion of the target is obtained with the airflow issued from a pump, and PKer experiments, where the motion of the target inside the bench is triggered by the PKer. We tried, in the reference experiments, to generate the spin of the target with minimal airflow speeds, to establish the required speed in order to start the motion. The comparison between the airflow speeds of the two sets of experiments showed that the tangential airflow speeds in the PKer experiments were ten times lower than the required airflow speeds to start the target in the reference experiments. In fact, the speeds were in the same order of magnitude than without motion and without hand. In our precedent publication a potential bias and errors analysis was presented, evaluating the potential error at more or less 9% on the ratio air-flow speed/mobile speed, which is marginal against the ratios seen above. We also conducted some vertical PIV experiments to evaluate the airflow vertical speed during the PKer experiments. The results were in the same order of magnitude than the horizontal speeds. Finally, we did some artifact experiences simulating the hand and the upper body of the PKer, him being outside of the room, without causing a reaction on the target. These different elements demonstrate that the phenomenon that triggered the motion of the target was not due to aerodynamic/thermal effects and constituted a good candidate for macro-PK effects. These experiments also confirmed the efficiency of the transportable bench which can be a good way for other labs to try to reproduce these experiments with a gifted subject.



## **The Phenomenology and Impact of Perceived Spontaneous After-Death Communications: A Review and New Approach**

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Whatever the ontological status of After-Death Communication (ADC), they have been found to allow the bereaved to assume a continued bond with the deceased that can be a medium for closure or resolution. With this in mind, we would argue that there is a need for greater recognition of their occurrence by therapists and acknowledgement of their potential for healing as part of the therapeutic process. The objective of this 2-year research project is to gain a better understanding of the phenomenology and the impact of spontaneous ADCs. Using an online survey methodology, we intend to explore the incidence and coincidence of features of ADCs and their linkage to particular impacts upon experiencers. The present study aims to expand on previous large-scale surveys (e.g. Burton, 1980; Guggenheim & Guggenheim, 1995; Haraldsson, 2012; LaGrand, 1999; Rees, 1971) to examine a wide range of perceived ADCs, focusing on their phenomenology and covariates. We thus set out to answer the following questions: Who has an ADC? In what form (type) are ADCs reported? Under what circumstances do they occur? What attributions do people make to their ADCs? Who are the deceased persons supposedly initiating the contact and how are they related to the experiencer? Are there differences between countries? The second objective is to analyse the impact of perceived ADCs on experiencers. The following questions will be addressed: How do experiencers experience ADCs? What is the impact on experiencers? How does it influence the grieving process? How does it influence personal beliefs? Does the national and social context influence individuals' experiences? The main themes of the questionnaire include: circumstances of occurrence, type of ADC, message conveyed, emotions and sense of reality associated with the experience, impact and implications for the grieving process; profile of the experiencer, and profile of the deceased person perceived (including cause of death). Data are being collected in several European countries (Switzerland, France, the United Kingdom and Spain). At the close of all three questionnaires (English, French and Spanish) a total of 1,005 questionnaires were received. Data analysis is ongoing. As with other such surveys, the primary analysis consists of presenting and evaluating frequencies of occurrence and co-occurrence. Subsequent analysis will focus on identifying experiential factors that covary with ('predict') personal impact.

### **The “Amneville’s RSPK Case”: An Illustration of Social Elusiveness**

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During the summer 2014, less than two kilometers from my house, started a seemingly RSPK case which attracted media attention in France and abroad. An old couple with a teenage nephew observed unexplained displacements and destructions of objects in several rooms of their house. Neighbors, policemen, and journalists quickly arrived and added their own testimonies which deepened the strange-



ness. In a few months, the case was partly “solved,” not through a scientific enquiry but by the self-accusation of an old “hysterical” woman and a trial that concluded a dismissal of all charges (“non-lieu”). Without having the possibility to interview the protagonists themselves, despite two attempts, I stayed as an observer of the social treatment of this paranormal story. I collected all press articles, video reports, online discussions, and informal local discussions to document the various socio-psychological reactions at the different steps of the case. Following the Model of Pragmatic Information’s application to RSPK cases (Lucadou & Zahradnik, 2004), I illustrate the four phases of this case: surprise, displacement, decline, and suppression phases. This model allowed me to make public predictions that were verified. Then, I focus on the “suppression phase” where there is a kind of social influence to restore normality instead of the disturbing paranormality. I suggest to call this action “social elusiveness” (Evrard, 2012) and to discuss its place in parapsychology.

### **Blind Analysis of a New Correlation Matrix Experiment**

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Mind-matter interaction or micro-psychokinesis (PK) experiments have a long tradition in parapsychology and, due to inherent difficulties of these experiments, often have become more complex in their nature over the years. One of these more complex developments was to use correlations between psychological variables of a human agent with actual physical variables of a system. For example, instead of looking for an aggregate deviation from randomness one would correlate the output of a random number generator (RNG) with psychological traits such as belief in parapsychological phenomena. Another level of complexity was introduced by Walter von Lucadou by using many such correlations between different psychological and physical variables within one experiment. Arranging these correlation factors in a matrix, he called this type of experiment “Correlation Matrix Method” (CMM). This idea was motivated in conjunction with the theory that psi may act in form of correlations than in the form of causal signal transmission. In an analogy to physics, such entanglement-like correlations could not be used to reliably transmit information, which would make it unpredictable where in a given PK-experiment significant correlations would show up. Thus the combined result of many correlations is evaluated in a CMM-type experiment, which is in essence a multiple-analysis technique. Von Lucadou performed three such experiments and reported statistical significance on each of these, which lately led other researchers to replicate this paradigm. The present experiment was built from scratch with new hardware, testing 200 participants who spent about half an hour each trying to “influence” a physical random process visualized for feedback. The analysis software was written from scratch, and conceptualized following a masked analysis protocol. Masked analysis is a more rigid form of pre-registered analysis in which the complete analysis software is written and tested before the data are actually analyzed for the effect under study. During the masked phase of the analysis development and testing, either artificial data are used, or the real experimental data are used, but in a disguised, blinded, form. The latter can conveniently be achieved in correlation-type experiments by permuting the association of psychological to physical variables between different participants. This method also yields a reliable way to correctly estimate the statistical background distribution of the statistic used. The latter is particularly important

in cases where the underlying psychological and physical variables have internal dependencies, which make analytic procedures to estimate the background distribution to fail. The unmasking of the analysis, also called opening of the box of the experiment described here was made live at the end of the presentation.

## **Revisiting Wigner's Mind-Body Problem: Some Comments on Possible Models of Connections Between Information, Mind, and Physics**

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I will argue that understanding John Bell's real concerns, and following his advice is important if we want to make serious steps toward understanding the coupling between mind and matter as it was first addressed by Eugene P. Wigner, who was one of the first great physicists who speculated that the message that quantum mechanics may be sending us is that consciousness may be the most essential part of ultimate reality. Wigner envisaged that quantum mechanics needs to be replaced by an enhanced theory, whose equations of motion are nonlinear. John Bell came to a similar conclusion albeit starting from different premises. He argued that quantum theory needs to be enhanced to accommodate real time events (which he related to what he called "beables" - things that really "are"). What is needed is explicit description, within the mathematical formalism of quantum theory, of the flow of information. I will argue that this can be done and that in order to understand and describe, using equations and algorithms, consciousness and psi phenomena - in particular of poltergeist type, further steps are necessary that involve hyperdimensional physics and Kaluza-Klein type theories, but developed for low energy phenomena and information exchanges, which is not how contemporary theoretical and mathematical physics is being developed.

## **The Randomness Project: Explorations into the Nature Of Randomness**

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The concept of randomness and its role in scientific research is discussed. In the Copenhagen interpretation of Quantum Physics, a physical system is described as a superposition of potential outcomes. Upon measurement the system finds itself in a definite state. The transition has been called "the collapse of the state vector." This collapse is assumed to be purely random. But what causes this collapse? Arguably, the most controversial interpretation is the Consciousness Causes Collapse Hypothesis (CCCH), which states that interaction with consciousness causes the collapse. This hypothesis has been the basic assumption in a class of psi theories called the Observational Theories. A critical prediction of this hypothesis is that conscious perception and the outcome of a quantum measurement correlate: in Schrödinger's *gedanken experiment*, perceiving a dead cat "causes" the superposition of a dead and alive cat to collapse into a definite state, thus "killing" the cat. We tested this idea by using a signal de-

tection paradigm in which participants from time to time *misperceive* a stimulus. Stimulus presentation was triggered by either a pseudorandom number generator (P) or a quantum RNG (Q). CCCH predicts that the number of misperception should be lower for Q than for P-triggered stimuli. This pattern was indeed found in the first 2 face detection studies ( $p$  combined  $< 0.0007$ ). This anomaly might also be conceptualized as implicit PK. Subsequently, we biased conscious perception by presenting a cue prior to presentation of a stimulus, thus favoring one of two percepts. According to the CCCH, this should result in a bias in the quantum RNG, or the cueing procedure should be less effective for Quantum than for Pseudo random triggered stimuli. We observed this latter pattern as an interaction between the effect of the cue and the random source. The consequences for methods used in empirical sciences are discussed.

### **Becoming a Haunting Myth and a “Lost Place”: An Investigation Report**

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In 2005, the counseling department of the IGPP was informed about spooky events in a hotel with a glorious past in Southern Germany. Because of the complex social dynamics associated with the case, an examination promised interesting results. A team of IGPP staff members conducted a field investigation of the *Castle Hotel*. This paper provides a brief overview of the investigation and the findings gained with on-site explorations, interview data, and a historical inquiry. As is often the case in such alleged RSPK cases, it is difficult to assess the reported phenomena from a retrospective perspective with regard to their paranormal quality. In this respect, the scientific gain in knowledge regarding the supposedly paranormal phenomena remains low. However, from a sociological, anthropological and cultural-scientific perspective, the case offers interesting insights into the conditions for the emergence of a haunting myth. The focus of this paper rests on the analysis of the conditions that favor this emergence. In addition, the further development in this case shows in an exemplary manner the effect a field study can have on the investigated object. This paper aims to raise awareness of these issues among researchers investigating spontaneous cases. The case of the *Castle Hotel*, however, also shows the limits of the possibilities to minimize such effects.

### **Historical Perspective: Justinus Kerner’s Case Study Into the “Prison Spook” in Weinsberg and Spooky Actions at a Distance in 1835–1836**

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In the winter of 1835/1836, strange occurrences were reported from a prison in Weinsberg. They consisted mainly of knocking, shuffling, and roaring sounds, but also of mysterious lights and a sickening smell of decay. The prisoners and the prison guard’s family attributed them to a spook. Their complaints led the representatives of the Weinsberg district court to commission Justinus Kerner (1786–1862),

the district physician of Weinsberg, to examine the reported phenomena and the imprisoned Katharina Esslinger, who appeared to be the focus person eliciting these manifestations. Kerner interrogated various witnesses about the occurrences inside the well-secured prison and also visited the prison at night in person to obtain first-hand experiences. Kerner found no indications that the prison inmates had cheated. He therefore demanded that other persons with a preferably well-educated background should be included in the examinations of the phenomena. In 1836, Kerner published the results of his investigation in a remarkable book in which the testimonies of 50 witnesses are given in writing. Many of these witnesses, including Kerner himself, reported also on how the typical, but inexplicable phenomena had followed them to their own homes outside the prison. However, especially in non-German literature on hauntings and other anomalistic phenomena, this noteworthy and pioneering case report is rarely considered. In this contribution, I present important aspects and findings from Kerner's book, and relate them to more recent approaches of single case studies on haunting and anomalous phenomena. In particular, I highlight the methods of his investigation as well as the limitations of his approach, and sketch the public and often polemical debate that Kerner's investigation into the prison spook triggered at his time. As it seems, these criticisms of Kerner's studies are still comparable to current reactions to studies of related anomalies.

### **RSPK 4.0 - When Ghosts Dance out of Line**

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This article aims at cleaning up – or disturbing – prejudices and opinions as well as certain categories and rash explanations about RSPK, for there is not always an adolescent person at hand when, once again, cups are falling out of the cupboard...It is also a matter of embodiment (Lucadou 2010, 2018) of the affected persons, and we have to question ourselves about the potential benefit of a broken cup – as sometimes “break a thing, mend you luck”. We will discuss the typical development in phases (as the Freiburg-model suggests), phenomenological aspects, characteristics of the so-called focus person and the aspect of theatricality. Afterwards different cases will be presented, which are prototypical in their development, but at the same time atypical, because in some points they differ significantly from the classical Freiburg RSPK model. Atypical RSPK appears in different shaping and dimensions. For example, the so-called “old age” RSPK can be clearly distinguished from the “adolescent” RSPK; “depressive” RSPK is completely different from “neurotic” RSPK. It is obvious that a distinction concerning the phenomenology and certain personality traits makes sense. External circumstances are also play an important part when RSPK arises, as can be observed in the case of “grief” or “burnout” RSPK. To get a more differentiated view on RSPK we have decided to describe the following dimensions: Old age RSPK, Neurotic RSPK, Salutary RSPK, Protective RSPK, Depressive RSPK, and Grief RSPK. To summarize we notice that typical RSPK shows the following features: There is a focus person with characteristic personality traits, the phenomena follow a describable development, specific phenomena occur, comprising inexplicable noises, mimicry noises, movement of objects, etc. But then we observe that more or less clear deviations from the prototype can be found for almost every feature. This change can be verified comparing the age of the focus person. The study of Huesmann and Schriever (1998) show that in most of the 52

investigated cases the focus persons were adolescent. An actual study from 2016 shows a different distribution. Also, we can see that the average age of the focus persons contacting our counseling office seems to have increased. Comparing the phenomenology of adolescent RSPK and old age RSPK, we can find more differences. It seems that specific features of adolescent behavior, such as egocentricity and theatricality, also appear in adolescent RSPK cases, whereas older focus persons often are in a lack of a “stage” – which corresponds to the tendency of older people to retire and be less apparent in the public. The phenomenology itself seems to adapt to the age of the focus person: phenomena in case of adolescents often are loud, impressive and dynamic, with an increasing tendency to include the world of new media and virtual reality – older focus persons, however, experience rather discreet phenomena referring much less to virtual worlds or technology – unless the focus person has a special affinity with these things. So we can see that, comparing different age groups, there exist some deviations from current assumptions about RSPK. Besides this observation of the effects from life age on RSPK experiences, we are trying to find out whether other exterior circumstances have effects on RSPK. We present the phenomenology and symbolic language of classical grief RSPK, and the way that, on the other hand, stress-related burnout RSPK is expressed.

### **A Further Test of Dream ESP: Comparing Individual versus Group Judgements and Testing for Intra-Subject Effects**

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The current experiment is part of an effort to encourage a renewed interest in dream ESP research. Roe (2016) described the suite of dream ESP studies undertaken at the University of Northampton. In such studies, participants sleep at home as normal but keep a dream diary. During the night a computer based at the CSAPP laboratory randomly selects a video from a pool of approximately 240 1-minute clips to serve as their target. The video is played repeatedly through the night by the computer, located in a locked and alarmed laboratory to preclude any possibility of accessing the material by normal means. In the morning the participant attends the laboratory and shares their dream diary content with an experimenter. A copy of the dream diary transcript is taken. The computer then presents the target and three decoy videos for the participant to compare with their dream content. The experimenter can facilitate this process since they are also masked to the identity of the target. Once all clips have been reviewed the participant gives similarity ratings that allow the clips to be rank ordered (with the one in first position most like their dream content and the one ranked fourth least like). Once these judgements are recorded the computer automatically reveals the actual target identity. Trials on which the target video was ranked in first place are called *hits* and other trials are *misses*; the likelihood of attaining a hit just by chance is 25%. The overall outcome from just these Northampton studies, involving a total of 183 trials with unselected subjects across 6 discrete experiments, was a 31% hit rate, statistically significant (binomial  $p = .03$ ). Based on sum of ranks, the distribution of scores fell narrowly short of significance (SOR = 433,  $z = 1.59$ ,  $p = .055$ ). One of our preferred dream ESP experimental approaches has been to adopt a repeated measures design in which, rather than have each of a large number of participants contribute just one trial (as is typical, for example, in ganzfeld studies), they instead contribute a number

of trials in a manner similar to some of the most successful Maimonides experiments. In this study, five co-participants contributed to a series of 40 trials (divided into two phases of 20 trials to allow small changes to the protocol in between phase 1 and 2). All slept at home as normal and kept a dream diary. The following morning, they attended a group session in which each person was invited to share their dream content. Participants were allowed to 'attend' the session via Skype, but the session researcher and at least one participant had to be physically present. We pre-specified that if fewer than four of the five participants were present then the session would be designated a "practice trial" and would continue for development purposes but the outcome would not count. Participants then viewed the target clip and three decoys presented by the computer program in random order and each made similarity judgements based on their own dream content. These ratings were discussed and a consensus decision was also recorded based on a combination of individual ratings. Once these judgements were recorded the target clip was revealed by the program and any correspondences discussed for closure. For phase 1 the consensus judging hit rate was exactly at chance (25%) and four of the five participants scored close to MCE. In phase 2 all but one of the participants scored above MCE and the group hit rate was 40%. When combined the two phases give an overall hit rate of 32.5% that is non-significantly better than chance expectation (binomial  $p = 0.179$ ) and is consistent with effect sizes for free response ESP studies. Group performance was superior to that for all but one of the individual participants.

### **Victorian Ghost Hunters in the 21st Century: Conflict, Continuity and the End of Psychical Research**

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Since its founding in 1882, the Society for Psychical Research (SPR) has been the leader and model for the investigation of what we now call the "paranormal," as both a profession and the expression of a subculture. Despite that considerable history and reputation, the SPR has now largely been eclipsed by new forms of investigation into the paranormal of varying and different degrees of professionalization from academic parapsychology to popular "ghost hunting," with some groups particularly expressing ghost hunting as a media event and form of entertainment. This paper situates the continuity of the SPR against this conflict with new organizational and experiential forms, using indepth interviewing and participant observation methodologies to elucidate the evolving nature of the investigation of the paranormal at the beginning of the twenty-first century. This paper will historically chart the emergence of ghost hunting as a particular form of investigation into the paranormal, situating the foundation of the SPR against this, and showing how the SPR currently faces top-down pressure from academic parapsychology and bottom-up pressure from popular ghost hunting that threaten its continuing relevance today. The 'end of psychical research' is thus to be understood as terminological as well as organizational: with the term "psychical research" now entirely restricted to use by the SPR it highlights the growing marginalization of the SPR within its own field. Nuancing this historical approach will be a sociological investigation into the demographics, beliefs, and attitudes of those engaging in this field.



## **Experimenter Effect and Replication in Psi Research I, II, and III: A Global Initiative**

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We hypothesized that the difficulty of replicating the original effect observed by Daryl Bem could be due to participants' and experimenters' beliefs and expectancies about psi. This is what we intended to test in this replication attempt. We conducted three large-scale, meta-experiments. Experiment 1 was a direct replication of Bem's (2011) retroactive priming experiment with 32 experimenters with 12 participants each. In experiment 2 we enrolled another set of 32 experimenters with 16 volunteers each and tested the hypothesis that positive or negative priming could influence both experimenters' and participants' performance. Experiment 3 was performed on the internet with 32 experimenters testing 12 volunteers each, and tested implicit beliefs of experimenters and participants. In *Experiment 1* the procedure was identical to experiment 4 of Bem's series (2011), which is a fast-thinking protocol using retrocausal priming. Both experimenters and participants were assessed for their baseline belief in psi phenomena using five simple questions to assess belief in psi. Each experimental session consisted of 40 trials. In each trial an image was randomly selected and displayed to the subject, followed by a randomly selected incongruent or congruent priming word. Participants were instructed to identify images as "pleasant" or "unpleasant" as quickly as they could by pressing the corresponding key; after participants responded the priming word flashed briefly. A total of 20 "unpleasant" and 20 "pleasant" images followed by a randomly selected priming word (20 congruent and 20 incongruent) were shown. These images were from a standard IAPS (International Affective Picture System) set, as used in Bem's original study. The task took advantage of Bem's program with slight modification so information about the experimenter could be saved in the database. In *Experiment 2* the procedure was identical to experiment 1 except that each experimenter saw either a video indicating to them that the experiment was likely to succeed or likely to fail. Similarly, prior to starting the task, participants saw a quote from a scientist indicating to them that the experiment was likely to succeed or likely to fail. In *Experiment 3* the procedure was identical to experiment 1 except that we assessed experimenter and participant implicit belief in paranormal phenomena using an IAT 12-minute protocol. These experiments investigated multiple hypotheses:

1. Replicating the previous study by Bem, response time would be shorter for trials with congruent words than for trials with incongruent words.
2. The response time effects (differences) of the participants would be greater if they were with experimenters with positive expectations (belief in psi effects as assessed in the second survey)

about the experimental outcome than if they were with experimenters with negative expectations (lack of belief in psi effects).

3. The response time effects would be greater for participants with positive beliefs/expectations about psi than for participants with negative beliefs/expectations about psi.
4. Priming could influence participant performance.
5. Implicit beliefs could influence participant performance.

*Experiment 1.* The primary hypothesis did not show a significant psi effect. However, when the statistical power was increased by using a single-trial analysis, the primary hypothesis was highly significant (reaction time log difference between congruent and non-congruent targets of -0.07 associated with  $p = 0.0006$ ). A post hoc analysis of participants who performed the test in English, based on the pre-planned analysis as in the original experiment also provided a positive outcome:  $N = 193$ ;  $p < 0.02$ ;  $d = 0.15$ . The results did not support a correlation between study outcome and experimenter expectancy, although positive trends were observed. *Experiment 2.* The primary hypothesis did not show a significant psi effect, although a trend at  $p = 0.055$  (one-tailed) in the expected direction was observed when comparing congruent image-word pairs versus incongruent ones for all participants combined. *Experiment 3.* Based on preliminary analysis, the primary hypothesis did not show a significant effect. We are currently analyzing secondary hypotheses. Overall, these results of Study 1 supported the feasibility of a multi-laboratory collaboration. The current results are mostly limited to the pre-registered analyses. No further exploratory analyses have been run so far.

## **The Effect of Context and Supernatural Belief on Cognition**

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This study aimed to see if context in the form of priming can alter participants thinking style based on their level of implicit association with either a religious or paranormal belief. This was based on the theory of *alief*, when a person's explicit belief and behavior are mismatched. This was also linked to dual process theory, with *alief* being analogous to type one thinking styles (fast and automatic). One hundred and seventy-two participants were recruited from the University of Derby and social media. Implicit association was measured using a modified Brief Implicit Association Test that looked at paranormal and religious belief. Explicit supernatural belief, cognitive reflect, metacognition, and confidence were also measured. A series of MANOVAs were run on the whole sample, and then on the four types of believer: skeptics, religious believers, paranormal believers, and believers (people who had high levels of belief in both the religious and paranormal). The only group having significant differences between the DVs were the believers group. Post hoc analysis on this group revealed a profile of "positive reflectors" who were low metacognition, high in cognitive reflection, and high in confidence. Implicit association was not a key factor in this profile. The religious priming group was the most likely of the priming groups to belong to this profile. We conclude that the prime worked on a moral level and influenced someone with an already open mind to different beliefs to be more analytical, positive, and confident.



## A Grounded Theory of Ghost Experiences

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This paper employed grounded theory to analyze people's first hand descriptions of their experiences with ghosts. Verbal descriptions of peoples' experiences with ghosts were collected as part of a larger survey. Participants who responded affirmatively to any (of eight) questions about ghosts were invited to answer an open-ended question that asked them to provide a detailed description of their experience and its impact on them. The url was distributed to psychology students, staff and faculty at the University of West Georgia, in several local businesses and via social media ( $N = 355$ , of which 145 shared a story). It was also distributed to psychology students at Northwest Missouri State University ( $N = 85$ , of which 45 people shared a story). A later sample consisted of additional participants from the University of West Georgia and surrounding area ( $N = 103$  of which 57 people shared a story). Narratives were read multiple times by the first and 3rd author and coded by the first author. Refinement of the coding and themes led to the development of four overarching themes:

1. *Meaningful interactive experiences*: Bereavement and the continued emotional connection to a loved one contributes to increased likelihood of meaningful interactions with the loved one following their death.
2. *Challenging complex phenomena*: This theme reflects how people make sense of convincing perceptual-like experiences that strongly suggest a ghost and which are challenging to normal, socially accepted ideas about reality and psychological wellbeing. Complex perceptual experiences include patterned phenomena (e.g., sounds like footsteps and voices) and spatially present or realistic imagery of initially unrecognized detailed figures.
3. *External presences (something unseen) - energy, emotion and the body*: Invisible presence experiences occur when there is a combination of emotion and tangible changes in energy in the external environment or on the body. Simple presence experiences reflect feelings that someone is at the end of a long dark hall way (often while alone) or feeling that one is being watched that is related to anxiety and paranoia. Complex presence experiences are connected to sudden overwhelming/flooding of emotion (negative) accompanied by a tangible change in the energy in the room.
4. *Sensitivity and connectivity (boundary thinness)*: A trait-like sensitivity to aspects of the environment and to other unseen aspects of the world that often began in childhood and may be shared with family.

### Human Intuition

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Intuition is often defined as the ability to understand something instinctively, without the need for conscious reasoning. Many psychologists believe that such an ability refers to information we already possess, but which lies below the threshold for awareness. The aim of this paper is to show that intuition actually requires contact with the future and is explained in terms of psi. Precognition is considered to

be the fundamental phenomenon of psi, and consists literally of *pre-cognition* referring to the future cognition of an event. The model is based on the concept of the block universe, and therefore requires a compatible version of quantum mechanics. David Bohm's theory of the implicate order is based on the zero-point energy field that extends throughout space and time. The implicate order unfolds to create successive slices of space-time, which build up to form the block universe. Bohm proposed that similar structures created at different times *resonate* within the implicate order, and tend to unfold in a form in which they are more similar to one another. The resonance is attributed to non-local effects of the *de Broglie-Bohm* pilot waves over the quantum mechanical processes involved. The principles are applied to the neuronal spatiotemporal patterns that are activated in the brain. Precognition occurs when the pattern activated at the time of the future experience of an event resonates with any similar pattern (spontaneously) activated in the present. It enables the activation of the present pattern to be sustained until the threshold is reached at which the percipient becomes consciously aware of an event similar to the event experienced in the future. Intuition occurs when there is an *absence* of resonance between the present and future patterns. It enables the brain to detect knowledge that a given event will *not* occur in the future. For example, a percipient, in the present, intends to carry out a given action, and her brain activates the corresponding pattern. However, if later she will be unable to do so (e.g., because an accident prevents her) there will be no experience of carrying out the action in the future. The present and future patterns are different and resonance does not occur. The absence of a precognition in this case serves as an *intuitive warning*, which indicates that she will be unable to fulfil the intention. When intuitions occur in day-to-day experience, they occasionally enable people to avoid accidents and disasters. This can apply to events that occur minutes or even hours later. However, intuitions are expected to be far more reliable over shorter time intervals (e.g., a few seconds) and they may serve as a constant aid to one's survival and well-being by guiding one's actions in moments of potential danger. Over very short time intervals (e.g., less than one second) intuition may serve as an important aid to recognition and problem solving. Tshows how we are able to *recognize* items in memory.

## Parapsychology in France: One Hundred Years of Métapsychique

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Nobel prizewinner physiologist Charles Richet (1850-1935) popularized the term *métapsychique*, which he succinctly summarized as “the science that studies intelligent forces.” Yet, despite considerable scholarly interest in this new area of research in the late 19th and early 20th centuries, *métapsychique* never took roots in the French academic scene, and Richet had to eventually abandon his hope of merging physiology, psychology and parapsychology. But while the field largely remains an outcast from academic contexts, it has been sustained for a century in France thanks to the Institut Métapsychique International. The IMI was established in 1919 thanks to the efforts of Richet and other men of science, and the generous funding of Jean Meyer, a Spiritualist who was convinced that beliefs in an afterlife must be put to the test by science. Recognized, from the outset, by the French administration as a foundation of public utility, and unconstrained by the rigidities of academic psychology, the IMI quickly embarked on an ambitious research program. The most spectacular experimental sessions were conducted with the Polish medium

Franek Kluski, leading to the production of several ‘ectoplasmic moulds’, still in the Institute’s possession. Following his untimely death, Geley was succeeded by Dr. Eugene Osty (1924-1938), who focused primarily on ESP but also introduced an innovative protocol to test PK with the medium Rudi Schneider. This was still the “golden era” of the IMI, which flourished on both scientific and cultural levels in France, and was recognized throughout Europe for its efforts to organize psychical research. From the late 1950s onwards, research activities decreased significantly. During this period an especially aggressive form of skepticism took hold in France, and the origins of the IMI - funding by the spiritualist Jean Meyer - made it an easy target for pseudo-skeptics and the media. Nevertheless, the Institute constituted a meeting point for several French scientists and theoreticians who pursued a more literary or conceptual perspective on psi. When Mario Varvoglis became IMI president in 1998 he launched a major reorganization of the Institute, with a new, transdisciplinary board of directors, a committee of 25 honorary members (including nine PA members) and an ambitious educational and research orientation. Today, the IMI remains the only institute of reference for scientific parapsychology in France. Lectures, workshops and seminars are given almost every month with French and international scholars. Members of the Institute offer an educational online course which has been followed by about 200 individuals, as well as an accredited parapsychology course at the Catholic University of Lyon. The IMI’s unique archives and library – completely re-organized with the help of the IGPP – have stimulated several academic works on the history of parapsychology in France. The IMI also has maintained a long tradition of psychological assistance to individuals who report exceptional experiences - even if this activity has not been organized as a formal clinical practice. The creation of the IMI student-group (GEIMI) in 2004, has been one of the most important of IMI’s accomplishments, as it has helped fill the academic void with respect to psi and parapsychology. Somewhat in the same spirit as the GEIMI, the Institute created the A-IMI (*Amis de l’IMI*), an association open to the general public and intended to broaden the educational reach of the Institute. In the past twelve years, several formal research projects have also been launched. Largely funded by the Bial Foundation, these experiments shared the common objective of enhancing psi effect size, using a two-pronged approach: favoring psi conducive states and an enhanced participant experience of the testing session; and, increasing per session data collection rate, so as to increase efficiency over experiments such as the Ganzfeld. Although the Institute has managed to survive and contribute to the field for a century, it clearly remains in a precarious state. The academic outsider status does have its advantages, but it is clear that the full blossoming of parapsychology, here in France, as elsewhere, depends upon the recognition and involvement of conventional science, a good deal of funding, and “new blood” coming into the field.

### **A Transliminal “Dis-Ease” Model of “Poltergeist Agents”**

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The first three co-authors recently scrutinized the individual and collective predictive power of several psychometric variables used in the academic literature to profile *haunters* — individuals reporting personal experiences that they attribute to ghosts or haunted houses. Contrary to much literature on the

correlates of general paranormal belief and experience, this research found no evidence that self-reported haunt-type experiences were connected to obvious cognitive deficits in the percipients. Instead, the onset or features of the haunt-type experiences were significantly associated with *transliminality*, i.e., “the hypothesized tendency for psychological material to cross thresholds into or out of consciousness.” Thus, a transliminal model of hauntings implies that these anomalous experiences are linked to a particular psychometric profile and derive from, at least partly, hypersensitivities to and amalgams of internally- and externally-generated stimuli. We explored this basic idea further via a study of transliminality in relation to “agents or focus persons” in “poltergeist” disturbances— that is, living individuals around whom anomalous and localized physical or psychological events tend to occur. These individuals are typically characterized as having a clinically dysfunctional or diseased profile. This view postulates that focus persons in poltergeist outbreaks (often teenagers) are expressing marked psychophysical anxieties via manifestations of *recurrent spontaneous psychokinesis* (RSPK). Parapsychological mechanisms aside, the role of psychodynamic tensions (such as childhood trauma) in these cases is a widespread supposition in parapsychology. But the “repressed teen” depiction of poltergeist-like occurrences is arguably more an overly simplistic cultural meme than a well-specified scientific model. Specifically, we found that the assumption of pathology is based on scant and circumstantial evidence that draws primarily from 10 studies involving focus persons attended by mental health professionals or administered psychometric measures. However, within this limited literature we identified eight psychological characteristics that seemingly reflect a “thin or permeable” mental boundary structure in agents. Moreover, consistent with the previous work on classic hauntings, seven of these eight characteristics (or 88%) showed positive and low-to-moderate (attenuated) correlations with scores on the Revised Transliminality Scale. There is also evidence that transliminality is likewise positively and moderately associated with various forms of childhood trauma. That said, the results of some studies that examined the affect/ emotion of agents and corresponding PK-like events undermine the notion of “disease” per se, in favor of a transliminal perspective that accommodates various psychological disruptions or tensions as potential, but not exclusive, stimulants in these episodes. Thus, we strive here to ameliorate the pathological dimension commonly associated with focus persons by suggesting the more accurate and preferred term “dis-ease.” Whereas transliminality seemingly mediates attentional or perceptual processes in poltergeist-like episodes, this does not negate possible parapsychological aspects per the RSPK hypothesis. Our review and meta-analysis of the available literature suggests that there is a weak but overall significant association between outcomes on tests of putative psi and scores on transliminality (mean  $r = .13$ ; mean  $z = 0.90$ ; Stouffer  $Z = 3.96$ ,  $p = 3.70 \times 10^{-5}$ ). Our proposed transliminal model is consistent with many studies that identify an “encounter-prone personality” grounded in a thin or permeable mental boundary structure. Testable implications of this premise can guide future research.

### **A Physiological Examination of Perceived Incorporation during Trance**

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Numerous world cultures believe channeling provides genuine information, and channeling rituals in various forms are regularly conducted in both religious and non-religious contexts. Little is known about the physiological correlates of the subjective experience of channeling. We conducted a pro-

spective within-subject design study with 13 healthy adult trance channels. Participants alternated between 5-minute blocks of channeling and no-channeling three times while electroencephalography (EEG), electrocardiography (ECG), galvanic skin response (GSR), and respiration were collected on two separate days. Voice recordings of the same story read in channeling and no-channeling states were also analyzed. The pre-laboratory survey data about demographics, perception of the source, purpose and utility of channeled information reflected previous reports. Most participants were aware of their experience (rather than in a full trance) and had varying levels of perceived incorporation (i.e. control of their body). Voice analysis showed an increase in voice arousal and power (dB/Hz) differences in the 125 Hz bins between 0 and 625 Hz, and 3625 and 3875 Hz when reading during the channeling state versus control. Despite subjective perceptions of distinctly different states, no substantive differences were seen in EEG frequency power, ECG measures, GSR, or respiration. Voice parameters were different between channeling and no-channeling states using rigorous controlled methods.

## Abstracts of Research Briefs

### **Attachment Among Uk Twins – A Survey**

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This paper explores the attachment between twins and this attachment possibly being of importance for the exceptional experiences that many twins report. Attachment between twins is an area where there has been almost no research. The same is the case for twin telepathy, and since in parapsychology there is support from many studies that the bond between sender and receiver is important, the present study, with a questionnaire on the web, was designed to investigate the attachment between twins and the ostensible relationship between attachment between twins and twin telepathy. By applying the concept of attachment from developmental psychology, this becomes a separate study in the thesis “Attachment and exceptional experiences amongst twins” to explore the degree of attachment between twins as a potential dependent variable relating to their apparent telepathic connection. In this study, attachment data were collected from more than 2000 twins in UK, with personalized links being sent in emails to 5,060 twins, inviting them to participate in this survey on the web. Two questionnaires were used, a modified version of WHOTO and ANQ with regard to four attachment features and functions and a modified ECR-R with regard to attachment-related anxiety and avoidance. Exceptional experiences in this study included telepathy-like experiences, shared physiological responses to illness, injury or accident, i.e. remote sensing the other twin’s pain, accident, or state of mind. The attachment between twins in general turned out to be very strong, and for attachment-related anxiety and avoidance stronger than the published norms. The attachment between identical and non-identical twins was found to be significantly different, valid for five out of the six sub-scores, as was the case for the difference between the genders – female twins being found to report a stronger and more positive attachment when compared to male twins. For age, the attachment was found to be strong in early ages, and then it slowly decreased for five of the six sub-scores. 71%, 1,488 twins, reported to at least once



or twice having had a so-called exceptional experience with their twin, including 8% (119) when it had happened more than 50 times. 550 twins, 27 %, reported it never had happened. Twins reporting having had exceptional experiences with their twin, reported a stronger and more positive attachment to their twin than those who do not, with support from five out of six possible attachment scores. Many twins, 28% (583) also reported having had exceptional experiences with other than their twin at least once or twice. From these, 407 twins reported it to have happened only once or twice, while 38 reported it to have happened more than 50 times. This other person varied between children, friend/s, partner, sibling and parent/s. The reliability for the questionnaires was investigated, internally, towards each other, and factor analyses were conducted. Results from the two questionnaires were compared, supporting each other.

## **Psychoanalysis and Mediumship: The Case of the Italian Medium Pasquale Erto**

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The two authors present the long story of the debated and controversial Italian medium Pasquale Erto, born in 1895 in Castellammare di Stabia, in the province of Naples, Italy and disappeared around 1958, a subject that constantly tended to break free from the experimental constraints imposed by experimenters and whose fundamental peculiarity was the production of many diversified luminous phenomena. In particular, the paper discusses the numerous séances carried out in Paris with Gustave Geley and collaborators, in the years 1923-1924, at the Institut Métapsychique International of Paris, at the Institut du Radium and the Sorbonne University. In those contexts, the main characteristics of the various luminous manifestations were observed, with the final conclusion that many of them were due to a fraud carried out by fragments of ferrocium and steel nibs rubbed against each other. Geley, from his part, convinced of having revealed and detected a repeated voluntary fraud, nevertheless considered in a positive way another main category of phenomena visible in presence of Erto, that is, certain spots similar to luminous impressions and certain hand prints and fingerprints found on sensitive photographic plates enclosed in well-sealed frames. The paper, besides the subsequent séances carried out in Naples by Emanuele Sorge's team and the ones in London led at the end of the year 1931 by Harry Price at the National Laboratory of Psychic Research, deals with some séances carried out in Rome in 1932 and organized and directed by the psychoanalyst and parapsychologist Emilio Servadio. A range of extraordinary manifestations, like distant light phenomena, lowering of temperature, telekinetic movements of objects occurred in Rome several times, and Servadio deemed them true, genuine, although honestly he could not exclude that – at least occasionally – the medium resorted to expedients. This Italian scholar afterwards proposed also an interesting symbolic and psychoanalytical interpretation of the different mediumistic manifestations personally observed, that is, such manifestations could somehow express, in a completely extraordinary and presumably paranormal language, aspects of the unconscious conflicts and deep sense of guilt of the subject.

## **Intuition and Remote Viewing: Ten Years of R&D and Applications for Public and Private Organizations**

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The use of intuition to answer concrete problems, for both private and public organisms, and in a masked way with regard to the explored problems, has been a reality since the 1970s. This is the field of operational remote viewing. Since the mid-2000s, a few commercial enterprises have emerged and developed, some with success, conducting an increasing number of operational projects. iRiS Intuition in France is one of them. Operational projects conducted by these companies are more and more diversified and original in their field of application and in their implementation framework. This general context, and the particular context of iRiS intuition, tends to show that the remote viewing protocol can be a tool to produce information and ideas, quite suitable to address a large number of real issues of contemporary world. To this day, iRiS has led more than one hundred interventions for private and public organizations. This paper addresses research and development and operational remote viewing via five applied projects led by iRiS in the course of the last 10 years. These projects were led for underwater archeologists, an international bank, an innovative high-tech company, a high court in justice, and artists. This paper also addresses the methodology used for such projects. For iRiS, since the constitution of the team in 2007, consulting projects have always had, as primary objectives and *modus operandi*, to respond to clients' requests, and to answer them by leading the projects internally at iRiS. Since 2014, the team has also facilitated workshops during which intuitive information were produced by non-trained individuals, having, in most cases never been in contact with this type of methodology, and sometimes not even thinking about the existence of intuitive capacities. Aside the expertise and training of the iRiS team members, the success of these projects is also due to the development of software solutions that would analyze remote viewing sessions. This article discusses these aspects. In the discussion part, the article shows that operational remote viewing projects are a fertile ground to investigate further the nature and phenomenology of intuition and perceptive psi. For instance, among the classical questions and debates relevant to psi phenomena is elusiveness. The repeated success of applications, implying numerous actors and variables, lends us to think that psi is not elusive by nature, but that, possibly, attitudes, mind states, and methodological considerations have induced such thinking. Operational remote viewing also seems to show that the use of intuition can be developed at the individual as well as the collective levels.

## **Visual Categorization of Images of Live and Deceased Face Photographs by Intuitive Individuals**

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Anomalous psychological phenomena have been documented, which involve apparent reception of accurate intuition about future events or spontaneous telepathic communications. A subset of the population, called mediums in English, seem particularly sensitive to this type of phenomenon. Several

mediums during an initial experiment mentioned that they were most easily able to connect to a deceased individual if they could see their photograph. This connection usually happened instantaneously. To test if mediums could obtain information of deceased individuals, we ran two experiments. In both experiments, we collected 64-channel electro-encephalography data using a BIOSEMI device. *Experiment 1.* We invited 12 mediums to see if they could determine if a person was alive or dead based solely on a brief examination of facial photographs. All photos used in the experiment were transformed into a uniform gray scale and then counterbalanced across eight categories. Participants examined 404 photographs displayed on a computer monitor, one photo at a time, each shown for a maximum of eight seconds. Half of the individuals in the photos were deceased, and half were alive at the time the experiment was conducted. Participants were asked to press a button if they thought the person in a photo was living or deceased. We presented 404 photos of faces, half of which will be from deceased individuals. All of the photos were standardized in size. The task of the participant was to press a button to indicate if they felt that a given person was alive or had passed. *Experiment 2.* We invited 12 mediums and 12 controls to perform an experiment in which participants examined 180 photographs displayed on a computer monitor, one photo at a time. All of the individuals in the photos were deceased: 1/3 were in a car accident, 1/3 had a heart attack, and 1/3 were shot. As in experiment 1, all of the photos were balanced across seven different features and the task of the subject was to press a button (1-3) to indicate the cause of death. *Experiment 1.* Behavioral data appear to indicate that some individuals are capable of correctly classifying photos of alive vs. deceased people (five mediums independently significant and average combined performance was 53.6%, resulting in  $p = 0.005$  with 11 degrees of freedom). EEG data from the 12 professional mediums tested suggests that there is a biological basis for the behavioral data at a latency of about 100 ms, which occurs prior to the mediums' conscious assessment of the photo. *Experiment 2.* By the time of the parapsychology conference in Paris, the data were analyzed and presented.

### **Dimensions of the Exceptional: Studies with The “Questionnaire for Assessing the Phenomenology of Exceptional Experiences” (Page-R)**

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Even if patterns of exceptional experiences (EE) appear tremendously varied, a suitable and comprehensive classification system for EE can be developed on the basis of some key postulates of Metzinger's theory of mental representations. According to Metzinger, human mental systems produce a phenomenal reality-model (PRM) that comprises all mental states consciously experienced at a given time. The PRM consists of a mental self-model and a world-model as fundamental complementary components. Two of the phenomena classes refer to deviations that are localized either as *external phenomena* in the world-model or as *internal phenomena* in the self-model. External phenomena are for example visual, auditory, tactile, olfactory or kinetic phenomena or the feeling of an invisible presence. Internal phenomena include somatic sensations, unusual moods and feelings, thought insertion, inner voices or inner images. In addition to these two possible localizations of exceptional phenomena in the PRM, relational deviations can occur: *Coincidence phenomena* are exceptional connections between or



dinarily separate states of the self-model and the world-model, which are, for example, interpreted as extrasensory perception. On the contrary, *dissociation phenomena* manifest themselves as a separation of normally connected elements of the self-model and the world-model, such as automatisms, sleep paralysis or out-of-body experiences. A number of studies with the revised *Questionnaire for Assessing the Phenomenology of Exceptional Experiences* (PAGE-R) developed at the IGPP (Fach et al., 2011) confirm this classification system. The items of the PAGE-R (“PAGE” is the German acronym for “Phänomenologie Außergewöhnlicher Erfahrungen”) are formulated to capture the frequencies of certain phenomena of the four basic phenomenon classes. Meanwhile, data from seven PAGE-R samples, collected between 2011 and 2017, have been analyzed: People seeking advice because of EE ( $n = 395$ ), people reporting near-death experiences ( $n = 176$ ) or sleep paralysis ( $n = 367$ ), experienced meditators ( $n = 59$ ), German students ( $n = 800$ ), a sample of the Swiss general population ( $n = 1351$ ), and a sample of the US population ( $n = 148$ ). The results show that EE are widespread and continuously distributed in their intensity and frequency. EE occur in different populations and in varying frequencies but in a comparable proportional distribution of the basic phenomena classes: Coincidence phenomena are the most frequent, internal phenomena and external phenomena are approximately equal in second and third place, while dissociation phenomena are the rarest. The US sample indicates that this distribution even holds for non-European populations. Theoretically it was postulated that all extraordinary phenomena constituting EE can be traced back to phenomena of the four basic classes. Factor analyses, cluster analyses, item analyses and scale analyses were used to examine the reliability and validity of the PAGE-R. After reducing the item pool to 20 variables by selecting problematic and weak items, stable factors and largely identical factor loading patterns were found in all samples. The theory-compliant extraction of four factors turned out to be the most robust and best-generalizable model. *Internality*, *externality*, *coincidence* and *dissociation* thus prove to be fundamental structural determinants of the mental representation of EE. Based on the four factors, reliable and valid scales were formed. The newly designed PAGE-R-II is a compact questionnaire with 20 randomized items for the assessment of EE. The Cronbach- $\alpha$  coefficient in the various samples is generally between .70 and .85 on the subscales. All 20 items form a global EE scale with  $\alpha$  between .86 and .92.

## **A Reconsideration of Sheldrake’s Theory of Morphic Resonance**

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Rupert Sheldrake continues to be one of the most influential thinkers with respect to phenomena that are difficult to account for in terms of conventional models of psychology and physics. His most significant contribution might be an empirically testable theory for anomalous communication among genetically similar organisms, which he calls morphic resonance (Sheldrake, 2009). Sheldrake’s theory describes how the thoughts or behaviors of physically isolated individuals might converge in a manner that is reminiscent of ESP because they are able to draw on a ‘morphic field’ that acts as a record of an organism’s or species’ previous behaviours. Sheldrake’s potentially powerful theory makes testable predictions that until recently have resulted in surprisingly few formal experiments. Those that had been conducted gave a fairly consistently positive picture, tending to confirm predictions derived from mor-

phic resonance, but were undermined by the tendency for results to be reported in popular accounts rather than peer-reviewed journal papers. We felt it important to replicate this work with word-based stimuli in a laboratory-based study that was designed to meet stringent scientific standards so that it could be submitted for journal publication as a full paper, irrespective of outcome. In our first such study (Robbins & Roe, 2010), 60 participants were exposed to genuine and imitative Chinese characters and then had to identify which characters they could recognize from a sheet that also included decoys. As predicted by the theory of morphic resonance, participants accurately recognized significantly more of the genuine than false characters, but also were more likely to report false memories (i.e. claim that they recognized items that were never presented) that were genuine characters than false ones. Participants' transliminality scores were also significantly related to their performance with presented characters but not with decoy characters. In a replication study (Roe & Hitchman, 2011) we addressed these shortcomings by drawing upon a larger set of more systematically-manipulated genuine and imitative characters, and using a more comprehensive system of randomising across participants. One hundred and one participants were shown eight genuine and eight imitative characters and then took part in a distractor task before being presented with symbols in pairs (one genuine and one imitative) matched for complexity. Contrary to the previous study, participants correctly identified a similar number of real and imitative characters, and in fact exhibited more false memories for the imitative; no relation was found between performance and scores on measures of transliminality and openness to experience. The present study was designed to account for the discrepancy between experiments 1 and 2 by discriminating between competing interpretations. This was achieved by adding the symbols from experiment 1 to those used in experiment 2 to determine whether participants would continue to show better performance for the former stimuli when they are presented to the same participants under the same experimental conditions. We have also explored the effect of the form of recognition task on performance by including three recognition conditions: selection from among an array of simultaneously presented symbols, as in experiment 1; selection from between paired symbols as in experiment 2; and rating of familiarity for symbols when presented singly. These variables are investigated using a 2x3 mixed design in which participants experience both sets of stimuli (from experiment 1 and experiment 2 respectively) and one of three recognition formats. We have retained the individual differences measures utilized in experiment 2, namely transliminality and openness to experience.

### **You Get What You Are: The Effect of Unconscious Needs on Micro-Psychokinesis**

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Quantum-based models of psychophysical substance dualism offer an attractive solution to the hard problem of mind-matter-interaction. Therefore, we tested observer effects on a quantum-based RNG by using pre-conscious motive states of incongruence within the participants as an independent variable. We expected significant deviations from randomness with participants who exhibit high incongruence (HI) characteristics but not with individuals who show low incongruence (LI). The direction of the effect was predicted by the emotional transgression model (Maier, Dechamps & Pflitsch, 2018),

claiming that the core affectively laden subconscious belief determines what is more likely to happen to an individual. Our first experiment ( $N = 295$ ) with a specific micro-PK test for the psychological basic needs attachment, self-esteem protection, and control revealed anecdotal evidence close to the threshold for the moderate classification within the HI group only for self-esteem protection ( $n = 133$ ,  $BF = 2.95$ ). The second experiment ( $N = 507$ ) is a post hoc continuation of the effective condition concerning the further sequential evidence for self-esteem protection and oscillative changes across time. Our significance criterion ( $BF = 10$ ) was initially reached with the target group. Shortly thereafter, a decline - similar to other experiments in this field- to a final result of anecdotal evidence occurred ( $n = 236$ ,  $BF = 2.24$ ). As volatility might lie in the nature of micro-PK effects, explorative sequential Bayesian analyses comparing the maximum Bayes Factor, the curve's Energy, and a Frequency Spectrum analysis of both groups to 10,000 simulations were added post hoc as an attempt to distinguish systematic sequences from random fluctuation. These analyses show that the data of the HI subsample are highly unlikely produced by chance in contrast to the LI subsample. Therefore, this study revealed promising analytical approaches to distinguish volatile effects from randomness. In conclusion, the results suggest, that core affectively laden subconscious beliefs can express volatile but still statistically detectable and meaningful deviations from quantum randomness if they are precisely triggered by an adequate micro-PK task.

### **An IPA Study of Anomalous Experiences in Temporal Lobe Epilepsy**

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This study forms the second part of a mixed methods PhD, exploring spirituality in epilepsy. This second study's aim was to record and formally compare the phenomenology of anomalous experiences in epilepsy. Since the beginning of modern epileptology in the 19th century, case studies have been published about individuals with epilepsy reporting non-shared, exceptional experiences that include: conversation with spirits, religious conversion, precognition, understanding the meaning of the cosmic order, conversations with God, out of body and near-death experiences. The nature of the experience is very like those described in parapsychology, with one experient stating that they felt the experience was psychic in nature. Discussion of case studies of anomalous experiences in epilepsy offer limited qualitative information about the phenomenology of the experience, as they are primarily concerned with differential diagnosis and appropriate medical interventions. In this second study, we focus on the phenomenological elements of spirituality in TLE from the perspective of the meaning that they have for experients. The study employed Interpretative Phenomenological Analysis (IPA), a qualitative methodology that focuses on the phenomenology and meaning of experiences. The participant experiences in this IPA study include descriptions of precognition, near death and out of body experiences. The value and status of preliminary findings are at variance with the neuropsychiatric literature, which regards such experiences as problematic seizure-related events that require medication and need to be stopped. The medical model assumes that individuals will not want these exceptional experiences, and a desire to keep them is a contributory factor of epilepsy-related psychosis. However, the likeness of the spiritual experiences described by the participants in this IPA study to altered states of consciousness and exceptional experiences of individuals without epilepsy suggests that, in fact, not all spiritual

experiences in individuals with epilepsy are merely undesirable symptoms of the condition. Having TLE may, as others have claimed, mean that the temporal lobes of individuals with epilepsy are more sensitive than non-epileptic populations and that this is the source of highly valuable abilities, which are of interest to parapsychologists.

### **Unconscious Avoidance of Negative Stimuli: A Multi-Laboratory Replication Study of Retrocausal Influence**

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There is an ongoing debate of whether present human behaviors can be affected by events randomly generated in the future (i.e., retrocausal influence). Previous meta-analyses have shown evidence for retrocausal influence, but there is a lack of pre-registered multi-laboratory studies that have large power to independently replicate the purported effect and are less likely to be affected by selection biases. This ongoing project aims to replicate a study showing evidence for retrocausal influence (Maier et al., 2014), specifically, unconscious avoidance of negative stimuli. On each of 60 trials, participants were asked to press two buttons as simultaneously as possible, and these responses were registered as left or right depending on which button was pressed first. Subsequently, a quantum-based number generator determined whether the left or right response for that trial would yield a neutral or negative picture. The psi hypothesis states that individuals will be more likely to press the button that corresponds to the neutral than the negative picture (mean chance expectation is 50% neutral pictures). At present, five laboratories have contributed data ( $N = 1,563$ ). The results indicated a mean of 50.07% neutral pictures. The Bayesian analysis favored the null hypothesis with a factor of about 3.7 (Cauchy prior,  $r = .1$ ), indicating moderate evidence for the null hypothesis. However, the pre-registered cutoff has not been reached (a Bayes factor of 10). The frequentist analysis revealed a  $p = .343$  (one-sample  $t$ -test, one-tailed). In sum, the results did not provide support for retrocausal influence (unconscious avoidance of negative stimuli).

### **Thomas Mann and Physical Mediumism — A Historic Miniature where Literature and Parapsychology Intersect**

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Baron Schrenck-Notzing, then leading German parapsychologist, was in the habit of inviting reputed scientists of various fields and other prestigious persons to witness the phenomena studied in his laboratory, and to secure their testimonials as a means of gaining broad scientific recognition of the real existence of telekinetic phenomena. Thus, in 1922/23, Thomas Mann, then a future Nobel laureate, participated as an independent witness in several sittings with the young Austrian medium Willi Schneider

at Schrenck-Notzing's laboratory where he observed phenomena of physical mediumism (telekinesis, ectoplasm). He duly submitted three narrations of his observations that were eventually printed among some sixty others in Schrenck's *Experimente der Fernbewegung* [Experiments in Telekinesis] in 1924. Not only did Mann describe his observations for Schrenck and in a different version for the general audience, he also used these experiences for the poetic presentation of a mediumistic séance in one chapter of this famous novel *"The Magic Mountain"*. Mann, in these *Three Reports*, initially covers Schrenck's precautions against deception and then describes in some detail Willi's trance: different phases, mostly agitated, heavily breathing, waving, panting like a woman in labor, yet interspersed by some calm and quiet periods; the trance personalities; of particular interest phases of sexual arousal during trance periods. The phenomena that occurred include various forms of telekinesis of light-weight objects and of ectoplasmic structures like fragmentary limbs (pseudopodia). The *"Thomas Mann Phenomenon"* was the name given to the elevation of a handkerchief by an (incompletely) materialized hand. The basic phenomenon underlying telekinetic effects is the production of ectoplasm and shaping it to serve the intended purpose (ideoplasty). One particularly important case is a typewriter placed on the floor being operated by invisible hands as this was not only audible during the sitting but resulted in two lines of letters printed on the paper constituting a permanent object corresponding to the sensations of the participants. This counteracts the argumentation by some "skeptics" that participants were hypnotized and fantasized about their observations. Until his death, Mann maintained his conviction that the phenomena he has observed were "genuinely" paranormal. *Mann's own Publications related to his Experiences at Schrenck's*: Besides the *"Three Reports"*, written by Mann but published by Schrenck-Notzing, Mann used these experiences for two publications of his own:

1. *"An Experience in the Occult"* condenses the three séances into one. The stuff is reworked; the style is markedly different from the factual *"Three Reports"*: more distant, mockingly, ironical.
2. Mann's masterpiece novel *"The Magic Mountain"* contains a séance during which the materialization of a deceased person appears, going well beyond the phenomena experienced at Schrenck's.

Mann had extremely ambiguous feelings towards the paranormal (labeling it cranky, fallacious, unaesthetic, disdainful, dishonorable, sinful, obnoxious, and even spiritually uninteresting and unworthy of human exploration), nonetheless he stuck to the reality of his experiences in his *"An Experience in the Occult"* and in his correspondence with various persons.

### **Changes, Struggles, Triumphs of Life After Near-Death: Preliminary Findings of a Thesis**

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This article details the preliminary statistical findings of the first study for a doctoral thesis, in which a 67-item online questionnaire was employed. Fifty-one people who identified as near-death experiencers (NDErs) participated. Questions were a mixture of multiple choice and open response regarding the NDEr's life before their NDE, during, and after, particularly changes that were difficult to



experience, how those difficulties expressed themselves, and if mental health services were sought. The initial statistical findings suggest that regarding depth of the NDE, there is a positive correlation with the variable of “personal significance of the NDE,” a positive correlation with the view of one’s “life’s purpose having changed,” and with change in “mood.” Furthermore, high significance with age (under 20) compared to social negative aftereffects of an NDE was found.

## **Teleportation: The True Nature of Motion?**

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A single object moving across space could be a myriad of look-alike objects. For classical physics, and to the naked eye, there is only one single object travelling a given path, likely undergoing chemical or physical changes. Even if this single object were standing still within a frame of reference it may still be numerous look-alike bodies that change rapidly, possibly at Planck frequency  $tP^{-1}$ . In fact, changes in the physical/chemical structure and changes in position may solely mean that an entirely new universe has emerged in physical reality. This seems to be predicted by Schrödinger’s global wave function  $Y(x,t)$ : unbounded continuously fluctuating quantum fields are all there is. Furthermore, this implies that as  $Y(x,t)$  does not require discontinuities in time, space nor space-time objects are not exactly as they appear. The confusion lies in the definition as quantum fields exhibit particle-like features. The seeming boundaries defining the so called objects are readily described objectively by a continuous process of field decoherence occurring locally on a very short time scale according to Schrödinger equation for interacting systems. Therefore, bosons, electrons, quarks, atoms, etc. correspond to quanta i.e., local quantum field disturbances of highly unified or “coherent” bundles of energy arising from nonlocal quantum field interactions. Quantum Field Theory (QFT) puts matter on the same all-fields footing as radiation yet scientists still argue about discontinuities. QFT developed from classical electrodynamics and extended the quantized field notion to matter. It predicts quanta of matter fields rather than quanta of force fields. Quanta as superposition of different frequencies, can be more spatially “packed” and thus more “localized” but always of infinite extent. Thus, matter, and all phenomena emerge locally from nonlocal quantum field interactions via dynamical decoherence; possibly at  $tP^{-1}$ . As energy is quantized, it must become “physical” through Higgs bosons springing from infinitesimal white holes permeating “reality”; matter, space-time and all phenomena emerge briefly. Then, energy momentarily stops being “physical” i.e., non-local quantum state; everything collapses through infinitesimal black holes. Therefore, from this standpoint, a local quantum perturbation may briefly emerge ( $tP$ ) at a contiguous point in space ( $IP$ ) or it might as well swiftly ( $tP$ ) teleport light-years away. This phenomenon in fact resembles teleportation. Furthermore, unlike classical physics, QFT requires the presence of conscious observers in the description of reality. Therefore, what could really determine where in space “objects” will be may not be the laws of physics but consciousness. This implies that objects in motion are being teleported all the time beyond our awareness. Currently consciousness apparently precludes teleportation greater than  $IP$  yet that does not mean that awareness cannot be expanded; the issue is how.

## **Influence of the Global Geomagnetic Field on Map Dowsing Performance in an Online Psi Experiment**

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Dowsing typically involves locating an object of interest, like underground water, in a field. Map dowsing is similar except the object of interest is located on a map of the field. From July 2002 through December 2018, an online test similar to a map dowsing experiment collected 63.3 million trials over 5,749 days from an estimated 120,000 people around the world. The user's task was to select a location in a 300×300 matrix as close as possible to a randomly selected target chosen immediately afterwards by the web server. Overall performance was in the predicted direction, but not significantly so. However, the correlation between performance and global geomagnetic field (GMF) flux on the day of the test, as well as the three days prior to the test, were in significant agreement with previous observations of the psi-GMF relationship.

## **Mediumship Research in the 21st Century: An Update on Collaborations with the Spiritualists' National Union**

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Stansted Hall was gifted to the Spiritualists' National Union (SNU) by J. Arthur Findlay MBE in 1954 with the intention that the buildings be used to establish a 'College of Psychic Science' [emphasis added]. Stansted Hall was named 'The Arthur Findlay College' and has established an international reputation for its educational programmes in mediumship practice and philosophy. Despite Spiritualism being among the most evidence-based of the major religions, these programmes have not always sought to engender a scientific approach to the evaluation of empirical evidence gathered during mediumistic demonstrations. The President of the SNU, Minister David Bruton, has begun to address that shortcoming, initially by organizing a Science Day at the SNU's Arthur Findlay Centre in 2013 that was intended to introduce the Spiritualist community to the scientific research that had been conducted on the subject of mediumship and to suggest ways in which they might adopt a more scientific approach to their own practice and experiences. A condensed workshop programme was run at the SNU's Stafford Centre in 2015, and the authors contributed to residential weeks in 2016, 2017 and 2018. The ultimate aim of these initiatives is to encourage collaboration between the Spiritualist and scientific communities to further our understanding of the nature and phenomena of mediumship. As a next step in the rapprochement between mediums and academics, the SNU Executive Committee agreed to convert space at the Arthur Findlay College into a permanent laboratory that could be used to conduct research with the community of mediums who attend programmes at the College. Funding from the Society for Psychical Research has enabled the space to be refurbished and for equipment to be procured. The intention is that the space would be made available to serious academics for them to conduct their own research (subject to approval from the SNU). To facilitate this, we identified a study of mediumship by Delorme,

Beischel, Michel, Boccuzzi, Radin, and Mills (2013) that could showcase the technical facilities available at the lab and to encourage the wider academic community to make use of this resource. Delorme et al. had collected psychometric and brain electrophysiology data from six individuals who had previously reported accurate information about deceased individuals under double-masked conditions. Each experimental participant performed two tasks with eyes closed. In the first task, the participant was given only the first name of a deceased person and asked 25 questions. After each question, the participant was asked silently to perceive information relevant to the question for 20s and then respond verbally. Responses were transcribed and then scored for accuracy by individuals who knew the deceased persons. Of the four mediums whose accuracy could be evaluated, three scored above chance ( $p < .03$ ). The correlation between accuracy and brain activity during the 20s of silent mediumship communication was significant in frontal theta for one participant ( $p < .01$ ). In the second task, participants were asked to experience four mental states for 1 minute each: (1) thinking about a known living person, (2) listening to a biography, (3) thinking about an imaginary person, and (4) interacting mentally with a known deceased person. Differences (at  $p < .01$  after correction for multiple comparisons) in electro-cortical activity among the four conditions were obtained in all six participants, primarily in the gamma band (which might be due to muscular activity). These differences suggest that the impression of communicating with the deceased may be a mental state that can be distinguished from ordinary thinking or imagination.

### **Experimental Parapsychology as a Methodology for the Study of Religious Discourse in the Work of Joseph Banks and Louisa Rhine**

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Although the phenomena being studied and what people often take to be the spiritual implications of their existence date back thousands of years to the very origins of human civilization, the scientific nomenclature of parapsychology was not established until the nineteenth and twentieth centuries. Joseph Banks (J.B.) and Louisa Rhine, the founders of laboratory parapsychology, recognized this and argued that their experimental findings were evidence for the existence of phenomena that have traditionally been the domain of religion. For the Rhines, parapsychological research necessarily fostered discussions of the traditional religious answers to the survival question, such as reincarnation and the nature of an incorporeal spirit. They discuss visions of saints in terms of extrasensory perception via hallucination. The Rhines wrote about prayer in terms of telepathy and used experimental findings to demonstrate that what seem to be answers to petitionary prayer might be best understood as psychokinesis. They recognize what scriptures term prophecy as being equivalent to the modern concept of precognition but also demonstrate that it might not be as uncommon as the world's religions claim. The Rhines' work often contradicts claims made in the history of religions that portray such phenomena as miraculous, evidence for the existence of supernatural entities, or validation of the truth claims made by a religious figure. Their work necessarily engages with the history of religions. However, it also shifts the traditional narrative of such events, as framed in the world's religions, from being the action of divine agency to a study of human abilities.



## **Exceptional Human Experiences Beliefs Scale: An Exploratory Factor Analysis**

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The aim of this study was to create a new measure of paranormal beliefs, the Exceptional Human Experiences Beliefs Scale (EHEBS), and explore its structure and internal consistency. Exceptional human experiences (EHE) or exceptional experiences (EE) - also commonly referred to as anomalous, paranormal, or unusual experiences - are usually rare, spontaneous or induced experiences that imply, from the point of view of the people experiencing them, a non-ordinary interaction with their environment. It is estimated that one in two people has these experiences at least once in the course of his/her life. Although the frequency and form of those experiences may be influenced by cultural context, significant and similar rates have been found in surveys conducted in Europe, Asia, and Australia. In addition to research done on these experiences, attention has also been paid to the study of paranormal beliefs. What is understood by paranormal belief is not consensual and culture should, ultimately, be taken into account. In the present study, beliefs and disbeliefs about EHE are understood as whether one believes or not in the actual existence of these experiences. Eleven experiences considered in EHEBS were based on the phenomenological classification proposed by Rabeyron (2010): telepathy, clairvoyance, precognition, apparition, out-of-body experiences, near-death experiences, mediumship, mystical experiences, abduction, reincarnation, and psychokinesis. The inclusion of these experiences and the remaining two (psychic healing and apparitional clairaudience) comes from a literature review. Data were analyzed by means of a principal component factor analysis, which produced a 2-factor model, 12-item assessment explaining 67% of the variance. The two factors correspond to the two classical areas of scientific parapsychology studies: *Survival Hypothesis* and *Psi-related experiences*. The EHEBS does not contain items of religious and superstitious nature; does not confuse paranormal beliefs with paranormal experiences, and has very good psychometric qualities. Therefore, it constitutes an alternative to be used by researchers interested in beliefs about phenomena of interest in scientific parapsychology, and by clinicians who want to access their clients' beliefs.

## **Using a Psychomanteum to Explore the Nature and Correlates of Subjective Apparitional Experiences**

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This study explored the nature and correlates of experiences in a psychomanteum procedure (e.g., Moody, 1992; Moody & Perry, 1993) and is an extension of Radin and Rebman's (1996) research. Our work explored several correlates of exceptional experiences (ExE) in the psychomanteum. Hypotheses compared synesthetes and non synesthetes on ExE and the rated vividness, reality and spatial nature of ExE. We also planned to explore correlations between the presence of anomalies and their experiential qualities and RNG output (Z scores), measures of electromagnetism (EMF meter output and AP values)

and psychophysiology (Heart rate variability or HRV). Creativity and boundary thinness will correlate with the experiential qualities of ExE. The qualitative nature of ExE will also be explored. Participants completed the Fantasy Questionnaire (Weibel, Martarelli, Häberli, & Mast, 2017), the Rasch version of the revised Transliminality scale (Lange, Thalbourne, Houran, & Storm, 2000); the Boundary Questionnaire (short) (Hartmann, 1991), one question about synesthetic experiences (Hartmann, 1991). Synesthetes also provided details about their synesthesia and completed the Synesthesia Battery (Eagleman, Kagan, Nelson, Sagaram & Sarna, 2007). Materials included; an intention questionnaire, art materials, a post session questionnaire and a semi-structured interview schedule. Apparatus included a voice recorder, Emwave (by Heartmath) to measure HRV, a Psyleron RNG, a GQ electronics EMF meter (380), an infrared camera, a dimmable lamp, a small keyboard and simple experience sampling program that enabled a time stamp for experiences reported during the session; and a reclining chair and mirror (positioned at a 45 degree angle) that were placed into a psychomanteum chamber. A track playing nature sounds and the track *Weightless* by Marconi Union were employed and a house plant was placed outside the chamber. Thirty people participated (15 reported a prior experience with apparitions and 15 also had synesthetic tendencies). Baseline readings of EMF (in milliGauss) and RNG were taken and the empty chamber was filmed for 45 minutes. Nature sounds were played as the participant arrived. The study was described and participants signed a consent form. Then, baseline HRV measurements were taken. During a 15-minute intention session, participants listened to relaxing music and attempted to bring a deceased person into their mind. Suggestions and art materials were provided. Participants entered the psychomanteum and were fitted with the HRV sensor. A voice recorder was placed in the room. Participants were asked to relax and gaze at a tilted mirror, keeping the person they wanted to experience in mind and being open to experiences. They were given a small keyboard and invited to press a button if they had a sense of presence or visual experience. An infrared camera and RNG were started and the levels of electromagnetism were monitored for 45 minutes. Participants were interviewed and art materials were provided. Then, a post session questionnaire was completed. A follow up questionnaire was sent 1 week later. Data collection was completed at the end of April, 2019. The findings will shed light on individual differences, physiological and environmental correlates of intentional apparitional experiences.

## **What's in a Name? A Lot, Actually**

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A field of research and practice is largely defined by its terms. Parapsychology is no exception. In this paper I consider recent calls to change some long-standing terms in the field, primarily “parapsychology” and “extrasensory perception” (although I address others). I first specify desiderata that we should expect in terms that we want to use in identifying the nature of our field and the phenomena we explore, then discuss some of the reasons the changes in question were proposed, including an exploration of some of the goals and motivations for those proposed changes. I then present counter-arguments to these reasons, along with justification for preserving the current terminology, and argue that, although well intended, the strategies and alternatives presented do not achieve the intended goals. I defend the two terms that are under pressure, explaining why they remain the best candidates to use. One undisclosed motivation for such changes may be what I call “Parapsychology’s Stockholm Syndrome.” Borrowed from the concept of

“identity with the aggressor” manifested by captives of terrorists or other abusers, where such captives often come to embrace the agendas and causes of –and identify with– their captors, I suggest that some of the motivation for such name changes is our own desire to “fit in” with mainstream science, which for so long has tried to dismiss and marginalize the field of scientific parapsychology. I argue that, rather than rebranding or renaming, we should as a field instead fight for our terminology, defending it from attacks, whether direct or indirect from “aggressors” in mainstream science or from dedicated skeptics.

### **So-Called Kundalini Experience and its Relation to Attentional Absorption States: First Results of an Interview Study**

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Altered states of consciousness (ASCs) and meditation have long been associated with psychic experiences and anomalous experiences more generally. Consequently, they have been the object of parapsychological research. However, whether during meditation practice an altered state is induced is rarely assessed and, if so, what kind of state, let alone how different ASCs can be differentiated. The study *Varieties of Contemplative Experience* by Lindahl, Fisher, Cooper, Rosen, and Britton (2017) investigated difficult and unexpected meditation-related experiences, using a mixed-methods approach and interviewing Western practitioners and experts in different Buddhist traditions. Based on the methodology of this original study, we attempt to replicate its findings with a German-language sample, additionally interviewing practitioners of Buddhist-derived secular meditation techniques. Here we present as first results three related themes: 1) an involuntary circling of the body that originates from the pelvis; 2) a feeling of being boosted, uplifted or energized, leading to an involuntary shift in state of consciousness from the normal waking state to a state of attentional absorption; 3) two distinct states of absorption, one experienced as spacious consciousness, the other felt or internally perceived as a bright all-embracing light. The involuntary circling has exclusively been described as part of an intense experience that includes sensations rising up the spine. This experience may qualify as what transpersonal psychologists call kundalini awakening. The shift in state of consciousness, possibly happening repeatedly, has typically been described as happening after a kundalini awakening had occurred and/or in the context of intensive concentrative meditation and the experience of energetic sensations and vibrations. The two distinct states of absorption are usually described as succeeding one another. We discuss the advantages of detailed descriptions of phenomena resulting from in-depth interviews.

### **A Test of Telepathy Using Immersive Virtual Reality**

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The aim of this study was to enhance the signal of telepathy Senders by immersing them in a virtual reality (VR) environment and exposing them to a positively arousing experience as opposed to a

static target image. For example, the immersive VR scene of a rollercoaster ride. The aim of this study was to elicit a telepathic effect by recruiting pairs of participants and measure the accuracy of the Receiver's responses when the Sender is immersed in a VR environment and whether this effect would be related to the level of belief in psi and strength of the relationship between Sender and Receiver. Eleven pairs of participants were opportunity sampled from psychology students. Nine pairs were friends or classmates with the remaining two being married. Each pair worked as both sender and receiver, with conditions counterbalanced.

The target pool consisted of 50 images from the IAPS database depicting positive physical activities (e.g., skydiving, rollercoaster ride etc.). These were separated into two batches each containing five sets of five images matched for valence and arousal. From each set a single image was identified as the target and a 30-second 360o video depicting the image was used to play on the VR set. On arrival each pair of participants completed the RPBS (Tobacyk, 2004) and the IOSS (Gächter et al., 2015) with order counterbalanced across pairs. They then swapped a personal item to keep as a reminder of their partner and were taken to separate rooms where the Sender was set up with a VR headset and viewed one of two video batches showing five 30-second active target videos each one interspersed with a resting clip lasting 45 seconds. A trial was considered a hit if the Receiver ranked the target image as 1. Across all trials Receivers exhibited a mean hit rate of 26% which was not significantly above chance (one-tailed):  $t(20), 1.101, p = 0.14, 95\% \text{ CI } (-0.051, 0.0165), d = 0.24$ . There was a positive correlation between mean hit rate and the psi sub-scale of the RPBS ( $p = 0.04$ ) though no other correlations were significant (all  $ps > 0.3$ ). A post hoc exploratory examination of the mean hit rate for the top two rankings showed that the mean hit rate of 52% was significantly higher than chance (one-tailed):  $t(19), 2.259, p = 0.018, 95\% \text{ CI } (0.008, 0.231), d = 0.50$ . Results of the main analysis found no evidence for telepathy, with hit rates not differing significantly from the expected chance rate. However, a post-hoc analysis did find some evidence for an effect when participants top two choices were considered, nevertheless these results must be interpreted with caution considering the failure of the primary analysis. The only questionnaire measure found to have a significant relation with hit rate was the psi sub-scale of the RPBS, with higher levels of belief in psi phenomena correlating positively with success in the main task.

## **Abstracts of Posters**

### **The IONS Discovery Lab: A Big Data Study of Parapsychological Phenomena**

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Subjective psi experiences are common in various populations. Furthermore, a recent review demonstrated that the evidence for psi phenomenon is growing and is similar in terms of effect size to that of other established phenomenon in psychology and the social sciences even after accounting

for the quality of the studies, potential fraud, and selective reporting. Although subjective experiences are common and the evidence for them as a real phenomenon is growing, few studies have evaluated the factors associated with psi experiences and abilities, such as the demographics, well-being, interconnectedness, or overall health, to name a few. This current study aims to fill this gap by conducting a large, prospective cross-sectional study evaluating which factors are associated with psychic experience and performance. Thousands of people each year come to the Institute of Noetic Sciences' EarthRise Learning Center to participate in transformative-type interventions and workshops. This research study is currently administering a 25-minute-long survey assessing the participants' well-being, health, demographics, beliefs towards psychic phenomena, creativity, and compassion. Furthermore, a series of short psychic tasks measure the participants' performance at remote viewing, precognition, intuition, and psychokinesis. Additionally, 4-channel electroencephalography (EEG) activity of the participants is recorded during a breath-focus exercise at the end of the survey. In collaboration with workshop organizers, we incorporate the measurement process into their workshop registration. Each participant has their own carrel containing the necessary equipment to maintain high focus and privacy. Participants complete the measures and then attend their workshop. After their workshop, they complete the same assessments. This poster will present preliminary results of a broader, long-term pilot study that investigates what experiences and conditions account for observed effects, the nature of non-local consciousness, and its relation to our physical world. Preliminary analyses will focus on: 1) evaluating the relation between the factors; 2) examining the efficacy of each experiential learning at developing specific noetic qualities; and 3) assessing any potential predictors.

### **Unconscious Social Interaction Coherent Intelligence as Another View on Extrasensory Perception**

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The theory of Coherent Intelligence explains the modality of implicit collaboration in colonies of animals and groups of people (Collective Intelligence), as well as the essence of anomalous perception (ESP), within the framework of existing laws of physics. Coherent Intelligence is an effect of unconscious collaboration provided by inter-connection of many brains united by the entanglement state of their neurons – the phenomenon of quantum entanglement of particles –stimulated by common emotional arousal. The main arguments and features of this concept are based on research on the decision-making of social insects, the study of Collective Intelligence, a recent meta-analysis of ESP studies from 1987 to 2010, and recent research in quantum mechanics. The research examined an improvement of thinking in groups. The hypothesis is that in the situation of strong emotional contagion when people (independently from one another) are dealing with the same problem at the same time, it is possible to create a coherent mental process. Experimenters tested whether knowledge on the problem of some group members may facilitate the thinking of other participants. Sixteen tests were conducted with 1,055 trials. These trials differed by tasks of varying complexity, which is probably why their results are also different. The thinking abilities of the groups also differed from group to group, as well as the involvement of their participants in the collective process of different tests. The increased performance of

the teams meets the estimation of the theoretical assumption on them and corresponds to the essence of the phenomenon. The ratio of increased scores of different groups varies from 2% to 37%; it should be noted that an increase in scores of even just 2% can make a contribution to group collaboration if applied to the decision-making and learning process. The effect of anomalous unconscious collaboration, which is weak for extrasensory communication, is substantial for Coherent Intelligence. The theory suggests a new approach for evaluating the results of the research on ESP. We affirm that unconscious social interaction Coherent Intelligence plays an important role in social reality formation and it permeates all social textures and configurations. We believe that long-term and substantial studies on Coherent Intelligence may explain different sociological and psychological phenomena.

### **NDEs and Creative Artistic Mediation: How to Symbolize Extreme Affects?**

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The feelings of people who have experienced a near-death experience (NDE) can often be associated with traumatic experiences. According to a psychodynamic approach, NDEs are psychosomatic reactions to the surprising perception of the proximity of death. These psychosomatic reactions may have an adaptive function to prevent certain adverse effects of trauma and thus have a protective role against the development of symptoms of post-traumatic stress disorder. Artistic skills are often and spontaneously revealed following an NDE, but no psychological research has explored this aftereffect. Artwork produced by people with NDEs may reveal their emotional reactions, such as levels of concrete or abstract thinking processes related to the NDE event through the use of means such as painting. These productions can contribute to greater psychic integration of thoughts and feelings associated with the experience. Our research aim is to investigate the integration of NDEs and their aftereffects into the lives of NDErs through creative artistic psychotherapy. A larger aim is to better understand the links between NDE, artistic mediation, and symbolization processes, within the framework of a clinical approach of exceptional experiences, while renewing the psychoanalytic questioning on artistic activity. In our first exploratory study we will analyze the repercussions of different NDEs in the emergence of a spontaneous artistic activity, as well as in the case of artists having lived a NDE in childhood (e.g., Bill Viola), by analyzing their artistic productions in connection with their type of personality. More interest will be given to their relation to art before and after the NDE. In our second study, we will analyze the productions and the personality characteristics of artists declaring themselves mediums with extraordinary faculties related to their artistic activity. For our final study, we will develop an artistic mediation setting in an art studio for a psychotherapeutic purpose. We will review the works of at least 15 volunteer participants who will each report an NDE within a psychoanalytic interpretative framework. The aim is to show how artistic mediation can initiate processes of symbolization to contribute to the integration of NDE and related difficulties, taking into account the various factors already mentioned above. Participants will complete pretest and posttest assessments. We will also collect the participants' artistic creations during sessions to identify pictorial themes and discuss methodological benefits of using artistic tools.



## Understanding Psi by a Model that Unites Consciousness, Mind And Matter

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The idea that the universe might be a computer simulation is being taken increasingly seriously by scientists, philosophers and technology leaders. However, before a real theory can be developed some basic questions need to be answered:

- Where does it come from?
- What is it made of?
- How is it built?
- What are its properties?
- Who is the programmer?

The answers come in the form of the so called “Metacomputics Model”. As it is presented here the operating computer is assumed to exist in the Platonic realm. The physical universe and all its contents are then formed by the processing output of this Platonic computer. According to the Metacomputics Model, consciousness itself exists as the fundamental and irreducible basis to the universe. It is defined as the abstract power to conceive, to perceive, and to be self-aware. The content of the universe comes into existence from consciousness via the computational processes of the Platonic computer which is itself made by, of, with, and from Consciousness. One advantage of this model is that it serves to bridge between the views of the world as the state of non-duality and of duality. It gives us also an intellectual understanding of the origin of time and space. It provides a means of understanding the creation of the apparent material universe from consciousness through a computation process. This paper presents that the Metacomputics model can be applied to explain psi-phenomena in terms of accessing “meta-database” (for ESP) or alteration of the “meta-programs” (for PK) through a form of human-machine interaction by psychic individuals.

## Tolerance of the Unknown: Negative Capability, the Problem of Demarcation, and the Truzzi-Gardner Dialogue

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The poet John Keats coined the term *negative capability* to describe the kind of open mindedness capable of tolerating the unknown or only half-known. He also described a similar idea regarding our ability to disregard our own knowledge and allow the mind to become a thoroughfare for all thoughts.

This capability may be considered from the perspective of the psychology of science as an epistemic virtue, which plays an important role within the scientific study of anomalous phenomena or what might be more succinctly termed *anomalistics*. Have scientists developed sufficient negative capability to deal adequately with the claims of the paranormal? As an illustration, we analyze the role of negative capability within the recently published correspondence between sociologist Marcello Truzzi and mathematician and science journalist Martin Gardner. Gardner defended a kind of hardline skepticism favoring prejudice and pejorative labels whereas Truzzi promoted a softer skepticism with more symmetry and a courteous effort toward those who strive diligently to follow the rules of science. Both forms of skepticism have different epistemological grounds and this inner-demarcation is analyzed through the perspective of the psychology of science and its assessment of individual's epistemic vices and virtues. This inner-demarcation has an impact on the wider issue of demarcation between science and pseudoscience. We conclude that negative capability should be a salient factor in future research and may be encouraged and developed by the educational opportunities provided by anomalistics and its characteristic skeptic-proponent dialogues.

## **The Amyr Amiden Phenomena: Physiological and Geomagnetic Correlates**

Stanley Krippner

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My first encounter with Amyr Amiden was in 1993. During our time with Amiden, members of our group reported the sudden appearance of small polished stones as well as the putative transmutation of tinfoil into gold foil. Weil invited me to return for a more formal study of Amiden's phenomena. In 1994, I returned to Brasilia. Amiden met with us for eight days, following his work. At day's end, each unusual event was scored on a 5-point scale by me. A total of 95 unusual events were observed; 91 were scored as "apparent anomalies." We used the Spearman rank order correlation method to investigate associations between variables. The means from the AOS were paired with the corresponding pulse readings, yielding non-significant results. There were 12 systolic blood pressure readings followed by apparently anomalies yielding non-significant results. There were 13 systolic blood pressure readings with antecedent anomalies yielding non-significant results. There were 12 diastolic blood pressure readings followed by apparent anomalies, the results were non-significant. When 13 diastolic blood pressure readings were paired with antecedent apparently anomalies, the results were statistically significant, the higher the diastolic blood pressure readings after the event, the higher the mean rating on the AOS. There were 15 geomagnetic readings followed by apparently anomalies yielding non-significant results. There were 17 geomagnetic readings preceded by apparently anomalous events with significant results suggesting that atmospheric electricity and geomagnetic activity provide favorable conditions for anomalous events. When the mean ratings on the AOS of each daily session were paired with daily geomagnetic activity for South America, the results were not significant. When the mean AOS ratings of each session were paired with daily geomagnetic activity for the Southern Hemisphere, the results were significant. The objects that appeared anomalously included polished stones, coins, medallions, onyx, jewelry, gemstones, and a pair of metallic linked rings. Laboratory tests identified some of the stones as agate, amethyst, a low-grade emerald, and a small diamond. The linked rings are currently in a safety deposit box

at Lal Arora's university in Fortaleza, Brazil. Two years later, I met with Amiden and Weil in the latter's office. Weil asked Amiden if he could find an important book that had disappeared from his bookshelf. Immediately a blue-green rock cascaded onto the floor; Weil remarked the color was the same as the missing book's cover. I was called into another office to take a telephone call. While on the telephone a polished stone fell at my feet. Returning to Weil's office, Weil informed me that the missing book had reappeared in his bookcase. The cover was the identical color of the rock.

Nine years after our investigation, I was at the City of Peace Foundation with Crema, waiting for Amiden to arrive. As he left his automobile, I asked if I could photograph him with my flash camera. He agreed, and when the flash went off, a colorful medallion fell onto the ground. It portrayed Joan of Arc. When a staff member photographed the three of us, a polished stone appeared on the ground when the flash went off. During our meeting in a Foundation office, a musky smell permeated the air. I noticed a pool of liquid and collected it in a tissue. Upon returning to the United States, I gave the tissue to an expert on perfumery. She told me that the smell was reminiscent of a perfume popular in the early 1900s, originating in France.

### **Sleep Paralysis: First Results of an Online Survey**

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Sleep paralysis (SP) is a phenomenon with a rather high lifetime prevalence of about 8% for the general population, with a culture-independent experiential basis. For parapsychology, SP is interesting in two respects: It includes experiences that are often interpreted as paranormal or supernatural, e.g. perceiving ghosts or supernatural entities; and SP can be part of more complex occurrences such as a poltergeist case with a series of various paranormal phenomena. By now a reasonable amount of knowledge of the phenomenology as well as plausible theories of the (neuro-)physiological underpinnings exist. However, this knowledge has by no means become common in the public, and even in practical sleep medicine it is rather poor, at least in Germany – the latter due to its low clinical relevance. The focus of previous research on SP rested on the one hand on its phenomenology (which physical or mental phenomena are experienced during such an episode?), and on the other hand on the context conditions under which SP occurs (state and trait variables). With regard to the former, a relatively clear picture exists by now, while for the latter the state of knowledge is still rather. Therefore, we prepared a questionnaire that included also questions dealing with the desideratum mentioned above. Our questionnaire consisted of 35 items. Several items were supplemented with space for a free text commentary. Further questionnaires we used were: *Fragebogen zur Phänomenologie außergewöhnlicher Erfahrungen* (PAGE-R-II; [questionnaire on the phenomenology of extraordinary experiences]), a German translation of the *Belief in the Supernatural Scale* (BitSS), and a German translation of the *Tellegen Absorption Scale*. A final set of 11 items collected sociodemographic data. Our sample consisted of 380 fully completed questionnaires. The decisive criterion for participating in the study was having at least one SP experience. Our sample differs significantly from those found in the literature because we directly addressed

people who have experienced SP. The proportion of participants with very frequent SP experiences was significantly higher in our sample than in other studies. 70% had at least six episodes of SP and 40% had 20 or more episodes. For many of our participants SP is not a rare event, and therefore we were able to obtain a clearer picture about the possibilities of experiencing this remarkable phenomenon.

## **Finding Meaning in Anomalous Experiences and their Impact on the Evolving Self Using a Phenomenological Analysis**

Marie-Catherine Mousseau

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The purpose of the study was to investigate how people make meaning out of anomalous experiences and what is the resulting impact on their identity. Two participants who had anomalous experiences of different types (one After Death Communication (ADC) and one mystical experience) were interviewed using face to face semi-structured interviews. The data were analyzed using a phenomenological perspective. The identity of both participants evolved significantly as the result of their experience. Though not associated with a life-threatening situation, the transformations were found of similar amplitude and characteristics of those already described in Near Death Experience (NDE) experiences. Additionally, the transformations went through similar stages for each participant, as reflected by the emergent themes. These included the duration of the meaning making process, the importance of sharing with others, and the emergence of a new world view (framework). This similarity suggests common psychological processes independent of the nature of the experience. Subtle differences suggest the influence of the biographical context that may warrant further investigation.

## **The Paranormal and the Aesthetics of Resistance**

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This presentation consisting of a visual display of artworks and ensuing discussion addresses a post-colonial approach to the study and procurement of psi phenomena via performative, sculptural, and intuitive creative practices. The art works on display are informed by the works of contemporary psi research, contemporary occulture and both West African and Asian divinatory systems of knowledge. Divinatory and intuitive practices such as Jungian active imagining, Chinese geomancy and iChing consultation, and Diasporan Hoodoo practices directly inform the creation of the works themselves, while the texts of notable parapsychology and comparative religions scholars including Jeffrey Kripal, George P. Hansen, Dean Radin, Ingo Swann, and Lynne McTaggart create a context for conceptualizing these practices within a contemporary empirical framework. Works on display: *Chick House* (2019), *Intention Room (Pray for Whatever You Want to Whatever You Want)* (2019), and *Baubo and the Baobab Thangka* (2018).

## **The Theoretical Analysis and Curriculum Development of the Sixth Sense Used in the Training of Blind Childrens' Living Ability and Survival Ability**

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The sixth sense is the additional sense of human beings besides sight, hearing, smell, taste, and touch, which has been used in human life since ancient times. Blind children, due to their loss of vision, have experienced many inconveniences in life. The pineal gland may be sensitive to light, which has the potential to compensate for visual function. Based on the application principle of the sixth sense, we designed a curriculum to activate the sixth sense of blind children by stimulating the pineal gland of photosensitive ability. After training, it can replace lost vision, enhancing the ability of blind children live alone and survive, benefiting blind children and human beings.

## **An Explanation of the Powers of Franz Mesmer**

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In his lifetime Franz Anton Mesmer was branded a charlatan by the scientific community on account of his claim of being able to cure many maladies and medical problems through animal magnetism. Notwithstanding this, although his specific claim to possess the power of animal magnetism has been discounted, his methods have had a vast influence in every branch of mental healing and spiritual healing and healing through hypnotism, as well as New Age techniques that involve not only "the power of suggestion" but also the physical "laying on of hands." The list of actual movements that have adopted Mesmer's techniques include eclecticism, phrenology, Spiritualism, mind cure, Christian Science, homeopathy, transcendentalism, New Thought, Theosophy, psychoanalysis, osteopathy, chiropractic, anthroposophy, holistic health, positive thinking, New Age healing, hypnotism, biophysics, biomagnetism, magnetobiology, and psychiatry. This article reviews Mesmer's techniques, and gives a broad overview of all the other branches of mental and spiritual healing where his methods are still used in one way or another, and presents recent scientific research that completely vindicates Mesmer's original claim to possess the power of being able to manipulate the "magnetic fluid" in the living organism. In a research article entitled *Remote Regulation of Glucose Homeostasis Using Genetically Encoded Nanoparticles* (2014) it has been found using techniques in radiogenetics that the ferritin in our bodies (a paramagnetic material) can be manipulated not only by low-frequency electromagnetic waves (radio waves) but also by magnetic fields. Brain waves are also low-frequency electromagnetic waves, and as it is well known that the brain waves of a healer/hypnotist become synchronized with that of the patient, it is proposed that brain waves play a part in what Mesmer originally called animal magnetism.

## Abstracts of Panels

### Clinical Parapsychology

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The science of parapsychology in the West has historically been limited to seeking scientific validation for “psychic”, “exceptional human experiences” and anomalous phenomena, while clinical work had been left to licensed practitioners in psychiatry, clinical psychology, and transpersonal psychology. It is not uncommon for a health care provider to suggest medication or even hospitalization for someone who reports dreaming about future events, remembering a “past life” event, or claiming to have heard the voice of a departed loved one. These reports are rarely veridical, but we believe that they are equally unlikely to be pathological. However, thanks to steady advances in sciences such as neurology, cellular pathology, and physics occurring alongside the public increasingly seeking assistance ranging from mediums and indigenous healers, New Age shamans and the energy-medicine community to deal with anomalous phenomena, we see that clinical parapsychology is finally positioned to address a full spectrum of phenomenology as a foundational science to:

1. Offer counsel on exceptional experiences.
2. Review clinical applications and case studies.
3. Provide guidance and education to scientists, professionals and laypersons on scientific evidence for psi, combined with culturally sensitive awareness concerning the use of psi methodologies (psychic, intuitive, spiritual and ‘energy healing / energy medicine’) as relates to exceptional human experiences including: psi disturbances, spiritual emergencies, trauma induced spiritual awakenings and other anomalous phenomena.

### Current Status of Psi Theory: Report From a Recent Workshop

Peter Bancel<sup>1</sup>, Dick Bierman<sup>2</sup>, Mario Varvoglis<sup>1</sup>, and Thomas Rabeyron<sup>3</sup>

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This panel reports on the presentations and conclusions of the Workshop on Psi Theories, a meeting held over two days prior to the PA Convention. The Workshop brought together several dozen scientists either actively engaged with or interested in psi research. The Workshop’s premise is that the basic claim of parapsychology is solid: empirical evidence from both laboratory research and spontaneous-case studies establishes that anomalous phenomena related to consciousness oc-



cur. These include, but are not limited to, informational transfers and correlations that challenge our notions of time and causality. However, while the body of evidence is strong, albeit complex, the disparate attempts at psi theory are partial at best. The very fact that we refer to these phenomena as “anomalies” shows that the outstanding challenge of the field, at this point, is theoretical rather than empirical: establishing models that can account for data, while delineating how psi accommodates, or challenges, accepted scientific frameworks. Responding to this challenge demands a multi-disciplinary approach, drawing on diverse fields such as consciousness research, psychology, neuroscience, and physics. The task is further complicated by the sheer breadth of phenomena that need to be integrated in any comprehensive theory— from physiological presentiment data to reports of macroscopic PK.

We summarize below the kinds of questions each panelist sought to address.

*Mario Varvoglis: Theoretical Models of Psi: Deep Structure and Relevance*

How do different theoretical approaches measure up in terms of explanatory breadth and relevance when confronted with our data? In particular, what is their explanatory power when faced not only with statistically significant databases, but also with reliable field accounts of large-scale psi?

*Dick Bierman: The Role of Retrocausation and Non Locality in Theoretical Frameworks*

Psi has been negatively defined in the past – essentially as “that which we cannot explain.” Instead of framing psi negatively, and calling it an unexplained anomaly, improving theories helps to give a positive definition of what we mean by psi. Which underlying principles from physics can or should guide theoretical frameworks? How can retrocausation, non-locality, or other fundamental theoretical notions be used to define psi in a positive way?

*Peter Bancel: Towards a Programmatic Approach to Psi Theory*

Advancing psi theory is a long-term project that will require contributions and insights from different areas of science. This is not likely to happen by itself and more needs to be done to facilitate inter-disciplinary crossover. While the Workshop is an effort in that direction, real progress calls for some strategic thinking. In general, we can reflect on two questions: What are the theoretical resources outside of parapsychology that can be most useful and how can those be brought in? What efforts are needed within parapsychology to further its theoretical program?

*Thomas Rabeyron: Theoretical Insights from Psychology and Natural Expressions of Psi*

The study of naturally occurring psi, including cases of anomalous cognition, experiential reports from gifted subjects, and psychological data is a rich source of information about psi phenomena. How might these complement or inform theory? Does this information force a wider explanatory purview for theory, or does it in some way demand fundamentally complementary approaches?

## Invited Addresses

### **Parapsychological Association Presidential Address 2019: Making Sense of Psi**

Dean Radin

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This talk addresses seven clues that may be useful in developing a more comprehensive understanding of psi. The first is based on the core theme of both Eastern and Western esoteric traditions, namely that consciousness—not matter—is fundamental. This clue, suggestive of an idealistic philosophy, provides a much easier way to understand psi than any materialistic model. The second clue is that there are more comprehensive forms of logic than Aristotle’s “excluded middle,” including logics leading to such odd concepts as imaginary and negative probabilities. The third is preliminary evidence suggesting a biological basis for psi talent, as observed both in brain morphology and in genetics. The fourth is a recognition that the so-called replication crisis in mainstream psychology is very closely related to some of the difficulties of replication in parapsychology. The fifth is that psi phenomena and quantum mechanics share exactly the same property that cause both topics to be called “weird” in the popular press, i.e. nonlocality. This similarity is not an *explanation*, but it is almost certainly not a mere coincidence. The sixth clue is the rise of quantum biology, which allows us to predict with increasing confidence that the brain may have quantum properties. If that turns out to be true, then from a mainstream perspective psi becomes vastly more plausible. The seventh clue is that psi is metaphorically like Indra’s Net, i.e., we are studying a holistic phenomenon where everything is nonlocally connected with everything else. Conventional epistemologies do not apply to such systems, which is why capturing psi in the laboratory is a chronic challenge. Consideration of these and similar clues may be useful in helping to form models of reality where psi is not considered anomalous, but obvious.

### **Towards a NON Neuronal Conception of Consciousness**

Jean Staune

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Two thousand and five hundred years after the Delphic Oracle advice “know yourself,” we still do not know if we are “nothing but” a neuronal secretion created by our brains, or if consciousness has a much wider dimension. The first position, the one that dominates in the field of neurosciences, will be strongly supported in the coming years by the development of various transhumanist ideologies. In this lecture, I will present a full range of elements, other than those pertaining strictly to parapsychological research, that aim to back up the second position: the existence of a consciousness in part independent from the brain. Such findings are destined to reinforce and complement the results that have been revealed by current parapsychology findings.

## **What Is and Is Not Possible for Human Experimenters**

Antoine Suarez

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I will argue that:

1. All interpretations of quantum physics (Copenhagen, de Broglie-Bohm, Many-Worlds, QBism) are basically equivalent and amount to state that not all that matters for the physical phenomena is contained in space-time.
2. The “laws of physics” actually arise from the maximal number of experiments that humans of all times can in principle perform.
3. On the basis of a recent no-go theorem, Schrödinger’s cat can be declared brain-dead. This means that at measurement something irreversible happens and registered results or visible things (like cats, the sun, etc.) do ordinarily follow deterministic world-lines.
4. Nonetheless (as QBism highlights) nothing speaks against admitting deviations as well from the ordinary visible regularities (e.g., “miracles”) as from the quantum mechanical distributions predicted by the Born Rule (e.g.: “free-willed”; bodily movements like speech). “Miracles”; and “speech”; do not break any “inexorable law of nature,” but only those regularities that hold in absence of purposeful authorship.
5. On the basis of these conclusions I finish by discussing the conditions for the possibility and reproducibility of psychophysical phenomena.

## Quantifying the Phenomenology of Ghostly Episodes: Part II – A Rasch Model of Spontaneous Accounts<sup>1</sup>

James Houran<sup>a</sup>, Rense Lange<sup>a</sup>, Brian Laythe<sup>b</sup>, Neil Dagnall<sup>c</sup>, Kenneth Drinkwater<sup>c</sup>,  
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**Abstract.** Using a sample of self-reported “spontaneous” accounts (ostensibly sincere and unprimed,  $N = 426$ ), we calibrated a 32-item, Rasch-based “Survey of Strange Events (SSE)” to quantify the phenomenology of ghostly episodes while assessing response biases related to experiencers’ age and gender. This inventory included psychological experiences typical of haunts, and physical manifestations common to poltergeist-like disturbances. Results supported earlier suggestions that “spontaneous” accounts have a predictable (cumulative) behavioral pattern and show a unidimensional factor structure. Further, compared to spontaneous accounts, we identified strong response biases on the SSE across four control conditions (i.e., Lifestyle, Primed, Fantasy, and Illicit). Statistical modeling successfully predicted group memberships with good accuracy, corroborating that spontaneous experiences differ systematically in certain ways from “impostors.” The SSE is a robust measure of overall intensity of ghostly episodes (Rasch reliability = 0.87) and serves as a standard operationalization of specific anomalies in surveys, fieldwork studies, and investigations that code free-response data or spontaneous case material for quantitative analysis.

**Keywords:** ghost, haunt, phenomenology, poltergeist, psychometrics, Rasch scaling

“Repeated and intermittent ...displays are typical of haunt and poltergeist episodes. These events... involve measured or inferred physical changes such as object movements, electrical failures, or strange sounds. Reports of psychological experiences include ‘odd feelings,’ intelligible phrases, and sometimes the perception of human forms. Although the instances may be numerous within the lifespan of the phenomenon, the duration of a single event rarely exceeds a few seconds” (Persinger & Cameron, 1986, p. 49). In some cases, phenomena such as bites, cuts, scratches, welts, and possession-like trances have also been documented (e.g., Amorim, 1990; Mulacz, 1999).

This depiction of “ghostly episodes” is cogent, because it reduces these anomalies to neutral, behavioral-like components and terms. Moreover, consistent with other suppositions (Belz & Fach, 2015; Dixon, 2016; Houran, 2002; Laythe & Owen, 2013), it maintains a clean distinction between *Subjective* (S, internal or psychological) and *Objective* (O, external or physical) incidents when assessing cases. It

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also emphasizes overlapping features between haunts and poltergeists (Williams & Ventola, 2011, pp. 14-15), thereby suggesting the possibility that both episodes share an underlying phenomenon or set of mechanisms (Evans, 1987, 2001; Houran, 2000; Hufford, 1982). However, a curious feature not captured by Persinger and Cameron's (1986) synopsis is that episodes also exhibit "focusing effects" – i.e., to varying degrees incidents simultaneously center around certain places or objects and people (Roll, 1977). Taken altogether, these patterns might argue for an *interactionist* phenomenon defined by an interplay of "the right people in the right environments" (e.g., Lange & Houran, 2001a; Laythe, Houran, & Ventola, 2018).

Self-report measures generally agree on the base experiences characterizing witness narratives (Houran et al., 2019), but ongoing research has been stifled by the lack of a specific and standard operationalization. Consequently, confirming the *S/O* factor structure of these occurrences (i.e., one or two dimensions representing subjective and/or objective events) and conducting meaningful cross-study comparisons on putative causes or correlates remain elusive. In this paper, we address this issue via Modern Test Theory analyses of purportedly authentic reports of a spontaneous and anomalous nature versus a set of control accounts (cf. Houran & Brugger, 2000), i.e., narratives derived from contexts of strong suggestion or expectation, as well as narratives by individuals instructed to fabricate accounts.

Readers unfamiliar with this class of analytics are referred to Houran's (2017, pp. 191-193) summary of features and benefits, since it is well-established (Bond & Fox, 2015; Wright & Masters, 1982; Wright & Stone, 1979) that self-report instruments developed with Classical Test Theory (CTT) are often tainted by serious measurement problems. Unfortunately, most instruments in the paranormal belief and anomalous experience literature fall in this category (e.g., Dixon, 2016; Irwin, Dagnall & Drinkwater, 2013; Jinks, 2012; Sen & Yesilyurt, 2014; Schofield, Baker, Staples, & Sheffield, 2018; Storm, Drinkwater, & Jinks, 2017; Tobacyk, 2004). By contrast, Lange, Irwin, and Houran (2000) introduced a series of psychometric analyses they described as a "top-down purification" process. This method is used increasingly in consciousness studies (e.g., Irwin, & Marks, 2013; Lange, 2017; Preti, Vellante, & Petretto, 2017), and it combines Rasch (1960/1980) scaling with the removal of age- or gender-related responses biases. Controlling for these is critical, because statistical theory (Stout, 1987) and computer simulations (Lange et al., 2000) alike demonstrate that response biases can lead to spurious factor structures of constructs, significant distortions in scores, and consequently erroneous reliability and validity findings.

In addition to improved quality control and model-building, Rasch scaling often produces critical insights into the constructs being considered. For instance, Lange's research programs (see e.g., Lange, 2017) have often found that differences in the phenomenology of biopsychosocial constructs, like depressive symptoms or expressions of romantic love, are partly rooted in respondents' age, gender, or cultural learning (e.g., Lange, Houran, & Li, 2015; Lange, Thalbourne, Houran, & Lester, 2002). Therefore, this paper applied Modern Test Theory to clarify the degree to which nuances in the phenomenology of ghostly episodes reflect idiosyncrasies of experiencers versus the nature of the construct(s) *per se*.

## A Rasch Scaling Primer

Rasch scaling and related Item Response Theory models (e.g., van der Linden & Hambleton, 1997) provide valuable information that goes far beyond that provided by standard (i.e., raw-sum-based) numerical test scores. Instead, the individual items are seen as independent probabilistic sources of information that combine to assess a common underlying latent variable. Respondents' answers are explicitly modeled as the juxtaposition of items' "difficulty" and respondents' trait levels. This formulation has several advantages, as it allows the derivation of maximum-likelihood estimates of respondents' trait levels expressed at an interval-level of measurement. At the same time, Rasch scaling provides valuable quality control indices, including items' fit to the Rasch model and statistics that indicate whether items and test scores are systematically biased *for* or *against* subgroups of respondents. Although misfit and bias obviously impede measurement, recent research indicates that their quantification also creates powerful predictors of considerable diagnostic value (Lange & Houran, 2015; Lange, Martínez-Garido, & Ventura, 2017). This possibility is explored here as well.

More formally, Rasch scaling of binary items models a respondent's ( $j$ ) affirmation of an item ( $i$ ) as the probabilistic outcome of two factors: the respondent's trait level ( $T_j$ ) and the level ( $D_i$ ) at which item  $i$  assesses the trait.  $D_i$  is also called the "item difficulty" or its "location." The value of  $D$  decreases as items receive more affirmative answers. Given the preceding terminology, the following equation describes the Rasch model for binary items:

$$\ln(P_{ij}/(1-P_{ij})) = T_j - D_i \quad (1)$$

where  $P_{ij}$  denotes the probability that person  $j$  will respond affirmatively to item  $i$ . The parameters  $T$  and  $D$  in Equation 1 are expressed in a common unit (called "logits"), as is defined by the log-odds ratio on the left-hand side of Equation 1. Accordingly, logits denote the locations of items within the Rasch hierarchy, with higher values indicating higher positions (or greater difficulty) on the scale. The values of  $T$  and  $D$  can be derived from sample data using iterative maximum likelihood estimation procedure for which we used Linacre's (2018a, 2018b) *Winsteps* and *Facets* Rasch scaling software. Detailed introductions to Rasch scaling are readily available to interested readers (Bond & Fox, 2015; Lange, 2017; Wright & Mok, 2000).

*Examples.* Note that in Equation 1 whenever  $T_j$  equals  $D_i$  (i.e., respondent  $j$ 's trait level equals the difficulty of item  $i$ ), then  $P_{ij} = 0.5$ . In other words, an item's difficulty  $D$  is the point where endorsement and non-endorsement are equally likely. Moreover,  $P_{ij} < 0.5$  whenever  $T_j < D_i$  and  $P_{ij} > 0.5$  whenever  $D_i < T_j$ . Consider for instance, the statement "I had the mysterious feeling of being watched, or in the presence of an invisible being or force," which is an item of the SSE questionnaire to be discussed later (see Appendix B). If we assume that  $D = 0.84$ , then people with trait level  $T = 0.84$  have a 50% chance of reporting feelings of being watched or sensing an invisible force or being. Those with lower trait levels ( $L < 0.84$ ) are less likely to do so, i.e., their  $p < 0.5$ , but notice that they still might do so. Those with higher trait levels than 0.84 report such experience with greater likelihood (i.e.,  $p > 0.5$ ). But again, it is never certain that they will report the experience. In general, whenever  $T$  increases, so does  $P$ . Also, whenever some item  $a$  is "easier" than another item  $b$  (i.e.,  $D_a < D_b$ ) then  $P_a > P_b$ ,



given  $T$ . In other words, for all respondents with trait level  $T$  easier items are always more likely to be endorsed than are harder ones.

*Model Fit.* By solving for  $P_{ij}$  in Equation 1, it is possible to compute respondents' expected ratings and the standard deviation thereof (Wright & Masters, 1982) given  $T$  and  $D$ . The residual  $Res_{ij}$  is defined as the difference between the actual answers (coded as integer values 0 or 1) and the (average) expected answer – i.e., a real-valued number ranging from 0 to 1. That is,

$$Res_{ij} = Actual\ Answer - Expected\ Answer \quad (2)$$

$ZRes_{ij}$  is the standardized form thereof (i.e., with  $M = 0$  and  $SD = 1$ ). The  $Res_{ij}$  values can be factor analyzed to detect the presence of secondary factors that threaten unidimensionality. Further, items with high (absolute) residuals are said to show “misfit,” i.e., they do not act according to Equation 1. If the  $ZRes$  follow a chi-square distribution then their squared sum follows a chi-square distribution with  $df = N$ , where  $N$  denotes the number of persons who took the item. The average  $ZRes^2$  reflects the items' Outfit. Since this sum equals the degrees of freedom, dividing by  $N$  yields a statistic with an expected value of 1. Experience indicates that Outfit values ranging from 0.7 to 1.4 are generally acceptable (Linacre, 2018a), while larger values suggest misfit.

*DIF and Res.* Linacre's *Facets* (2018b) parameter estimation software produces statistical tests to check the equality of the items' difficulties across subgroups. Systematic variation in  $D$  across subgroups is called “differential item functioning” (*DIF*), or response bias. Such *DIF* is also captured by the observations'  $Res_{ij}$  (Equation 2), a negative  $Res_{ij}$  value implies that an answer is unexpectedly low, whereas a positive  $Res_{ij}$  implies the opposite. Each person's 32  $Res_{ij}$  were computed via Linacre's (2018a) *Winsteps*, and they were added to respondents' data records.

## This Study

We aimed to develop a “top-down purified” Rasch measure that quantifies the phenomenology of ghostly episodes while controlling for potential response biases related to age and gender. Ideally, this inventory would be suitable for surveys, fieldwork studies, and investigations that codify free-response data or spontaneous case material for quantitative analysis. In this way, researchers will have a standard method of operationalizing, analyzing, or scrutinizing accounts. Meeting these goals also informs model-building or theory-formation, since we tested four hypotheses:

- *Hypothesis 1:* The phenomenology of “spontaneous” ghostly episodes will show a predictable (cumulative) behavioral pattern, as evidenced by conformity to a unidimensional probabilistic Rasch model that subsumes *S/O* classes of events within a single construct (Houran & Lange, 2001, 2009; Houran, Wiseman, & Thalbourne, 2002).
- *Hypothesis 2:* The Rasch residuals of spontaneous accounts will demonstrate significant differences compared to four control groups (Lifestyle, Primed, Fantasy, and Illicit, defined in the Method section). This hypothesis took the form of statistical tests for group-related *DIF*.

- *Hypothesis 3*: It seems likely that the aforementioned *DIF* is sufficiently powerful to produce pronounced group-related distortions that serve as “signatures” of group membership. It should thus be possible to infer respondents’ group membership (i.e., Spontaneous, Lifestyle, Primed, Fantasy, and Illicit) from the Rasch residuals of their responses.
- *Hypothesis 4*: Previous studies (Lange & Houran, 2015; Lange et al., 2017) indicate that Rasch residuals predict class membership better than raw-score observations. We expected to replicate this finding here.

## Method

### Respondents

Data derived from a convenience sample of 621 participants from the United States and Great Britain who completed an online survey. The overall sample ( $M_{\text{age}} = 40.89$ ,  $SD = 12.49$ ;  $\text{range} = 18$  to  $73$ ) consisted of 459 women, 156 men, and 6 transgender participants. Accounting for our five conditions (see below), 330 women and 92 men, and 4 transgender participants with a  $M_{\text{age}}$  of 41.71 ( $SD = 12.15$ ,  $\text{range} = 18$  to  $73$ ) completed the Spontaneous condition. The Primed condition comprised 40 women and 10 men with a  $M_{\text{age}}$  of 41.75 ( $SD = 12.11$ ,  $\text{range} = 18$  to  $66$ ). The Lifestyle condition comprised 31 men and 14 women, with a  $M_{\text{age}}$  of 43.60 ( $SD = 11.48$ ,  $\text{range} = 22$  to  $69$ ). The Fantasy condition comprised 30 women and 20 men with a  $M_{\text{age}}$  of 34.98 ( $SD = 12.75$ ,  $\text{range} = 18$  to  $59$ ). Finally, the Illicit condition contained 38 women, 20 men, and 2 transgenders with a  $M_{\text{age}}$  of 37.18 ( $SD = 13.86$ ,  $\text{range} = 18$  to  $66$ ). This study was approved by the Human Research Ethics Committees at Indiana University.

Various tactics were unsuccessful in increasing and balancing sample sizes across the groups, so data collection ceased after it stagnated. Although we acknowledge the limitations of our samples, Wright and Douglas (1975) noted that pilot studies with as few as 30 observations are often useful, and this agrees with later sampling guidelines by other authorities (e.g., Krueger, 2012; Linacre, 2002). In fact, small samples are often sufficient to identify inferior items from a Rasch perspective (Wright & Stone, 1979).

### The Survey of Strange Events

Our previously collated set of haunt and poltergeist anomalies (Houran et al., 2019) was the basis for a new 32-item checklist that uses language accessible to a wide range of respondents. Readability statistics (via [readable.io/text/](http://readable.io/text/)) indicate that the questionnaire met a 10th grade level of comprehension (contact the authors for details; for an introduction to this topic see Kouamé, 2010).

The row entries of Table 1 list the items on the binary (True = 1/ False = 0) checklist, which we titled the *Survey of Strange Events* (SSE) to frame the inventory in a more neutral context (see Appendix B). Likewise, the wording of items was intended to describe the various events in mostly dispassionate terms, without prejudicial modifiers like “paranormal” that denote an etiology for the events. This approach follows other researchers who distinguish anomalous experiences from their interpretations (David, 2010; Irwin et al., 2013).

Table 1

Summary of Rasch Scaling Results for the SSE Items by Respondent Condition.

Item No.	Brief Description	Spontaneous Group Only				Item Location Difference Relative to Spontaneous Group				$\chi^2$
		Location	Outfit	Gender DIF	Age DIF	Primed	Lifestyle	Fantasy	Illicit	
1	Non-descript visual form*.	-0.62	1.14	<u>0.63</u>	-0.05	0.28	0.02	0.39	0.68	7.44
2	Obvious apparition*.	-0.51	1.07	0.19	0.32	0.40	0.54	1.04	-0.34	<u>15.64</u>
3	Alive-looking apparition*.	-0.47	1.08	0.33	0.24	0.41	1.04	0.87	0.09	<u>16.34</u>
4	Pleasant odor*.	0.03	1.01	<u>-0.67</u>	<u>0.60</u>	0.76	0.41	0.63	1.28	<u>23.20</u>
5	Unpleasant odor*.	0.42	0.88	-0.07	-0.02	-0.07	0.04	-0.06	-0.25	0.83
6	Positive feeling*.	0.10	1.03	-0.02	0.43	0.47	0.61	0.62	2.30	<u>39.75</u>
7	Negative feeling*.	-0.60	1.17	-0.17	-0.21	-0.31	0.13	0.73	1.17	<u>23.98</u>
8	Odd bodily sensations*.	-0.47	1.13	0.24	<u>-0.63</u>	-0.16	-0.11	0.66	1.02	<u>18.4</u>
9	Mysterious taste*.	1.08	0.84	0.14	-0.06	0.27	1.29	0.48	0.99	11.81
10	Possessed by outside force*.	0.84	0.79	0.34	-0.33	0.16	-0.21	0.22	-0.80	9.07
11	Mystical-type beings*.	1.07	0.78	0.51	-0.06	-0.01	-0.10	0.35	-0.43	3.15
12	Folklore-type beings*.	1.61	0.71	-0.71	0.25	-0.38	0.08	0.12	-0.59	3.82
13	Communicated with dead/force*.	0.03	0.99	-0.19	0.10	-0.77	-1.58	0.81	0.30	<u>35.21</u>
14	Sensed presence*.	-1.59	<u>1.47</u>	0.04	-0.53	-0.09	0.42	-0.08	1.80	<u>42.93</u>
15	Déjà vu*.	-1.65	<u>1.48</u>	0.00	-0.34	-0.15	0.80	0.14	1.68	<u>39.04</u>
16	Recognizable sound.	-0.62	1.11	-0.12	-0.08	0.15	-0.20	-0.50	0.26	4.36
17	Non-descript sound.	-1.17	1.25	-0.49	0.09	-0.24	-0.21	-0.46	0.52	6.14
18	Recorded & recognizable sound.	0.24	0.86	0.58	0.19	-0.60	-1.79	-1.07	-1.52	<u>51.09</u>
19	Recorded & non-descript sound.	0.16	0.90	0.05	0.37	-0.59	-1.27	-0.50	-1.03	<u>25.61</u>
20	Cold area.	-0.80	1.17	0.09	-0.10	-0.35	0.11	-0.02	0.42	3.60
21	Hot area.	0.72	0.85	0.43	-0.06	-0.15	-0.20	0.47	0.06	2.18
22	Object teleportation.	-0.10	0.98	0.15	-0.29	0.71	1.04	-0.18	-0.17	11.52
23	Object movement.	0.05	0.90	-0.10	-0.04	0.62	-0.28	-1.11	-1.25	<u>28.39</u>
24	Object levitation.	0.65	0.78	0.48	0.31	0.77	0.28	-0.93	-1.38	<u>30.8</u>
25	Erratic functioning – electronics.	-0.62	1.09	-0.15	<u>0.72</u>	-0.04	-0.46	-0.58	-0.20	5.12

26	Recorded image.	-0.05	0.94	-0.45	0.33	-0.62	-0.45	-0.44	-1.06	<u>14.77</u>
27	Erratic functioning - plumbing.	0.90	0.83	-0.35	-0.21	-0.01	0.28	-0.76	0.50	9.95
28	Object breakage.	0.51	0.80	0.28	-0.20	0.63	1.08	-0.91	-1.61	<u>39.7</u>
29	Anomalous breeze.	-0.73	1.16	-0.19	-0.38	0.15	0.44	-0.29	0.69	9.13
30	Anomalous fires.	1.71	0.59	-0.44	0.29	-0.68	0.91	-0.26	-2.27	<u>50.08</u>
31	Non-threatening touch.	-0.55	1.12	-0.31	-0.14	-0.04	-0.19	0.35	0.63	6.95
32	Threatening touch.	0.44	0.83	0.20	-0.33	-0.29	-0.29	-0.08	-1.56	<u>23.92</u>

### Respondent Sub-Groups

We created five respondent groups to complete the SSE, along with a demographic Face Sheet. An algorithm facilitated the automated assignment of respondents into these groups:

Group 1: **Spontaneous** – respondents from the general population who reported an apparently sincere and unprimed episode, whereby they were not actively seeking paranormal events. Such accounts can arguably be judged as more likely to be anomalous and thus of potential evidentiary value to parapsychology, i.e., addressing Schmeidler’s (2001) question, “...has the skeptic discussed only the easier cases and neglected the hard ones?” (p. 308) — a sentiment strongly echoed by Stokes (2017a, 2017b). The instruction set was: *“Please recall vividly a time when you visited or lived in a specific place without seeking or wanting anything paranormal to happen. But there, you experienced strange or unexplained events that some people would call a ghost or haunting...”*

Group 2: **Primed** – respondents from the general population who had anomalous experiences during commercial ghost tours, which are thus likely attributable to expectation or suggestion (French, Hague, Bunton-Stasyshyn, & Davis, 2009; Lange & Houran, 1997) or clear-cut demand characteristics (Orne, 1962; Slosson, 1899). The instruction set was: *“Please recall vividly a recent commercial ghost tour or commercial public ghost event where you visited a specific location and experienced strange or unexplained events that some people would call a ghost or haunting...”*

Group 3: **Lifestyle** – respondents with active memberships in self-styled ghost-hunting or ghost-tour groups (so-called “hauntrepreneurs,” e.g., Hill, 2017; Potts, 2004) who are likely under the influence of strong context effects like pervasive paranormal belief or demand characteristics (French, 1992; Harte, 2000; Houran, 2000). The instruction set was: *“Please recall vividly a recent investigation or tour to a specific location where you experienced strange or unexplained events that convinced you that ghosts were real...”*

Group 4: **Fantasy** – respondents with no prior ghostly experiences who were asked to imagine what a vivid and personal experience would be like, thus eliciting narratives that are likely to be intuitively-generated (cf. Sinclair & Ashkanasy, 2005), i.e., creatively constructed partly from tacit knowledge

accumulated through experience and cultural learnings, combined with a psychophysiological ability to access sensory and affective elements (MacKinnon, 1971; Rugg, 1963; Zausner, 1988). The instruction set was: *“Please imagine vividly what it would be like to live in a genuine ‘haunted house’ by yourself, or with others, for a period of one month. Try to visualize in great detail the kind of strange or unexplained events you might experience...”*

Group 5: **Illicit** – respondents with no prior ghostly experiences asked to concoct a bogus but seemingly convincing account. This slightly resembles the Fantasy group above, except that narratives here would arguably cater more to social approval or cultural norms, especially as related to how paranormal themes are characterized in popular culture (Booker, 2009; Edwards, 2001; Goldstein, Grider, & Thomas, 2007). The instruction set was: *“Please imagine vividly the following scenario—You are answering an ad for a new paranormal TV show. The producers are seeking only sincere witnesses to interview on camera about their experiences living in a genuine ‘haunted house.’ You do not actually live in a haunted house but there may be a number of different reasons why you might want to appear on the TV show. Respond to the survey below in a way that you think would best convince the producers that you really do live in a genuine haunted house and thereby win a spot on the show...”*

## Group Classifications

We addressed the classifications required by Hypotheses 3 and 4 using the Python-based suite of Machine Learning models included in *Sci-Kit Learn* (Pedregosa et al., 2011). Given their wide usage, we included Logistic Regression generalized to multiple categories, Support Vector Machines, Decision Trees, and Linear Discriminant Analysis (LDA). For background information, see Hastie, Tibshirani, and Friedman (2009).

Using the standard machine learning approach, the 621 cases were randomly divided into a Training and Validation set of respondents, with approximately 33 and 67% of the cases, respectively. Next, the classification models mentioned above were fitted optimally to the Training set. The resulting models were then applied to the validation set without any parameter changes. Since the models typically capitalize on irrelevant peculiarities of the Training set, resulting in over-fitting, we will report *only* the accuracy of prediction in the Validation set.

## Results

### Hypothesis 1

Table 1 summarizes the Rasch analyses results for the SSE’s 32 items, calibrated on data from the intended population only (i.e., the Spontaneous group). Supporting Hypothesis 1, and conceptually replicating previous findings, data showed acceptable Outfit, as just two items yielded fit values that marginally exceeded the criterion value of 1.4 (i.e., 1.47 and 1.48, for Items 17 and 18, see first numerical column). Also, factor analysis of the items’ Rasch residuals supported a unidimensional model, since the first (and most important) residual factor accounted for less than 5% of the total variance. Next, tests for item shifts (or differential item functioning: DIF) across age and gender showed no statistically significant effects (all  $p > 0.10$ ) and the magnitudes of the age and gender items shifts are shown labeled DIF. These

findings indicate that the item hierarchies for “women vs men” and “older vs. younger” (defined by a median split) percipients do not differ appreciably. Thus, for Spontaneous respondents, the SSE apparently defines a stable, probabilistic hierarchy that varies little across experiencers’ age or gender.

In Table 1 *S* type items are marked with an asterisk, but not the *O* items. Comparison of the *S* and *O* items reveals interesting patterns for model-building and theory-formation. In particular, not only do the *S/O* items constitute a single factor, but the two putative experience types were interspersed in the Rasch hierarchy as opposed to being markedly or consistently disconnected from one another. Therefore, it does not seem that the phenomenology of ghostly episodes begins, evolves, or ends with experiences that are exclusively psychological or physical in nature. Instead, there is a reasonably balanced mix of these events across the Rasch hierarchy.

That said, events in the SSE hierarchy can be divided into  $\sim 1$ -logit increments yielding three sets of experiences that are comparatively *common* (-1.6 to -.5), *less common* (-.5 to .5), and *rare* (.5 to 1.7). Considered this way, and rough-coding the contents of the SSE items, we find that Auditory and Sensation (internal feelings) experiences figure heavily in common events but become absent in low-probable events. Visual-related anomalies become more probable in an episode as event rarity increases. Moreover, as might be expected, commonly-endorsed items seem to be readily explainable, since they refer to few, if any, events that might be interpreted by experiencers as clear and convincing evidence for paranormality — or, at least, meet a threshold for obvious *aberrant salience* (Irwin, 2014; Irwin, Schofield, & Baker, 2014). Conversely, as we move to the less-probable categories, events increasingly are more paranormal-looking, thus requiring more complex explanations.

Last, an even closer look at the items’ distribution exposes apparent “clustering” effects whereby some SSE items have logit values (i.e., locations in the Rasch hierarchy) within close range of each other ( $\pm .05$  logits). That is, some specific events tend to coincide closely with certain other events. We identified six such clusters in the SSE hierarchy — half of these clusters show *S/O* entanglement, although *S* events dominate virtually all the clusters. Additionally, *S* events are almost always primary in these clusters. Such clustering effects occur across the Rasch hierarchy, and we explore possible explanations in the Discussion.

Appendix A shows the conversion of raw-sum scores to Rasch-scaled scores, which quantifies the *intensity* of ghostly episodes at an interval-level (Rasch person reliability = 0.87). For convenience, the original Logit scale was transformed to yield a scale score with a mean 50 and  $SD = 10$ , as based on the data in the Spontaneous group. On this scale men and women differed little ( $M_{\text{men}} = 50.6$  vs.  $M_{\text{women}} = 49.4$ ), as did younger and older individuals ( $M_{\text{younger}} = 49.7$  vs.  $M_{\text{older}} = 50.3$ ), and neither difference is statistically significant ( $p > 0.10$ ) as computed via Linacre’s (2018b) software. However, the five respondent groups ( $M_{\text{Spontaneous}} = 51.7$ ,  $M_{\text{Primed}} = 52.3$ ,  $M_{\text{Lifestyle}} = 50.6$ ,  $M_{\text{Fantasy}} = 49.43$ ,  $M_{\text{Illicit}} = 45.9$ ;  $\chi^2(df = 4, N = 622) = 330.55$ ,  $p < .01$ ) showed significant mean differences.

## Hypothesis 2

We found strong support for Hypothesis 2. First, an overall test for item shifts across the five groups revealed statistically significant differences in their item hierarchies ( $\chi^2(df = 160, N = 622) = 613.87$ ,  $p < .001$ ). Table 1 shows the extent to which the SSE items’ locations in the Primed, Lifestyle, Fantasy, and



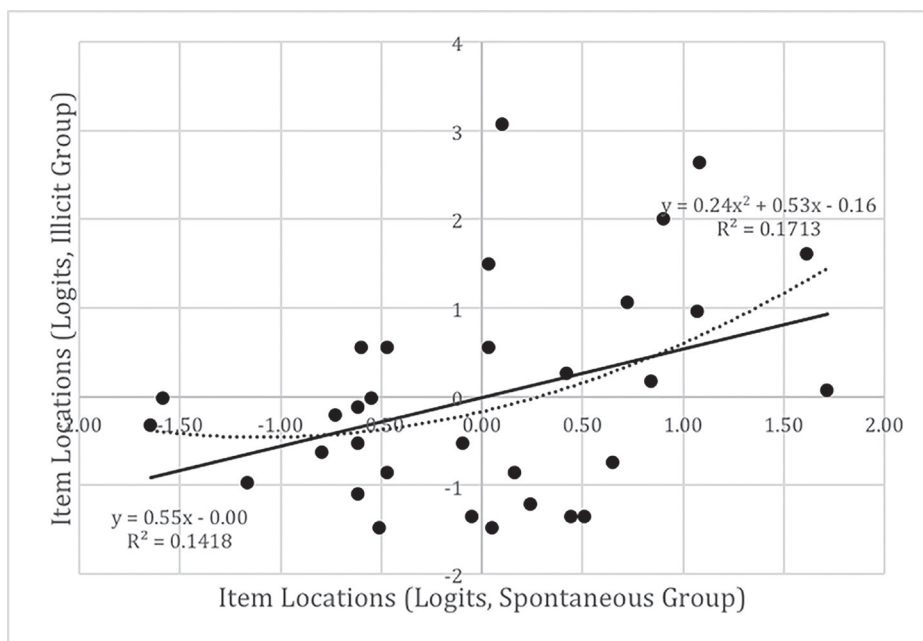
Illicit groups differed from the locations obtained in the Spontaneous group (i.e., relative to the item location shown as the first numerical column). Positive values indicate that the specific event was *under-reported*, whereas negative values indicate that the event was *over-reported*.

Second, as is specified by the underlined values in the  $\chi^2$  column of Table 1, further tests revealed that the locations of 17 of the 32 items differed significantly across the four groups ( $p < .01$ ). For instance, Item 16 (“I communicated with the dead or other outside force”) shows disparate trends across the control groups, i.e., compared to the Spontaneous group, it is a much rarer experience in “haunt-seeking” contexts (Primed and Lifestyle groups). Interestingly, however, it was specified by those in the Fantasy and Illicit conditions. In contrast, Item 7 (“I heard on an audio recorder mysterious sounds that could be recognized or identified, such as ghostly voices or music, with or without singing”) showed all negative values across the control groups, indicating that endorsement of this anomaly is “harder” (or rarer) in the Spontaneous group.

To investigate the possible existence of meta-patterns, Figure 1 plots the item location obtained in the Illicit group (Y-axis) against the locations found in the Spontaneous group (X-axis). Recall that items’ locations  $D_i$  indicate the point where their probability of endorsement is 50%. Clearly, there is no simple relation between these two item sets ( $r = 0.37$ ) and adding a quadratic component had little effect ( $r = 0.41$ ). Instead, it appears that the nature of the relation changes with greater item difficulty in the Spontaneous group. Specifically, for  $X < 0$  the locations in the Illicit group are essentially constant, with a mean around  $-0.47$  logits in small range. However, for  $X > 0$  we get a “buckshot” pattern over a much wider Y-range.

Specifically, Illicit respondents checked “frequently-reported” (or “easy”) experiences ( $N = 15$ ) with very similar frequency. This suggests that Illicit respondents regarded all the “easy” events as similarly plausible, i.e., low variation ( $SD = 0.60$  logits), and their locations show a small negative correlation with those obtained in the Spontaneous group ( $r = -.20$ ). By contrast, Illicit respondents express definite

Figure 1. Item Locations in the Spontaneous Condition (X-axis) vs. Illicit Condition (Y-axis)



ideas about the plausibility of events defined by the 17 “harder” items ( $X > 0$ ), i.e., they assessed some items as very plausible ( $Y < 0$ ), while others were deemed quite implausible ( $Y > 0$ ), and this yields far greater variation ( $SD = 1.41$  logits). Again, however, there is little correlation between items’ locations in the two groups ( $r = .26$ ).

We note that the group difference in the  $SD$ s of the “easier vs. harder” item locations reaches statistical significance,  $F(14,16) = 5.52, p < .001$ . Further, the 32 SSE items’ locations vary more in the Illicit group ( $SD = 1.18$ ) than in the Spontaneous group ( $SD = 0.82, F(31,31) = 2.10, p < .05$ ). Thus, those trying to fabricate accounts of ghostly episodes fail to achieve the proper difficulty-gradations of the experiences listed in the SSE. In particular, they either *over-* or *under-*estimate the incidence of events in a seemingly random pattern, especially when dealing with rare events.

### Hypotheses 3 and 4

It is reasonable to ask whether the item-shifts across the different conditions outlined above are powerful and systematic enough to predict respondents’ group membership. In doing so, the use of residuals was compared to using raw scores. In both cases, age and gender were included as predictors as well. Recall that we used a variety of classification models (e.g., LDA, Logistic Regression, Support Vector Machines, and Decision Trees), and the main interest is models’ predictive quality when applied to the validation set (see Table 2).

Consistent with Hypothesis 3, all predictive approaches performed well, although LDA slightly outperformed the other approaches (see Table 2). The bottom row (“Accuracy”) of Table 3 indicates that whereas the overall LDA accuracy was quite high (72%), performance was not uniform across groups, the Primed, Lifestyle, and Fantasy groups performed very poorly. In fact, when combined, only 13 % of the cases in these three groups were correct, i.e., the classification methods distinguished mostly between the Spontaneous vs. Illicit groups. As in earlier research (Lange & Houran, 2015; Lange et al., 2017), Table 2 showed that residuals were consistently better predictors than raw scores, supporting Hypothesis 4 — albeit by very small margins.

Table 2  
*Proportions of Correct Predictions by Method and Predictor Variables (Validation Group Only)*

Method	Predictor Variables	
	<i>Residuals</i>	<i>Raw</i>
Linear Discriminant	0.72	0.70
Logistic Regression	0.71	0.69
Support Vector Machine	0.70	0.67
Decision Tree	0.68	0.67

The preceding strongly suggests that some groups could be combined to improve performance. In a first attempt, we contrasted the Spontaneous group against all four others combined, and this yielded a minor increase in performance (78%) based on the best predictor (LDA). Yet, when contrasting the Spontaneous group against all others, classification correctness rose to 94% using logistic regression.

Interestingly, in the latter case the Decision Tree approach performed very well too (accuracy = 91%). Figure 2 shows a simplified form of this tree that describes an interesting heuristic. First, individuals who do not report item #30 (“Fires have started mysteriously”) have an 87% chance of belonging to

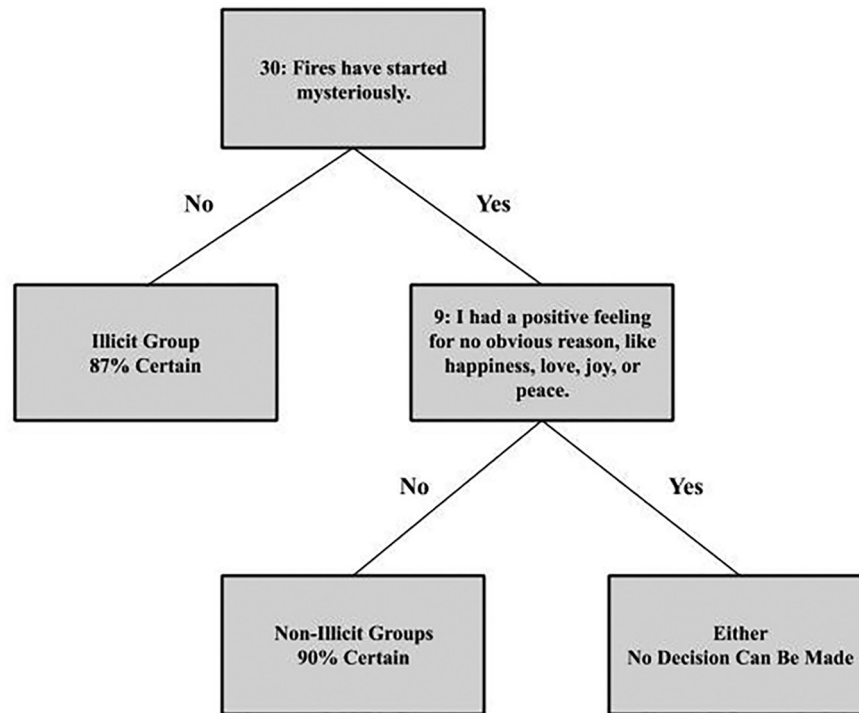
Table 3  
*Counts in Confusion Table for Prediction Based on Linear Discriminant Analyses (Validation Set only)*

Actual Group	Predicted Group					Total
	<i>Spontaneous</i>	<i>Primed</i>	<i>Lifestyle</i>	<i>Fantasy</i>	<i>Illicit</i>	
Spontaneous	125	0	1	1	3	130
Primed	13	0	2	0	2	17
Lifestyle	14	0	2	2	2	20
Fantasy	10	0	0	5	1	16
Illicit	6	0	0	1	16	23
<i>Total</i>	168	0	5	9	24	206
<i>Accuracy per Column (%)</i>	74	0	40	56	67	

the Illicit group. Second, those who do endorse item 30 but not item #9 (“I had a *positive* feeling for no obvious reason, like happiness, love, joy, or peace”) with 90% certainty belong to one of the non-Illicit groups (i.e., the Spontaneous, Primed, Lifestyle, or Fantasy groups combined). Note that the “Either” leaf (i.e., membership cannot reliably be decided) contains just 4% of the cases.

We also note that overall tests to detect shifts in items’ Rasch D parameters across groups showed highly significant Respondent Group × Item interactions. Specifically, the Group × Gender,  $\chi^2(df = 320, N = 622) = 747.6$ ; Group × Age,  $\chi^2(df = 320, N = 622) = 746.4$ ; and Group × Gender × Age,  $\chi^2(df = 640, N = 622) = 984.10$  interactions with the items’ locations was significant at  $p < .001$ . Inclusion of these interactions in the computation of the residuals (see e.g., Lange et al., 2017) would likely improve the accuracy of predicting respondents’ group membership. However, we judged our samples in all but the Spontaneous group as too small for robust results in this respect, especially since separate Training and Validation groups are required to fit the augmented predictive models. Instead, we propose to pursue this issue in future research.

Figure 2. Simplified Decision Tree to Differentiate Spontaneous and Illicit Accounts



## Discussion

Despite the fleeting nature of ghostly episodes (Persinger & Cameron, 1986), our findings suggest that their phenomenology can be reliably quantified akin to other psychometric variables in the social and biomedical sciences and accordingly is amenable to rigorous statistical scrutiny. Moreover, we substantiated a new facet of study — i.e., beyond the *frequency* of ghostly episodes and the *variety* of their properties, there is now a standardized (internal-level and bias-free) measure of their *intensity*. Consequently, we can draw several conclusions about the phenomenology of the accounts in our sample, as operationalized and modeled here:

- They exhibit a predictable behavior pattern, consisting of a unidimensional and probabilistic (cumulative) hierarchy of core or base events.
- This hierarchy subsumes Psychological Experiences and Physical Manifestations within a common dimension. Therefore, the often presumed two-factor model using S/O classifications is not supported.
- The Rasch residuals of responses on the SSE are sufficiently powerful to demarcate the phenomenology of “Spontaneous” accounts from a set of “impostor” (or control) accounts. As in earlier research (Lange et al., 2017; Lange & Houran, 2015), the prediction of respondents’ group membership was slightly more successful when using items’ residuals versus raw scores. Although

a very simple decision tree approach proved quite successful in identifying impostor cases, the finding is specific to the present context and additional study is needed.

We should stress the provocative implications of ghostly episodes as a *unidimensional* construct. In contradiction to prior thinking (e.g., Dixon, 2016; Dixon, Storm, & Houran, 2018; Houran, 2002; Houran, Wiseman, & Thalbourne, 2002), this finding suggests there is neither a simple nor straightforward distinction between *S/O* categories. It is unclear what this single factor ultimately represents, but several hypotheses come to mind: (i) the two seemingly different classes of events share a common etiology, either entirely psychological or physical in origin, and thereby representing qualitatively different manifestations as the intensity of the core construct increases – not unlike sneezing, sore throat, nasal congestion, and fever as connected and worsening symptoms of a cold virus; (ii) the two classes of events are connected by perceptual abilities or attentional biases (e.g., Lange & Houran, 2001a; Laythe, Houran, & Ventola, 2018); (iii) the two classes of events are connected by narrative or interpretive processes (e.g., Baker & Bader, 2014; Eaton, 2019); or (iv) some combination of these or other variables.

Irrespective of the source(s) for the core events, we contend that our Rasch analyses corroborate previous conceptual work (Nisbet, 1979; Palmer, 1974; Playfair, 1980; Pratt & Palmer, 1976) and empirical research (Houran & Lange, 2001; Houran, Wiseman, & Thalbourne, 2002) in modeling ghostly episodes as a type of *syndrome*, i.e., a set of signs or symptoms that occur together to characterize a particular abnormality or condition (British Medical Association, 2018). This idea speaks to a wealth of literature on the relation of paranormal ideations to psychiatric illness and symptom perception, which many authorities deem an important area of exploration (Bentall, 2000; Houran, Kumar, Thalbourne, & Lavertue, 2002; Jawer, 2006; Jawer & Micozzi, 2009; Mathijssen, 2016; Neppe, 1992; Schofield & Claridge, 2007). A syndrome framework is also broadly consistent with Lange and Houran's (1998, 1999, 2001a) hypothesis that biopsychosocial processes in haunts and poltergeist disturbances parallel those operating in cases of mass hysteria or contagious psychogenic illness (e.g., Chen, Yen, Lin, & Yang, 2003; Colligan, Pennebaker, & Murphy, 1982; Wessely, 1987, 2000).

On this latter point, the SSE items that exhibit clustering effects (i.e., within very close range in the Rasch hierarchy) might be construed as “flurries” of reported perceptions, which Jones and Jones (1994) noted can be a good index of behavioral contagion. To clarify, *contagion* is the triggering of successive perceptions due to priming and can occur with individuals (Houran & Lange, 1996) or groups (O’Keeffe & Parsons, 2010). Therefore, these clusters seem consistent with the premise that ghostly episodes involve “contagious” mechanisms (Houran & Lange, 1996; Lange & Houran, 2001a, 2001b; Nisbet, 1979). Alternatively, these clusters might reflect “syncretic perceptions” (Werner, 1934/1978, 1948; cf. Laythe et al., 2018), i.e., the dedifferentiation (or fusion) of perceptual qualities in subjective experience, e.g., *eidetic imagery* (fusion of imagery and perception, i.e., structural eidetic imagery); *physiognomic perception* (fusion of perception and feeling); and *synesthesia* (fusion of sensory modalities). The full import of these patterns will be unclear until they are proven to be robust via replication and explored with more detailed designs. This effort should include in-depth psychometric studies to elucidate whether individual differences in variables that can affect stimulus detection, interpretation, or concomitant response also help shape the phenomenology of ghostly episodes (e.g., Houran, Wiseman, & Thalbourne, 2002;

Langston & Hubbard, 2019; Laythe et al., 2018; Parra, 2018; Parra & Argibay, 2016). We are examining these ideas and will report the results in another paper.

These findings and ideas exemplify the type of research and model-building possible with the SSE. Of course, our conclusions are tempered by several limitations. First, the data were self-reported, and the underlying assumptions of the five respondent groups were not independently-corroborated. Second, our findings are based on responses specific to the SSE's wording. We neither claim that our articulations of the items were optimal, nor that they will generalize to cross-cultural contexts. Finally, results with convenience samples do not necessarily reflect those from large-scale, representative surveys of the general population. Moreover, we do not know whether item-shifts in the Rasch scale of the spontaneous group might be introduced by potentially important variables not considered here, such as social desirability bias (impression management), the latency between experiences and their documentation, different perceptual-personality profiles of witnesses, or variances across physical or social settings. Likewise, the results derived from those reporting single instances of anomalous experiences rather than multiple experiences over time or collectively across different witnesses within the same case. Obviously, the SSE hierarchy might alter in these scenarios. A separate report will address these types of issues, which arguably speak directly to the notion of ghostly episodes as an interactionist phenomenon.

Clearly much work lies ahead in establishing different validities and applications of the SSE. We suggest that it offers a standardized method for codifying and quantifying free-response narratives from historical or modern spontaneous cases, or similar data from controlled or quasi-experimental designs (e.g., Dixon, 2016; French et al., 2009; Houran, Wiseman, & Houran, 2002; Laythe, Laythe, & Woodward, 2017; Wiseman, Watt, Greening, Stevens, & O'Keeffe, 2002). We plan to pursue these and other avenues, although we also encourage independent studies and especially collaborative efforts. As such, the SSE is freely available for all researchers to use (with attribution). We hope this unprecedented psychometric approach opens new frontiers of innovative research designs and hypothesis-testing with which to explore our haunted brains and houses.

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**Appendix A**

Rasch Scoring Table for the Survey of Strange Events (SSE)

Raw Sum	Scale Score	Standard Error of Measurement
0 <sup>a</sup>	22.3	11.7
1	30.3	6.6
2	35.2	4.8
3	38.4	4.1
4	40.7	3.7
5	42.7	3.4
6	44.4	3.2
7	45.9	3.0
8	47.3	2.9
9	48.6	2.8
10	49.8	2.7
11	51.0	2.7
12	52.1	2.6
13	53.2	2.6
14	54.3	2.6
15	55.3	2.6
16	56.4	2.6
17	57.5	2.6
18	58.5	2.6
19	59.6	2.6
20	60.7	2.7
21	61.9	2.7
22	63.0	2.7
23	64.3	2.8
24	65.6	2.9
25	67.0	3.0
26	68.5	3.2
27	70.2	3.4
28	72.2	3.7
29	74.6	4.1
30	77.8	4.9
31	82.8	6.6
32 <sup>a</sup>	90.9	11.7

<sup>a</sup> Extreme values are approximations only.



## Appendix B

### The Survey of Strange Events

#### Instructions

- This survey asks about unusual experiences you may have had at a specific place (indoors or outdoors) that people might claim is haunted by a ghost or other paranormal force. Or, your experiences might have happened at a location with no paranormal reputation. Please answer this survey with only one particular location in mind.
- Carefully read the list of “strange” events below and think about the location you visited. Next, write TRUE (or ‘T’) next to any of the events that you have experienced at this location. When a question says “mysterious” it means that the event had no obvious or immediate explanation from your point of view.
- Your important information is confidential, so please be honest and detailed.

<ul style="list-style-type: none"> <li>• <b>Your Age:</b> _____</li> <li>• <b>Your Gender:</b> _____</li> <li>• <b>Your Country of Origin:</b> _____</li> <li>• <b>How long ago did your unusual experiences at this location occur?</b></li> <li>• <b>(round to nearest month):</b> _____</li> <li>• <b>In what type of location did the experiences occur (e.g., house, park, cemetery, pub, office, etc.)?</b> _____</li> </ul>	TRUE (T) or FALSE (F)
<b>Personal Experiences</b>	
1. I saw with my naked eye a non-descript visual image, like fog, shadow or unusual light	
2. I saw with my naked eye an “obvious” ghost or apparition – a misty or translucent image with a human form	
3. I saw with my naked eye an “un-obvious” ghost or apparition – a human form that looked like a living person	
4. I smelled a mysterious odor that was <i>pleasant</i>	
5. I smelled a mysterious odor that was <i>unpleasant</i>	
6. I had a <i>positive</i> feeling for no obvious reason, like happiness, love, joy, or peace	
7. I had a <i>negative</i> feeling for no obvious reason, like anger, sadness, panic, or danger	
8. I felt odd sensations in my body, such as dizziness, tingling, electrical shock, or nausea (sick in my stomach)	
9. I had a mysterious taste in my mouth	
10. I felt guided, controlled or possessed by an outside force	

11. I saw beings of divine or evil origin, such as angels or demons	
12. I saw folklore-type beings that were not human, such as elves, fairies, or other types of "little people"	
13. I communicated with the dead or other outside force	
14. I had the mysterious feeling of being watched, or in the presence of an invisible being or force	
15. I had a sense of déjà vu, like something was strangely familiar to me about my thoughts, feelings or surroundings	
<b>Physical Events</b>	
16. I heard mysterious sounds that could be recognized or identified, such as ghostly voices or music (with or without singing)	
17. I heard mysterious "mechanical" or non-descript noises, such as tapping, knocking, rattling, banging, crashing, footsteps or the sound of opening/closing doors or drawers	
18. I heard on an audio recorder mysterious sounds that could be recognized or identified, such as ghostly voices or music (with or without singing)	
19. I heard on an audio recorder mysterious "mechanical" or non-descript noises, such as tapping, knocking, rattling, banging, crashing, footsteps or the sound of opening/closing doors or drawers	
20. I felt a mysterious area of <i>cold</i>	
21. I felt a mysterious area of <i>heat</i>	
22. I experienced objects disappear or reappear around me	
23. I saw objects moving on their own across a surface or falling	
24. I saw objects flying or floating in midair	
25. Electrical or mechanical appliances or equipment functioned improperly or not at all, including flickering lights, power surges or batteries "going dead" in electronic devices (e.g., camera, phone, etc.)	
26. Pictures from my camera or mobile device captured unusual images, shapes, distortions or effects	
27. Plumbing equipment or systems (faucets, disposal, toilet) functioned improperly or not at all	
28. I saw objects breaking (or discovered them broken), like shattered or cracked glass, mirrors or housewares	
29. I felt a breeze or a rush of wind or air, like something invisible was moving near me	
30. Fires have started mysteriously	

31. I was mysteriously touched in a <i>non-threatening</i> manner, like a tap, touch or light pressure on my body	
32. I was mysteriously touched in a <i>threatening</i> manner, such as a cut, bite, scratch, shove, burn or strong pressure on my body	

## **Quantifier la Phénoménologie des Épisodes Fantomatiques : 2<sup>e</sup> Partie – Un Modèle Rasch des Témoignages Spontanés**

Résumé. En utilisant un échantillon de témoignages « spontanés » auto-rapportés (apparemment sincères et sans biais d'amorçage,  $N = 426$ ), nous avons calibré le « questionnaire des événements étranges » (SSE) en 32-items selon la méthode de Rasch, afin de quantifier la phénoménologie des épisodes fantomatiques tout en évaluant les biais de réponse relatifs à l'âge ou au genre des répondants. L'inventaire inclut des expériences psychologiques typiques de la hantise, et des manifestations physiques communes aux perturbations de type poltergeist. Les résultats supportent les précédentes suggestions selon lesquelles les témoignages « spontanés » montrent un pattern comportemental (cumulatif) prédictible, ainsi qu'une structure factorielle unidimensionnelle. De plus, comparativement aux récits spontanés, nous avons identifié de forts biais de réponses sur le SSE sur quatre conditions de contrôle (à savoir le style de vie, l'amorce, la fantaisie, et l'illicite). La modélisation statistique prédit avec succès les appartenances de groupe, corroborant le fait que les expériences spontanées diffèrent systématiquement des « imposteurs » de certaines manières. Le SSE est un outil de mesure robuste de l'intensité Générale des épisodes fantomatiques (fiabilité Rasch = 0.87) et peut servir pour opérationnaliser, de façon standardisée, les anomalies spécifiques dans les sondages, les études de terrain, et les investigations qui codent des données en réponse libre ou du matériel issu de cas spontanés à des fins d'analyse quantitative.

## **Quantifizierung der Phänomenologie geisterhafter Episoden: Teil II - Ein Rasch-Modell über Spontanberichte**

Zusammenfassung. Anhand einer Stichprobe von selbsterlebten "spontanen" Berichten (mutmaßlich aufrichtig und unbeeinflusst,  $N = 426$ ) eichten wir einen aus 32 Items bestehenden Rasch-basierten "Survey of Strange Events (SSE)", um die Phänomenologie geisterhafter Episoden zu quantifizieren und gleichzeitig Antworttendenzen in Bezug auf Alter oder Geschlecht der Berichterstatter einzuschätzen. Die Umfrage umfasste psychologische Erfahrungen, die typisch für Geistererscheinungen sind, und physikalische Vorfälle, die bei spukähnlichen Vorfällen auftreten. Die Ergebnisse unterstützten frühere Vorstellungen, dass "spontane" Berichte ein vorhersagbares (kumulatives) Verhaltensmuster haben und eine eindimensionale Faktorenstruktur aufweisen. Darüber hinaus identifizierten wir im Vergleich zu Spontanberichten starke Antwortverzerrungen der SSE über vier Kontrollbedingungen hinweg (Lebensstil, Erwartet, Phantasie und Unerlaubt). Eine statistische Modellierung sagte erfolgreich Gruppenzugehörigkeiten mit guter Genauigkeit voraus, was bestätigt, dass sich spontane Erfahrungen in bestimmter Weise systematisch von "Betrügnern" unterscheiden. Die SSE ist ein robustes Maß für die Gesamtintensität geisterhafter Episoden (Rasch-Reliabilität = 0,87) und dient zur standardmäßigen Operationalisi-

erung spezifischer Anomalien bei Umfragen, Feldstudien und Untersuchungen, die Free-Response-Daten oder spontanes Fallmaterial für die quantitative Analyse kodieren.

### **Cuantificación de la Fenomenología de los Episodios Fantasmales: Parte II - Un Modelo Rasch de Relatos Espontáneos**

Resumen. Utilizando una muestra de relatos “espontáneos” autoinformados (aparentemente sinceros y no influenciados,  $N = 426$ ), calibramos una “Survey of Strange Eventos (SSE; o Encuesta de Eventos Extraños)” basada en Rasch de 32 ítems para cuantificar la fenomenología de los episodios fantasmales al mismo tiempo que evaluamos sesgos de respuesta relacionados con la edad o el género de los participantes. Este inventario incluyó experiencias psicológicas típicas de experiencias de casas encantadas y manifestaciones físicas comunes a perturbaciones semejantes al poltergeist. Los resultados respaldaron sugerencias anteriores de que los relatos “espontáneos” tienen un patrón de comportamiento (acumulativo) predecible y muestran una estructura factorial unidimensional. Además, en comparación con los relatos espontáneos, identificamos fuertes sesgos de respuesta en la ESS en cuatro condiciones de control (Estilo de vida, Influído, Fantasía, e Ilícito). El modelado estadístico predijo la pertenencia a grupos con buena precisión, corroborando que las experiencias espontáneas difieren sistemáticamente en ciertos aspectos de los “impostores.” El SSE es una medida robusta de la intensidad general de los episodios fantasmales (fiabilidad Rasch = 0.87) y puede servir como una operacionalización estándar de anomalías en encuestas, estudios de trabajo de campo, e investigaciones que codifiquen datos de respuesta libre o material de casos espontáneos para análisis cuantitativos.

## Magnetospheric and Lunar Interactions with Reported Sensory Hallucinations: An Exploratory Study<sup>1</sup>

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**Abstract.** Geomagnetic activity (GMA) and the lunar cycle have previously been postulated to facilitate hallucinatory experiences that are subsequently interpreted as haunting activity. However, findings from previous studies investigating possible connections are limited by relatively small sample sizes, broad temporal resolution, or artificial laboratory settings. To address these limitations, an exploratory analysis was conducted on 26 years of witness statements comprising 723 unique reports of apparent haunting activity, obtained from management at Port Arthur Historic Penal Colony, Tasmania, Australia. We compared frequency of reports with moon phase, the solar cycle, and monthly, daily, and hourly measures of GMA (using the Ap index). Report distribution was significantly correlated both with annual variation in GMA and solar cycle sunspot frequency. Intraday distributions revealed that reports were more likely to occur during times below mean daily GMA. Furthermore, significantly higher frequency of reports occurred during the two-day period around the new and full moon. The findings suggest that sensory hallucinations, experienced as haunt activity occur preferentially during specific periods outside of maximal GMA; during either relatively quiet periods or perhaps during periods with magnetic variations more suited to interaction with biological processes. The observed lunar effect is likely psychogenic in nature due to sensory feedback.

*Keywords:* Magnetosphere; Moon; Geomagnetic; Ghosts; Haunting

Approximately 20-30% of the population is likely to experience anomalous events commonly termed ghost or haunting activity at some point in their lives (Haraldsson, 2009). These experiences may occur across any sensory modality, ranging from visual, auditory, tactile, olfactory, as well as sensory processes such as feelings of a sensed presence and fear (Alvarado & Zingrone, 1995). One theory for their generation focuses on the possibility of magnetic fields perturbing biological processes, which may lead to hallucinatory activity (Persinger, Tiller, & Koren, 2000). This activity is subsequently intuited as supernatural in origin. One main source of magnetic field perturbation arises from the interaction of the earth's geomagnetic field with the stream of charged particles emanating from the sun in the form of solar wind. The variability in both the speed and the intensity of solar wind speed results in highly dynamic conditions within the earth's magnetosphere that can be measured at ground level.

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Weak magnetic fields applied to left (Tiller & Persinger, 2002) and right (Cook & Persinger, 2001) temporal lobes of the brain have been demonstrated to induce hallucinations in the form of a subjectively felt presence. Outside the laboratory environment, bereavement related hallucinations have been shown to be more frequent during periods of increased geomagnetic activity (GMA) (Persinger, 1988), and in-situ magnetic fields have also been implicated in experiences of paranormal phenomena (Braithwaite & Townsend, 2005; Roll & Nichols, 2000; Wiseman, Watt, Greening, Stevens, & O'Keeffe, 2002).

Randall and Randall (1991) analyzed 49 apparition experiences on a monthly basis over a 15 year period. A significant positive correlation was observed in relation to mean monthly values of the average antipodal (aa) index for the 15-year period. The aa index, derived from 2 antipodal magnetometer stations, provides a measure of geomagnetic disturbance at the earth's surface caused largely by solar wind. The aa index and more contemporary GMA indices (e.g., Kp and Ap) that utilize greater numbers of magnetometer stations, all display a prominent semi-annual variation, showing equinoctial peaks (March & September) and solstitial troughs (June & December). The observation made by Randall and Randall that the frequency of sensory hallucinations followed the same annual variation prompted us to study possible GMA influences on sensory processing in the general population.

The present work extends upon their study by analyzing similar phenomena at a higher temporal resolution and with a greater sample size. An exploratory analysis of 26 years of eyewitness reports of apparent haunting activity (1989-2014) from the Port Arthur penal settlement, Australia is presented. The penal settlement was operational between 1830 and 1877 and housed up to 1, 200 convicts at its peak in 1846. The Port Arthur Historic Site Management Authority (PAHSMA) has catalogued contemporary eyewitness statements of supposed haunting activity since the late 1980s. The qualitative and quantitative nature of the data provides an ideal opportunity to extend on prior studies of geomagnetic influence on sensory hallucinations.

In addition to geomagnetic activity, lunar cycle was also considered in this study for two reasons: 1) the possible influence of the moon on perturbations of the earth's GMA, and 2) to address the popular belief that moon phase plays a role in behavioral and psychiatric conditions.

The possibility of indirect physical effects of moon phase on biological systems cannot be dismissed. The lunar effects on the earth's GMA has been shown by two mechanisms: 1) gravitational forcing of the lower atmosphere; compressing and expanding the ionosphere (Gasperini & Forbes, 2014; Lühr, Siddiqui, & Maus, 2012), and 2) by physical interference with either solar wind or earth's magnetosphere during new and full moon periods (Akimov & Dyatel, 2012; Majmudar & Rao, 1983; Rangarajan, 1980). Evidence of magnetically induced changes in epileptiform activity has been shown (Michon, Koren, & Persinger, 1996; Persinger, Hoang, & Baker-Price, 2009), and a possible association between non-seizure epileptiform-like activity and hallucinatory events has been suggested (Persinger, 1995). Significant variations in clustering of seizures around moon phases (Hadzic, Mladina, Hadzic, & Numanovic, 2010; Polychronopoulos et al., 2006; Ruegg, Hunziker, Marsch, & Schindler, 2008), with non-epileptic seizures being highest around the full moon quarter (Benbadis, Chang, Hunter, & Wang, 2004) lend support to the hypothesis that individuals within the population displaying non-clinical epileptic-like activity in the



temporal lobes (Persinger & Makarec, 1987, 1993) may be more susceptible to the influence of complex magnetic field variations (Persinger, 1995; Persinger et al., 2009; Persinger & Saroka, 2013).

However, it is also important to consider the psychogenic effect of the moon phases on reported paranormal activity. The *Transylvanian effect* is the term given for the common belief that lunar events cause physiological and psychological disturbance (Mason, 1997). Belief in the Transylvanian effect is quite common among mental health professionals (Vance, 1995). Those with beliefs in the paranormal have also been found to believe that the moon affects behavior (Rotton & Kelly, 1985b). Such beliefs can contribute to cognitive biases that could lead to differences in the frequency of reported paranormal events for certain moon phases. For example, Kelly, Rotton, and Culver (1996) outline how holding certain beliefs can result in cognitive biases such as selective perception and exposure to events that confirm these beliefs, resulting in illusory correlations.

Given that studies of lunar cycle influence on behavioral and psychiatric conditions are largely discordant (Barr, 2000; Danzl, 1987; Parmar et al., 2014; Rotton & Kelly, 1985a), effects of the lunar cycle on sensory hallucinations were not anticipated despite theoretical considerations.

This paper intends to address the hypotheses that: 1) Significant positive relations would be observed between report frequency and monthly and daily measures of geomagnetic activity as measured by the Ap index, 2) a significant positive relation would be observed between report frequency and sunspot activity, and, 3) a non-significant relation would be observed between report frequency and lunar cycle.

## Method

### Participants

A total of 1032 witness reports were provided by Port Arthur Historic Site Management Authority (PAHSMA) for the years 1989-2014. These were filtered through a two-stage process; first, reports were discarded if they contained no date/time record or if the report did not pertain to an actual experience on the site (135 reports). Second, multiple reports submitted by numerous witnesses to the same incident were collapsed into a single report for the purpose of comparison with geomagnetic and lunar data (174 reports). This resulted in the 723 unique incidents used for analysis in this study, of which 423 were witnessed by women, 259 by men, and 19 by both (22 did not state their gender). Age was provided for just over half of this sample ( $n = 375$ ) and ranged from 2-80 years-of-age. The reports were submitted from day visitors as well as visitors undertaking nighttime ghost tours. The reports spanned all sensory modalities, including visual, auditory, tactile, olfactory, asensory, and combinations thereof. All dates and times were adjusted to universal time for comparison with Ap data provided in the same format.

Data of sunspot numbers were obtained from the Australian Bureau of Meteorology, Space Weather Services ([sws.bom.gov.au/Educational/2/3/6](http://sws.bom.gov.au/Educational/2/3/6)). The Ap index data was obtained from the National Geophysical Data Centre, Boulder, Colorado ([ftp://ftp.ngdc.noaa.gov/STP/GEOMAGNETIC\\_DATA/INDICES/KP\\_AP/](ftp://ftp.ngdc.noaa.gov/STP/GEOMAGNETIC_DATA/INDICES/KP_AP/)). Moon phase data were obtained online from [timeanddate.com](http://timeanddate.com/moon/phases/australia/hobart) ([timeanddate.com/moon/phases/australia/hobart](http://timeanddate.com/moon/phases/australia/hobart))

## Analysis

Analysis of correlations between datasets was conducted using Kendall's tau on detrended data using a  $\log_n$  transformation (to remove linear trends). Analysis was performed using SPSS (IBM SPSS Statistics, 24). Distributions within datasets were analyzed using Chi-Square Goodness-of-fit tests. Statistically significant distributions were further analyzed using standardized residual calculations to determine categories of significance and their direction. Standardized residuals were calculated according to Shapre (2015) using the following formula:

Standardized Residual =  $(O-E)/\sqrt{E}$ , where O is the observed count and E is the expected count.

A significance threshold level of  $\pm 3$  was used, which corresponds approximately to a  $z = 2.96$ .

Effect size calculations were conducted using G\*Power (v 3.1.9.2, University of Dusseldorf), with the magnitude of effect sizes (small, medium or large) derived from Cohen (1988).

## Results

### Geomagnetic Activity

Sample size for the following statistical tests met criteria to detect a medium effect size at  $\alpha \leq .05$ , resulting in statistical power  $(1 - \beta) = .80$  or greater. This combination of power and effect size allows a high level of confidence in interpreting the practical meaningfulness when rejecting the null hypothesis.

The distribution of the 723 unique reports was compared to the 11-year solar cycle in energy output (Fig. 1), as measured by the annual sunspot number. Fewer reports occurred during more active portions of the solar cycle ( $r^t = -.40$ ,  $n = 25$ ,  $p = .005$ ) with sunspot activity accounting for 45% of the variability in report frequency.

The annual variation of report numbers with respect to GMA (Figure 2a) shows the similarity in the cyclical trend between the monthly mean Ap index and the monthly report counts. With the exception of the months of January and December, the distribution of reports was found to have a strong positive correlation with GMA (Kendall's tau,  $r_t = .69$ ,  $n = 10$ ,  $p = .006$ ) with the Ap index accounting for 58% of the variability in report frequency. The January and December periods comprise months of peak tourism and are a probable cause of the inflated number of reports in those months. Variations in the number of Port Arthur visitors could not be adjusted for due to insufficient attendance information. A scatterplot of monthly report numbers and monthly GMA (Fig. 2b) shows a distinct separation of the January and December months (squares) from the remainder of the months (circles).

With the exception of the January and December extremes, the positive correlation found in the annual variation (Fig. 2) indicates a greater number of reports during months of higher geomagnetic disturbance. This positive correlation between reports and GMA on an annual level is difficult to reconcile with the contrasting negative correlation over a longer solar cycle period of 11 years. The observation that report counts decrease during solar maxima (Fig.1) yet increase during months of higher average GMA (Fig. 2) suggests that absolute intensity of GMA perturbations are not the primary factor. It may be

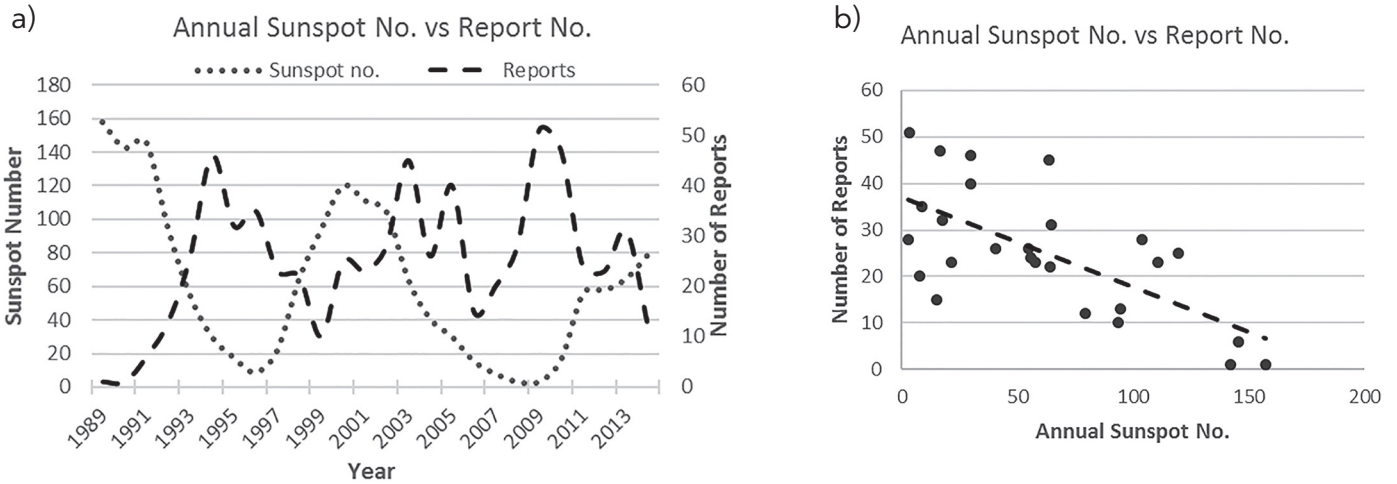


Figure 1: a) Plot of the number of reports per year and the corresponding sunspot count for the years in question. b) Scatterplot of report numbers with sunspot number.

the pattern of activity that is more influential on the phenomenon than the absolute magnitude of the GMA. The features of GMA that influence the witnessing of phenomena may be suppressed or obscured during more active periods of the solar cycle.

The distribution of reports based on average monthly GMA indicates greater than expected report numbers for months of lower GMA. A histogram of report numbers for increasing levels of monthly Ap values is shown (Fig. 3) overlaid with a line graph indicating the distribution of all months over the 26-year period with their corresponding Ap values. The Ap index was truncated to the initial 30 values for sake of clarity. The distribution of the 26-year population of Ap values overlaps well with the distribution

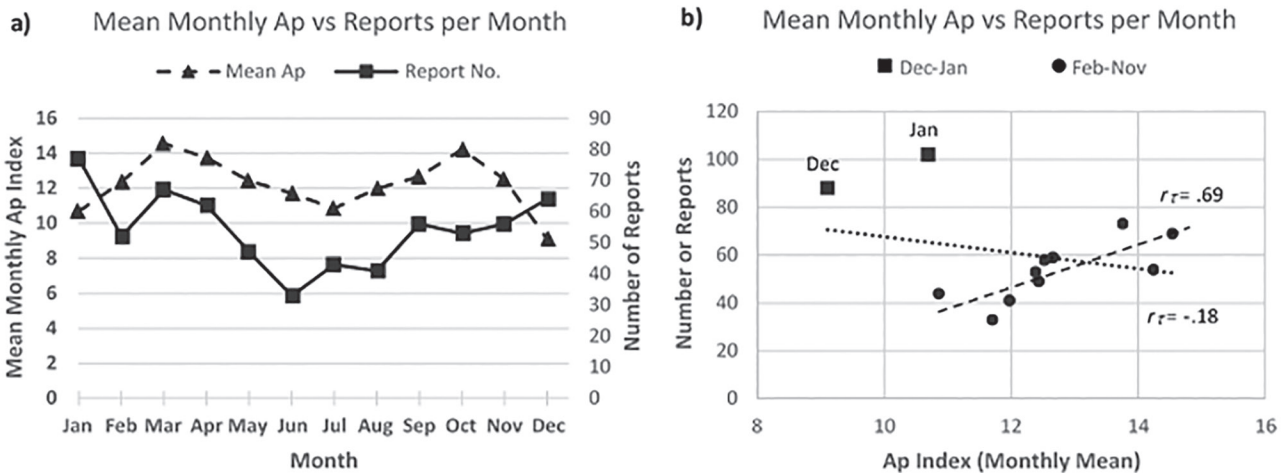


Figure 2: Distribution of reports by month compared to Ap index of geomagnetic disturbance. a) A plot which shows the cyclical trend of the mean monthly Ap index and a similar trend in the report frequency (with the exception of Jan and Dec months). b) A scatterplot that shows the Jan and Dec data points (squares) and their relative displacement from the remainder of the data points.  $R = .69$  The correlation of months Feb – Nov with Jan and Dec excluded was  $r = .69$ ;  $r = -.18$  is the correlation when Jan and Dec months are included.

of reports for higher values, but significant discrepancies arise at Ap levels below 10 ( $\chi^2(31) = 121.02, p < .001$ ). The effect size value ( $w = .42$ ) suggests a moderate to high practical significance. Post hoc standardized residual analysis indicated that data points with significant variation from expected levels were Ap levels of 4, 5, 6 and 10 (marked by asterisk "\*" in Fig. 3).

Report distribution across daily Ap values for the 26-year data population (Fig. 4) shows a uniform, non-significant spread across all levels of activity. A line-graph overlay shows the distribution of daily Ap values for the 26-year period. The two distributions were not significantly different,  $\chi^2(31) = 43.33, p = .055$ , indicating report distribution was spread equally across all levels of daily Ap.

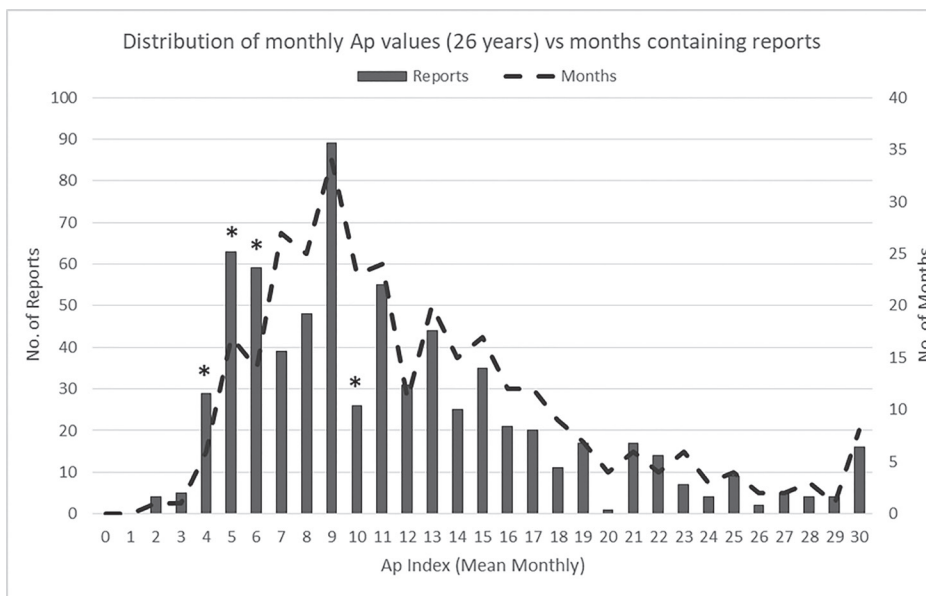


Figure 3: Histogram of reports distributed by monthly Ap level. The overlay line-graph shows the 26-year population of months and their distribution, which acts as a measure of expected distribution. Asterisks (\*) indicate a significant deviation from that expected (measured using standardized residuals greater than  $\pm 3$ ).

The apparent preference for months of lower GMA suggests that increased report frequency is more likely during periods with a greater proportion of quiet time (lower GMA). This is supported by intra-day comparison of the eight 3-hourly ap values that comprise the daily Ap value. The ap values at the time of the reports (Fig. 5) were found to be unevenly distributed relative to the mean Ap, with significantly more reports occurring at quieter portions of the day,  $\chi^2(2) = 57, p < .001$ . The effect size value ( $w = .32$ ) suggests a medium practical significance. Standard residuals (greater than  $\pm 3$ ) indicate direction of significance with substantially more reports occurring at ap levels below their corresponding daily average. This effect was not due to natural variations in distribution as the total sub-population of ap values for the 552 days in question were evenly distributed above and below the mean,  $t(551), p = .67$ .

### Lunar Cycle

When report numbers were plotted by the (approx. 29.5 days) lunar cycle, a distinct increase in reports was evident around the new moon and full moon phases (Fig. 6). Chi-squared goodness-of-fit

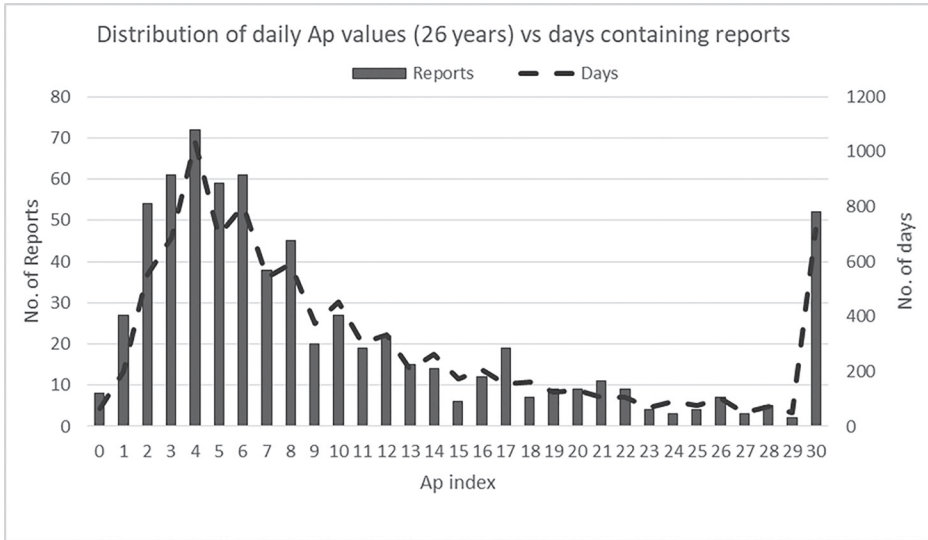


Figure 4: Histogram of reports distributed by daily Ap level. Overlay line-graph shows the 25-year population of days by Ap level, which acts as a measure of expected distribution.

analysis showed a significant deviation from the expected counts of 24.1 reports per day (Fig. 6, dotted line),  $\chi^2(29) = 266.9, p < .001$ . Furthermore, the effect size ( $w = .61$ ) indicates a large practical significance. Analysis of standardized residuals confirmed days pertaining to the new moon (days 1 & half day 29.5) and the full moon (day 15 and 16) were significantly more frequent. More precisely, greater report frequency is evident in the two days centered on the new moon but offset for the full moon to favor the waning period.

Figure 5: Magnitude of the 3-hourly ap value corresponding to the time of the experience relative to the mean daily Ap. Standard residuals greater than  $\pm 3$  were used to determine significance and direction of values.

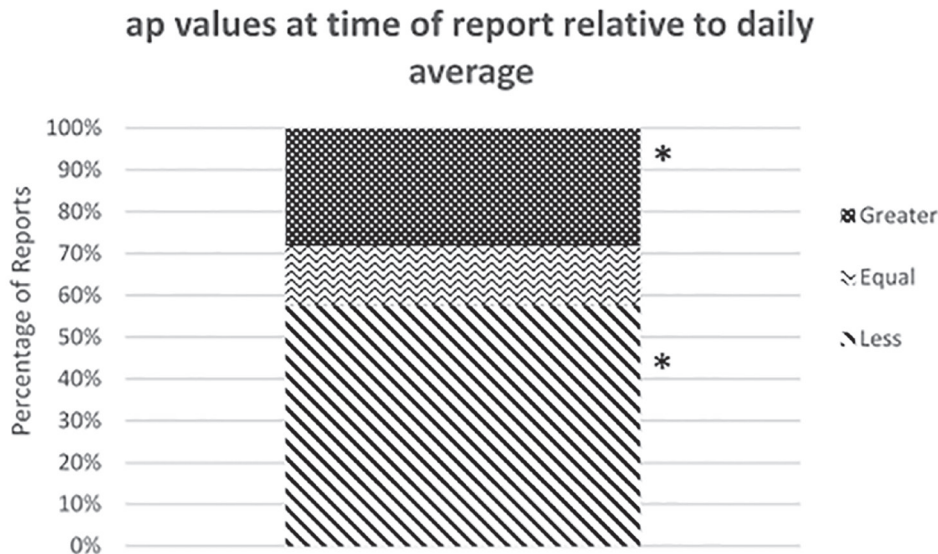
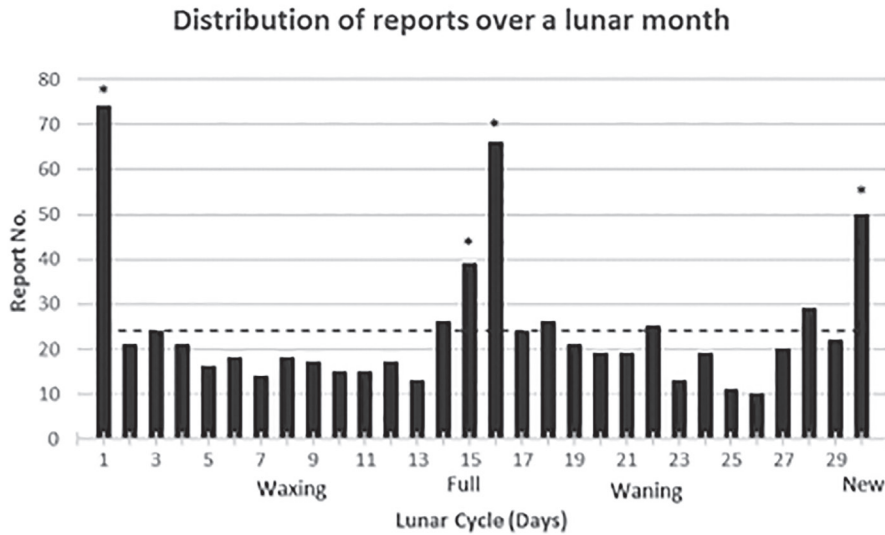




Figure 6: Distribution of reports by day of the lunar cycle (~29.5 days). Evident are the four days of elevated report numbers (marked by an asterisk), clustering around the phases of the new and full moon. The dashed line indicates the expected report count (24.1). Asterisk (\*) indicates a significant deviation from that expected (measured using standardized residuals  $> \pm 3$ ).



## Discussion

The geomagnetic field data of the present study showed two general patterns. First, as predicted, a significant positive association was evident between annual variations in GMA and hallucinatory experiences in the form of witness reports, whereby more reports occurred during months of greater GMA. Conversely, a significant negative association was observed both at longer and at shorter temporal scales (i.e., solar cycle and daily variations respectively), with higher levels of GMA corresponding to lower report numbers.

Contrary to hypotheses on the span of a solar cycle (11 years), report frequency diminished during periods of high solar activity, when GMA disturbances are more frequent. On a monthly scale, reports were distributed over a broad range of GMA spanning low and high Ap levels, but there exists a preference for months of lower Ap values. It is likely that this preference for lower mean monthly Ap values is obscured when data are viewed at a seasonal level, as in the study by Randall and Randall. Finally, at a daily level, reports are equally likely to occur on any day regardless of the level of activity but occur largely during the quieter portion of the day, below the daily average.

Although our initial hypothesis was supported in that annually incidences occur more frequently during higher periods of geomagnetic disturbance, the current finding suggests that it is not the absolute level of disturbance but rather the quieter times around the disturbed period that are more conducive to generation of the phenomenon. High absolute levels of GMA have been correlated to physiological and behavioral factors, such as melatonin levels, temporal lobe epileptiform-type activity and hospital admissions (Burch, Reif, & Yost, 2008; Kay, 1994; Persinger, 1988). However, the effect of magnetic stim-



ulation focusing not on intensity, but rather on its biological “meaningfulness” has also been observed (Persinger, 2006; Persinger et al., 2009; Persinger, Koren, & O’Connor, 2001; Tiller & Persinger, 2002). The term biological “meaningful” is somewhat loosely defined, but implies particular combinations of frequency, intensity, waveform, and possibly spectral complexity that makes them physiologically significant (Sienkiewicz, Jones, & Bottomley, 2005).

In support of this idea are studies of ion-cyclotron type resonance (ICR) as a potential coupling mechanism of weak magnetic fields and biological tissue. Ion-cyclotron type resonance requires specific frequencies and intensities of magnetic fields to produce a “window effect”; an ideal energy transfer with the magnetic or electric fields of oscillating ions (Liboff, 2010). Zhadin and colleagues (1998), found that conductivity of polar amino acids in solution changed sharply under exposure to AC magnetic fields when those fields were tuned to the specific charge-to-mass ratio of the amino acid (i.e., ICR conditions). Furthermore, this effect was observed with magnetic field intensities of the order of 50 nT. At only 40 nT, dissolution of peptide bonds in proteins were observed when exposed to magnetic fields tuned to the ICR conditions of the amino acid (Novikov & Fesenko, 2001). This ion cyclotron resonance could exert an effect on small ions such as the ubiquitous  $\text{Ca}^{2+}$  ion. The flow-on effect could impact modulation of homeostasis, neuronal conductivity or a multitude of other physiological processes (Liboff, 1997; Pazur & Rassadina, 2009).

The ICR mechanism is one that seems to agree well with the requirements for specificity and intensity of stimulus parameters. However, other proposed mechanisms should also be considered. The discovery of magnetically sensitive magnetite crystals in the human brain constitutes possibly the most direct mechanism of magnetic field interactions with biological tissue (Kirschvink, Kobayashi-Kirschvink, Diaz-Ricci, & Kirschvink, 1992; Kirschvink, Kobayashi-Kirschvink, & Woodford, 1992). Found throughout the brain, the potential effects of these crystals on physiological and cognitive processes are of much interest. Another potential mechanism comprises calcite microcrystals, which reside within the pineal gland. The crystals have been proposed as a possible transduction mechanism for electromagnetic fields (Baconnier et al., 2002). It could be speculated that the presence of these microcrystals in the pineal gland may be related to a number of melatonin related processes influenced by magnetic field stimulation (Burch, Reif, & Yost, 1999; Persinger, 2006).

The findings within this study tend to support a biologically meaningful theory for reports of apparent haunting activity. Indeed, certain aspects of haunt type phenomena, such as a sensed-presence and feelings of fear have been induced experimentally (Cook & Persinger, 2001; Tiller & Persinger, 2002; (Cook & Persinger, 2001; Tiller & Persinger, 2002; although see Granqvist et. al., 2005, for a critique of these findings) and were offered as a valid explanation for sites reputed to be haunted (Persinger et al., 2001; Wiseman, Watt, Stevens, Greening, & O’Keeffe, 2003). Selective generation of positive or negative emotions related to a sensed presence have been induced by the appropriate pattern of magnetic stimulation (Persinger et al., 2000). The possibility should be considered that natural, low frequency fields generated within the earth-ionospheric cavity, but disrupted by more intense GMA, may influence the rate of incidence (Persinger, 1985). The exact nature of the stimulus pattern (or its complexity) pertaining to the phenomenon is uncertain at this stage. One avenue of inquiry, as a starting point, is the wide range of ultra-low frequency (ULF) magnetic pulsations that are known to be generated in the magneto-

sphere due to a variety of physical processes and instabilities. These pulsations have periods of 1 - 1000 sec (or longer) and are continuous or irregular in nature (Allan & Poulter, 1992; Saito, 1969). It is possible that pulsation activity within these ranges may be influential to the generation of the phenomenon.

A surprising finding within this study involves the relation between lunar cycle and frequency of reports. In contrast to our hypotheses, disproportionately more reports coincided with both the full and the new moon phases. Given the lack of empirical support surrounding the influence of the moon on human physiology (Ownes & McGowen, 2006), it is likely that this finding is a result of psychogenic factors. For example, experiencers may misinterpret vague sensory inputs as supernatural in origin due to cognitive bias. Those holding beliefs in the paranormal have been found to believe that the moon influences behavior (Rotton & Kelly, 1985b). Therefore, belief in the influence of lunar phases upon incidence of paranormal events may result in selective perception (e.g., hypervigilance to suspected paranormal events due to the presence of a full moon), selective recall and selective exposure (e.g., attending the ghost tour during a full moon due to the belief that a paranormal event will be witnessed), giving rise to increased reports during the full moon (Kelly, Rotton, & Culver, 1996). With respect to the new moon, although generally not associated with supernatural incidence (Bevington, 2015), the effect may be due to the absence of illumination during this portion of the lunar cycle. The lack of illumination during a new moon compared to other moon phases would only further increase the likelihood of misinterpretation of already vague stimuli.

Despite the likely role of psychogenic factors resulting in cognitive bias, it is interesting to note that the moon does exert an influence on the general level of GMA, through both gravitational effects on the lower atmosphere and ionosphere and by physical interference with the sun-earth magnetic connection (Akimov & Dyatel, 2012; Majmudar & Rao, 1983; Rangarajan, 1980). However, due to absence of suitable controls within this study, any possible lunar influences via environmental mechanisms cannot be clearly separated from the psychological factors.

The observations made in this study and prior studies have shown a relation between sensory hallucinations and geomagnetic activity, but only on a broad planetary level, as indicated by the planetary indices of GMA. Future investigation of the notion that certain geomagnetic spectral components play a role in hallucinatory experiences would benefit from the use of magnetic field data of higher spatio-temporal resolution to elucidate the dynamic changes specific to the geographic location in question.

The wealth and breadth of data accumulated here over a 26-year period provides valuable insights, but also exhibits some limitations inherent in the nature of its acquisition. The unplanned format of the reports results in an absence of suitable control groups to make statistical comparisons at behavioral levels. Because of these limitations, a reproduction of these findings is needed using suitable controls to eliminate the impact of potential confounds on the findings. As the phenomena reported here are largely biological in nature, future efforts would benefit in analyzing environmental factors in conjunction with experiencer traits such as socio-cultural characteristics, neurophysiological factors, or personality traits.

With respect to GMA, the distribution of sensory hallucination reports show a preference for quieter portions of the day, but, curiously, for those days that reside in seasons of higher geomagnetic distur-

bance. These findings suggest that time periods situated within more complex variability may be more conducive to sensory hallucinations than absolute intensity. A significant interaction between lunar cycle and report frequency was also observed, but environmental and psychological mechanisms of action could not be discriminated. The geomagnetic findings suggest a mechanism emphasizing spatio-temporal variation over intensity for increasing the likelihood of sensory hallucination experiences within the general population. The significant environmental interactions with sensory processing found in this study offer a predictor of anomalous occurrence likelihood in the real world.

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### **Interactions Magnétosphériques et Lunaires avec les Hallucinations Sensorielles Rapportées: Une Étude Exploratoire**

Résumé. Il a précédemment été affirmé que l'activité géomagnétique (GMA) et le cycle lunaire pouvaient faciliter les expériences hallucinatoires qui sont subséquemment interprétées comme relatives à des activités de hantise. Toutefois, les résultats des précédentes études investiguant ces possibles connexions ont pour limites de n'avoir que des échantillons de petite taille, de larges résolutions temporelles, ou des conditions de laboratoire artificielles. Afin de parer ces limitations, une étude exploratoire a été conduite sur 26 years d'affirmations faites par des témoins, pour un total de 723 rapports distincts, d'activité apparente de hantise, obtenus par l'équipe du Port Arthur Historic Penal Colony, en Tasmanie, Australie. Nous avons comparé la fréquence des rapports avec les phases de la lune, le cycle solaire, et des mesures mensuelles, quotidiennes ou heure par heure de la GMA (en utilisant l'index Ap). La distribution des rapports était significativement corrélée à la fois avec la variation annuelle de la GMA et la fréquence des taches solaires dans le cycle solaire. Les distributions dans une même journée révélaient que les rapports étaient plus susceptibles d'être faits durant les périodes où la GMA était inférieure à sa moyenne quotidienne. De plus, des fréquences significativement plus élevées de rapports se sont produits durant la période de deux jours autour de la nouvelle et pleine lune. Ces résultats suggèrent que les hallucinations sensorielles, vécues sous la forme d'activité de hantise, se produisent de façon préférentielle durant des périodes spécifiques en dehors de la GMA maximale ; durant des périodes soit relativement calmes ou peut-être durant des périodes où les variations magnétiques sont les plus susceptibles d'interagir avec les processus biologiques. L'effet lunaire observé est probablement d'ordre psychogénique et dû à un feedback sensoriel.

### **Magnetosphärische und lunare Wechselwirkungen mit berichteten sensorischen Halluzinationen: Eine explorative Studie**

Zusammenfassung. Bereits früher wurde vermutet, dass die geomagnetische Aktivität (GMA) und der Mondzyklus im Zusammenhang mit halluzinatorischen Erfahrungen stehen, die anschließend als Geisteserscheinungen interpretiert wurden. Die Aussagekraft früherer Studien, in denen solche Zusammen-



hänge untersucht wurden, ist jedoch aufgrund relativ kleiner Stichprobengrößen, einer breiten zeitlichen Auflösung oder einer künstlichen Laborsituation begrenzt. Um diese Einschränkungen zu begegnen, wurde eine explorative Analyse von 26 Jahren umfassenden Zeugenaussagen durchgeführt, die 723 besondere Berichte über scheinbar geisterhafte Aktivitäten umfassen, die von der Verwaltung der Port Arthur Historic Penal Colony, Tasmanien, Australien, zur Verfügung gestellt wurden. Wir verglichen die Häufigkeit der Berichte mit der Mondphase, dem Sonnenfleckenzyklus und den monatlichen, täglichen und stündlichen Messungen der GMA (unter Verwendung des Ap-Index). Die Berichtsverteilung war sowohl mit den jährlichen Schwankungen der GMA als auch mit der Häufigkeit der Sonnenflecken im Sonnenfleckenzyklus signifikant korreliert. Verteilungen im Tagesverlauf ergaben, dass die Wahrscheinlichkeit dafür, dass Berichte in Zeiten unterhalb der durchschnittlichen täglichen GMA auftreten, höher war. Darüber hinaus wurden während zweier Tage um den Neu- und Vollmond herum deutlich mehr Berichte registriert. Die Ergebnisse deuten darauf hin, dass sensorische Halluzinationen, die als spukhafte Vorfälle erlebt werden, vorzugsweise in bestimmten Perioden außerhalb der maximalen GMA auftreten; entweder in relativ ruhigen Perioden oder vielleicht in Perioden mit Magnetfeldänderungen, die mit biologischen Prozessen eher wechselwirken. Der beobachtete Mondeinfluss dürfte eher psychogener Natur sein, da er mit sensorischem Feedback zusammenhängt.

### **Interacciones Magnetosféricas y Lunares con Informes de Alucinaciones Sensoriales: Un Estudio Exploratorio**

Resumen. La actividad geomagnética (GMA) y el ciclo lunar se han postulado previamente como adyuvantes de experiencias alucinatorias que posteriormente se interpretan como actividades fantasmales. Sin embargo, los resultados de estudios previos que investigaron posibles conexiones estuvieron limitados por tamaños de muestra relativamente pequeños, resolución temporal amplia, o entornos artificiales de laboratorio. Para subsanar estas limitaciones, realizamos un análisis exploratorio de 26 años de declaraciones de testigos que incluyeron 723 informes individuales de actividad fantasmal aparente, obtenidos por la administración de la Colonia Penal Histórica de Port Arthur, Tasmania, Australia. Comparamos la frecuencia de los informes con la fase lunar, el ciclo solar y las mediciones mensuales, diarias, y por hora de GMA (utilizando el índice Ap). La distribución de los informes correlacionó significativamente tanto con la variación anual en GMA como con la frecuencia de las manchas solares del ciclo solar. Las distribuciones durante el día revelaron que los informes tenían más probabilidades de ocurrir durante tiempos por debajo de la media diaria de GMA. Además, se produjo una frecuencia significativamente mayor de informes durante el período de dos días alrededor de la luna nueva y la luna llena. Los resultados sugieren que las alucinaciones sensoriales, experimentadas como actividad fantasmal, ocurren preferentemente durante períodos específicos fuera de la GMA máxima; durante períodos relativamente tranquilos, o quizás durante períodos con variaciones magnéticas más adecuadas para la interacción con procesos biológicos. El efecto lunar observado es probablemente de naturaleza psicógena debido a la retroalimentación sensorial.

## Secondary Analysis of Sitter Group Data: Testing Hypotheses from the PK Literature<sup>1</sup>

James McClenon

**Abstract.** Psychological researchers offer a schema for investigating group psychokinesis (PK). Sitter groups put their hands on a table and, after socialization, report PK experiences. Batcheldor, Lucadou, Richards, and McClenon devised theories regarding this process. This endeavor resulted in hypothesis testing and theory revision. Although theories diverge, observations support two basic arguments: (1) Most people inhibit PK, while a minority facilitate it (facilitation-suppression theory), (2) group participation involving artifacts, shared ideology, quantum processes, and rapport facilitates PK (interaction theory). The Society for Research on Rapport and Telekinesis (SORRAT), founded by the author/poet John G. Neihardt in 1961, kept experimental notes evaluating *levitation success* for over four decades. Available notes allowed testing four formal hypotheses and various exploratory hypotheses derived from the two theories. Although evaluations supported the formal hypotheses, exploratory findings: (1) supported the facilitation-suppression theory, (2) failed to support the interaction hypothesis, (3) supported elements within the original theories. A revised theory offers testable hypotheses and suggestions for future research.

**Keywords:** psychokinesis, sitter groups, artifact induction, ritual healing theory, pragmatic information model

Some psychological researchers have devised a schema for investigating group psychokinesis (PK). Sitter groups put their hands on a table and, after socialization, perceive that it moves through psychokinesis (PK). Batcheldor (1966, 1979, 1994) offered psychological explanations for this effect. Lucadou (1995, 2015) provided a quantum/information systems model explaining stages within group PK. Owen and Sparrow (1976) described an experiment supporting an alternative to Spiritualist explanations. The Society for Research on Rapport and Telekinesis (SORRAT) advocated rapport (close, harmonious relations among participants) as a means for inducing PK (Richards, 1982). McClenon (2018) discussed SORRAT as a form of shamanism and provided an evolutionary theory. Gimeno (2015) described a PK-gifted participant whose phenomena were affected by observers. These researchers shared assumptions derived from common empirical observations. Some people appeared more PK-conducive than others and special forms of socialization seemed to facilitate PK.

The present study tests hypotheses, derived from the psychological research literature, using SORRAT experimental records. John G. Neihardt, who founded SORRAT in 1961, assigned his graduate student, John Thomas Richards (Tom), the task of keeping experimental notes. The group reported anomalous

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rapping sounds, table movements, levitations, anomalous sensations, poltergeist phenomena, earthquake effects, and movement of objects in sealed containers. Following Neihardt's directives, Richards documented more than 850 SORRAT sessions over four decades. This data allowed testing four formal hypotheses and various exploratory hypotheses derived from two basic theories.

## Theory

Psychical research theories regarding group PK share an experimental paradigm (Batcheldor, 1966, 1979, 1984; Lucadou, 1995, 2015, McClenon, 1997, 2002, 2012, 2013, 2018; Owen & Sparrow, 1976; Richards, 1982). Researchers found that table-tipping groups, following similar procedures, reported equivalent PK experiences. Patterns associated with success resulted in theory revision.

Batcheldor's (1966, 1979, 1984) *artifact induction theory* established the secular sitter-group paradigm. Batcheldor hypothesized that people do not wish to acknowledge their role in producing PK (ownership resistance) and, as a result, their fear prevents its incidence (witness inhibition). He proposed that participants who push the table through unconscious muscular movements tend to attribute these movements to PK. As they grow used to this unexplained result, their fear of PK declines, allowing authentic PK to occur. This strategy was labeled *artifact induction*.

When Batcheldor found that his group's PK declined and could not be fully verified, he sought advice from Lucadou, whose quantum theory explained psi's limitations. Lucadou suggested relaxing experimental scrutiny, dimming the lights, and reducing photographic documentation (Lucadou & Wald, 2014). Batcheldor found this advice useful and recommended these suggestions to others. Brookes-Smith (1973) theorized that fraud, when undetected, stimulated belief, allowing authentic PK. Although he did not fully verify his group's PK as paranormal, his results supported the argument that fraud, an artifact, also facilitated PK experience.

Batcheldor's theory coincided with clinical observations. When phobic clients are exposed to small doses of fear-inducing stimuli, their fears tend to decline. Similarly, sitter-group participants exposed to artifacts/fraud reduce their fear of PK, allowing it to occur. Batcheldor (1994) later modified his theory to explain psi's limitations. He proposed that a *universal creative principle*, acting through the human mind, creates psi. Psi is defined as a rearrangement of normal reality, possible when ambiguous conditions allow *pockets of indeterminacy*. Sitter groups create these environments by achieving special forms of belief under circumstances that thwart full verification of the phenomena. Although these ideas are difficult to evaluate, Batcheldor's revised theory fits the idea that psi is prevented by cognitive mechanisms creating a consensual reality; in some situations, these mechanisms are disrupted.

Lucadou's (1995, 2015) Model of Pragmatic Information argues that quantum *entanglements* facilitate psi. *Entanglement*, an empirically verified phenomenon, occurs when pairs or groups of particles are created together, causing them to remain correlated, even when separated by large distances. Lucadou argued that quantum correlations facilitate psi, causing psi to have quantum characteristics such as the Zeno effect (observing a system prevents it from changing). In parallel fashion, psychical researchers find that poltergeist activity, PK group phenomena, and experimental psi decline when exposed to

observers, cameras, and security devices (Lucadou and Wald, 2014). Lucadou's arguments are a form of *observational theory* because PK/quantum effects are thwarted by scrutiny (Miller, 1978).

Owen and Sparrow (1976) devised a study implying that *secular* rather than *spiritual* mechanisms generate PK. Their PK group created a fictitious entity they named Philip, a mid-1600s English aristocrat who committed suicide after failing to intervene when his mistress was burned at the stake. After meditating together for a year, the group sought advice from Batcheldor, who suggested they lower the lights, sing together, and adopt a more playful attitude. After following this advice, the group began hearing raps from the table, seemingly from Philip. Information derived from the raps did not exceed Philip's fictional biography, suggesting that Philip's consciousness was limited to that of the group. Over time, the phenomena came to include anomalous table movements, levitations, dimming or brightening lights on command, and cool breezes across the table when requested. Although Philip's performances were documented on camera during two television programs, conditions were insufficient to fully verify the phenomena as paranormal (Laursen, 2016). After Philip's activity declined in 1977, other groups generated similar experiences using fabricated narratives. As with the Philip experiment, these groups did not fully verify their anomalous perceptions as paranormal (Owen & Sparrow, 1976; Sinn, 2012).

John G. Neihardt, SORRAT's founder, hypothesized that *rapport* facilitated sitter group phenomena. Neihardt concurred with J. B. Rhine's paradigm that scientific methods should be applied to psychical research. He assigned his graduate student, J. T. Richards, the task of note-taker. After Neihardt's death in 1973, Richards continued conducting SORRAT experimental sessions for over four decades. SORRAT differed from Batcheldor/Philip groups in that participants varied from week to week and included some with Spiritualist beliefs. Richards (1982, 1984) accepted Neihardt's scientific orientation and Batcheldor's artifact induction theory.

McClenon's (1997, 2002, 2018) *ritual healing theory* explained anomalous experiences and the origin of religion within an evolutionary model. The theory argued that random genetic mutations, coupled with stress/trauma, could result in sporadic disruptions of normal consciousness (Keller & Miller, 2006). These interruptions generate intermittent psychotic, schizotypal, unusual, anomalous, mystical, and shamanic perceptions, most of which are non-pathological. Unusual/anomalous experiences (apparitions, paranormal dreams, waking ESP, PK, out-of-body and near-death experiences, synchronicity, spiritual healing) generated powerful beliefs in spirits, souls, life after death, and magical abilities, the ideological foundations of shamanism (McClenon, 2002; Winkelman, 2010). People prone to these experiences, present in every society, were potential shamans, whose rituals provided hypnotic/placebo benefits to audiences. Because shamanic propensities are correlated with the variables selected by ritual healing (absorption, dissociation, hypnotic suggestibility, propensity for anomalous experience), shamanism generated an evolutionary cycle, selecting "shamanic" genes shaping the human capacity for religion. This theory is supported by studies finding that anomalous experiences are correlated with absorption, dissociation, and hypnotic suggestibility (Cardeña, Lynn, & Krippner, 2017; Cardeña & Tehune, 2014; McClenon, 2002) and location of genotypes influencing absorption (Ott, Reiter, Henning, & Vaitl, 2005). Elements within this theory have been evaluated through questionnaire surveys, genetics research, content analysis of interview data, field studies, and participant observation (Cooper & Thalbourne, 2005; McClenon, 2000a,b, 2002, 2005, 2012, 2013, 2018).

The ritual healing theory provides hypotheses pertaining to sitter groups: (1) Some participants have greater propensity for PK experience than others. Those scoring higher on measures of absorption, dissociation, transliminality, and history of anomalous experience are more likely to become core members and to experience group PK. (2) PK group phenomena tend to support shamanic beliefs and spiritual healing. (3) Some people benefit more from spiritual healing than others. Those benefiting are predicted to score higher on measures of absorption, dissociation, transliminality, and history of anomalous experience.

Core elements within psychical research theories support two basic arguments amenable to testing using the SORRAT data: (1) The *facilitation-suppression theory* argues that a minority of people facilitate PK while most suppress it. (2) The *interaction theory* hypothesizes that special forms of socialization facilitate PK (artifact induction, fraud, ambiguity, rapport, and tolerance of dissociation/absorption). These hypotheses coincide with Gimeno's (2015) observation that PK associated with a specific individual was affected by observers. Although not fully articulated, these theories imply that consciousness affects (possibly constructs) reality and that anomalous perceptions (psi) constitute deviations from normal reality that, over time, are rectified (Batcheldor/Lucadou theories).

## Hypotheses

Three formal hypotheses regarding group PK were established before evaluating the data:

Hypothesis 1, derived from the *facilitation-suppression theory*, predicted that SORRAT group size would be significantly and inversely correlated with levitation success since larger groups are more likely to contain people thwarting PK (Pearson correlation,  $p < .01$ ). Exploratory analysis would investigate factors thought to affect the hypothesized correlation ( $p < .05$ ). A table categorizing group size and levitation success revealed optimum group size.

Hypotheses 2a and 2b, derived from the *facilitation-suppression theory*, predicted that individual levitation success scores of the 10 SORRATs attending the most sessions would have greater variance than expected by chance ( $p < .01$ ) with distribution skewed toward levitation failure (cumulative binomial distribution,  $p < .01$ ).

Hypothesis 3, derived from the *interaction theory*, argued that participation (number of sessions attended) would be positively correlated with individual rate of levitation success since attendance was hypothesized to facilitate success ( $p < .01$ ).

Two planned exploratory analyses would investigate relations between location, time period, and levitation success ( $p < .05$ ). Further exploratory analyses ( $p < .05$ ) included: (1) determining which combinations of SORRATs had the highest probabilities of success, (2) testing *facilitation-suppression* hypotheses regarding successful combinations of participants, and (3) evaluating an *interaction hypothesis* that predicts that participants attending 12 or more sessions would have lower first-half success rates than second-half rates due to the PK-conductive effects of interaction ( $t$ -test,  $p < 0.05$ , one tail).

These hypotheses do not preclude skeptical arguments. Skeptics suggest that non-believers, more



likely in larger groups, reduce fraud (hypothesis 1). If some participants cheated, their levitation success rates would be greater than those of non-cheaters (hypothesis 2a,b). These arguments do not replace the study hypotheses since: (1) Fraud is predicted to contribute to authentic, but unverified, anomalous experiences. (2) Within the context of sociological analysis, PK is regarded as an experience rather than a verified paranormal phenomenon. PK is *sociologically* real in that it has real effects on those who experience it.

Although the analysis cannot resolve believer/skeptics issues, ethnographic evidence pertains to this controversy. Participant observation uncovered about 10 accusations of fraud (McClenon, 2018). All allegations were related to ambiguous, silly, clumsy, or absurd behaviors rather than robust paranormal claims. For example, participants reported seeing Richards make raps with his knuckles or attempt to simulate a poltergeist event. Although he denied these actions, table-tipping seems to reward dissociative people who “prime-the-pump” through artifact induction (SORRAT Table-Tipping 1, 2, 3, Appendix A, shows participants probably pushing the table). SORRATs took few precautions regarding typical methods for fabricating sitter group PK (Mulholland, 1938).

SORRAT experiences included *trickster phenomena*, personifications of an archetype, found all over the world, involving boundary crossing, irrationality, fakery, and instability (Hansen, 2001). Such events are not unusual in the psychical research and Spiritualist literature (Batchelder, 1994; Haraldsson and Gissurarson, 2015). For example, a 1907 attempt to photograph a spirit associated with the Icelandic medium Indridi Indridason (the first experiment of its kind) resulted in an image that implied fraud (a bed sheet draped over a pole). Nevertheless, this careful investigation concluded that much of Indridason’s phenomena were paranormal (Haraldsson & Gissurarson, 2015).

The present research strategy cannot determine the degree that SORRAT phenomena involved authentic PK, trickster effects, or fraud. Study methods combined sociological and psychical research paradigms resulting in findings that pertain to both psychical research and the sociology of religion.

## Methods - SORRAT Experiment Records

As part of a sociological study, McClenon (2018) attended SORRAT sessions in 1981, 1982, 1983 (SORRAT Experiments, 1983, Appendix A), 1986, 1988, 1992, 1996 (Talking to the Spirits: A Pilgrimage, Appendix A), 2001 (How Shamanism Began, Appendix A), 2002, and 2004. In 2017, he assembled available SORRAT experiment notes, written by J. T. Richards, with permission of his widow, Elaine Richards. These documents describe over 850 experiments spanning 1966-2007, with notes missing from some periods. Available notes were categorized into four time-periods: (1) Nov. 27, 1966 - Sept. 10, 1972, (2) Nov. 3, 1974 - June 3, 1977, (3) June 6, 1977 - Oct. 23, 1983, and (4) Aug. 22, 1999 - Aug. 22, 2007. These dates demarcate changes in Richards’ residence, gaps in the notes, and the date William Edward Cox (the researcher sent by J. B. Rhine) began his full-time investigation of SORRAT (June 6, 1977).

### Methodological Weaknesses

Although Richards listed experimental objectives before each session, he lacked clear criteria for evaluating rapping sounds, PK in sealed containers, entity and trance message ESP, and poltergeist events. As a result, the present study restricted its focus to the 729 sessions involving levitation. Richards’ criteria for evaluating levitation outcome were: (1) Failure: The table did not come off the floor. (2)



Partial success: The table came off the floor, but not all hands were removed, or the height and time of levitation were insufficient to establish the event as paranormal. (3) Success: The table rose sufficiently, for enough time, with hands off, so that Richards believed it levitated paranormally.

Richards did not consistently document visibility during experiment sessions. Light conditions varied since participants found that reducing visibility tended to enhance the phenomena. During periods when the group experienced few levitations, experiments were conducted in complete darkness. Richards lacked criteria for evaluating levitation success during these sessions and his belief in PK probably caused him to evaluate ambiguous cases as successes (some SORRATs suggested that his success rates should be reduced by as much as 30%). His notes included phrases (the table moved) in situations that skeptics would interpret differently (people pushed the table unconsciously). Although not fully reliable, his system distinguished sessions having low emotional impact from those with high impact, making it suitable for sociological analysis.

Richards' notes indicate that he went into "trance" during 68 of the 708 levitation sessions he attended (10%). Trance is defined here as a sleeplike altered state of consciousness, with partly suspended animation, diminished sensory and motor activity, and subsequent lack of recall. On these occasions, Richards based his notes on interviews and session audiotapes. Although we cannot determine how often he went into trance without realizing it, SORRATs stated that his trances were rare (see John Hunt's comments, Appendix B). The notes indicated that his last trance during an experiment was in 1981.

### **Methodological Strengths**

SORRATs stated that their memories corresponded with events described in Richards' notes (see Appendix B). Elements within Richards' personality support belief in the usefulness of his notes. He was perceived as methodical, stable, and persistent and his notes reflected these qualities (consistent, complete, with illustrative diagrams). Because of his deep respect for J. G. Neihardt, he was highly motivated to keep accurate records; he used the same format for over four decades.

Robust SORRAT phenomena were witnessed by hundreds of participants. Many believed they experienced authentic PK. Although his evaluations do not establish the paranormal quality of levitations, his records seem suitable for sociological analysis. Richards' accounts allow insights into the ways ancient peoples came to believe in spiritual forces (McClenon, 2018).

### **Data entry**

Data regarding the 729 sessions with levitation evaluations were entered on a spreadsheet. These sessions involved 315 people in groups varying between 1 to 25 participants. Coded variables included experiment date, location, names of participants, number of participants, evaluation of levitation outcome, evaluations of non-levitation outcomes (sealed box experiments, rap communications, other poltergeist phenomena, trance speaking), "attempt to photograph levitating object," and "individuals in trance during the session."

### **Statistical Analysis**

Chi square tests ( $\chi^2$ ) are commonly used for testing relations between nominal and ordinal (categorical) variables; these tests were appropriate for hypotheses 2 and 3. Hypothesis 1 involved hierarchi-

Table 1  
*Location and Levitation Outcome*

<i>Location</i>	<i>Failure</i>	<i>Partial Success</i>	<i>Success</i>	<i>Total</i>
Columbia (John Neihardt)	39 (37%)	15 (14%)	52 (49%)	106 (100%)
Columbia (Tom Richards)	13 (25%)	15 (29%)	23 (45%)	51 (100%)
Cape Girardeau (Tom Richards)	40 (37%)	11 (10%)	58 (53%)	109 (100%)
Centralia (Tom Richards)	5 (25%)	5 (25%)	10 (50%)	20 (100%)
Rolla (Tom Richards)	101 (32%)	35 (11%)	177 (56%)	313 (100%)
Rolla (Harold)	10 (59%)	3 (18%)	4 (23%)	17 (100%)
Other people's homes	42 (37%)	22 (19%)	49 (43%)	113 (100%)
Totals	250 (34%)	106 (14%)	373 (51%)	729 (100%)

Note. Name in parenthesis indicates residence where experiment occurred

cal nesting of data (the same individuals took part in groups of varying sizes). Because nesting violates chi square assumptions, evaluation of hypothesis 1 required a Pearson correlation ( $r$ ).

Chi square tests are sensitive to sample size and can achieve significance even through relations are weak (statistically significant but not socially significant). In response to this possibility, Cramer's  $V$  values, measuring relation strength, were calculated for each  $\chi^2$ . Although guidelines regarding relation strength vary among studies, Cohen (1988) offers the following criteria (for 3 column data used in the present study): .07-.20 (weak); .21-.35 (moderate); > .35 (strong). Interpretation, or adjustment, of these values varies with theoretical context. Since the study hypotheses do not predict strong relations, Cohen's criteria could be relaxed. Exploratory analyses using Pearson  $r$  and t-tests avoid problems associated with chi square and large sample size. Although the author strongly believes in psi, SORRAT phenomena tend to be highly ambiguous, making individual observations uncertain (McClenon, 2018).

## Results

A planned preliminary analysis compared levitation outcomes at six locations (see Table 1). The notes revealed levitation success rates of 49% at Skyrim (Neihardt's home), 45% at Richards' Columbia home, 53% at his Cape Girardeau home, 50% at his Centralia home, 56.5% at his Rolla home, 23.5% at Harold's home in Rolla, and 43% at other people's homes,  $\chi^2(12, n = 729) = 27.1, p < .0076, V = .14$ .

Table 2  
*Time-Period and Levitation Outcome*

<i>Time-period</i>	<i>Failure</i>	<i>Partial Success</i>	<i>Success</i>	<i>Total</i>
1966-1972	87 (32%)	48 (17%)	140 (51%)	275 (100%)
1974-1977	32 (36%)	17 (19%)	40 (45%)	89 (100%)
1977-1984	58 (59%)	13 (13%)	28 (28%)	99 (100%)
1999-2007	73 (27%)	28 (10%)	165 (62%)	266 (100%)
Totals	250 (34%)	106 (14%)	373 (51%)	729 (100%)

Table 2 indicates that SORRATs experienced a 51% success rate in 1966-1972, 45% in 1974-1977, 28% in 1977-1984, and 62% in 1999-2007,  $\chi^2(6, n = 729) = 44.2, p < .00001, V = .17$ .

## Discussion

SORRAT history allows insights regarding relations between location, period, and levitation success. SORRAT experienced two preparatory phases (Sept.-Dec. 1961 and Sept.-Dec. 1965), parallel to those of the Batcheldor/Philip groups. At first, originating groups experienced no phenomena, but, after meeting weekly for three months, they perceived rapping sounds, table movements, and eventually levitations. Although Richards' book (1982) described these events, the original notes were not available.

The earliest existing notes (Nov. 27, 1977) illustrate the types of information Richards recorded (place, participants, date, time of start and finish, phenomena experienced, entities present, photographs attempted, reactions to photographs, people in trance, diagram of anomalous movements). He and his wife, Elaine, began the experiment at 7:05 PM in their Columbia, MO, apartment by placing their hands on a table. After half an hour, raps, claiming to be Elaine's grandfather, began sounding from front room, kitchen, and bathroom floors. The table began vibrating, coldness filled the room, and the table "walked" to the center of the room. When the table smoothly rose above their heads, they removed their hands, and it hovered, about two feet from the ceiling, obviously levitating. Richards photographed it and it descended gently to the floor. He went into an altered state and did not speak coherently. The experiment ended at 9:50 PM. His notes included a schematic drawing showing locations of participants, rapping sounds, table movements, furniture, and flight path. Although not present in this narrative, Richards often noted psychological factors, such as rapport, that he thought influenced experimental outcomes.

Exploratory analyses suggested that psychological factors were more predictive of success than location or period. From Nov. 27, 1966 to Aug. 8, 1967, success rates were higher at Skyrim (61%) than other places (42%). This was expected since Neihardt, the founder, was central to the group. Between Sept. 12, 1967 and Oct. 30, 1968, while Richards was in Cape Girardeau, his groups attained levitation success rates (62%), and other robust phenomena, equivalent to those at Skyrim. When he invited

skeptical professors to participate (Nov. 4, 1968 – March 30, 1969), the success rate fell to 29%. The spirits referred to this dearth of levitation success as “the gap” and attributed the consistent failures to electromagnetic forces. On Easter Sunday, April 6, 1969, powerful poltergeist events foretold of a change in fortune. Afterward, SORRATs experienced a 61% success rate (April 9, 1969 – July 1, 1971). This development might be attributed to unknown factors, to fraud, to regression to the mean [although improbable considering the comparison of before/after Easter,  $\chi^2(2, n = 105) = 11.7, p = .003, V = .24$ ], or to Marge (thought to be PK-conductive), who joined the group on April 9, 1969.

In late 1966, Skyrim participants experienced a marked change in success rates. Between Dec. 2, 1966 - Oct. 29, 1976, the rate was 62.5%; afterward (Nov. 5, 1976-Dec. 20, 2005), the rate declined to 26%. Explanations included Neihardt's death in 1973, W. E. Cox's (1969-1994) focus on controlled experiments, decreased rapport at Skyrim after visitors were restricted, and occult or unknown variables.

Batcheldor/Lucadou theories would predict that reduced scientific scrutiny should facilitate PK. Skyrim history failed to support this hypothesis. After June 24, 1977, Cox was prohibited from attending Skyrim sessions, but Skyrim's success rate remained low (36%). Harold's participation also had an unexpected consequence. SORRAT conducted 17 sessions at Harold's home in Rolla in 1979. Low success rates (23.5%) could be attributed to Harold's mixed attitudes toward SORRAT. Harold had hoped that SORRAT might help him deal with his poltergeist, but, instead, SORRATs sought to elicit it. These events imply that psychological explanations for levitation success were generally, but not always, in harmony with actual outcomes.

It is difficult to quantify the degree that rapport contributed to levitation success. Most SORRATs perceived that Cox's presence reduced both rapport and subsequent phenomena. Although Cox believed in the authenticity of the phenomena, he felt that investigating séance-room claims were fruitless due to uncontrolled conditions. Richards encouraged Cox to attend sessions since he believed that scientific investigation was central to SORRAT's purpose and that no one should be denied permission to attend SORRAT sessions.

Beginning in 1978, Cox constructed locked and sealed glass boxes with micro-switches in their floors. These devices became known as *mini-labs*. The micro-switches, activated by movement inside the box, triggered a film camera aimed at the box. Between 1979 and 1982, Cox's mini-lab filmed about 15 rolls of 8 mm films, most of which were filmed in Richards' basement. About 5% of the frames showed ostensible PK (Cox, 2004; Richards, 1982, p. 179; *SORRAT Mini-lab experiments*, Appendix A). Films showed objects moving about inside the box and exiting through the glass face, papers spontaneously bursting into flames, and balloons inflating and deflating while their necks are tied. Cox's films had trickster qualities since objects sometimes flashed from one place to another without a transition phase, suggesting stop-action photography.

Cox's experimental efforts were severely criticized at a meeting of the Parapsychological Association in August 1981. An experiment conducted by the Foundation for Research on the Nature of Man generated evidence suggesting fraud (crude tampering associated with spirit handwriting; Hansen & Broughton, 1983). The McDonnell Laboratory for Psychical Research constructed a more sophisticat-

ed mini-lab but this device failed to replicate Cox's films (Phillips & McBeath, 1983). On October 23, 1983, some amateur psychical researchers participated in a Skyrim experiment and one later circulated ambiguous photographs that implied unconscious fraud (two participants were pushing on the table so that together they held it up). Although Richards appeared to be in "trance" (not mentioned in his notes), SORRATs were shocked by the implications of these events.

In 1981, McClenon began his sociological study of SORRAT. Participants showed him many photographs of levitating tables. All expressed certainty that the phenomena were authentic. A questionnaire survey generated 23 responses describing unexplained raps, levitations, poltergeist phenomena, and earthquake effects (McClenon, 2018). His impression was that the 1981-1983 experimental failures affected SORRAT morale, reducing anomalous phenomena. Richards, who considered himself a researcher, was distressed that the parapsychologists treated him like a laboratory guinea pig rather than a colleague. Formal mini-lab experiments ended.

SORRAT notes from 1984-1999 are not available. During this period, McClenon visited SORRAT in 1986, 1988, 1992, and 1996. He offered the entities opportunities to write messages under uncontrolled conditions. As a result, the entities corresponded with dozens of SORRATs. Although rapping sounds and levitations were less frequent, the group continued meeting. Spirit letter writing became robust. In 1996, Richards' son Ivan invited his college friends to participate and some, such as Sean, conducted successful sealed container experiments (*Talking to the Spirits: A Pilgrimage*, Appendix A). In 1999, SORRAT groups experienced high success rates. The 1999-2007 period (success rate: 62%) was characterized by fewer new people (9.5% attended only one session compared to 49% overall), reduced scientific scrutiny (no professional parapsychologists), stable groups (only 30 people attended, compared to 315 overall), successful larger groups (Ivan and his friends), and higher rates of success among groups consisting only of Tom/Elaine and Tom/Elaine/Ivan.

SORRATs perceived the phenomena as sporadically waxing and waning. Exploratory analyses revealed 2 strings of 6 consecutive successes, 5 strings of 7 successes, and single strings of 10, 11, and 15 successes. There were 2 strings of 6 failures and 1 string of 7 failures. Assuming a 50% success rate, the probability of SORRAT experiencing these results by chance was less than .001.

In summary, exploratory analyses implied that: (1) Time period and location were only slightly predictive of levitation success. (2) Time period had nonsignificant greater influence on levitation success than did geographical location. (3) Time period and location effects could be explained by psychological variables. (4) Levitation successes were associated with stable groups, fewer new members, and reduced scientific scrutiny (except for Skyrim's experience).

### **Hypothesis 1- Facilitation-suppression hypothesis**

Hypothesis 1 predicted that large groups had lower success rates due to a tendency for some participants to thwart PK. The correlation between group size and levitation success was significant, supporting the hypothesis,  $r = -.11$ ,  $n = 729$ ,  $p = 0.0009$ , one tailed.

Table 3 indicates that two-person groups had the highest success rate (57%). Three-person groups' success rate was 56%. Success rates tended to decline as group size increased except for the 6-person

Table 3  
*Group Size and Levitation Outcome*

<i>Group Size</i>	<i>Failure</i>	<i>Partial success</i>	<i>Success</i>	<i>Total</i>
2	37 (24%)	29 (19%)	87 (57%)	153 (100%)
3	70 (31%)	27 (12%)	125 (56%)	222 (100%)
4	42 (42%)	13 (13%)	44 (44%)	99 (100%)
5	27 (41%)	8 (12%)	31 (47%)	66 (100%)
6	22 (35%)	9 (14%)	32 (51%)	63 (100%)
7	14 (34%)	9 (22%)	18 (44%)	41 (100%)
8	7 (24%)	7 (24%)	15 (52%)	29 (100%)
9	11 (61%)	1 (5%)	6 (33%)	18 (100%)
10-11	6 (35%)	3 (18%)	8 (47%)	17 (100%)
12-15	15 (75%)	0 (0%)	5 (25%)	20 (100%)
Total	251 (34%)	106 (15%)	371 (51%)	728 (100%)

rate of 51% and the 8-person rate of 52%. Ten-eleven-person groups achieved a success rate of 47%, while 12-15-person groups achieved a rate of 25%.

Exploratory analyses found that particular people affected group size-levitation outcome correlations. Two-person groups consisting of Tom/Elaine (59%) were far more successful than other 2-person groups (25%). Three-person groups with Tom/Elaine/Ivan were more successful (61%) than other 3-per-



son groups (49%). The success rates of 6 to 8-person groups with Ivan and his friends (82%) were greater than groups lacking these participants (44%). These findings imply that group membership, rather than size, determined outcome.

Group size/success correlations varied across time periods. During the 1966-72 period, small groups out-performed larger groups. The strength of this correlation declined during later eras and, between 1999-2007, larger groups (Ivan's friends) were more successful than smaller groups. Group size/success correlation varied among locations. Skyrim's large groups were particularly unsuccessful during the final era, a time when the 6-8-person Rolla groups (Ivan's friends) were successful.

Richards' notes attributed levitation outcomes to rapport, which varied among locations, periods, and group sizes (see *How Shamanism Began*, Appendix B for discussion of rapport among the original SORRATs). Rapport was thought to be lower in later Skyrim groups (often 10-25 participants) but higher in Ivan's successful groups, which never exceeded 8. Richards' notes imply close linkage between levitation outcome and rapport; SORRAT's longevity was thought to verify the rapport hypothesis. This hypothesis was not appraised in the present study since *rapport* was not consistently or quantitatively evaluated. Psychological research literature reports many levitations before large audiences without mentioning rapport (St. Joseph of Cupertino, Jonathan Koons, and Indridi Indridason; Grosso, 2016; Haraldsson and Gissurarson, 2015).

### **Hypothesis 2 (a, b) – Facilitation-Suppression Hypothesis**

Table 4 lists levitation evaluations of the 10 SORRATs attending the most sessions. Hypothesis 2a predicted that levitation outcomes would have a non-normal distribution. Ivan achieved the highest rate (64%) while Ed Cox had the lowest (12%), supporting this hypothesis,  $\chi^2(18, n = 728) = 64.0$ ,  $p < .000001$ ,  $V = .13$ . Hypothesis 2b predicted that the distribution would be skewed toward levitation failure. Of the 315 participants, only 119 (38%) scored above average (cumulative binomial probability  $p < 0.00001$ ), supporting hypothesis 2b. These findings fit *facilitation-suppression* predictions.

An exploratory analysis investigating levitation outcomes for the next 10 SORRATs based on sessions attended showed wide variations in success rates (Steve: 26%; Sean: 79%). Chi square cell values were insufficient to calculate statistical probability. Sean's success rate might be compared to the 87.5% "positive results" attributed to one of Batchelder's participants (Wehrstein, 2018). Nine participants were identified as PK-conducive based attitudes and early psi experiences (McClenon, 2018; Richards, 1982: pp. 77-102). These individuals' success rates were significantly greater than rates of other participants (experiencers: 53%; others: 45.2%;  $\chi^2(2, N = 315) = 20.73$ ,  $p = .00062$ ,  $V = .18$ ). This exploratory result supported the *facilitation-suppression* hypothesis.

Among the 36 participants, attending 12 or more sessions, there were two married couples with one spouse considered more of a believer than the other (believers: Joe, Ann; others: Edda, Roger). Varying attendance rates resulted in different outcome rates. Believers' average success rate was significantly greater than others' rate (believers: 51%; others: 39.6%;  $\chi^2(2, n = 184) = 8.47$ ,  $p = .014$ ,  $V = .15$ ).

Richards' notes described a few occasions when the table moved robustly when a new person

Table 4  
*Individual Levitation Outcomes*

<i>SORRAT member (years of participation)</i>	<i>Failure</i>	<i>Partial success</i>	<i>Success</i>	<i>Total</i>
Tom Richards (1966-2007)	236 (33%)	103 (14%)	369 (52%)	708 (100%)
Elaine Richards (1966-2007)	222 (34%)	93 (14%)	341 (52%)	656 (100%)
Ivan Richards (1999-2007)	55 (25.)	23 (11%)	139 (64%)	217 (100%)
Joe M. (husband of Edda) (1966-1983)	30 (30%)	16 (16%)	54 (54%)	100 (100%)
Alice T. (1967-2005)	38 (40%)	15 (16%)	42 (44%)	95 (100%)
Ann H. (wife of Roger) (1969-1977)	19 (34%)	6 (11%)	30 (54%)	55 (100%)
Vern M. (1970-1978)	16 (33%)	9 (19%)	23 (48%)	48 (100%)
Maria H. (1976-1981)	22 (50%)	7 (16%)	15 (34%)	44 (100%)
Ed Cox (1969-1983)	32 (76%)	5 (12%)	5 (12%)	42 (100%)
Dick C. (1975-1979)	21 (51%)	3 (7%)	17 (41%)	41 (100%)
Totals	691 (33%)	280 (15%)	1035 (52%)	2006 (100%)

first touched it. These participants later achieved high success rates. In other cases, the table stopped moving when someone arrived or became more active when they departed, implying PK-suppression.

In sum, an exploratory analysis suggested variables predictive of levitation success: previous history of spontaneous anomalous experience coupled with positive attitude, belief in PK, and reactions of the table during the person's first session.

### **Hypothesis #3 - Interaction Hypothesis**

Hypothesis 3, the *interaction hypothesis*, predicted that people who attended more sessions would experience higher levitation success rates due to exposure to processes facilitating PK. Table 5 reveals that the three participants attending the most sessions (Tom, Elaine, and Ivan) achieved levitation success rates varying from 64% to 52%. Those attending 48-100 sessions achieved a rate of 50%. Rates of success declined as attendance declined. Those attending a single session had an average levitation success rate of 36%,  $\chi^2(16, n = 3231) = 96.2, p < 0.00001; V = .12$ .

Although these results support the *interaction hypothesis*, an alternative explanation for the weak correlation was that PK-suppressive people tended to drop out while PK-facilitative people remained. Evidence supporting this argument includes: (1) Among all participants, 76% dropped out after 4 sessions. These people had only a 36% success rate. (2) Ethnographic evidence implied that SORRAT participation did not reduce ownership resistance. Videotapes portray Batcheldor and Philip groups with all fingers fixed on the table surface while many SORRATs allowed the table to slide under their fingers (*SORRAT Table Tipping 1, 2, 3; Appendix A*). SORRATs did not equally share responsibility for moving the table. Interviews indicated that many attributed the phenomena to core members. (3) Core members attributed the phenomena to spirits and/or magical forces. Their experiences differed from those reported by peripheral members. Core members tended to describe induction through profound early experience. Black Elk induced Neihardt, who induced Tom Richards, who induced Elaine, Leroy, and Ivan, who induced Sean. All felt compelled to believe by early mentor/group experiences, then witnessed group PK without the mentor, and, also witnessed PK while alone. None described a process of artifact induction requiring increasingly robust phenomena. Their final success rates were governed by the degree they shared sessions with average people. Those with lower exposure (John Neihardt, Leroy, Ivan, Sean) had a 66% average success rate; those with higher exposure (Tom, Elaine, and Joe) averaged 52% ( $\chi^2(2, n = 1560) = 17.1, p = .0002, V = .07$ ). This exploratory evidence supports the facilitation-suppression hypothesis.

### **Exploratory hypotheses**

An exploratory investigation focused on high levitation success rates of specific individuals and groups. Tom and Elaine, without others, achieved a 59% success rate, but, when joined by others, this rate declined to 50%,  $\chi^2(2, n = 649) = 9.6, p = .008, V = .09$ . Tom without Elaine had a success rate of 53% but Elaine's rate, without Tom, was only 22%. This evidence coincides with the speculation that Tom Richards facilitated PK, a small percentage of people (such as Elaine) enhanced his capacity, and many people suppressed his PK.

Table 5  
*Levitation Outcome by Number of Sessions Attended*

<i># of sessions</i>	<i>Failure</i>	<i>Partial success</i>	<i>Success</i>	<i>Total</i>	<i># of people (names)</i>
708	236 (33%)	103 (14%)	369 (52%)	708 (100%)	1 (Tom Richards)
657	222 (34%)	93 (14%)	341 (52%)	656 (100%)	1 (Elaine Richards)
217	55 (25%)	23 (11%)	139 (64%)	217 (100%)	1 (Ivan Richards)
48-100	103 (35%)	46 (15%)	149 (50%)	298 (100%)	4 (Joe, Alice, Ann,,Vern)
28-47	162 (44%)	48 (13%)	158 (43%)	368 (100%)	10
12-27	139 (40%)	58 (14%)	147 (43%)	344 (100%)	20
5-11	116 (46%)	38 (15%)	98 (39%)	252 (100%)	38
2-4	126 (54%)	23 (10%)	85 (36%)	234 (100%)	86
1	83 (54%)	16 (10%)	55 (36%)	154 (100%)	154
Totals	1242 (38%)	448 (14%)	1541 (48%)	3231 (100%)	315

Exploratory analyses identified psi-conductive individuals. Sean (79%), Ivan (64%), John Neihardt (65%), Leroy (74%), Marge (63%), Jose (56%), Ann (54.5%), Joe (54%) had higher success rates than did Tom and Elaine (52%). Groups containing Tom, Elaine, and Marge achieved a rate of 60%. Groups with Tom, Elaine, and Leroy had a rate of 73%. Groups lacking Marge or Leroy achieved a success rate of 47%. Tom/Elaine/Ivan, without others, had a success rate of 61%; this rate increased to 85% when they were joined by Ivan's friends, which included Sean and Jose ,  $\chi^2 (2, n = 191) = 7.3, p = .03, V = .14$ . Certain combinations of people experienced particularly high rates of success. Groups containing Tom, Elaine, Marge, Ann, but not Ann's husband Roger (considered inhibitory), achieved a success rate of 73%.

Groups containing Tom, Elaine, Ivan, and Sean achieved a 90% success rate. The Tom/Elaine/Ivan/Sean group, on the five occasions without others present, achieved a 100% success rate.

Specific four-person groups seemingly facilitated success among those with moderate PK-capacity. For example, Vern (overall success rate: 48%) experienced levitation success more frequently with Tom/Elaine/Marge/Ann (86%) than among other groups (41.5%). He also experienced a high success rate with Tom/Elaine/Leroy (60%). Exploratory analyses suggested that (1) certain combinations of people are particularly PK-conductive, (2) being among these groups increases the probability of success for those with average rates.

The notes allowed examination of all sessions attended by Marge and Leroy. Analysis of their experiences provided insights regarding PK-conductive people. The interaction theory predicted increasing success rates over time since fear of psi should decline with participation. Marge witnessed four levitations during her first session, all of which were photographed with full illumination; once the table rose above everyone's head. Marge saw an apparition of an elderly Native American woman. During Leroy's first session, participants communicated with raps, saw a mist, and felt chill air close to the table. His next six sessions were levitation successes, some of which (like Marge's first session) were extremely robust. Leroy acquired a reputation for producing PK without Tom being present (see Vern's comments, Appendix B). Marge's and Leroy's histories did not include a gradual induction phase but suggest they were PK-conductive before joining SORRAT.

### Evaluation of Planned Exploratory Hypotheses

An exploratory hypothesis compared 37 first half success rate to second half rate (all those attending 12 or more sessions). The *interaction hypothesis* predicted that second half rates should be greater since socialization was thought to bring success. Lucadou's theory would predict the opposite result; second half rates should be lower due to quantum processes. In harmony with the quantum prediction, success rates *declined* 7%, on average, between first and second half of individual participation, a statistically significant difference,  $T = 2.226$ ,  $df = 35$ ,  $p = .03$ .

The correlation between first half rates and second half rates was also significant,  $r = 0.45$ ;  $n = 37$ ,  $p = .005$ . Further analyses revealed that, among this group, success rates during the first four sessions were correlated with rates for all later sessions,  $r = .58$ ,  $n = 37$ ,  $p = .0002$ . These results supported the facilitation-suppression hypothesis.

Exploratory analyses of extreme cases provide tentative insights. Rate improvements, experienced by Lorna (12.5% to 57%), Max (10% to 40%), Judy (25% to 46%), and Ann (48% - 61%) could be attributed to: (1) regression towards the mean, (2) interaction with the group, (3) other psychological processes, (4) unknown processes. Max and his wife Lorna witnessed many anomalous events during their early SORRAT participation, followed by failures during "the gap" (when Judy joined the group), and then a further series of successful experiments. These patterns do not support any specific explanation. Ann's success rate increased when her husband, known for his negative attitude, reduced his attendance. With her husband, her rate was 37.5%; without him, it was 67%. This pattern supported the facilitation-suppression hypothesis.

Table 6  
*Levitation Outcomes and Combinations of Participants*

<i>Participants</i>	<i>Failure</i>	<i>Partial success</i>	<i>Success</i>	<i>Total</i>
(1)Tom, Elaine (no one else present)	33 (23%)	26 (18%)	85 (59%)	144 (100%)
(2)Tom, Elaine, others	184 (36%)	67 (13%)	254 (50%)	505 (100%)
(3)Tom without Eline (with others)	18 (31%)	9 (15%)	31 (53%)	58 (100%)
(4)Elaine without Tom (with others)	6 (67%)	1 (11%)	2 (22%)	9 (100%)
(5)Tom, Elaine, others (excluding: Tom/Elaine/Marge and Tom/Elaine/Leroy combinations)	174 (39%)	62 (14%)	210 (47%)	447 (100%)
(6)Tom, Elaine, Marge, others	12 (30%)	4 (10%)	24 (60%)	40 (100%)
(7)Tom, Elaine, Leroy, others	2 (13%)	2 (13%)	11 (73%)	15 (100%)
(8)Tom, Elaine, Ivan, no others	44 (28%)	17 (11%)	96 (61%)	157 (100%)
(9)Tom, Elaine, Ivan, others	4 (12%)	1 (3%)	29 (85%)	34 (100%)

### Trickster Characteristics

SORRAT phenomena revealed capricious, actively-evasive, trickster qualities (Hansen, 2001; McClenon, 2018). Although the spirits claimed to be discarnate entities, they did not fully authenticate themselves. Phenomena were most frequent in conditions involving darkness, ambiguity, and lack of scrutiny. Photographic attempts were often thwarted in strange ways, as if the phenomena could calculate camera angles so that resulting images had reduced evidential quality; poltergeist investigators report similar observations (e.g., Healy & Cropper, 2014). Batchelder (1994) attributed these patterns to a *Universal Creative Principle* that reacts hypnotically to observers' belief or skepticism. As a result, PK is shaped by its witnesses, a characteristic that may result in entranced participants engaging in fraud.

Kennedy (2003) notes trickster elements within all psi research. Parapsychologists report not only decline effects, but unpredictable, significant reversals of direction of psi, with unintended secondary or internal effects. Psi sometimes seems replicable but then becomes actively evasive. He offers four general theories: (1) The extreme polarization of attitudes toward psi results in phenomena mirroring both



sides (parallel to Batcheldor's argument). (2) Psi's possible function is to induce a sense of mystery and wonder (parallel to the ritual healing theory). (3) Psi's possible role is to influence random processes to enhance diversity (random genetic mutations in the ritual healing theory). (4) Psi reflects a higher consciousness, beyond human understanding (Batcheldor's *Universal Creative Principle*). Although difficult to evaluate, these ideas are not mutually exclusive; they encourage speculative thinking and further theory development.

## General Discussion

A synthesis of theories suggests that group PK functions like a collective dream, facilitated or thwarted by observers (PK-dream theory). The PK-dream assembles a scenario projected into waking consciousness – sometimes pertaining to past, present, and future events, such as a death. This argument is derived from parallel elements within dreams and group PK. The characteristics of dreams (intense emotions, disorganized and illogical perceptions, content accepted without question, bizarre sensations, and difficult to remember; Hobson, 1994) coincide with those of group PK (intense emotions, chaotic and bizarre perceptions, impressions (accepted as real) violating physical laws, unexplained sensations, and trickster effects that hide from waking scrutiny; McClenon, 2018). The PK-dream theory coincides with the capacity for paranormal dreams to convey more information (bits/second) than waking ESP, OBEs, and apparitions (McClenon, 2000b). It also coincides with the ganzfeld experimental model, and Hindu/Buddhist traditions, which portray normal consciousness as obstructing psi (Bem & Honorton, 1994).

The PK-dream theory can be framed in ways that allow testable hypotheses: (1) Because shamanic and ritual healing shaped human evolution, incidence of apparitions, paranormal dreams, PK, waking ESP, OBE, NDEs, synchronicity, and spiritual healing are correlated with each other and with absorption, dissociation, transliminality, and disruption of normal sleep-wake functions (Cardeña, Lynn, & Krippner, 2017; Cardeña & Tehune, 2014; Lange, Thalbourne, Houran, & Storm, 2001; McClenon, 1994, 2002, 2012, 2013). (2) The theory specifies that these processes have genetic basis (McClenon, 2002, 2018). (3) Propensities for unusual experience involve lability within the sleep-wake cycle, resulting in dissociation. Dissociation allows dreamlike mentation that invades the waking state (der Kloet, Merckelbach, Giesbrecht, & Lynn 2012; Lynn, Lilienfeld, Merckelbach, Giesbrecht, & der Kloet, 2012). Under special conditions, explored through psychical research, this lability results in anomalous experience. Although researchers may find it difficult to verify psi's authenticity, they can uncover the psychological and physiological variables associated with anomalous experience.

## Conclusion

Planned analyses supported four hypotheses, derived from *facilitation/suppression* and *interaction* theories. Exploratory analysis revealed that levitation success rates tended to decline over time, reducing faith in the interaction theory. Correlation between participation and levitation success may result from greater attendance by PK-conductive participants rather than increases in PK-propensity among average people. Exploratory quantitative analyses and qualitative investigations supported facilitation-suppression hypotheses. Factors related to levitation success include: (1) participation, (2) history

of spontaneous anomalous experience coupled with non-skeptical, positive attitude, (3) reduced-exposure to average participants, (4) participating with PK-conductive individuals/groups and avoiding PK-thwarting individuals, (5) experiencing high rates of levitation success during the first four sessions of one's participation. Specific groups of people appeared particularly PK-conductive; researchers might focus on factors contributing to rapport among these individuals.

Weak relations among study variables suggest theory revision. The distribution of psi-propensity, and collective processes contributing to group PK, remain unclear. SORRAT experimental notes and sociological observations portray anomalous phenomena as having trickster qualities. A revised theory explains these characteristics by hypothesizing that group PK involves functions associated with REM dreams. This theory can be evaluated and modified within the fields of psychical research, consciousness studies, clinical psychology, and quantum mechanics.

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## Appendix A YouTube Videos

To locate video on YouTube Search, type: "SORRAT James McClenon."

### **SORRAT Experiments**

- 1.SORRAT: Society for Research on Rapport and Telekinesis, 1961-1981 (2:03:01)  
[www.youtube.com/watch?v=1UiTLkDA7A4&feature=youtu.be](http://www.youtube.com/watch?v=1UiTLkDA7A4&feature=youtu.be)
- 2.SORRAT Mini-lab experiments, 2004 (1:00:30)  
[www.youtube.com/watch?v=WIQZYNMzJBg&t=1234s](http://www.youtube.com/watch?v=WIQZYNMzJBg&t=1234s)
- 3.SORRAT Experiments, 1983  
[www.youtube.com/watch?v=44lwwznq09o](http://www.youtube.com/watch?v=44lwwznq09o)
- 4.Talking to the Spirits: A Pilgrimage. (1998) Produced by Dr. Emily Edwards (30:57)  
[www.youtube.com/watch?v=taGeXOO\\_s9Q&t=1161s](http://www.youtube.com/watch?v=taGeXOO_s9Q&t=1161s)
- 5.Wondrous Events in a Small Group: A Field Study (1992) Co-produced with Dr. Emily Edwards (12:26),  
[www.youtube.com/watch?v=0NXyn6eoUEg](http://www.youtube.com/watch?v=0NXyn6eoUEg)
- 6.How Shamanism Began (2002) (18:40 min) co-produced with Amanda Mosher  
[youtu.be/AlFCEaGCdJ4](http://youtu.be/AlFCEaGCdJ4)
- 7.SORRAT Table-Tipping
- Sorrat 1 (2001) Table-Tipping (9:05)  
[www.youtube.com/watch?v=RJHq04o6fig&t=203s](http://www.youtube.com/watch?v=RJHq04o6fig&t=203s)
- Sorrat 2 (2001) Table Tipping (32:34)  
[www.youtube.com/watch?v=iYOHTOfgJD8&t=1128s](http://www.youtube.com/watch?v=iYOHTOfgJD8&t=1128s)
- Sorrat 3 (2001) Table Tipping (17:28)  
[www.youtube.com/watch?v=Fz8mb7OHm28&t=183s](http://www.youtube.com/watch?v=Fz8mb7OHm28&t=183s)

## Appendix B

### Three Ethnographic Interviews

#### John Hunt Interview (2017)

“I was very skeptical in those early days,” John Hunt told me. “Steve Calvin invited me to attend a SORRAT session and I encountered the same rapping personality involved in my previous poltergeist experiences. It was hard for me to believe it was happening, but it was like a game for me. I was trying to figure out what was going on. I decided to test the SORRAT raps. I asked them to tell me what I was thinking at that moment and I focused on the Rolling Stones’ album, Goat’s Head Soup. The raps spelled out ‘goat.’ How can you explain that?” They seemed able to read my mind.”

“Do you think Tom did things in trance, pushed the table around or things like that?” I asked John.

“He probably found that pushing the table stimulated belief and that led to authentic PK,” John replied. “But that does not explain all my SORRAT experiences. He went into trance sometimes. I saw him go into trance and the entities may have caused him to do unusual things. I did not see him cheat and I watched him very closely for many years. The entities may have caused him to do unusual things, but in normal life he did not have the skills required to fabricate the mini-lab films or do many of the things people suggest he did. He did not have any special equipment or knowledge in those areas.”

#### Vern Mottert Interview (2017)

The first time I went to a SORRAT session was interesting. I had just learned that my Aunt Lena had died, and I had not told anyone about it. They put their hands on the table and the raps came out of the floor. Later the table pressed against me and the raps spelled out ‘L-E-N-A’ so that I would know it was her. She rapped out a message saying that she was fine. It’s hard to explain that as coincidence. Later I saw some impressive levitations and took photographs of them. It isn’t fake; there were no threads involved. It didn’t happen just once or twice. It happened many times, over a decade, and at a lot of different places. I saw Leroy lightly touch the center of a table with no one near him. His fingers were just lightly touching the table and it started vibrating vigorously. I made some plastic boxes to test the phenomena. The boxes had an aluminum foil sheet inside and I sealed them with epoxy. The entities, or whatever you want to call them, inscribed three scratches on the foil during a session. I inspected the seals afterward and I know that no one tampered with the box. Those were the types of things that happened – table movements, spirit communication, levitation, effects within sealed boxes – everyone saw it. It is unmistakable. That would be the word I would use to describe it – unmistakable.

#### Elaine Richards Interview (2017)

I seem to be different from everyone else. My belief is stronger than their belief. Grandfather Skivinski used to come to me after he died. He told me that I would marry Tom and he said I had been in contact with the *other side* before I was born. When Tom and I moved to the apartment in Columbia, Tom was doubtful that we could get results. He was always more skeptical than I was. I knew we could have a levitation. We put our hands on the table – just the two of us—and it started vibrating. We heard Black Elk rapping—rap, rap... rap, rap, rap. That was Black Elk’s beat. Then, the table came up with our



hands on it and it moved around in the air, but it kept going up to the ceiling. It got so high that we couldn't reach it. It was bumping against the lamp in the ceiling, making a clinking sound. It was Black Elk's beat, 'Clink, clink...clink, clink, clink.' Black Elk was doing it. The table was bumping against the lamp to make the sound. I felt like it was still with me when I went to work the next day. The people around me seemed to feel it. There was a congenial atmosphere that wasn't normally there, and they wanted to be around me just to feel it. I guess it made them feel good. That kind of thing happened a lot in those days.

### **Analyse Secondaire de Données d'un Sitter Group: Test des Hypothèses Issues de la Littérature sur la PK**

Résumé. Les psychistes ont proposé un schéma pour investiguer des groupes produisant de la psychokinèse (PK). Les sitter groups placent leurs mains sur une table et, après une période de socialisation, ils relatent des expériences de PK. Batcheldor, Lucadou, Richards, et McClenon ont décrit des théories relatives à ce processus. Cela nécessite un thèse d'hypothèse et leur révision. Bien que les théories divergent, les observations confirment deux aspects basiques : (1) La plupart des personnes inhibent la PK, tandis qu'une minorité la facilite (théorie de la facilitation-suppression), (2) la participation au groupe implique des artefacts, une idéologie partagée, des processus quantiques, et des rapports qui facilitent la PK (théorie de l'interaction). La Society for Research on Rapport and Telekinesis (SORRAT), fondée par l'auteur et poète John G. Neihardt en 1961, a conservé des rapports d'expérimentations évaluant les succès de *lévitation* sur plus de quatre décades. Les rapports disponibles permettent de tester quatre hypothèses formelles et plusieurs hypothèses exploratoires dérivées des deux théories. Bien que ces évaluations confirment les hypothèses formelles, les résultats exploratoires : (1) soutiennent la théorie de la facilitation-suppression, (2) échouent à confirmer l'hypothèse de l'interaction, (3) soutiennent des éléments au sein des théories originelles. A partir d'une théorie révisée, nous élaborons plusieurs hypothèses testables et faisons des suggestions pour de futures recherches.

### **Sekundäranalyse von Daten aus Gruppensitzungen: Zur Überprüfung von Hypothesen aus der PK-Literatur**

Zusammenfassung. Parapsychologische Forscher haben einen Plan zur Untersuchung der Gruppenpsychokinese (PK) vorgelegt. Bei Gruppensitzungen werden die Hände auf einen Tisch gelegt und, nach einer Eingewöhnung, über PK-Erfahrungen berichtet. Batcheldor, Lucadou, Richards und McClenon entwickelten Theorien über den daran beteiligten Prozess. Die daraus folgenden Hypothesen wurden überprüft und die Theorien überarbeitet. Obwohl die Theorien auseinandergehen, stützen Beobachtungen zwei grundlegende Argumente: (1) Die meisten Menschen hemmen PK, während eine Minderheit sie erleichtert (Unterstützungs-Unterdrückungstheorie), (2) Gruppenbeteiligung mit Artefakten, gemeinsame Ideologie, Quantenprozesse und eine enge Beziehung erleichtern PK (Interaktionstheorie). Die Society for Research on Rapport and Telekinesis (SORRAT), 1961 vom Autor/Dichter John G. Neihardt gegründet, bewahrte über vier Jahrzehnte experimentelle Aufzeichnungen über *Levitationserfolg* auf. Die verfügbaren Notizen erlaubten es, vier formale Hypothesen und verschiedene explorative Hypothesen, die aus den beiden Theorien abgeleitet wurden, zu testen. Wenngleich die Auswertungen die formalen Hypoth-



esen stützten, unterstützten die explorativen Ergebnisse (1) die Unterstützungs-Unterdrückungstheorie, (2) nicht die Interaktionshypothese, (3) hingegen aber Elemente aus den ursprünglichen Theorien. Eine überarbeitete Theorie bietet überprüfbare Hypothesen und Vorschläge für zukünftige Forschung.

### **Análisis Secundario de Datos de un Grupo alrededor de una Mesa: Evaluación de hipótesis de la literatura PK**

Resumen. Los investigadores psíquicos ofrecen un esquema para investigar la psicoquinesis grupal (PK). Grupos de participantes ponen sus manos sobre una mesa y, después de socializar, reportaron sus experiencias de PK. Batchelder, Lucadou, Richards, y McClenon Han desarrollado teorías sobre este proceso. Este esfuerzo resultó en pruebas de hipótesis y revisión de la teoría. Aunque las teorías divergen, las observaciones apoyan dos argumentos básicos: (1) La mayoría de las personas inhiben a la PK, mientras que una minoría la facilita (teoría de la supresión de la facilitación), (2) la participación grupal que involucra artefactos, ideología compartida, procesos cuánticos, y buena relación facilitan a la PK (teoría de interacción). La Society for Research on Rapport and Telekinesis (SORRAT), fundada por el autor/poeta John G. Neihardt en 1961, mantuvo notas experimentales que evaluaban el éxito de la levitación durante más de cuatro décadas. Las notas disponibles permitieron evaluar cuatro hipótesis formales y varias hipótesis exploratorias derivadas de las dos teorías. Si bien las evaluaciones respaldaron las hipótesis formales, los hallazgos exploratorios: (1) respaldaron la teoría de la supresión de la facilitación, (2) no respaldaron la hipótesis de interacción, (3) apoyaron elementos dentro de las teorías originales. Una teoría revisada ofrece hipótesis comprobables y sugerencias para futuras investigaciones.

## Effects of Mood and Emotion on a Real-World Working Computer System and Network Environment<sup>1</sup>

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**Abstract.** This study used a custom computer system designed to induce anxiety in participants and determine if people who are anxious produce more errors in an independent working computer network. Participants ( $N = 130$ ) were asked to complete sixteen tasks on a computer in twenty minutes to receive a reward. Each participant self-rated their anxiety levels during the tasks. In addition, 130 sessions were run without a computer operator. The network ran independent of the tasks, and operated continuously during the sessions. The first hypothesis predicted sessions without operators would produce fewer network errors than sessions with operators, but it was not supported ( $p = 0.35$ ). The second hypothesis predicted that anxious operators would produce more errors on the independent network than those less anxious. Initial analysis indicated an unsupported hypothesis, but the initial design did not properly identify anxious users. A post-hoc revised grouping based on actual reported anxiety resulted in this hypothesis being supported ( $p = 0.04$ ,  $d = 0.45$ ) indicating that anxious computer operators may affect network communication. There may be other electronic effects as a result of human emotions. Additional research is necessary to confirm these results and explore whether the intensity of emotions affects electronics.

*Keywords:* electronics; emotion, network; signal fault; mind-matter interaction; PK

Since 1970, a number of studies have been published indicating that, through focused intention, people are able to create an electronic disruption or have an influence on electronic systems or quantum processes (e.g., Jahn, et. al. 1997; Morris, 1986; Radin, 1990; Schmidt, 1970). Unintentional effects on larger objects have been observed in reports of apparent poltergeist activity, but instead of the activity being attributed to a mischievous spirit or disruptive ghost, these formal investigations have focused on unintentional effects produced by human agents who are regularly present when the activity is observed (Pratt & Roll, 1957). Numerous investigations have reported unintentional effects on physical objects, like photographs, blankets, trinkets, or bottles (e.g. Palmer, 1974; Roll & Storey, 2004), but other times the effects are observed on electronic devices and phone systems (Kruth & Joines, 2015). Some of these investigations have presented indications that anxiety and stress contribute to the demonstration of these unintentional events (Kruth & Joines, 2015; Pratt & Roll, 1957; Roll, Burdick, & Joines, 1973, 1974). The previous studies lead to the proposition that unintentional activity may influence electronic systems and that this activity may be exacerbated by stress and anxiety.

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A study by Broughton and Perlstrom (1986) explored the performance of study participants playing a Random Number Generator (RNG) based computer game that measured the effect of intention and focus by the participants. The study included a measure of self-reported anxiety and questions related to the practice of a mental discipline. It focused on performance in intentional tasks in which participants were trying to win a computer game with focused intention. The only significant finding was a negative correlation between higher anxiety measures and the intentional tasks. In other words, when the participants were more anxious, they appeared to affect the RNG in the direction opposite to their intention. Anxiety caused them to lose the game, which the authors interpreted to be the result of an unconscious block or masked desire to avoid having the stated effect.

A field investigation by Kruth and Joines (2015) reported consistent electronic disturbances and signal interruptions on telephones, electronic locks, computers, computer networks, and printers. These events only occurred when a specific 11-year-old boy was present. The study also indicated that the disturbances were reduced and eventually stopped after the boy learned to reduce his anxiety using simple stress reduction exercises.

Anecdotal reports by people who have had Near-Death Experiences indicate that a fairly common aftereffect of a Near-Death Experience is unusual activity by electronic equipment (Atwater, 2007; Fracasso & Friedman, 2012; Knittweis, 1997; Nouri, 2008). Despite a significant number of anecdotal reports, no known published laboratory reports have tested these effects. That is, there are no known published reports on the effect of human emotion and moods on the operation of computer systems and networks in a real-world working environment.

The goals of this study were two-fold. The first goal was to create a monitored computer system that would detect unintentional effects on the system and network stability. The second was to examine the effects of human emotions and moods on the operation of computer systems and networks in a simulated working environment. If human moods and emotions have an effect on the system, it is an indication that unintentional electronic interference may result from certain emotions, and they may be causing some computer and network malfunctions in real-world environments.

A custom computer system and network was created and the system was monitored for errors while a sample of computer operators performed timed computer tasks in a stress-induced environment. An experimental group was purposely frustrated in their tasks by inoperative software, while a control group performed the task without interference. The system was also run without operators to produce a final no-operator control condition for the system operations.

The two hypotheses for this study were exploratory in nature. The design was registered as fully specified, including the analysis techniques, in order to provide the most thorough review of hypotheses based on the study design:

H1: Computer operators can have unintentional effects on the electronics of computer systems and network connections, and these effects will be reduced when the computers are running automatically, without operators.

H2: Anxiety and stress evoke unintentional effects on electronics and networks, and computer operators under greater stress will demonstrate more software and network errors than operators in a less stressful environment or an environment that does not require a computer operator.

## Method

### Sample

The sample consisted of 130 participants, 65 in each group, including 89 who self-identified as females, 39 males, and two who identified as other genders. The age of the participants ranged from 18-75 years with a mean age of 47.6 years. The sample participants were obtained through electronic and paper advertisements, mostly distributed by hand in the neighborhood and town around the research lab or at a nearby university. Groups were determined using an automated randomization process. Neither the experimenters nor the participants were aware of the group assignments. Masking was maintained throughout the analysis process to avoid any unintentional influence on the data analysis. Participants were informed that they were taking part in a parapsychology study exploring the interaction between people and computer systems. No additional details were provided to participants to describe exactly what was being measured or how the data were being collected until after the study was completed. None of the participants were queried about their beliefs or expectations related to the study. The Institutional Review Board of the Rhine Research Center gave Ethics approval to this study.

### Procedure

Two standard commercial desktop computers (Lenovo Model K450E) were networked in a peer-to-peer system utilizing custom software performing standard operations and communicating using standard networking protocols. Each session consisted of four activities.

1. Computer operators interacted with custom software on computer #1. This user interactive software provided instructions to the participants and asked them to perform a series of tasks on the computer in a limited amount of time (20 minutes or less).
2. Computer #1 continuously sent data to Computer #2 throughout the session. These data were not related to the activity being completed by the participants, and was not affected by the software used by them. (See section below on *Isolation of Software Processes*.) The participants had no knowledge of this network communication and did not have any direct interaction or effect on the data being transferred between the computers.
3. Testing and error checking software was run on both Computer #1 and #2 to monitor the network communication for errors and log all activity and errors detected in the network communication.
4. Participants self-assessed relaxation and anxiety before and after the interactive sessions to provide an assessment of the change in anxiety or stress experienced during the session.

Participants were provided with an identification code and log in information before they began the study, and were told that if they completed the tasks associated with the study in less than 20 minutes, they would receive an award of a gourmet chocolate bar and an entry in a raffle for a \$200 gift card. The rewards were selected to motivate the participants to complete the tasks.

Each participant in the study was assigned to Group 1 or Group 2 by a random selection process

performed by the computer system at the moment that the participant logged in to begin the session. Group 1 was presented with a series of timed tasks to perform on the computer, and the user interactive software presented to this group operated in a normal manner, enabling the tasks to be completed with a series of simple operations like button pushes, matching photos, moving items with the mouse, locating hidden images, and typing in text fields. See Appendix for details of the tasks that were completed by each participant.

Group 2 received the same instructions and tasks as those assigned to Group 1, and the user interactive software looked exactly the same as the interface used for Group 1. Group 2 was instructed to perform the same timed tasks, but the software used by this group purposefully introduced malfunctions and errors into the process. For Group 2, button presses sometimes malfunctioned on purpose, text fields did not immediately accept input from the operator, items were hidden longer, or additional delays were introduced by popup dialog boxes or software pauses. The purpose of the malfunctions was to induce a sense of urgency and to increase the stress and anxiety experienced by the participants while completing the computer tasks. Group 1 was the control group and Group 2 was the experimental group.

While the software tasks were being performed on the client computer by the participants, a constant stream of data was sent from computer #1 to computer #2 via an isolated, hard-wired peer-to-peer network. Because many of the modern networking protocols (like TCP/IP) include a significant amount of data checking and automatic correction, a specific networking protocol was used that does not perform error checking. This protocol is called UDP and is commonly used internally in telecommunication software processes. It is a very fast protocol that depends on the network software to perform all error checking and to handle all issues that arise during network communication.

During network communication, a predefined set of data was encoded, packaged, and sent from computer #1 to computer #2. On computer #2, the data were unpacked, reassembled, decoded, and written to the hard drive. Data integrity and reliability testing were integrated into the networking software. The results of the tests were logged and the number and location of the errors were recorded for each session.

At the beginning and end of each session, the participant was asked to assess their relaxation and anxiety levels on a scale of 1 to 10 - 1 being relaxed and calm and 10 being least relaxed; 1 being very low anxiety and 10 being highest anxiety.

### **Networking Software**

The network communication software was run continuously throughout the study. Errors were logged for the communication process 24 hours a day whether sessions were being run or not. The network was designed to create an extremely sensitive system that would produce transient faults that could be detected regularly while the network was operating. In order to create a thin threshold for errors to occur in the system, the network communication process was tuned to produce transient faults or errors regularly by adjusting the number of messages sent between the computers. The number of messages sent between the systems was adjusted to produce a minimal number of synchronization faults, where the messages collided due to the speed of the network, while the network continued to produce errors due to other faults that were the result of other external influences on the network. (See *Common Errors on Computer Networks*) The optimal level to produce this effect was determined to in-

clude over 767 lines being sent every second between the two computers, producing errors nearly every day while the system was running. This resulted in an average of 339 errors per day, ranging from 0 to 3,799 in a single day.

Errors were recorded during each of the study sessions, and an equal number of sessions was randomly selected when there were no computer operators present. These no-operator sessions were used to determine the reliability and integrity of the network communication system without any human interaction and to test the first hypothesis (H1).

### **Common Errors on Computer Networks**

Networking errors occur as a result of faults in the network system, and faults are typically classified as permanent, intermittent, or transient. Permanent faults usually are not resolved until a repair action is taken, for example a hardware failure or a disconnected network cable. Intermittent faults occur on a periodic basis and reduce the reliability of a network. Transient faults are temporary, and are usually corrected by error recovery software (Steinder & Sethi, 2004).

In a simple, peer-to-peer, hard-wired network, like the one used in this study, the most common faults would be transient unless there are specific hardware problems. Intermittent failures are more common in larger networks with multiple nodes or routers. Transient faults are most often the result of external interference, like electromagnetic interference (Cha et. al., 1996), high-energy particles (Normand, 1996), or attacks, or internal dysfunctions like design flaws or software bugs (Huang et. al., 2014). In addition, synchronization issues can produce transient faults until the temporal consistency is re-established (Steinder & Sethi, 2004).

The networking software in this study integrated fault detection and logging directly into the networking system. Since the data sent over the network was fixed and consistent, the fault detection software could be specifically designed and tested to eliminate internal dysfunctions and automatically log any other errors that occurred in the data transmission process. Because the network was isolated from any other computers there was no possibility of attacks, but faults could occur as a result of electromagnetic interference or high-energy particles. These intermittent data transmission errors were logged without regard to the specific cause of the interference.

### **Isolation of Software Processes**

When running multiple software processes on a single computer system, questions arise about the isolation or interaction of these programs. In this system, the network software and the user interactive software were both running on a single computer. Could these processes have affected each other?

To isolate computer processing and avoid interaction between programs, the programs must first be run in different threads or different processes (Vokorokos, Balaz, & Mados, 2015). In addition, to avoid competition for OS resources, access to the resources must be controlled or the programs must not use the same files, network resources, locks, processes, CPU, among other resources (Liang, Venkatakrishnan & Sekar, 2003; Vokorokos, Balaz, & Mados, 2015).

The two programs used in this study were carefully designed so that they were not using the same files or processes, and they were run on separate OS threads. Only the networking software used the



network resources; the user interactive software did not access the network. It could be argued that since the software programs were being run on the same computer that they were sharing CPU resources and one process was affecting the operation of the other process through competition for CPU time. In this case, neither program performed process intensive tasks or extensive mathematical calculations. The networking software specifically was designed to perform extremely simple tasks that only included accessing the file system, minor data processing, and network communication.

Even with these careful design considerations, it could be argued that having both processes run on a single computer could affect the results of H1 where the network integrity was being compared in conditions where the user interactive software was being run and other times when it was not. Given this minor possibility of interaction between the programs, the results of the analysis for H1 should be carefully considered before coming to conclusions.

### **Hardware Setup**

The hardware consisted of two standard, commercially available PCs (Lenovo K450E desktop systems) running the operating system Windows 7. These computers were connected via a standard, hard-wired networking cable, and neither computer was connected to any external network or the internet. Wireless capabilities were turned off on both computers.

### **Software Design**

All of the software used for this study was custom designed and built. There were seven major software components: the controller software that ran each session, the user interactive software, the network communication software, the software that sent data across the network, the software that received data from the network, the test software used to determine networking reliability and data integrity, and the data logging and recording software.

1. The controller software: This software is the containing structure for the entire session. This software allows the participants to log in, randomly assigns them to an experimental group, starts the interactive software, and logs all data collected throughout the session.
2. User Interactive software (See Appendix): This software provides instructions to the participants and enables them to complete the timed tasks. There were two versions of this software, one for each group. The first version used by Group #1 included a series of tasks familiar to most computer users including typing text in text boxes, using the mouse to move items around, matching images, and finding hidden objects. This version worked as is normally expected of error free software. The second version, used by Group #2, looked identical to the software used by Group #1. The same instructions and tasks were provided in this version, but the user interface purposely contained mistakes and malfunctioning components. For example, buttons did not consistently respond to mouse clicks, text fields put the wrong text into the fields, intentional obstructions were included like built in delays or unnecessary popup dialog boxes. This second version of the interactive software was designed to induce anxiety and frustration in the participant using the software.
3. Network Communication Software: This component implemented the UDP network communication protocol for the network. It provided the mechanisms to read data, pack it for transfer, send data, retrieve data, unpack data, and write data to disk. This is standard networking software that is familiar to most network programmers.

4. Network Sending Software: This component read a predefined set of data from the hard drive and utilized the Network Communication Software to send the data across the network.
5. Network Receiving Software: This component accepted data from the network connection and utilized the Network Communication Software to unpack and read the data sent. It also wrote the data received to the hard drive.
6. Network Testing Software: This component was integrated into the network communication, sending, and receiving software. It checked each step in the data transfer and receiving process to confirm data integrity at each step. This component recorded all of the errors and logged the location and nature of each error. It also maintained a count of the errors at each checkpoint for each session.
7. Data Logging and Recording Software: This component maintained the data security and integrity for each session and for the study. The data logging and recording software was used by all components that wrote to the disk for each session.

### **Interaction with Participants**

Only the author interacted with the participants before, during, and after the experimental sessions. He had a moderate belief that the study could produce results supporting both H1 and H2, but due to complete masking of the data collected and the grouping of participants, there was no apparent method that would enable the researcher to influence the opinion of the participants or their behavior during the sessions. Each participant was presented with a consent form discussing the nature of the sessions, but these forms did not include any information about the data collection technique or exactly what was being measured during the sessions. The participants were only instructed to complete the tasks within the specified time limit in order to receive the reward. Each participant was formally briefed by the researcher using the same language.

After the session was completed, the researcher interacted comfortably with each participant and provided debriefing information describing the nature of the software they were using and describing that there was a network running in the room during the session. Neither the participants nor the researcher knew the results of any individual sessions or how many errors were collected for any specific participant. This information was masked throughout the analysis process and continues to be completely masked. This was accomplished through an automated analysis process designed to avoid any knowledge of individual sessions.

### **Data Collection**

The data evaluated in this study were the location and number of network errors, the group associated with each session, and the self-rating of relaxation and anxiety collected at the beginning and end of each session. Data for this study were automatically collected by the software programs. The programs automatically collected all of the network errors that occurred during each session. It recorded at which point an error occurred and how many errors occurred in each session. The program also associated the data with the group that was automatically, randomly assigned when the user logged into the session. Finally, the program collected and stored the response to the self-rating of relaxation and anxiety provided by each participant at the beginning and end of each session. Any data related to the users' performance on the mundane, user interactive computer tasks was ignored and was not collected by the program.

The saved data was stored on the hard drives of computer #1 and computer #2 which was only accessible to researchers associated with the study. Besides the data collected electronically, a separate

record that associated each participant with a unique User ID was stored in a log book, separate from the computer data.

### **Performance Markers/Indicators**

Data integrity was assessed by the testing program at different points in the network communication process. Data integrity was evaluated when the data were read from the hard drive on computer #1, when the data were prepared for transfer, when the data were about to be sent over the network, when the data were received on computer #2, when the data were unpacked on computer #2, and when the data were decoded and stored to the hard drive on computer #2. At each checkpoint, the number of errors recorded was tallied.

The markers used for evaluation and analysis were the total number of errors in a session, the number of errors at each checkpoint, and the location of each error. Due to the potential vulnerability of the data transmission process from Computer 1 to Computer 2, it was considered the most likely location to see variance in error data, so the count of errors found during the transmission of data was pre-defined as the primary analysis variable. Secondary factors related to reading, writing, packing, and unpacking the data were recorded but turned out to be insignificant to the process (see *Analysis* below).

## **Analysis**

### **Data preparation**

The log files for the sessions were combined with the log files from the network software that collected the number of errors that occurred on the system. Using the date and time of each session as a key, the network error log was queried to determine the number of errors that were recorded on the independently running network during each session. This information was separated into groups to further assist with the evaluation of the second hypothesis (H2) that participants who experienced greater stress (higher anxiety) would unconsciously affect the networking system to produce a greater number of errors than the control group.

The error data included records of errors when data were transferred between the computers over the networking system, and the packing and unpacking processes on the sending and receiving computers. While pilot testing the process, there were no errors detected in the processes of packing and unpacking the data on the computers. During the study, just as was the case during the pilot studies, errors were recorded in the data transfer process on the network, but no errors were found in the secondary processes on the sending or receiving computers. Since the primary analysis was related to the transfer of data (see *Data Collection* above), this was the only error data considered. The secondary factors measuring errors in the reading of the data, packaging of data, unpacking of the data, and writing of the data did not occur, so they were not considered in the analysis.

All calculations related to significance were processed using SPSS statistical analysis software.

To determine if the means between the two groups were significantly different, Levene's test was used to determine if the variance of the two groups were similar enough to conduct independent *t*-tests by taking into account the number of groups, and the total number of cases in all groups.

The effect size,  $d$ , was calculated using *Hedges' g* since the newly established groups were of different sizes. This effect size was corrected to remove a small bias to create an unbiased score using the calculation proposed by Hedges and Olkin (1985, p. 81).

$$g \cong d \left( 1 - \frac{3}{4(n_1 + n_2) - 9} \right)$$

## Results

The original experimental and control sessions were defined based on the groups that were using the different versions of the tasking software, and each group contained 65 participants. The experimental group used the software that included obstructions to induce anxiety, and the control group used the software that did not include obstructions. The experimental group was expected to produce a group that experienced higher anxiety during the session.

When the experimental sessions and control sessions were compared, the anxiety levels for the two groups were nearly identical. The experimental group had a mean anxiety difference of 2.35 while the control group had a mean difference of 2.36. The groups showed no significant differences in the number of errors detected ( $p = .96$ ). Upon further investigation, it was determined that the experimental sessions, which were designed to invoke higher anxiety in the participants, did not produce a higher self-reported anxiety than the control sessions. This provoked further investigation.

The difference between the self-reported anxiety before and after the session was evaluated for each of the 130 sessions, regardless of whether it was a control or experimental session. Self-rated anxiety increased on average across all of the sessions with a mean difference of +2.35 on a 10-point scale. Only 24 of the 65 participants in the group originally designated as the experimental group had reported more anxiety than the mean value, while 17 participants of the 65 in the original control group reported more anxiety than the mean value.

A subgroup of all sessions was selected where the self-reported anxiety difference was greater than the mean difference for all the sessions (i.e. anxiety > +2.35). This group included 41 participants of the total 130 participants in the study (24 from the original experimental group and 17 from the original control group). This group was considered the group that experienced the highest levels of anxiety change during the session, and this group was redefined as the experimental group since it met the criteria for evaluating H2 (greater stress conditions).

The number of errors in the high anxiety sessions was compared with the sessions in which participants reported a smaller change in anxiety during the session. This included 89 sessions that were considered the control group where participants self-reported a change in anxiety at or below the mean change for all participants (i.e. anxiety <= +2.35).

The mean number of errors in the high-anxiety group (HI) = 12.20 errors per session. The mean number of errors in the control group © was 3.57. Levene's test for equal variances was used to compare the two groups and the variances were different,  $F(1, 128) = 12.39, p = .001$ . A comparison of means

was evaluated with an independent sample t-test which indicated a difference between the groups,  $p = .038$ . Despite the significant difference in means, the effect size was small ( $d = 0.45$ ), but the power of the results was moderately high (0.61) (see Table 1 for descriptive statistics).

<i>Anxiety Group versus Non-Anxiety Group: Descriptive Statistics</i>				
<u>Group</u>	<u>N</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>Std. Err. Mean</u>
Non-Anxiety	89	3.57	16.673	1.767
Anxiety	41	12.20	23.479	3.667

The first hypothesis (H1) predicted that there would be more errors detected in the network system when a participant was present than when there was no participant using the computer. To evaluate H1, all of the sessions for all participants (130) were compared with an equal number of sessions that were randomly selected as a “no-operator group” when the networking system was running unmonitored and no people were present in the room with the computers. The no-operator sessions were selected to compare directly with the experimental sessions. The no-operation sessions had the same duration as the experimental sessions and were selected at comparable times during the day. Some no-operator sessions were on the same day but at a different time than the experimental sessions, and some were at the exact same time but on days directly before or after the experimental session. The random selection was achieved with a query to the random number generator at [www.random.org](http://www.random.org) that produces a true random value. The random numbers indicated the hour for the no-operator session, and the minute within the hour and the length of the sessions exactly corresponded with each experimental session that included a participant.

The sessions that included a participant (SP) consisted of 130 sessions producing a mean of 6.29 ( $SD = 19.41$ ) errors per session with a range of 0-126 errors per session and a standard deviation of  $SD = 19.410$ . The randomly selected no-operator sessions (SR) consisted of 130 sessions with a mean of = 4.17 ( $SD = 17.30$ ) errors, with a range of 0-137. There was no difference between the groups,  $F(1, 258) = 3.52, p = .35$ . Besides self-rating anxiety, the groups also rated their level of relaxation change during the sessions. The relation between the level of relaxation and the number of errors recorded in the sessions was not significant,  $F(1, 128) = 3.65, p = .32$ .

## Discussion

The study hypotheses predicted that human interaction with machines would have an effect on the number of errors detected in the operation of the computer processing and network communications. In addition, they predicted that participants who experienced greater stress (were more anxious) would produce more errors than those less anxious. It was predicted that the group that did not involve any computer operators would produce the fewest errors. Hypothesis 1 predicted that sessions involving participants would produce more errors in the independently operating network than random sessions where no participant was present. This hypothesis was not supported with equal groups that

included sessions with participants using the computer and sessions where no one was in the room with the computers.

Hypothesis 2 predicted that participants who experienced greater stress (higher anxiety) would produce more errors in the computer network providing evidence that the mood of a computer user could have an effect on the operation of a computer network. The testing of this hypothesis was initially planned for testing with two equal groups of participants who were randomly assigned to use software specially designed to evoke anxiety in one of the groups. Participants who were in both the experimental and control groups reported anxiety at equal rates. Because of this, the grouping was modified to include participants who reported the highest change in anxiety during the sessions as the experimental group, and the remaining participants as the control group. This change in grouping resulted in 41 participants in the high-anxiety group and 89 participants in the control group, and the difference was significant. An analysis of the revised groups found a difference in the number of network errors detected in sessions completed by participants who experienced anxiety using a computer system and the sessions of those who did not. These results were supported by a small effect size and a moderate power for the study, and they met the criteria initially proposed as critical values for this study.

### **Recommendations**

The experimental software was designed to induce higher anxiety in the participants, but participants self-reported higher anxiety in both versions of the software. It is obvious that the software differences in the user interactive software did not achieve the desired effect, but there may be another factor. Self-reporting can be unreliable, and it is possible that some participants might have under-reported their anxiety level or over-reported due to a lack of awareness of their emotions, a desire to suppress their own anxieties, or any number of other reasons. A better measure of anxiety could be achieved with physiological monitoring of the participants during the sessions to determine if there are any correlations between factors that indicate a change in mood (blood pressure, heart rate, skin conductance, etc.) and the number of errors detected in the network system. Other mood states could also be examined to determine their effects on the system.

Participants were motivated in this study with rewards that were designed to encourage them to complete the study within the 20-minute time limit, including a gourmet chocolate bar and a raffle for a gift card. Some participants stated that they were very excited to win the rewards, especially the chocolate, and wanted to complete the tasks on time, but others actually stated that they did not care about the rewards at all and were not in any hurry to finish. This variation in motivation seemed to have an effect on the anxiety levels experienced by the participants, and more significant rewards might have made the original experimental and control groups more likely to be influenced by the user interactive software.

In addition, selecting participants with similar computer experience or expertise would provide a more evenly distributed sample. In this study, some participants completed the sessions in 10 minutes while others took over 90 minutes to complete the same tasks. Despite this difference in time, the participants' self-reported anxiety difference did not correlate with the amount of time it took to com-



plete the tasks. This suggests that some participants have little or no interest in completing the tasks to receive the reward while others are highly motivated. Ideally, this study would have included highly motivated participants to encourage the completion of the tasks in the specified time while evoking an emotional response when their progress was obstructed.

Finally, the predefined critical values and success factors for this study may have been overly optimistic in requiring an effect size  $> .2$  and a power  $> .5$  with a significance level  $p < .05$ . It is clear that a study that explores unconscious effects on a working computer network may produce a very small effect size. Also, unless there is a very large sample planned, the power is likely to drop below 0.5. Future studies of this type should consider reducing the predicted effect size to  $d > 0.1$  and the sample should be increased significantly to provide a higher powered study.

## Conclusions

This exploratory study provides preliminary evidence that the mood of the participants can produce an unconscious effect that will result in more errors in a computer system. With a more specific method to rate the mood of the participants, more pre-qualification of participants, and a larger sample size, future studies could shed additional light on these hypotheses and determine if this effect is strong enough to merit additional applications.

For example, as these findings suggest that computer operators may affect network communications when they are experiencing higher anxiety or frustrations, businesses that employ computer operators or provide technical support to computer users may be prudent to consider the comfort and mood of computer operators while they work. Though this study only indicated that network errors were increased by the computer operators with higher anxiety, there might be other effects on electronics that increase as anxiety rises.

Many people have experienced computer errors when they are anxious or frustrated, and they often attribute these errors to a lack of attention or stupid mistakes. Though many errors may be the result of simple mistakes, additional errors may be the result of an unconscious effect that appears or is amplified when computer users are anxious. Regardless of the cause, the same series of actions may resolve the situation. Walk away from the computer and go down the hall to get a drink. Take a break, calm your mind, and take a deep breath before going back to your computer. The problems just might go away when the anxiety is reduced.

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## Appendix

### User Interactive Software Tasks and Obstructions

Sixteen (16) tasks were presented to every participant in this study. The tasks were common tasks that are familiar to most computer users including simple games, addition, and typing in text boxes. The participants were instructed to complete all of the tasks in 20 minutes to receive a reward. There were

obstructions for some of the participants to induce a sense of urgency and possibly anxiety. The tasks and obstructions are described below.

### **General Obstruction:**

When participants are using the “obstructed” version of the software, between each task screen, a dialog box appears indicating how much time has gone by and how much time is left. The user must click away the dialog box before they can go onto the next screen.

**Task 1.** Move a ball from one side of the screen to the other using the mouse. Click on the ball and drag it to the hole.

Obstruction: none

**Task 2.** Type a single word that is on the left side of the screen in a text box on the right side of the screen.

Obstruction: The text disappears when the user moves their mouse over the “Continue” button. It must be retyped. To complete the task.

**Task 3.** Choose the photos that contain water.

Obstruction: One of the photos that contain water must be clicked three times before the click registers.

**Task 4.** Add two six-digit numbers.

Obstruction: When typing the result in a text box, the 7 character is initially entered as the 6 character. It must be corrected.

**Task 5.** Choose the box that contains the darkest shade of grey.

Obstruction: Clicking on the correct box selects another box on the screen. This occurs two times before the correct box will register the click.

**Task 6.** Type a sentence from the left side of the screen in a text box on the right side.

Obstruction: Some characters are changed during typing and the sentence must be retyped until it is correct.

**Task 7.** Click the boxes to reveal a face. Find two matching faces to clear the boxes from the screen. When all the boxes are gone, move on to the next page.

Obstruction: Boxes reveal the face for less than one second. When matches are found, the boxes stay on the screen and make the user wait for 3.5 seconds before allowing them to click to find another pair.

**Task 8.** Twenty-four cards on displayed face down. Find the Jack of Hearts by click to reveal each card.

Obstruction: The user must click every card before the Jack of Hearts is displayed. It’s always the last card.

**Task 9.** Type a paragraph in a box at the top of the screen into a text box at the bottom. This task was difficult, so a button labeled “Give Up” was added to be displayed after 5 minutes had passed.

Obstruction: Some letters are purposefully mistypes and must be corrected before the “Continue” button can be pressed.

**Task 10.** Select the image of a key to open an image of a door. Five keys are presented and three doors are presented. The user had to find the correct keys for the doors.

Obstruction: none.

**Task 11.** An image of a face is flashed on the screen for less than one second. Select the hair color, eye color, and gender of the person in the photo. A button is provided to show the photo again. The same photo is shown each time.

Obstruction: The photo changes each time the button is pressed until five different photos have been shown. Also, the photos appear on the screen for a very short period of time, and can barely be seen.

**Task 12.** There are twenty-four cards shown on the screen, but only the back of the card is displayed. Find the five cards that have “wavy lines” on them (like the ESP test cards). Clicking a wrong card adds three seconds to your time.

Obstruction: The final card with wavy lines is always the last card that is turned over.

**Task 13.** Create change to make 92 cents using coins. A set number of each coin is available to make this total.

Obstruction: When the first try is completed, it is always wrong, and the amount changes from 92 cents to 91 cents without any obvious indication of the change.

**Task 14.** Click on a running digital clock to stop it at exactly 10.0 seconds. You can reset the clock if you get it wrong. After five tries, it automatically says “Close enough” and lets the user continue.

Obstruction: The first five tries, it always misses by at least 0.1 seconds, and the user must try again. After fifteen tries it automatically allows the user to continue.

**Task 15.** Find a hidden object behind trees and tents in the forest. Click on an image to reveal what’s behind. Clicking the wrong object adds five seconds to the time.

Obstruction: When you click the wrong item, it pauses the screen for three seconds before another item can be selected.

**Task 16.** Same as Task 1. Move the ball to the hole.

Obstruction: none

## **Une Exploration des Effets de l’humeur et de l’émotion sur un Système Informatique et un Environnement de Réseau Fonctionnant sur le Monde Réel**

Résumé. Cette étude emploie un système et un réseau informatiques spécifiques conçus pour induire de l’anxiété chez des participants et déterminer si les personnes anxieuses produisent plus d’erreurs dans un réseau informatique fonctionnant indépendamment. Les participants ( $N = 130$ ) ont complété seize tâches sur un ordinateur en vingt minutes afin de recevoir une récompense. Chaque participant évaluait ses niveaux d’anxiété durant les tâches. En parallèle, 130 sessions étaient lancées sans aucun opérateur informatique. Le réseau fonctionnait indépendamment des tâches, et opérait continuellement durant les sessions. La première hypothèse prédisait que les sessions sans opérateurs produiraient moins d’erreurs de réseau que les sessions avec opérateurs, mais cela ne fut pas vérifié ( $p = 0.35$ ). La seconde hypothèse prédisait que les opérateurs anxieux produiraient plus d’erreurs sur le réseau indépendant que ceux avec moins d’anxiété. L’analyse initiale indiquait une hypothèse non-vérifiée, mais le design initial n’identifiait pas correctement les utilisateurs anxieux. Un regroupement révisé post-hoc basé sur la véritable anxiété rapportée a permis de vérifier cette hypothèse ( $p = 0.04$ ,  $d = 0.45$ ), indiquant que les opérateurs informatiques anxieux pouvaient affecter le réseau de communication. Il y a pu avoir d’autres effets électroniques produits par les émotions humaines. D’autres recherches sont nécessaires pour confirmer ces résultats et explorer si l’intensité des émotions affecte l’électronique.

## **Eine Untersuchung über die Auswirkungen von Stimmung und Emotion auf als Reale-Welt funktionierendes Computersystem und Netzwerkumgebung**

Zusammenfassung. Diese Studie verwendete ein kundenspezifisches Computersystem und Netzwerk, das entwickelt wurde, um bei Teilnehmern Angst zu induzieren und um festzustellen, ob ängstliche Menschen mehr Fehler in einem unabhängigen Computernetzwerk produzieren. Die Teilnehmer ( $N = 130$ ) wurden gebeten, in zwanzig Minuten sechzehn Aufgaben an einem Computer zu erledigen, um eine Belohnung zu erhalten. Jeder Teilnehmer bewertete selbst sein Angstniveau während der Aufgaben. Darüber hinaus wurden 130 Sitzungen ohne einen Computeroperator durchgeführt. Das Netzwerk lief unabhängig von den Aufgaben und war während der Sitzungen kontinuierlich in Betrieb. Die erste Hypothese prognostizierte, dass Sitzungen ohne Operatoren weniger Netzwerkfehler produzieren würden als Sitzungen mit Operatoren, was sich nicht bestätigte ( $p = 0,35$ ). Die zweite Hypothese prognostizierte, dass Ängstliche mehr Fehler im unabhängigen Netzwerk produzieren würden als weniger Ängstliche. Eine erste Analyse bestätigte die Hypothese nicht, aber das anfängliche Design identifizierte ängstliche Benutzer nicht richtig. Eine post-hoc vorgenommene Gruppeneinteilung, die auf der Grundlage der tatsächlich berichteten Angst basierte, führte zu einer Bestätigung dieser Hypothese ( $p = 0,04$ ,  $d = 0,45$ ), was darauf hindeutet, dass ängstliche Computeroperatoren die Netzwerkkommunikation beeinflussen können. Es können andere elektronische Effekte als Folge menschlicher Emotionen auftreten. Weitere Forschungen sind notwendig, um diese Ergebnisse zu bestätigen und zu untersuchen, ob die Intensität von Emotionen elektronische Geräte beeinflussen kann.

## **Una Exploración de los Efectos del Estado de Ánimo y Emoción en un Entorno Realists de Sistema y Red Informáticos**

Resumen. Este estudio utilizó un sistema informático y una red diseñados para inducir ansiedad en los participantes y determinar si las personas ansiosas producen más errores en una red informática que funciona independientemente. Se pidió a los participantes ( $N = 130$ ) que completaran 16 tareas en una computadora en veinte minutos para recibir una recompensa. Cada participante calificó sus niveles de ansiedad durante las tareas. Además se corrieron 130 sesiones sin un operador en la computadora. La red funcionaba independientemente de las tareas y operaba continuamente durante las sesiones. La primera hipótesis pronosticaba que las sesiones sin operadores producirían menos errores de red que las sesiones con operadores, pero no fue así ( $p = 0.35$ ). La segunda hipótesis predijo que los operadores ansiosos producirían más errores en la red independiente que aquellos menos ansiosos. El análisis inicial no respaldó la hipótesis, pero el diseño inicial no identificó adecuadamente a los usuarios ansiosos. Un agrupamiento post hoc basado en la ansiedad real reportada apoyó esta hipótesis ( $p = 0.04$ ,  $d = 0.45$ ) indicando que los operadores de computadora ansiosos pueden afectar al sistema de la red. Pueden haber otros efectos electrónicos afectados por las emociones humanas. Se necesita más investigación para confirmar estos resultados y explorar si la intensidad de las emociones afectan a la electrónica.

## **A Contribution to the Study of the Possession Trance Mediumship of Jane Roberts<sup>1</sup>**

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**Abstract.** This article presents a new examination of the possession trance mediumship of Jane Roberts, the woman who channeled the purported discarnate entity called Seth between 1963 and 1984. Roberts's mediumship has generally been overlooked by the parapsychological research community. The purpose of the present article is to fill this gap in the literature. This article presents a preliminary description of Jane Roberts's mediumship for parapsychologists who may be unfamiliar with the case, including an account of Roberts's personal life and mediumistic career. The relevance of Roberts's mediumship for parapsychology is examined. A comparison with the Patience Worth case is presented and the paranormal character of the Roberts mediumship is evaluated.

*Keywords:* Jane Roberts; mediumship; parapsychology; Seth

The mediumship of Jane Roberts has been the topic of doctoral dissertations (e.g., rhetoric of channeled text, Petit, 2007; models of human development, Kilmartin, 2012; pluralistic models of self, time, and consciousness; Skafish, 2011), master's theses (e.g., sleep and telepathy, Dutton, 1983; literary studies, Shaw, 2016), and other scholarly work (e.g., philosophy and physics, Friedman, 1994). Based on his own thorough study of channeling and mediumship, parapsychologist Arthur Hastings (1991) concluded that

Jane's work marks the dividing point between classical mediums, who call up spirits of the dead, and contemporary channeling, with its teachers, sages, and guides. Though there were other discarnate teachers before Seth, none communicated to the public so effectively. His presence created acceptance for the role of the channeled teacher that many others now play. . . . [The Seth Material] is among the best of the channeled transpersonal teachings. (p. 78)

This is not a mere hagiographic testimonial and ungrounded opinion by someone with no actual knowledge of parapsychology, but a fair and reasoned conclusion based on critical analysis of the Seth phenomena by a scholar who had thorough familiarity with the entire body of Seth Material published at that time. Not since the Spiritualism movement of the late 19<sup>th</sup> century has a phenomenon such as the mediumship of Jane Roberts had such effect on the secularization of modern religion within the broader history of Western esotericism (Hanegraaf, 1997).

Yet Roberts's mediumship has generally been overlooked by the parapsychological research com-

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munity. Overviews of evidence for the survival thesis (i.e., the persistence of personal identity after bodily death) do not mention the Roberts mediumship. This includes a special issue of the *Journal of Scientific Exploration* devoted to an examination of mental mediumship (Braude, 2010), a book of essays dedicated to an examination of mediumship from a variety of disciplinary points of view (Rock, 2013), and an authoritative handbook covering the gamut of psi phenomena (Cardeña, Palmer, & Marcusson-Clavertz, 2015). To paraphrase William James in a letter he wrote to Carl Stumpf in 1886, “I don’t know what [parapsychologists] think of such work, but I think that the present condition of opinion regarding it is [curious], there being a mass of testimony, or apparent testimony, about such things, at which the only men capable of a critical judgment—men of scientific education—will not even look” (in Murphy & Ballou, 1961, p. 65).

The purpose of this article is to fill this gap in the literature. First, a preliminary description of Jane Roberts’s mediumship is presented for parapsychologists who may be unfamiliar with the case. Second, the paranormal character of the Roberts mediumship is critically examined. In the words of parapsychologist Ian Stevenson (1971): “My theme is that we need to continue and enlarge the study of spontaneous cases (i.e., all the naturally occurring phenomena studied by parapsychologists) if we are to advance the whole field of parapsychology and not just parts of it” (p. 92).

## Preliminaries

### Jane Roberts’s Background

Information about Jane Roberts’s personal background comes from biographic commentaries written by people who knew her (e.g., Watkins, 2001), excerpts of Jane’s unpublished autobiography (*From This Rich Life*), footnotes written by Jane’s husband, Robert (“Rob”) Butts, contained in the published Seth books, and from material housed in Yale University’s Sterling Memorial archives documenting Jane’s personal life and literary career (“Jane Roberts Papers;” Roberts, 1915-2017).

Dorothy Jane Roberts was born in Saratoga Springs, New York, on May 8, 1929, the only child of Delmer and Marie (Burdo) Roberts. In 1931, when Jane was two years old, her father and mother divorced. For the next five years, Jane lived on welfare with her mother in half of a rented house shared with her mother’s parents in a relatively poor neighborhood of Sarasota Springs. It was during this time that Jane’s mother began to develop a long-standing rheumatoid arthritis condition that eventually made her bedridden—the same disease of which Jane would die in 1984 at the age of 55. Being raised a Catholic, priests in the parish regularly visited the house to offer help to the family. The sexual overtones of these visits is disclosed in Jane’s recollection about “how the one priest who put her to bed when she was but 3 or 4 years old would ‘play’ with her sexually, and how Marie finally figured that out” (Roberts, 1997, p. 222).

Following the death of her grandmother in an automobile accident in 1937, Jane’s grandfather (Joseph Bardo) moved out of the house. This left 8-year-old Jane alone to care for her invalid mother, along with a succession of unreliable housekeepers and domestic help. In 1940, when her mother’s arthritic condition became so severe that she required prolonged hospitalization, 11-year old Jane was sent to live at a strict Roman Catholic orphanage in Troy, New York. The orphanage had very restrictive

rules (e.g., a prohibition of showering nude) and viewed with suspicion any creative behavior as potentially dangerous (e.g., the nuns confiscated and burned Jane's poetry because it was considered heretical; Watkins, 2001, pp. 13-14).

Two years later when Jane returned home, the 13-year-old teenager was greeted by a mother who had turned from a beautiful, articulate, and compelling personality into an embittered, bedridden invalid who blamed Jane for the break-up of her marriage and her physical condition. The burden of caring for her mother now fell entirely upon Jane's shoulders. "Thus, her early life was one of cooking, cleaning, doing laundry, getting up in the night to put more coal on the stove, bringing her mother the bedpan, and enduring a never-ending stream of appalling psychological abuse" (Watkins, 2001, p. 13). Jane recounted some of this psychological abuse in a 1973 interview published in the *Elmira Star Gazette*:

My mother was a strong, domineering woman, probably scared to death of the position she found herself in. She was psychotic, attempting suicide several times and scaring the devil out of me as a kid with threats . . . One day [she] would say that she loved me, and the next day she'd scream that she was sorry I'd ever been born—that I'd ruined her life . . . She would often stuff her mouth with cotton and hold her breath, pretending that she was dead, to scare me when I was small. Sometimes she'd tell me she really could walk and during the night she was going to get up, turn on the gas jets, and kill us both. I would be absolutely terrified . . . And yet she encouraged my writing and would tell me that I was a good kid and she didn't know why she acted that way but then she'd do it again. (Watkins, 2001, pp. 13-14)

According to Rob, her husband, it was during these early years that Jane "began a pattern of repressing her impulses by refusing to retaliate against her abusive mother" (Watkins, 2001, p. 14). To escape this unhappy childhood, Jane wrote poetry. By the testimony of those who knew her during these early years, Jane always wanted to become a writer and devote her life to writing poetry, novels, and short stories.

In 1946, when she was a senior in high school, 17-year old Jane Roberts won an honorable mention in a poetry contest sponsored by *Scholastic Magazine* and was awarded a scholarship to Skidmore College (Saratoga, NY). As a college student, Jane received mediocre grades, doing well in subjects that she liked (music, poetry, literature) and poorly in subjects she did not (biology, psychology, mathematics). In her junior year, she was expelled from Skidmore for a breach of "social discipline" that involved attending an all-night party at a professor's house "with some senior students. Walter ("Walt") Zeh, long-time friend of Jane Roberts, wrote: "[Jane] was picked from the group for punishment. Her scholarship was withdrawn, and the other girls, all of them members of wealthy families and seniors, got off 'scot-free'" (Watkins, 2001, p. 17).

Now 21 years old, Jane decided that she had enough of school and the morbid atmosphere of home life and in 1950 went cross-country on a motorcycle with long-time Saratoga Springs friend Walt Zeh to visit her father who lived in Santa Monica, California. Several months later, Jane and Walt returned to Sarasota and in 1951 were married. Three years later, they divorced on amicable terms. According to Jane, their three-year marriage "had been entirely platonic—she was a virgin when she met

Rob [Butts]” at a party in 1953 (Watkins, 2001, p. 15). On December 27, 1954, 25-year-old Jane Roberts and 35-year-old Rob Butts were married in Marathon, Florida. Jane wrote: “We were deeply in love. But besides that, we both knew we wanted to devote our whole lives to our work—he to painting and me to writing—no matter where it led or whether we were successful or not” (Watkins, 2001, p. 15). After Jane and Rob were married, life was a struggle. They lived for a while in Tenafly, New Jersey and Rob commuted to New York City to find work in the comic book field as a graphic artist. Rob wrote: “We had no [regular] jobs, very little money, and no luxurious feelings of security” (Watkins, 2001, p. 18).

### **The Coming of Seth**

Things got better when they moved back to Rob’s hometown of Sayre, Pennsylvania. By 1963 at the age of 34, Jane Roberts had already published dozens of science fantasy magazine stories, including “The Red Wagon” in 1956 and two science fiction novels, *The Chestnut Beads* in 1957 and *The Bantu* in 1958. Her third science fiction novel, *The Rebels*, has just been published. Jane was working as an assistant at a local art gallery at the time and her 44-year-old artist husband was working part-time at a local Artistic Greeting card company. Despite their feelings of relative financial security and the opportunity to find time to do what they loved—write and paint—Jane felt unsettled. She recounted:

The year 1963 had been a poor one for us. Rob had severe back trouble, and hardly felt well enough to paint when he came home from work. I was having difficulties settling on another book idea. Our old pet dog, Mischa, had died. Perhaps these circumstances made me more aware than usual of our human vulnerability. Perhaps, all unknowing, I had reached a crisis and my psychic abilities awoke as a result of inner need. (Roberts, 1970, p. 9)

It was these special circumstances that Jane believed provided the trigger that sparked the remarkable event that initiated Jane’s introduction to Seth, the “gestalt energy essence” who was to communicate through her for more than two decades. The late afternoon of September 9, 1963 began ordinarily enough as Jane sat down at the kitchen table to work on her poetry when suddenly, Jane recounted,

between one normal minute and the next, a fantastic avalanche of radical, new ideas burst into my head with tremendous force, as if my skull were some sort of receiving station, turned up to unbearable volume. Not only ideas came pouring through this channel, but sensations, intensified and pulsating. . . It was as if the physical world was really tissue-thin, hiding infinite dimensions of reality, and I was suddenly flung through the tissue paper with a huge ripping sound. My body sat at the table, my hands furiously scribbling down the words that flashed through my head. Yet I seemed to be somewhere else, at the same time, traveling through things. (Roberts, 1970, p. 10)

Upon regaining her usual waking state of awareness, Jane discovered that she had produced 15 to 20 pages of manuscript titled *The Physical Universe as Idea Construction* that formed the foundation of the Seth Material and which would be subsequently elaborated upon over the course of Jane’s 21-year mediumship. Their curiosity aroused by this extraordinary and unexpected “awakening experience” (Taylor & Egeto-Szabo, 2017), Jane and Rob resolved to investigate further. They knew little about

parapsychology at the time, had “never been to a medium, never had a telepathic experience in their lives, and never even seen a Ouija board” (Roberts, 1970, p. 14). They decided to conduct a series of do-it-yourself experiments that were “designed to discover whether or not the ordinary person could develop extrasensory abilities” (Roberts, 1970, p. 14). They sent a book proposal to Fredrick Fell Books offering to explore a variety of parapsychological topics, including the Ouija board, séances, precognitive and clairvoyant dreams, telepathy, trance states, predictions, reincarnation memories, and apparitions. Shortly after the book proposal was accepted, they began their experiments (see Roberts, 1966). They decided to start with the Ouija board because they thought it to be the least complicated of the experiments to conduct.

On that fateful evening of December 8, 1963, when Jane and Rob sat down for their fourth session with the Ouija board that they had borrowed from their landlord, they made their first contact with Seth (Seth’s responses are CAPITALIZED).

“Do you have a message for us?” Rob asked.

“CONSCIOUSNESS IS LIKE A FLOWER WITH MANY PETALS,” replied the pointer.

Rob said, “What do you think of your various reincarnations?” [During their prior three sessions with the board, they had received one- or two-word messages ostensibly coming from a Frank Watts, later discovered to have lived in Elmira, New York who died in the 1940s and who had communicated details related to a previous life as a soldier in Turkey]

“THEY ARE WHAT I AM. BUT I WILL BE MORE. PUN: THE WHOLE IS THE SUM OF ITS HEARTS.” This was the first time the pointer spelled complete sentences. I laughed.

“Is all of this Jane’s subconscious talking?” Rob asked.

“SUBCONSCIOUS IS A CORRIDOR. WHAT DIFFERENCE DOES IT MAKE WHICH DOOR YOU TRAVEL THROUGH?”

“Maybe it’s *your* subconscious,” I said to Rob, but he was already asking another question.

“Frank [Watts], can we refer back to you on any specific question in the future?”

“YES. I PREFER NOT TO BE CALLED FRANK [WATTS]. THAT PERSONALITY WAS RATHER COLORLESS.”

Rob and I shrugged at each other: this was really wild, and the pointer was speeding faster and faster. Rob waited a moment, then asked, “What would you prefer to be called?”

“TO GOD, ALL NAMES ARE HIS NAME,” the pointer spelled.

Now [Watts] was getting religious! I rolled my eyes and pretended to stare out the window. “But we still need some kind of name to use in talking to you,” Rob said.

“YOU MAY CALL ME WHATEVER YOU CHOOSE. I CALL MYSELF SETH. IT FITS THE ME OF ME, THE PERSONALITY MORE CLEARLY APPROXIMATING THE WHOLE SELF I AM, OR AM TRYING TO BE.” (Roberts, 1970, pp. 16-17)

By the 8<sup>th</sup> session, Jane was mentally receiving answers to questions before the board spelled them out. She was soon hearing whole paragraphs of sentences in her head at a faster and faster rate until the rush of words was simply too much to contain. “And without really knowing how or why,” Jane recounted, “I opened up my mouth and let them out. For the first time I began to speak for Seth, continuing the sentences the board had spelled out only a moment before” (Roberts, 1970, p. 19). By the 14<sup>th</sup> session, a deepening of Jane’s voice and darkening of her eyes were observed during dictation, and at the 26<sup>th</sup> session on February 28, 1964 the Ouija board was laid aside and Jane spoke for Seth for the first time before an outside witness (an acquaintance, John Bradley; Roberts, 1997-2002, Vol. 1, pp. 195-202). Thus began the mediumship that was to continue for 21 years—from December 8, 1963 until August 30, 1984, six days before her death on September 5, 1984 of rheumatoid arthritis at the age of 55, after being bed-ridden at St. Joseph’s Hospital for 21 months.

### The Seth Material

Over the 21-year Roberts mediumship, ten books had been dictated by Seth (Roberts, 1972, 1974, 1977-1979, 1979a, 1981a, 1986a, 1995, 1997). Jane’s husband, Robert (Rob) Butts, who died on May 26, 2008 at the age of 89, had transcribed all Seth sessions verbatim as they occurred and supplemented the written record with notes to provide a psychosocial context for each session. Interestingly, Mary Dillman (2016), who has been researching the Jane Roberts papers archived at Yale University since 1998, has found several differences between what appears in published books and Robert Butt’s typed sessions, which may represent significantly different renderings of Seth’s original words by the publisher.

The Seth sessions were witnessed by many individuals including: hypnotist George N. Estabrooks (Oswego State University College), psychologist Eugene Bernard (North Carolina University), psychiatrist John O. Beahrs, parapsychologists Raymond van Over (Parapsychology Foundation) and Andrija Puharich, author Richard Bach (*Johnathan Livingston Seagull*), Tam Mossman (editor, Prentice-Hall), scientist William H. Kautz (Stanford Research Institute), and many others. Audio recordings and transcripts of Seth speaking at Jane Roberts’s ESP classes (New Awareness Network, 2017; Roberts, 2008-2010) and accounts of individuals who attended Jane Roberts’s ESP class from 1972-1979 also form part of the public record (e.g., Kendall, 2011; Watkins, 1980-1981).

A video recording of Seth speaking through Jane Roberts and an interview of Jane and Rob (Butts, 1986) provide additional documentation of the phenomenon. Rob Butts stated in the 68<sup>th</sup> session of July 6, 1964: “Jane and I have no set opinions concerning the Seth Material. We are engaged in it and with it, and we record what we learn. We do not feel that at this stage any other opinion or attitude is needed. We let the material speak for itself” (Roberts, 1997-2002, Vol. 2, p. 208). All evidential material, including Jane Roberts’s personal journals, notebooks, and correspondence are housed in Yale University’s Sterling Memorial Library archives and provide a good overview of the history of the case (“Jane Roberts Papers;” Roberts, 1915-2017).



A large body of literary work was also produced by Jane Roberts while not in a Seth trance. It includes an account of her do-it-yourself experiments for developing psi (Roberts, 1966), an overview of Seth's theories and concepts (Roberts, 1970), three novels (Roberts, 1973, 1979b, 1984), a children's book (Roberts, 1979c), a personality theory called "Aspect Psychology" (Roberts, 1975a, 1976, 1981b), two books of poetry (Roberts, 1975b, 1982), three "World Views" books presenting the "postmortem experience and opinions" of Paul Cézanne (Roberts, 1977), William James (Roberts, 1978), and Rembrandt van Rijn (Roberts, 2006), and an account of her experiences in dreams and projections of consciousness (Roberts, 1986b).

Jane's growth as a medium helped her discover "many other levels of awareness, each distinct and bringing its own kind of perception and experience" (Roberts, 1975a, p. v). One of these developments was the reception of psychical material from what she termed "The Library"—a psychic image transposed over a corner of her living room where she saw her own image writing (Roberts, 1976). In addition to the Seth-Jane possession trance, there was the less frequent and phenomenologically different Seth II possession trance (Roberts, 1997-2002, Vol. 8, pp. 265-277, 292). Seth II (a gestalt identity whom Roberts referred to as Seth's "entity") claimed never to have had existence in physical reality and to be the actual source of the Seth Material. Seth II placed Seth in the same relationship to himself as Seth stood in relation to Jane Roberts. According to Seth II, "Seth, as you know him, is a medium through whom we speak, as Ruburt is a medium through whom Seth, as you know him, speaks" (Roberts, 1997-2002, Vol. 9, p. 242). Outside of a Seth trance, Jane sometimes spontaneously broke out into singing an artificial language that she called "Sumari." The syntactic and semantic character of Roberts's Sumari language appears to have no clear connection with any known language. More expert linguistic analysis might reveal it to be a form of glossolalia (Malony & Lovekin, 1985).

The fact that the Seth Material consists of spoken and not written communiqués is important. Part of the evidence for the proposition that Patience Worth was a different personality from Pearl Curran, for example, lies in Patience's humorous and often acerbic conversations with onlookers, presenting the picture of a robust individual with her own distinctive memories, interests, attitudes, and characteristics (Prince, 1929). Seth wanted all his personal comments included in the published material so that his unique personality characteristics would be conveyed. Seth stated, "*for this is part of the message. It is not to be simply the presentation of ideas . . . It is also to be the fact that a highly alive individual, such as myself, gives the material . . . [Jane] should not present my ideas as if they come from thin air, for this is to rob the material . . . for I am the proof of my own pudding, you see*" [emphasis in the original] (Roberts, 1997-2002, Vol. 8, pp. 316-317).

Seth declared early in the Roberts mediumship that Jane would be the only person through whom he would communicate.

I will never speak through anyone other than Ruburt [Seth's name for Jane's entity or whole Self], simply because there must never be any doubt of the origin of the Seth Material . . . I am a teacher and I have this work. It must come only from one source. . . . I have worked very hard to help Ruburt condition himself to provide for the material's integrity and cut down on distortions. I would be appalled at going through that all *that* over again. . . . I would not



double or triple the chances for distortions by attempting to speak through someone else. . . . My communications will come exclusively through Ruburt at all times. (Roberts, 1997-2002, Vol. 9, pp. 187-188, 241, 443)

Another reason for this exclusivity is that Seth, Jane, and Rob form a threesome that together provided the necessary synergy for the communications to occur (Roberts, 1997-2002, Vol. 1, pp. 204-205). Speaking to Rob, Seth said, "Your own relationships, yours and Ruburt and the relationship between us in the past [life], do much to make our communication possible. You act as a transmitter, whether you are at a session or not. So unless there is an *identical* Ruburt and Joseph [the name of Rob Butts's entity] combination, I am stuck with you" (Roberts, 1997-2002, Vol. 9, pp. 240-241). Based on these statements from Seth, it would be reasonable to question the legitimacy of any alleged Seth Material channeled through any medium other than Jane Roberts.

Psychiatrists and clinical psychologists may find some value in the seven posthumously published volumes of *Personal Sessions* containing "deleted" Seth Material dealing with Roberts's personal life that was regarded as too sensitive for public disclosure prior to her death (Roberts, 2003- 2006). A close reading of the *Personal Sessions* reveals that the Seth personality had an ability to improvise on themes intimately related to Jane's and Rob's personal life with penetrating psychological insight that pinpointed their character, abilities, and liabilities.

Of special interest to parapsychologists are the nine posthumously published volumes of *Early Sessions* comprising the first 510 Seth sessions from November 26, 1963 through January 19, 1970, which provide a detailed record of the emergence and development of Roberts's mediumship prior to the publication of Seth's first book in 1972 (Roberts, 1997-2002). These two sets of collected works present key philosophical and psychological concepts that inform the theoretical background and practical application of the Seth Material. "The basic and firm groundwork of the material, and its primary contribution," Seth stated, "lies in the concept that consciousness itself indeed creates matter, that consciousness is not imprisoned by matter but forms it, and that consciousness is not limited or bound by time or space" (Roberts, 1997-2002, Vol. 2, p. 312).

### **A Mediumship Difficult to Classify**

The Roberts mediumship is difficult to classify under parapsychology's current taxonomies because it displays a mixture of characteristics that overlap typical categories of mediumistic activity. It can be classified as an instance of "channeling" because it involves "*the communication of information to or through a physically embodied human being from a source that is said to exist on some other level or dimension of reality than the physical as we know it*" [italics in the original] (Klimo, 1987, p. 2). It can be classified as a "trance" mediumship because, at times, it displayed a sleep-like altered state of consciousness "with limited (or absent) sensory and motor awareness [and] subsequent amnesia" (Gowan, 1975, p. 35). It can also be classified as a "mental" mediumship because, at other times, it exhibited characteristics of "a conscious and focused waking state" (Buhrman, 1997, p. 13). Jane's usual behavioral habits, for example, were not totally submerged during a Seth trance. She could get up and move about, smoke a cigarette, and sip wine, beer, or coffee. It can be classified as a "possession" because it is "an experience involving a radical alteration of *embodied* identity [consisting of] a clear, differentiated identity,

whether human or otherwise, that takes over the usual identity of the individual” (Cardeña, 1989, pp. 2, 13). It is an *intentional* possession, however, because there was no coercion, the Seth-Jane personality depended on Jane’s willingness to dissociate, and Jane could terminate the Seth trance whenever she chose. There was not a “switch” of personalities but the co-conscious and simultaneous existence of two identities within the same body (Beahrs, 1982). In certain respects, the concepts of “possession,” “mental mediumship,” “trance mediumship,” and “channel” limit understanding of Seth-Jane’s reality and Jane’s mediumship experience, especially when experiences, not abstract categories, determine the nature of the phenomenon.

The mediumship of Jane Roberts is also difficult to classify because of the evolving character of its phenomenology over its 21-year history. The degree of sensory and motor awareness, amnesia, dissociation (“the coexistence of separate mental systems that should be integrated in the person’s consciousness, memory, or identity”) and depersonalization (“the self experiences itself as detached or at an unbridgeable distance from ongoing perceptions, actions, emotions, or thoughts”) varied over time (Cardeña, 1994, pp. 19, 24). In the early sessions, Jane reported that she was rarely so “blacked out” as to feel as if she was sleeping and usually knew what was happening, although she almost instantaneously forgot what she said as Seth-Jane. At “other times, though less seldom, I am in the foreground and Seth advises me what to say” (Roberts, 1970, p. 77). Later in her mediumship, Jane experienced her Seth-Jane possession trance as “an accelerated state characterized by a feeling of inexhaustible energy, emotional wholeness, and subjective freedom” in which she remained aware of two streams of consciousness—Seth’s and her own (Roberts, 1979a, p. 16).

### **Relevance for Parapsychology**

For purposes of this discussion, because the Seth Material is a production of Jane Roberts (the medium) and Seth (the ostensible discarnate) and since both are distinctively bound up in its creation, the term “Seth-Jane” (Jane’s possession trance personality) is used to refer to the hybrid “bridge” personality structure used by the purported Seth entity to communicate through Jane Roberts.

#### **A View from Within the Psyche**

Seth-Jane’s mediumistic communications may be of interest to parapsychologists because they articulate a set of original hypotheses about the mechanisms that underlie mediumship from the “inside” viewpoint of the survival personality for whom the medium speaks that is different, relatively speaking, from the phenomenological viewpoint of the observing medium (Beischel, 2007, 2013; White, 1960). Seth-Jane’s first book, *Seth Speaks* (Roberts, 1972), ostensibly provides a detailed look of what it is like for any survival personality to speak through a medium. It offers an examination of the physical system of existence as it appears to the survival personality, a description of the nature and conditions of the after-death environment, and a discussion of the manipulations that are necessary from “the other side” for mediumistic communications to occur. This book also contains information about the mechanics of experience underlying mediumship that may advance understanding on a number of issues, including how a medium is led to make those correct statements that provide ostensible evidential material concerning the previous lives of survival personalities and some of the reasons for the various, often

contradictory, statements received by mediums in which quite different pictures of afterlife reality are portrayed.

Seth-Jane's description of the function and composition of the "psychological bridge" that must be present for Seth's communications to take place may be of interest to parapsychologists studying mediumship (Roberts, 1997-2000, Vol. 6, pp. 14-16). The bridge personality is an intervening psychological structure that differs in important respects from traditional "control personalities" (i.e., an entity that acts as an intermediary between the survival personality and the medium). It is basically a psychological protrusion or expansion formed partly by portions of Seth's ostensible larger identity and partly by portions of Jane's own personality to create a tertiary "gestalt personality" that is a connector. "Some information comes to Ruburt [*Jane*] fairly automatically," Seth-Jane explained, "in that he speaks for me without having to consciously translate for me. At the same time, because of the methods we use, some translation is often necessary. In many cases, this translation is done by the intervening psychological framework. It is composed of energy. It is not a secondary personality, for it exists in quite different dimensions than secondary personalities" (p. 14).

The bridge personality is a purely psychical organization that telepathically transmits, and to some extent translates, but does not interpret the impressions and concepts that are sent from Seth at his end to Jane at her end. Once created, this composite psychological framework is somewhat independent of both Seth and Jane in that it is capable of growth and development. Jane stated: "I am not saying that Seth is *just* a psychological structure allowing me to tune into revelational knowledge, nor denying that he has an independent existence. I do think that some kind of blending must take place in sessions between his personality and mine, and that this 'psychological bridge' *itself* is a legitimate structure that must take place in any such communication. Seth is at his end, I am at mine" [*italics in the original*] (Roberts, 1970, p. 272). Seth-Jane stated: "My communications come through Ruburt's [*Jane's*] subconscious. . . . Ruburt assembles me or allows me to assemble myself in a way that is recognizable to you, but regardless of this, I exist in an independent manner" (Roberts, 1970, p. 54).

### **Theory of Intrapersonal Telepathy**

Parapsychologists may also find of interest Seth-Jane's distinction between two forms of telepathy: (a) an elemental, rudimentary form of "intrapersonal" psi by which mind-to-brain communication is hypothesized to occur within the individual, and (b) the "interpersonal" telepathy between two individuals that is typically studied by parapsychologists in laboratory settings. Only intrapersonal telepathy will be discussed here. Intrapersonal telepathy is hypothesized to be a rudimentary form of mind-body communication whereby intention, desire, and expectation are conveyed from a basically nonphysical Self to essentially intangible representations of itself (i.e., telepathic structures) that are subsequently materialized into the tangible biological structures of the physical body (e.g., neurons). These telepathic structures provide the initial invisible pathways around which biological structures form themselves during the process of neurogenesis and an inner-ordered framework that permits the brain to handle basically nonverbal information that is beyond its capacity to translate into neurological terms. Once the telepathic tracks are laid down, so to speak, the unformed neurological structures have a path to follow on which to materially build and that informs their subsequent functioning.

Seth-Jane's hypothesized telepathic structures could be construed to be a nonphysical psi-factor that underlies the physical electromagnetic (EM) field forces discovered by Burr and Northrop (1935) that organize, direct, and maintain biological organisms in their same relative form throughout the continual turnover and replacement of the physical matter that composes them. An extra ingredient in Burr and Northrop's explanation is needed to account for the ability of EM fields to establish, direct, and maintain the body's organization in the first place. Seth-Jane proposes that elemental telepathy with its accompanying telepathic structures is that extra ingredient. Using Russell's (1971) terminology, telepathic structures (T-fields) would supplement the electromagnetic fields (L-fields) in the body's communication system. It is within these elemental telepathic structures of the cell rather than in its physical material that the condensed electrically-coded data of experience are retained. The idea that the body has an intangible but actual framework composed of electrically-coded psychical energy (e.g., electric bodymind;" Becker & Selden, 1985) about whose reference points the physical body is constituted may sound quite esoteric, but is a highly practical concept basic to almost all Eastern physiology associated with Yoga and acupuncture (Evans, 1986).

These putative telepathic structures would hypothetically function as an intervening psi factor that mediates human transformative capacities observed in instances of mind-body communications (e.g., placebo response, biofeedback, hypnosis, "miraculous" cures at Lourdes, charisms such as stigmata, imagery and healing, yogic siddhis; Murphy, 1992). These mind-body interactions would be associated with changes in voltage gradients of the body's organized electromagnetic (EM) fields that can be measured using sensitive micro and millivoltmeters (Ravitz, 2002, Chaps. 6-10). From the point of view of Seth-Jane, "Do not think of the mind as a purely mental entity, and of the body as a purely physical one. Instead, think of both mind and body as continuing, interweaving processes that are mental and physical at once. Your thoughts actually are quite as physical as your body is, and your body is quite as nonphysical as it seems to you your thoughts are. You are actually a vital force, existing as a part of your environment, and yet apart from your environment at the same time" (Roberts, 1997, p. 131).

### **Comparison with the Case of Patience Worth**

A systematic study of the published record of the Roberts's mediumship suggests a number of comparisons with the 1913-1937 case of Patience Worth (Braude, 2003, Chapter 5; Prince, 1927, pp. 15-21, 392-403). In terms of similarities, both communicators initially emerged via a Ouija board and displayed remarkable literary and mnemonic virtuosity. Both mediumships exhibited striking personality differences between the medium and the channeled entity, both displayed expertise in subject matter not easily unaccounted for on the basis of biography, and both involved a single medium. Moreover, both mediumships offered little to no concrete evidence for the prior corporeal existence of the entities they channeled.

In terms of differences, unlike the Roberts's mediumship, no physical phenomena were reported in Curran's mediumship. Patience as Pearl could simultaneously carry out more than one task on demand (e.g., dictate a poem and write a letter to a friend in a manner that resembled automatic writing), whereas Seth as Jane never demonstrated such multi-task performances. The language of Patience-Pearl consisted largely of archaic and obscure old English dialects presumably unknown to Pearl

Curran, whereas the language of Seth-Jane consisted of 20<sup>th</sup> century English vocabulary familiar to Jane Roberts. Patience Worth produced novels, poems, and short stories generated while Pearl was in a state of normal waking consciousness, whereas Seth dictated philosophical and psychological treatises while Jane was in an alternate state of possession trance.

## Evaluation

The challenge for psychology is to explain how Jane Roberts of Elmira, NY, could suddenly possess, in full-blown fashion with no apparent previous study or instruction and no gradual development, an ability to compose internally coherent philosophical, psychological, spiritual, and ethical material of a very high order of originality, conceptual sophistication, and intellectual rigor in long complex narratives, laying the material aside sometimes for weeks or months and then resuming without difficulty or review, with no period of fumbling and no declension in average quality, but with the same facility and power from start to finish, while in a possession trance (i.e., a “temporary alteration of consciousness, identity, and/or behavior” with “replacement by an alternate identity” attributed to a spiritual force or another person; Cardeña, Van Duijl, Weiner, & Terhune, 2009, p. 173). A review of Jane Roberts’s background indicates that the causative factors of past experience and environment that psychologists are accustomed to look for to explain how she acquired such abilities and knowledge are not to be found. Some scholars might argue that such abilities may be paranormal (Kelly et al., 2007).

## Evidence of ESP and PK

The value of the mediumship of Jane Roberts for modern parapsychology ultimately lies in the extent to which there is evidence that Jane had genuine psychic ability or that Seth is in fact a survival personality. The nine volumes of the *Early Sessions* (Roberts, 1997-2002) provide reports of experiments that directly bear on the question of psi-functioning in the Roberts mediumship. This includes the series of 84 informal, free-response telepathy/clairvoyance “envelope tests” that began August 18, 1965 and ended February 13, 1967 (Roberts, 1997-2002, Vols. 4-7). It also includes the more formal series of 76 clairvoyance tests that were conducted from September 20, 1965 to June 29, 1966 two nights a week with “Dr. Instream” (pseudonym for Dr. George N. Estabrook, professor of psychology at Oswego State University) (Roberts, 1970, pp. 33-38, 55-110). Jane wrote to Dr. Instream on July 10, 1966 canceling the series of experiments because she had received no correspondence from him since January of that year and no feedback regarding the outcomes of any of the tests (Roberts, 1997-2002, Vol. 8, pp. 331-332).

The results of the informal “envelope tests” were not always consistent and cannot be considered scientific evidence for psi functioning because the scoring rate was not at a level to rule out counter-explanations and odds against chance could not be calculated (Beloff, 1980, p. 92). Despite these drawbacks, however, the relevance of these experiments for parapsychologists is found in the detailed commentaries that Seth-Jane provided about (a) the associative processes involved in anomalous information reception, (b) the indiscriminate fashion in which impressions may be received, (c) bleed-throughs that can occur between series of tests, and (d) the influence of emotional charges of the target data on information reception (Roberts, 1997-2002, Vol. 7, pp. 43-46).



Spontaneous physical phenomena were infrequently produced during the Roberts mediumship. Seth-Jane always regarded such demonstrations of his reality as “childish endeavors” and “amusing diversions” from his real purpose of education (Roberts, 1997-2002, Vol. 8, p. 150). The physical phenomena that were reported – ectoplasms (Roberts, 1997-2002, Vol. 1, pp. 52-57), apparitions (Vol. 2, pp. 208-223) and table-tipping (Vol. 8, pp. 139-151) – were witnessed by others and recorded immediately after they occurred. One may reasonably conclude the events to have happened as reported (i.e., are authentic; Stevenson, 1971, p. 93n). However, the reported phenomena would not be considered as scientifically valid evidence of psi by parapsychologists because they do not fulfill psi research evidential criteria; that is, they did not permit control over other variables to rule out alternative explanations such as suggestion, faulty observation (Braude, 1997, pp. 23-50, 53-63).

### **Roberts' Mediumship as a Case of Survival**

Nor does the possession trance mediumship of Jane Roberts satisfy most of the “desirable features” of an ideal survival case (Braude, 2003, pp. 284-285). Seth-Jane stated: “I have been conscious before your earth was formed” (Roberts, 1972, p. 6) and “In your dreams you have been where I am” (Roberts, 1970, p. 2). Such claims are difficult, if not impossible, to empirically verify. Moreover, Seth-Jane described himself as a “personality identity essence” who had reincarnated many times. However, few details about those previous earthly lives are presented. The only apparent evidence that Seth ever existed as an actual person was the momentary appearance via the Ouija board in December 8, 1963 of his alleged previous incarnation as “Frank Watts” whose name was later tracked down to someone known to have lived in Elmira, New York and died in the 1940s. Few other checkable details about Frank Watts's earthly life were offered (Roberts, 1997-2002, Vol. 1, pp. 1-23, 101-102, 224-225, 262-23; Vol. 2, 336-337). Other than the literary fact that “Seth” was the name given to the third son of Adam (Genesis 4:25) and to a god in Egyptian religion and mythology, no one has documented the actual existence of an individual corresponding to the Seth entity—living or dead. The Seth-Jane personality thus arguably represents “a case of survival only in form, not in substance” (Braude, 2003, pp. 171).

Conventional mediumistic activity (i.e., communication with survival personalities) is reported to have occurred outside of Seth sessions. Jane's first planned séance happened in 1968 when she contacted two discarnates identified as “Blanche Price” and “Billie Kramerick” (Roberts, 1997-2002, Vol. 8, pp. 165-173). Spontaneous séances also occurred in which contact was made with a “Malba Bronson” who allegedly died in South Dakota in 1946 at the age of 46 (Roberts, 1997-2002, Vol. 1, pp. 103-105, 127-130), a nameless “spokesperson” for a group of discarnates (Roberts, 1997-2002, Vol. 2, pp. 167-168, 173), a “Father Trainor,” a priest friend of Jane's when she was growing up in the Catholic orphanage as a child (Roberts, 1997-2002, Vol. 3, pp. 261-262), and a “Sarah Wellington” who died in England in 1748 at the age of 17 (Roberts, 1997-2002, Vol. 8, pp. 64-68). Except for Blanche Price, Billie Kamerick, and Fr. Trainor, little evidential information about the earthly life of these individuals is provided. Few supportive details are presented that can be empirically verified through existing historical documents to prove that any of the other purported survival personalities correspond to a real person.



### **Paranormal Character of the Roberts Mediumship**

Given the corroborating testimony of many witnesses, the high reliability of concurrent reporting methods, and the large number of Seth sessions conducted over the 21-year history of the phenomenon, the mediumship of Jane Roberts can be deemed to have authenticity (i.e., it actually happened as reported). The published record, however, does *not* directly indicate that anything concerning a *paranormal* interpretation of the Seth sessions is justified at this time. This conclusion is in agreement with what the Seth-Jane trance personality and Jane Roberts herself have repeatedly asserted.

Jane Roberts did not view her mediumship as “paranormal.” In this respect, she resembles the trance medium Eileen J. Garrett who wrote in her autobiography that “my investigations of the phenomena of mediumship convince me that these are not new or extraneous sensitivities but rather refinements of the physical senses all men possess. I cannot therefore accept the usual explanation of mediumship as an abnormal or supernormal development” (Garrett, 1968, p. 9). Jane believed that psi functioning was considered “anomalous” and “paranormal” only because of the artificial divisions applied within the field of psychology itself and the standardization of what mainstream psychology considered “normal” that was reflective of the cultural turf war between psychology and religion (Coon, 1992).

Jane Roberts’s view of Seth was informed by an ongoing desire to understand the meaning of her experience and she strongly questioned both conventional psychological and religious interpretations of her mediumship. Jane was very skeptical of Seth at first and very critical of any references to God, spirit, reincarnation, or religion in his communications because of the conventional connotations that such terms implied. After Jane judged that Seth’s communications might indeed be legitimate communications from other dimensions of actuality telling the species about its own nature, her disdain grew for conventional psychological and religious-spiritualistic explanations of her mediumship (Roberts, 1981b). Jane stated: “This meant personally that I was regarded as having the truth and a spirit guide by spiritualists, or being a fraud or psychologically disturbed at the other end, and in that frame of reference there is no in-between. . . . Either I was looked up to not as myself, but because of Seth, or I was thought of as a nut and disturbed. And I refused the entire framework” (Watkins, 2001, p. 195). Jane saw the Seth phenomenon being too large to be categorized in such a fashion and that conventional explanations were inadequate to fully capture the far more complex and subtle truth of what was going on. “Even if and when our scientists prove telepathy and clairvoyance,” Jane said, “this will certainly help our ideas of personality and reality; but the nature of our existence and reality and the scope of that reality cannot be proven in those terms. You cannot put them down as fact in that particular context” (Watkins, 2001, p. 195).

Jane did not like the term “psychic” applied to her. “The whole psychic bit as it is,” Jane stated, “is intellectually and psychologically outrageous as far as I’m concerned and I want no part of it or the vocabulary or the ideas” (Watkins, 2001, pp. 204-205). Roberts particularly disliked the term “medium” or “channel” being applied to her because of its misleading spiritualistic connotations and the implication that mediumship is somehow the passive reception of neutral information uncolored by the person who receives it, holds it in memory, and passes it on to others. Seth always insisted that his communiqués were sifted through the unique personality characteristics of its source (i.e., Seth) and then again filtered through the subconscious of the medium (i.e., Jane Roberts). This is what gave the communications their

uniqueness and rich dimensions. Recognizing the interaction between the medium's personality and the content of discarnate communications puts the survival thesis in a different light. It explains why descriptions of the afterlife and past life recollections are so varied, may contradict one another, or appear inconsistent with historical fact. Nothing about the psychological nature of any perception—sensory or nonsensory (psi)—is neutral in those terms.

She refused to see her mediumship as some pathological form of dissociation and Seth as a split-off, subconscious fragment of her own personality or as some sort of devil or, more benignly, a pseudo-spiritualistic ghostly spirit-guide of the dead. Jane stated: "We must stop automatically taking such information at face value, translating it through ancient beliefs. We must look at our own experience again—and learn to trust it. . . . We must refuse to let old theories define our realities for us, limiting and distorting the very scope of our lives" (Roberts, 1981b, p. 256). Jane said, "I consider the Seth material as evidence of other aspects of the multidimensional personality. I expect it to lead me to still further insights. To label Seth as a spirit guide is to limit an understanding of what he is" (Watkins, 2001, p. 204).

Nor did Seth approve of the terms "ghost" or "spirit" applied to him. His highly theoretical material about the nature of reality and human personality studiously avoided the use of spiritualistic terminology common in some mediumistic literature (e.g., Anonymous, 1996). Seth-Jane stated:

I do not want this material to be considered any sort of mumbo jumbo . . . in the terms that people often consider material that seems to come from a source beyond the individual who gives it. The designations spirit, medium, and so forth, are ridiculous to begin with. You are simply using inner senses. These senses are not magical, they certainly are not religious in any sense of the word, and I am not some degenerated secondary personality of Ruburt's [Jane]. (Roberts, 1997-2002, Vol. 1, p. 143)

Seth always considered himself an educator primarily.

You are presently focused entirely within physical reality, wondering perhaps what else if anything there may be outside. I am outside, returning momentarily to a dimension that I know and love (Roberts, 1972, pp. 10-11). . . . My mission is to remind you of the incredible power within your own being and to encourage you to recognize and use it (Roberts, 1974, p. 152). . . . These sessions represent your closest and most dependable source of inner knowledge outside of direct personal mystical experience. I am in many ways a most dependable contact with that which is beyond your physical knowledge (Roberts, 1997-2002, Vol. 9, pp. 271-272). . . . I speak myself for those portions of *your* being that already understand. My voice rises from the strata of the psyche in which you also have your existence. Listen, therefore, to your own knowing. (Roberts, 1977-1979, Vol. 2, pp. 22-23)

In Jane's view, her experience was neither unnatural nor supernatural, neither anomalous nor abnormal, but an extension of normal creativity, a prolonged *exceptional human experience* (White, 1993, 1997), representing its own kind of evidence about the "farther reaches of human nature" (Maslow, 1971). The Seth-Jane trance personality stated, "Jane Roberts's experience to some extent hints at the

multidimensional nature of the human psyche and gives clues as to the abilities that lie within each individual. These are part of your racial heritage. They give notice of psychic bridges connecting the known and 'unknown' realities in which you dwell" (Roberts, 1977-1979, Vol. 1, p. 24). Jane Roberts (1970) stated, "Above all, I am sure that Seth is my channel to revelational knowledge, and by this I mean knowledge that is revealed to the intuitive portions of the self rather than discovered by the reasoning faculties. Such revelational information is available to each of us, I believe, to some degree. From it springs the aspirations and achievements of our race" (Roberts, 1970, p. 268).

## Conclusion

A thorough familiarity with the Seth Material and systematic study of the history of the Roberts mediumship has produced a conviction in this author that one is in the presence of a legitimate and genuinely original phenomenon that is difficult to classify, and that raises important questions about the nature of personal identity, agency, and human consciousness. Even if we are not justified in interpreting the Roberts possession trance mediumship as having veridical paranormal features by parapsychology's current standards of proof, parapsychologists should not dispense from further study of this case in order to shed light on the problem of Seth's origin and obtain a fuller picture of what unconventional paranormal processes may or may not, in fact, be involved (Stevenson, 1971). The challenge for parapsychology is to determine who Seth was, what his relationship to Jane Roberts was, and where the Seth Material came from. The source-of-psi problem in this context takes the form of how to establish proof of identity of an allegedly discarnate source when the medium is deceased and no longer available for study under controlled conditions in a laboratory or field setting (Cunningham, 2012).

Felser's (2001) invitation to parapsychologists to move beyond a narrow construal of mediumship and a fixed list of evidential criteria and take a philosophical approach to questions about the nature and identity of Seth is a reasonable request. The psychological richness and philosophical sophistication of communicated content and the continued influence of the ideas contained in the Seth Material on the development of modern secular spirituality justifies such a study. The recommendation of Irwin Child (1985), following his appraisal of reviews by critics of Ullman, Krippner, and Vaughan's dream-telepathy experiments, is endorsed here: "Interested readers might well consult the original sources and form their own judgments" (p. 1229). It is through following the facts presented in the published record and remaining open to all avenues of fruitful speculation and intuitive possibilities that a solution to the problem of Seth's origin and the source of the Seth Material will most likely be achieved. F. S. C. Schiller (1918) correctly observed, "Nothing is more likely to impede investigation than premature acceptance of 'explanations'" (p. 402). The only certainty is that the mediumship of Jane Roberts is enormously complex. As parapsychologist Stephen Braude (2003) stated at the end of his study of the case of Patience Worth: "The case is a humbling reminder that there's much still to learn about the human mind" (p. 174). So it is with the possession trance mediumship of Jane Roberts.

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### **Une Contribution à l'étude de la Transe de Possession de la Médium Jane Roberts**

Résumé. Cet article présente un nouvel examen de la médiumnité de transe par possession de Jane Roberts, la femme qui a channelé la supposée entité désincarnée baptisée Seth entre 1963 et 1984. La médiumnité de Roberts a généralement été négligée par la communauté de recherche parapsychologique. Le but du présent article est de colmater cette brèche de la littérature. L'article présente une description préliminaire de la médiumnité de Jane Roberts pour les parapsychologues qui pourraient ne pas être familiers avec le cas, incluant une description de la vie personnelle de Roberts et de sa carrière médiumnique. La pertinence de la médiumnité de Roberts pour la parapsychologie est examinée. Une comparaison avec le cas de Patience Worth est présentée et le caractère paranormal de la médiumnité de Roberts est évalué.

### **Ein Beitrag zur Untersuchung der Besessenheits-Trancemedialität von Jane Roberts**

Zusammenfassung. Dieser Artikel stellt eine neue Untersuchung über die Besessenheits-Trancemedialität von Jane Roberts vor, jener Frau, die zwischen 1963 und 1984 die angeblich verstorbene Wesenheit Seth gechannelt hat. Roberts' Medialität wurde von der parapsychologischen Forschergemeinde bisher



kaum beachtet. Der Zweck des vorliegenden Artikels ist es, diese Lücke in der Literatur zu schließen. Dieser Artikel enthält eine vorläufige Beschreibung von Jane Roberts' Medialität für Parapsychologen, die mit dem Fall vielleicht nicht vertraut sind, einschließlich einer Darstellung von Roberts' Biographie und ihrer Karriere als Medium. Die Bedeutung von Roberts' Medialität für die Parapsychologie wird untersucht. Der Fall Patience Worth wird zum Vergleich herangezogen und eine Einschätzung des paranormalen Charakters von Roberts' Medialität versucht.

### **Una Contribución al Estudio de la Mediumnidad de Trance de Posesión de Jane Roberts**

Resumen. Este artículo presenta un nuevo examen de la mediumnidad de trance de posesión de Jane Roberts, la mujer que canalizó la supuesta entidad desencarnada llamada Seth entre 1963 y 1984. La comunidad de investigación parapsicológica ha pasado por alto la mediumnidad de Roberts. El propósito de este artículo es llenar este vacío en la literatura. El artículo presenta una descripción preliminar de la mediumnidad de Jane Roberts para parapsicólogos que pueden no estar familiarizados con el caso, incluida una descripción de la vida personal y la carrera mediumnística de Roberts. Se examina la relevancia de la mediumnidad de Roberts para la parapsicología, se compara con el caso de Patience Worth y se evalúa el carácter paranormal de la mediumnidad de Roberts.

## A Challenge to Materialist Models of Mind<sup>1</sup>

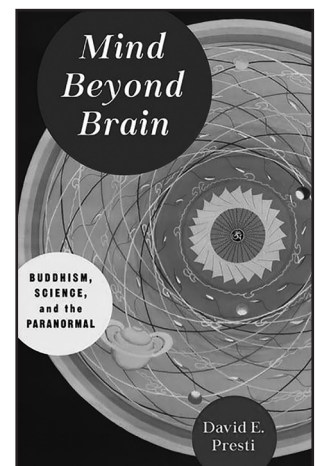
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Review of *Mind Beyond Brain: Buddhism, Science and the Paranormal*, edited by David Presti. New York: Columbia University Press, 2018. Pp. xxii + 200. ISBN 9780231189569

This six-chapter book largely focuses on pioneering research in the Division of Perceptual Studies (DOPS) in the Department of Psychiatry of the University of Virginia Medical School. Founded by Ian Stevenson in 1967, DOPS investigates “near death experiences” (NDEs); “cases of the reincarnation type” (CORT) in which small children speak and act as though they are remembering persons, places and events from another usually recent life; other death and dying-related phenomena such as cases of mediumship, apparitions and deathbed visions; and laboratory-based studies of psi such as telepathy and precognition. Overall, such phenomena pose a significant challenge to the currently dominant, materialist way that mind is understood in Western science.

The opening chapter by David Presti (Department of Molecular and Cell Biology, UC Berkeley) provides a broad theoretical context for the book, giving a succinct review of the many ways that consciousness has been shown to *relate* to brain functioning without *reducing* to brain functioning, thereby presenting a “hard problem” for materialist reductionism and an invitation to paradigm change. Four lucidly written chapters then follow that survey major areas of research of interest to DOPS. Bruce Greyson focuses on near-death experiences (NDEs), Jim Tucker on past-life memories, Emily Williams Kelly on investigations of mediums, apparitions, and deathbed experiences, and Ed Kelly on paranormal (psi) phenomena and the *siddhis*—unusual capacities developed by advanced Yogis and meditators, through the use of psychoactive plants, fungi, or rituals. Each of these content chapters also follows a systematic pattern: a brief historical survey, a description of the typical features of the surveyed phenomena, detailed histories of persuasive, well-documented cases, a consideration of the conditions under which the phenomena tend to occur, an analysis of the most common, conventional ways of explaining (or explaining away) the phenomena, reasons for not accepting such dismissive arguments (for example on the grounds of conflicting evidence), and broad suggestions about the theoretical implications of taking the evidence seriously. In the penultimate chapter by Kelly and in the opening and closing chapters by



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Presti, the theoretical consequences of the evidence and the current and prospective future of research in this area are also considered in greater depth.

Given the routine materialist assumption that mind and consciousness are nothing more than localized states and/or functions of the brain and therefore entirely dependent on brain, such phenomena are routinely dismissed both by scientists and the media on the grounds that any form of post-mortem survival (of the kind suggested by NDEs and CORT) or information access to events or other minds distant in space or time by non-normal means (e.g., telepathy and clairvoyance) is theoretically impossible. Consequently, on this view, there *cannot* be scientific evidence for such phenomena and the so-called scientific evidence for these phenomena *must be* “pseudoscience” or at best “poor science” that does not take into account well-known cognitive errors, fraud, alternative conventional explanations, and so on.

As a natural response to this establishment skepticism, research into areas covered by this book has become increasingly rigorous and well-controlled, and data that cannot be easily dismissed have become extensive. Each of the content chapters offers examples of this kind. Greyson, for example, lists typical features of NDEs, including a flood of memories or a life-review associated with a sense of revelation or sudden understanding, emotional changes that can include an overwhelming sense of peace and well-being, and a sense of cosmic unity and a feeling of unconditional love—all of which are surprising in the near-death situation. Greyson reports that such features are 10 times more common in patients with clinically established cardiac arrest than in patients with other serious cardiac incidents, and do not appear to be associated with age, gender, race, intelligence, neuroticism, extraversion, anxiety, mental illness, or personality traits. There are however cultural differences in the way individuals interpret such experiences. Such NDEs are of particular clinical interest in that they often have profound after-effects. For example, experiencers typically report increased spirituality, compassion, altruistic behavior, sense of connection to others, sense of meaning and purpose, and appreciation for life. Conversely, they report loss of fear of death and become more opposed to suicide. Such NDE changes go well beyond those in people who have come close to death without an NDE.

Explanations of NDEs include imaginative mental constructions based on pre-existing religious beliefs to protect us from fear of death, but, according to Greyson, research does not support this idea. For example, no association has been found between religiosity and NDEs, and the reported experiences often conflict with religious expectations. The same kinds of experiences are also reported by people familiar and unfamiliar with NDEs (prior to their experiences). Others speculate that NDEs are caused by oxygen deprivation to the brain or by the drugs administered to the dying. However, studies show that those who experience NDEs in the dying process actually have more oxygenated brains than those who do not report NDEs, and those given more drugs are less likely to report NDEs than those given fewer drugs. Greyson goes on to survey and cast doubt on other forms of explanation based solely on brain malfunctioning, and notes that NDEs are in fact associated with enhanced mental clarity—which opens up the question of whether NDEs are simply hallucinations or, perhaps, a way of gaining access to other domains to which we are usually blinded by the normally functioning brain. On his own assessment, the findings challenge the view that consciousness is solely the product of brain processes and lend support to the view that the brain acts more as a filter, selecting mental content most relevant to everyday survival.

Although, in this brief review, I do not have space to give details of the other content chapters,

they are similarly structured and well-considered. Taken together with the encyclopedic survey of evidence in the 832-page book *Irreducible Mind* edited by Kelly et al. (2007), it is hard to disagree with Ed Kelly that the evidence for phenomena inconsistent with a materialist-reductionist worldview is now so extensive that the most plausible default is to accept at least some of them as real, and that it is now time to focus on how they work, the conditions that foster them, and what they imply, both for the nature and potential abilities of the human mind, and, perhaps, for our understanding of reality itself. In his own chapter, he offers potentially fruitful directions. For example, in laboratory studies of psi with gifted individuals, successful trials can be related in principle to psi conducive internal and external conditions and, through the use of neural imaging techniques, to the brain states of those participants during those trials. This strategy was supported by Kelly's own 1982 analysis of a large body of data on successful psi trials drawn from six gifted individuals and a variety of testing procedures that successful hits tend to come in groups rather than be randomly distributed, and appeared to be related to well-marked shifts in participants' internal state (evidenced, for example, by a change in GSR). The state-specific propensity for psi was also supported by research at the Maimonides Medical Center in the 1970s and 1980s on heightened propensity for ESP during periods of REM sleep while volunteers were dreaming, and by many laboratories that use ganzfeld techniques in which participants wearing earphones and halved ping-pong balls over their eyes are exposed to homogenous or random sound and light while being taken through a progressive relaxation procedure.

What might it all mean? Both Kelly and Presti list alternative ingredients of a model of mind beyond brain. Kelly argues for an expanded version of the Myers-James filter or transmission model of the mind in which brain does not *generate* the mind but *conditions* its operations. On this view brain does not *encompass* the mind, which opens the possibility of some form of post-mortem survival. Various models along these lines were developed in Kelly, Crabtree, and Marshall (2015) edited book *Beyond Physicalism* a series of metaphysical essays that argued for a form of evolutionary *panentheism*, described as some kind of ultimate consciousness that both pervades and constitutes the world, while also, in part, transcending it, slowly waking up to itself as it evolves ever more complex biological forms over time.

Presti suggests that an expanded model of mind might usefully draw from modern physics, perhaps through a deeper appreciation of the participatory, experiential role of the observer in quantum mechanics, and, to understand apparent connections between non-local events, we may need to consider the existence of physical dimensions additional to four-dimensional space-time. He also argues for a dual-aspect model of mind in which both consciousness and brain are manifestations of a deeper unifying process, that can be explored by complementary first- and third-person perspectives. This opens up the possible integration of third-person science with the findings of first-person investigative traditions such as Buddhism, leading to a deeper appreciation of the interrelatedness of subjectivity and objectivity and how mind and the world, in a sense, "enfold" each other. Ultimately, he suggests, we may be at a place where hypotheses about the nature of mind that incorporate non-local and transpersonal aspects may be scientifically justified, leading to an expanded view of nature that is *super natural* rather than *supernatural* (i.e. not above or beyond nature), and that in order to make sense of the many phenomena described in this book one might have to accept that the brain/body can be receptive to information from transpersonal/transcendent domains as well as the well-understood material ones, for example through spiritual and shamanic practices, the use of psychedelic plants and fungi, and so on.

Whether some or all of these suggestions find their way into some grand synthesizing theory remains to be seen. The convergence of expanded theories of mind with developments in modern physics is tempting (and arguably inevitable)—but whether it is the experience of the observer or simply the interaction of measuring instruments with quantum events that actualizes them is highly controversial—with the majority of physicists favoring the latter view. On the other hand, the possibility of added dimensions in the nature of reality is common in physics (there are 11 postulated by *M-theory*) and interesting suggestions about how one or more added dimension might have explanatory value in parapsychology have been made by Carr (2015). Again however, the approach is contested. Marwaha and May (2016) for example, propose a more conventional theory of precognition and clairvoyance based on a *multiphasic model of informational psi* that makes no reference to consciousness (local or non-local) and draws only on classical physics, engineering, cognitive psychology, and neuroscience.

Given these controversies, it might be more fruitful at the present time to seek convergences with non-reductive ways of understanding consciousness within psychology, philosophy, and neuroscience, which are equally concerned with basic questions such as what consciousness is and does, how it relates to the unconscious mind, the brain, the physical world, and so on. In this connection, it is worth remembering that even normal conscious experience presents a “hard problem” for reductionist science, with the consequence that there are many efforts to develop expanded models of consciousness and mind. Intriguingly, the complementary, dual-aspect monism favored by Presti is precisely the same as that developed in depth in my own psychological/philosophical work, and Kelly’s *panentheism* converges smoothly with *reflexive monism*—a model of the self-observing universe in which consciousness realizes the nature of being (in the sense of making it subjectively real (e.g. Velmans, 2009), opening up the possibility of an expanded, inclusive model that might incorporate both ordinary and extraordinary experience.

Overall, this book introduces an increasingly well-researched and challenging field, covered in more depth in *Irreducible Mind* and *Beyond Physicalism*. All the chapters are clearly written, giving historical overviews of the areas they cover, current research, illustrative cases, and a considered analysis of their theoretical implications, thereby providing an excellent, engaging introduction to research into the various ways in which mind might extend beyond brain.

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## An Uneven Discussion of Psi in Psychoanalysis and Culture<sup>1</sup>

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Review of: *The Paranormal Surrounds Us: Psychic Phenomena in Literature, Culture and Psychoanalysis*, by Richard Reichbart. Jefferson, NC: McFarland, 2018. Pp. 232 (paperback) \$45.00 ISBN 9 780786 495368

To the chagrin of the dogmatic skeptics, surveys in various countries (for a review see Watt & Tierney, 2014) consistently reveal that majorities of respondents throughout the globe have experienced what they interpret as psi phenomena. Thus, psi could be expected to be threaded into the tapestry of life and culture. *The Paranormal Surrounds Us (PSU)* is a collection of 10 articles, an afterword, and 3 appendices that explores this cloth. Six items have been published before, but in fairly inaccessible sources. Some aspects of *PSU* are of great interest and value, others not so much. I start the review with the former.

The author, Richard Reichbart, is a psychoanalyst and J. D., with an interest in literature and anthropology. He was also a short-term analysand of Jule Eisenbud, famous for his investigation of the “thoughtographies” of Ted Serios and for his works on psi and psychoanalysis (Eisenbud, 1968, 1970). The first five chapters of *PSU* discuss apparent psi phenomena in the work of Shakespeare, Tolstoy, E. M. Forster, G. K. Chesterton, Ingmar Bergman, and James Joyce. I appreciated the general thrust of this section, although of course it could be expanded enormously considering that psi has been experienced by, or at least of interest to, many distinguished scientists, writers, and artists (Cardeña, 2015; Cardeña, Iribas, & Reijman, 2012). Having recently had the temerity to embark into Joyce’s *Ulysses*, I could identify synchronistic dreams and other psi events suffusing that work. And it was a delightful surprise to find that Chesterton (n. d.), the creator of the debunking character, *Father Brown*, wrote a play with a magician who has real psychic powers up his sleeve, the same idea behind the more recent play *The Shawl*, by David Mamet (1985). I was far less convinced, though, by some of Reichbart’s statements about *Anna Karenina* and *Hamlet*, which struck me as arguable or inflated (see below).

The second, and largest, section of *PSU* includes two chapters on psi and psychoanalysis, with the author’s reflections on his analysis with Jule Eisenbud, Freud’s conclusions about psi phenomena and more recent psychoanalytic discussion of psi, and some examples of ostensible psi in Reichbart’s practice. What stood out for me in this section was what Reichbart described as Freud’s principles of psi, based on the latter’s papers on ostensible psi in psychoanalytic practice:

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- “Psi Phenomena Is [sic] a Part of Everyday Life Not Just a Consequence of Traumatic Events in the Past or Early Separation Anxieties.”
- “The State of Sleep May Facilitate Telepathy.”
- “Telepathic Data Can Be Transmitted to a Person’s Unconscious and Can Be Transformed in the Same Way as a ‘Day Residue’ Would Be Transformed in the Manifest Content of a Dream.”
- “The Analyst Can Share Telepathic Data of Which the Patient May not Be Aware to Make an Interpretation.”
- “One Motivation for a Patient Unconsciously Evoking Psi Is to Compete with Other Patients for the Psychoanalyst’s Attention.”
- “The Telepathic Episode Is Often a Function Not Only of Repression of Emotionally Charged Material by the Patient, but of Repression of Similar or Related Emotionally Charged Material by the Analyst”
- “When Psi Does Occur, Popular Explanations for Its Occurrence Need Not Be Accepted and Other Hypotheses for Its Occurrence May Be More Accurate”

As to the first principle, the main current psychological theories of psi (First Sight and PMIR, see Stanford, 2015) posit that psi is a fundamental part of (usually nonconscious) mental life, and that it follows motivation urges. There is also likely some role, first enunciated by the early psychoanalyst Ferenczi (1955), for early traumatic events (and/or insecure attachment) to bring about alterations of consciousness that may facilitate psi experiences and/or beliefs (e.g., Marcusson-Clavertz, Gušić, Bengtsson, Jacobsen, & Cardeña, 2017). The second principle is supported by meta-analyses showing that dreams and other procedures that aim to alter the state of consciousness are more related to psi than the ordinary state (Baptista, Derakhshani, & Tressoldi, 2015; Cardeña & Marcusson-Clavertz, 2015; Storm et al., 2017).

I am not aware of studies on the third principle, but it conforms to my dream experiences, in which ostensible precognitive psi and day residues are often fused and/or metaphorically transformed in similar ways (Cardeña, 2019). Principles 4-6 are in general agreement with some reports from psychoanalytic practice (e.g., De Peyer, 2016) and will be of most interest to psychoanalysts and psychotherapists. Regrettably *PSU* does not mention anything about non-psychoanalytic general clinical considerations, such as in the case of people reporting potentially disturbing psi-related experiences (see Targ & Schlitz, 2000 for a good treatment of this). The seventh principle was formulated lucidly by Truzzi (1987), who advocated the use of the psi hypothesis when ordinary hypotheses proved wanting.

The final section of *PUS* has two chapters on the overlap of anthropology and psi, and one on juridical aspects and psi. The first one provides an interesting but second-hand account of the role and presumed psi abilities of the Navajo Hand Trembler. The other chapter, and the most successful and best written in the book, addresses the relation of magic (in the sense of stage magic) and psi. The thesis of the chapter is that shamans and even some psi researchers (e.g., Batcheldor and Brooke Smith, who investigated the effect of fake table levitations on potentially real ones) deliberately engage in magical

tricks to evoke actual psi. Although *PSU* does not mention it, the real effects of well-staged shamanic tricks include the foundational account of the First Nations shaman Quesalid (Lévi-Strauss, 1963; see also Whitehead, 2000), who learned shamanic “tricks” and despite his own skepticism apparently became an efficacious healer. Besides shamanism, hypnosis, performance, and ritual activities also include “truthful trickeries,” which may start with a deceit to then become genuine experiences and psychophysiological events for the doer and her/his audience (Cardeña & Beard, 1996).

The final chapter discusses how the Western judicial system could be transformed by consideration of psi phenomena. The author’s thesis is not very clear and parts from the unfalsifiable and inscrutable premise that an accident or crime might have been at least partly determined by conscious or unconscious psychokinetic/telepathic abilities of the victim. This scenario follows Tanagra’s (1967) hypothesis that precognitive events should be explained not as abeyances of the commonly experienced (but questioned in physics) linear time, but as psychokinetic (PK) influences by the person having the precognition. While granting the possibility of PK, this explanation does not make sense to me for a number of reasons. Just to mention two, the experimental evidence has only typically found evidence for very small psychokinetic effects. If even a few people could exert powers enough to produce collapses of (precognized) buildings or landslides, we would have become extinct a long time ago given general human aggressivity. And, in the case of many people having dreams of a future disaster, as in the Aberfan disaster, the PK hypothesis would require different people somehow coordinating themselves to make this disaster occur, even resulting in the death of some of them (cf. Barker, 1967).

*PSU* mentions something in passing that should be celebrated, namely that psychoanalysis has rejected in the last few decades Freud’s “phallogentric” (i. e., male) view of all of humankind, but I wish that the content of the book had reflected this change more. For example, the cover shows Shakespeare, Freud, and Bergman, with a silhouette of a male at a distance, as if the “us” in the title only referred to men. And only men (Shakespeare, Tolstoy, Forster, Chesterton, Bergman, and Joyce) are discussed in full chapters on literature, ignoring extraordinary women writers who very seriously considered psi in their work, such as George Eliot (Mary Ann Evans; 1859-2017) in her *Lifted Veil*. Reichbart’s default term for humans is “men” and all generic psychoanalysts are “he”s.

Reichbart also engages occasionally in the kind of evidence-free speculation that has given orthodox psychoanalysis such a patchy reputation. An egregious example is that, when discussing one of Anna Karenina’s dream, he concludes that “a ‘beating in the bedroom’ -from a psychoanalytic viewpoint- represents a classic distortion of what is referred to as the primal scene,’ where a young child, as witness to parental intercourse and so predisposed by temperament and circumstance, may undergo the type of trauma which ultimately leads to suicide” (p. 26). It is arguable whether the dream image represents what Reichbart thinks it does, but what does not seem even arguable is to assert that witnessing one’s parents having sex as a child is a risk factor for later suicide. If that were the case we might not even be here because our tribal ancestors likely witnessed the “primal scene” often and at least those “predisposed” to it would have committed suicide. In a literature search I could not find a single research study supporting the book’s contention.

Reichbart’s literature review of psychoanalytic works discussing psi is adequate, but not his review of the more general psi literature. While I agree that older literature may have much to offer, this should

not be done at the price of ignoring recent work. For example, in “Psi and Psychoanalysis I” the reader is referred only to compendia of the psi literature published in the 1970s. In some cases, this seeming ignorance of recent works helps the author (e.g., he favors the hypothesis that precognition can be explained by PK because he disregards current theories explaining PK through precognition, see May & Marwaha, 2015) and at times it does not (e.g., he could have included current psychological theories of psi to strengthen his case that psi is ubiquitous and most often unconscious). In all cases, this disregard of recent literature works against the reader.

Other aspects of scholarship and proof editing leave much to be desired. Among various other mistakes, Henry Sidgwick is incorrectly described as F. W. H. Myers’s brother; Janine de Peyer’s last name is variously written as de Peyer, Depeyer, and De Peyer; the husband of Anna Karenina, Karenin, is referred to as Karenina; the clinical term “dissociative” is repeatedly written as “disassociative,” and so on.

And one final grating feature of PSU is how extreme are some of its statements. Eisenbud’s work on psi may deserve greater recognition, but it is absurd to write that “[Eisenbud’s] work in parapsychology [is] far and away the most important evidential and theoretical work in the history of parapsychology... All the resources of parapsychology should be put forward toward an examination of the Serious data” (pp. 210-211). And to go from pointing out the importance to Hamlet of discerning the nature of his father’s ghost to concluding that “the play proceeds very much like a scientific research report” (p. 15) is way over the top. Reichbart could have heeded an admonition from another cultural giant, Euripides (2010, p. 215), who mentioned in his *Orestes* that “The gods hate overdoing it, so do the people.”

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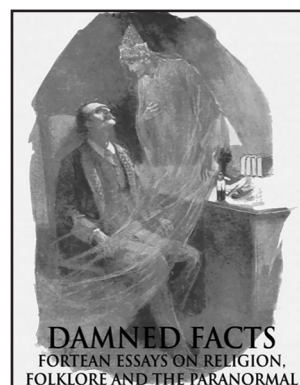
## Fortean Perspectives<sup>1</sup>

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Review of *Damned Facts: Fortean Essays on Religion, Folklore and the Paranormal*, edited by Jack Hunter. Paphos, Cyprus: Aporetic Press, 2016. Pp. 172. \$ 22.51. ISBN 13: 978-9963221424

This book put me a little bit at a loss. To be honest, I assume that the same happened to its editor, Jack Hunter, when he received the contributions from the 13 authors of the nine chapters. The book starts with a well-written foreword by a religious scholar, Jeffrey Kripal, followed by the introductory chapter by Jack Hunter. This includes a short and informative overview on main thoughts and concepts of Charles Fort, who is, or should have been, the focal point and inspirer for the volume. Thereafter, however, I experienced a shift from being stimulated to becoming more and more bored by several authors' musings that appear somewhat narcissistic at times. I began to ask myself what the second title of the book "Fortean essays on religion ..." might mean. Does it mean "dealing in a Fortean style of thinking with these issues", or "dealing with Fort's data, or Fortean data ('damned facts') about these issues", or "dealing with Fort's approach and considerations about these issues"? I then went back to the editor's introduction and reread this: "The original goal of *this* book was to explore what a Fortean approach to the study of religion might look like, with all of its associated anomalous events and enigmatic experiences. The book you hold in your hands, however, became something much more diverse" (Hunter, p. 2).



Writing this review for a scientific parapsychological journal I need to focus on the possible benefits of the book for its particular readership – a readership that is very familiar with many "damned facts," i.e. facts that do not fit into the models of conventional mainstream science. Therefore, some of the more or less simple calls for integrating anomalies into the spectrum of the scientific agenda are unnecessary. However, some of the contributions at least also provide facts, thoughts, and considerations valuable for parapsychologists.

There are two points I would like to emphasize in particular: (1) There exists a huge amount of

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interesting anomalies aside of the “usual” paranormal phenomena most parapsychologists are concerned with. The tendency of parapsychological research, following J.B. Rhine’s approach, to narrow its spectrum by disregarding, for instance, the scientific value of the investigation of spontaneous cases and focusing on experimental laboratory research with all its strength, but also simplifying consequences, strongly limited the parapsychological horizon (e.g., Mayer & Schetsche, 2016). The field of anomalistics is much broader and provides many more stimulating phenomena than several parapsychologists might be aware of. This is one thing we can learn from Charles Fort. And furthermore: (2) there also exist “damned facts” inside the classical realm of parapsychological research. Fort’s criticism of the sciences applies also to parapsychology. The significant point concerns the relation of empirical facts and theoretical models, beliefs, or worldviews (the latter two are often linked together). The openness of a scientist to “damned facts” that challenge cherished belief systems is important in any field of science, be it mainstream or part of the frontier areas of research.

With regard to the first point, the volume includes chapters that range from typical parapsychological topics such as spectacular poltergeist cases and mediumship (Zangari et al.) to folklorist themes such as the “Mothman prophecies” (Clarke) and fairies (Jarrell), UFOs and alien abductions (Clarke; Jarrell; Zangari et al.), alternative history (Barrett), and science of religion (Grieve-Carlson), philosophical, and sociological topics (French & Laursen; Grieve-Carlson), issues of consciousness (Harris), and criticism of science (Harris; Short; Sepie). This assignment to different fields of science or scientific disciplines is a little bit artificial because most of the chapters are related to more than one topic, thus highlighting the interdisciplinarity of anomalistics. The openness to “damned facts” combined with the look beyond the familiar disciplinary horizon can, in any case, be stimulating and fruitful for theory construction in one’s own discipline.

However, not all contributions are well-written. Some of them gave me new insights and ideas, such as the comparison of Charles Fort and William James with regard to radical empiricism and monism by Grieve-Carlson, or the comparison of narratives of UFO abductions and fairy folklore by Jarrell; others provided interesting spontaneous cases that are not easily accessible in the usual parapsychological literature (e.g. Zangari et al.). Still, others were somewhat annoying due to a lack of clear differentiations of terms and concepts, as well as an only superficial penetration of the respective subjects. Nevertheless, the volume absolutely achieves one goal: It raises awareness of the person of Charles Hoy Fort, the autodidact researcher and critic of science, and his work. This alone is a merit of this small book.

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## The Meeting of Psychoanalysis and Feminism in the Study of Mediumship<sup>1</sup>

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Review of *Trance speakers: Feminity and authorship in spiritual séances, 1850-1930*, by Claudie Massicotte. Montreal, Canada: McGill-Queen's University Press, 2017. Pp. 268. Hardcover. \$110.00 ISBN 978-0-77354-992-0

In this richly illustrated and thorough review of the 19<sup>th</sup> and early 20<sup>th</sup> century literature on Spiritualism, Claudie Massicotte, Assistant Professor of theory and criticism and Director of Interdisciplinary Studies at Young Harris College, explores the deep interweaving of Spiritualism and the feminist movement, with a focus on the Canadian context and, more particularly, the phenomenon of trance speaking. Combining feminist and psychoanalytic interpretations of hysteria and mediumship, Massicotte argues that Spiritualists' séances offered mid-nineteenth and early twentieth-century women a powerful means of expression and authorship in an eminently patriarchal society that saw them as naturally devoted to domestic life.



Throughout the pages of *Trance Speakers*, the author explores the complex interrelation between the rise of modern Spiritualism and a series of political, religious, and social changes taking place at the time (from the expansion of Protestantism to the emergence of suffragist and other libertarian movements) to demonstrate that Spiritualist practices disturbed “familiar ideas held in dominant religious, political, and social institutions,” thereby allowing Victorian women “to adopt a discursive position that questioned traditional ideas about gendered roles and abilities” (p. 5). Usually performed by women, trance mediumship became, in Massicotte’s view, an instrument of social change, an alternative vehicle of expression and empowerment through which they could overcome sexual inequality by speaking in public (even if attributing their words to a spiritual source), exercising religious leadership, and producing mediumistic phenomena of interest to distinguished men of science, among them many of the earlier psychical researchers. According to Massicotte, trance speaking “questioned

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the meaning of the voice as a system of expression of the self. As a complex figure of agency, the medium commands her audience to ask: who is allowed to speak? ... And how does gender identity affect the modalities of speech?" (p. 7).

In chapter one, *Historical Context: Séances and Mediumship in Canada*, the author reviews the early history of Spiritualism with emphasis on the Canadian context. Here, Massicotte not only expands on her hypotheses regarding the functions and meanings of mediumship to late 19th century Canadian women but also offers an original account of the historical underpinnings of Canadian Spiritualism. She presents data derived from old censuses and surveys of religious affiliation in Canada in which she analyzes the prevalence of Spiritualism in the country. Of particular interest is her observation that the spiritualist ideas and beliefs were less widespread and less institutionalized in Canada than in the United States. The Canadian Spiritualist movement "grew largely through transnational exchanges and travels across the border" (p. 22). This was particularly evident in the case of Kate and Margaret, the Fox sisters, who, despite the fame gathered in the United States, were originally from Canada. The sisters returned to their homeland on several occasions, during which they also held séances, thus inspiring other Canadians to establish spiritualist home circles, as it was the case with the English-born Canadian writer and settler Susanna Moodie (1803-1885). Massicotte argues that the old surveys of religious affiliation in Canada did not address the private character of many of the spiritualist practices. Among those who attended spiritualist séances were Catholics and Protestants who did so either on a regular basis or sporadically as an entertainment activity or in times of mourning.

In chapter two, *Framework: Interpreting Mediums' Discourses as Unconscious Communications*, Massicotte explains in more detail her theoretical integration of psychoanalytic and feminist approaches to account for mediumistic experiences. How to reconcile the expressive and empowerment functions of mediumistic practices with the fact that these women were not necessarily aware of such psychosocial implications, but instead attributed their own accomplishments in writing, speaking, and healing to the spirits? In contrast to previous authors, who avoided subjectivity and emphasized the role of general cultural and social factors in the relation between spiritualist and feminist ideals, Massicotte takes mediumistic experiences and the mediums' life histories into account, using a feminist reinterpretation of psychoanalysis and the unconscious as her framework of analysis. Such reinterpretation "demanded redefining discourse to encompass not only what was spoken, but also what remained silenced" (p. 61). Similarly to "hysteria," in which sexual and moral conflicts that could not be spoken were expressed as symptoms, mediumistic trance offered these women the possibility "to give voice to their inner revolt against their marginalization in the social order, yet only through the apparent fragmentation of their sense of self" (p. 62). However, unlike the "hysterical condition," mediumship is best understood as an attempt to construct "a new structure to legitimate the manifestation of women's voices" (p. 63).

In chapter three, *Healing: Mediums and Medicine*, the role of women in spiritual healing practices is further explored. Massicotte discusses how spiritualist conceptions contributed to the emergence of alternative methods of treatment that confronted medical orthodoxy. This historical process is interpreted by the author as a response to men's predominance in the medical field. Through their mediumistic abilities, spiritualist women developed an expertise in metaphysical and alternative forms of treatment that placed them in a privileged condition otherwise denied by Victorian society. A similar argument is advanced and expanded by Massicotte in chapters four, *Writing: Mediums and Literary Creativity*, and

five, *Speaking: Mediums in the Public Sphere*, in relation to authorship. In her view, automatic writing and trance speaking contested “phallic representations of authorship” (p. 116), the traditional humanist notion of self, embedded in a “patriarchal ideology,” the “fallacy of a unitary, all-powerful ‘I’” (p. 117). Through spirit writing and trance speaking, women were allowed to adopt radical and progressive positions on social issues, sometimes in favor of women’s rights, while simultaneously attributing the responsibility of their discourses to the dead. This also permitted them to preserve their identities as Victorian women, thereby avoiding the retaliation that would fall upon them if they assumed direct authorship.

In chapter six, *Performing: Mediums, Science, and the Speaking Body*, Massicotte establishes an interesting parallel between dermographism, a form of urticaria sometimes observed among hysterical patients at the *Salpêtrière* hospital – where Jean-Martin Charcot (1825-1893) gave many of his lessons – and the phenomenon of ectoplasm observed in spiritualist séances. The author develops the notion of embodied subjectivity to defend the hypotheses that “both the hysteric’s dermographic skin and the medium’s ectoplasmic séances... present a transformation of the body’s surface into a speaking organ” (p. 155). While “hysterics” had their skin transformed into a malleable surface where physicians could inscribe words and forms at will, experimenting with many possibilities, the physical mediums could produce a series of strange substances and materialized forms that defied current scientific knowledge, attracting the attention of eminent researchers, whose experimental controls reproduced much of men’s influence over women. In both cases, women’s bodies symbolically expressed their submissiveness combined with their attempts to overcome patriarchal control. In this sense, Massicotte argues that mediumship was more successful a strategy than “hysteria,” as it gave spiritualist women the possibility of attaining at least some control and independence through the messages and commands of the spirits.

One can dispute the extent to which Spiritualism has been effective in effecting social change or whether it has served only as a means of reproducing the existing, conventional social structure. Massicotte herself recognizes that her framework of analysis cannot be readily generalized to all cases of Victorian mediumship. In many occasions, “mediumship tended to offer highly individualized solutions to [women’s] desires, anxieties, and socio-political contexts rather than generalized platforms for social reforms” (p. 11). Although avoiding reductionist interpretations of mediumship in terms of fraud and psychopathological symptoms, Massicotte nevertheless rejects spiritualist explanations of the afterlife as possible frameworks of analysis, focusing instead on the socio-historical and psychoanalytic implications of mediumistic practices.

Massicotte’s work is an invaluable source of information on the history of spiritualism and mediumship in Canada. Her theory of Victorian mediumship as unconscious rhetorical strategies, although not entirely original, is well-grounded and substantiated by many illustrative cases, rigorously analyzed. It can hardly be doubted, after reading her book, that the relations between spiritualism and feminism were substantial. Despite some exaggerated claims (such as the definition of automatic writing as a response to “phallic representations of authorship”), her psychoanalytic interpretation of the cases is quite convincing and sheds light on the psychosocial aspects of mediumship.

However, there are also significant limitations in Massicotte’s framework of analysis that merit some consideration here. First, the expressive and empowerment functions she ascribes to mediumship are not restricted to Modern Spiritualism but have been part of the long history of possession trance

in different cultures (Bourguignon, 2004). Similar psychodynamic functions are also observed among men (e.g., Lewis, 1989; Maraldi, 2014). Second, the involvement of women in these or similar practices is ancient, and many contemporary surveys identify women as more religious and open to the paranormal (e.g., Kennedy, 2003, 2005; Rice, 2003). To date, no theory has been able to fully account for the enduring gender differences in reports of mediumistic and other anomalous experiences, either biologically or socially. Considering these two facts, the feminist and historicist view of Spiritualism, although contributing to our understanding of the political and social factors involved in the emergence, maintenance, and molding of such practices and experiences, seems unable to account for cross-cultural and cross-temporal similarities.

Finally, the fact that mediumistic experiences can be explained psychologically or sociologically does not necessarily invalidate a possible parapsychological explanation for some cases. On the other hand, such analyses may inform parapsychologists of social and unconscious motivations underlying mediumistic experiences, crucial both to alternative explanations of survival (such as the super-psi hypothesis) and to the understanding of the psychological mechanisms implicated in purportedly mediumistic communications (Maraldi, 2014).

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***The American Statistician* Special Issue on**  
**Statistical Inference<sup>1</sup>**

Caroline A. Watt      J. E. Kennedy

University of Edinburgh

To the Editor,

*The American Statistician* journal recently devoted a special issue to the topic of statistical inference. The special issue included a summary editorial (Wasserstein, Schirm, & Lazar, 2019) and 43 articles (401 pages) about proposed statistical methods that could modify, supplement, or replace the hypothesis testing methods that have dominated past research. The assumption for the articles was that the common past statistical practices are not acceptable. The articles were diverse, from a wide range of academic and applied disciplines with varying degrees of generality and mathematics.

The purposes of this letter are to point out some limitations of this special issue that are relevant for parapsychological and psychological research, and to clarify why the arguments in the special issue do not alter the requirements and expectations for study registrations submitted to the KPU Study Registry (2012), which we manage.

The article by Tong (2019) in the special issue aligns very closely with our views and with the requirements for the KPU Study Registry. Tong believes that exploratory research must be distinguished from confirmatory research and that the failure to make this distinction has been a major cause of past statistical problems. Efforts to address the statistical problems will not be successful until this distinction becomes a fundamental component of statistical thinking.

The statistical methods for exploratory and confirmatory research are different. Tong points out that *p*-values and hypothesis tests are applicable for preregistered confirmatory research, but not for exploratory research. He also notes that “most scientific research is (and should be) highly exploratory” (p. 252) and that attempts to adapt statistical practices to give strong inferences from exploratory research will not be successful. We agree with these points. Clearly defined confirmatory research is essential for strong statistical scientific evidence.

Unfortunately, the majority of the articles in the special issue do not address the distinction be-

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tween exploration and confirmation. Many articles appear to have a “one size fits all” approach that implicitly emphasizes exploration and promotes a lack of distinction between exploration and confirmation. We expect that in time these proposals will be recognized as continuing the statistical weaknesses and abuses that have been common in the past.

In the editorial for the special issue Wasserstein, Schirm, and Lazar (2019) recommend elimination of the term “statistically significant” and associated dichotomous classification of statistical results—however, they note late in the editorial that  $p$ -value thresholds and decision criteria appear to be useful or needed in some situations of applied research and for confirmatory research. Our impression is that the editorial writers implicitly focused on the exploratory stage of research, with confirmation and application basically treated as afterthoughts. Given that formal confirmatory research historically has been rare outside of regulated clinical trials, it may be unsurprising that statistical discussions focus on the exploratory stage of research. However, as noted above, we believe the best solution to the past statistical abuses is to place greater emphasis on formal confirmatory methods, rather than discounting those methods in favor of methods suitable for exploratory research.

Emerging evidence indicates that the efforts to abandon hypothesis tests are not an effective approach for statistical analysis of confirmatory research. Fricker, Burke, Han, and Woodall (2019) evaluated 31 articles published in a journal that had banned the use of inferential statistics. They noted that the statistical methods allowed researchers to make claims for effects that were actually consistent with random fluctuations:

We found multiple instances of authors overstating conclusions beyond what the data would support if statistical significance had been considered. Readers would be largely unable to recognize this because the necessary information to do so was not readily available. (p. 374)

They also expressed the suspicion that in the cases when the conclusions were consistent with inferential statistical analyses, the researchers may have based the conclusions on hypothesis tests and then excluded the hypothesis tests from the final report.

Our expectation is that statistical errors and abuses will not be reduced until virtually all writings on statistical methods distinguish between exploratory and confirmatory analyses. The standards for evidence should be strengthened for confirmatory research and relaxed for exploratory research. The description of any newly proposed statistical method should clarify how the method applies to each of these stages of research. Unfortunately, the special issue gives the impression that this critical distinction has not yet been widely incorporated into statistical thinking outside of regulated clinical trials.

These principles are implemented on the KPU Study Registry with the requirement that all planned analyses be identified as exploratory or confirmatory. For confirmatory analyses, the planned statistical analysis must be fully pre-specified, including the numerical criteria that the experimenters will consider as acceptable evidence supporting the hypothesis of interest. For exploratory analyses, the planned statistical analysis need not be fully pre-specified or pre-specified at all. In fact, preregistration of exploratory research is considered optional, with the stipulation that any research that is not preregistered is presumed to be entirely exploratory.



We also believe that the methods for confirmatory research need to be strengthened to emphasize falsifiable research. The special issue does not discuss falsifiable research methods, and unfortunately these methods are not widely known among psychological researchers. Parapsychological and psychological studies are rarely designed to be falsifiable. We have described elsewhere the methods for falsifiable confirmatory research (Kennedy & Watt, 2018). The steps include specification of a minimum effect of interest, selecting a sample size that provides power substantially higher than the common .8, and study preregistration with specific numerical criteria for evidence that the hypothesis of interest is false as well as true. Examples of studies that do have falsifiable hypothesis tests include the prospective meta-analysis by Watt (2017) and the Transparent Psi Project (Kekecs & Aczel, 2018).

By avoiding statistical practices that do not distinguish between exploration and confirmation and by implementing falsifiable confirmatory research methods, parapsychologists can be leaders in the ongoing evolution of research methodology.

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## On Women in Parapsychology<sup>1</sup>

Nancy L. Zingrone      Carlos S. Alvarado  
Parapsychology Foundation

To the Editor:

Etzel Cardeña's (2018) recent editorial, "*ψυχή* Is a Woman," raises some interesting issues we have been concerned with. He refers to the "at-times neglected contribution by women to the field" (p. 99). Cardeña cited a paper of Alvarado's (1989) published over 25 years ago in this journal in which he argued that our historical views of parapsychology could do better by including more information about the work of women. We believe his arguments are still valid. Some well-known examples of women deserving further discussion are Yvonne Duplessis, Kathleen Goldney, Ina Jephson, Alice Johnson, Eleanor M. Sidgwick, Louisa E. Rhine, and Gertrude Schmeidler (We are not presenting references for each person mentioned to keep this brief given that it is a letter to the editor). Schmeidler's early work, for example, including the famous sheep-goat ESP experiments, and experiments attempting to relate ESP scores to the Rorschach Test and cerebral concussion, were summarized in *ESP and Personality Patterns* (Schmeidler & McConnell, 1958).

But many lesser-known women, whose names are familiar mainly to the historically minded, need to be rescued from oblivion. Perhaps some of you have read Juliette Alexandre-Bisson's (1921) classic study of materialization phenomena, or the work of Laura Dale, Fanny Moser, Helen Salter, or Margaret Verrall. But we believe only a few know about Clarissa Miles and Hermione Ramsden's (1907) fascinating distance thought-transference experiments, or about Marguerite Radclyffe Hall and Una Troubridge's (1919) important report of the mediumship of Gladys Osborne Leonard. The same may be said about the work of Lydia W. Allison, Rosina Despard, Laura Finch, Felicia Scatcherd, Gertrude Ogden Tubby, Nea Walker, and Zoë, Countess Wassilko-Serecki.

But there is also a need to go beyond listing women's contributions, and to pay attention to:

The study of the life experiences, the activities, the values, the functions, the relationships, the common problems, the consciousness, the life cycles of women — as these have changed over time in different times and places, in different groups — studied from the point of view of the women themselves (Scott & Chafe, 1980, p. 4).

For example, in work conducted by Zingrone (1988), in a comparison of publication rates between men and women, disparities between the number, timing, presence/absence of co-authors, number and

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gender of acknowledged colleagues, authors in parapsychology did not differ from previous findings from studies done by mainstream scientific authors. She speculated that some of the disparities may have been due to social circumstances affecting women sciences such as “gender differences in scientific recruitment, training, orientation to work, job descriptions within laboratories, and the opportunity to publish, as well as differing laboratory policies towards publishing” (p. 340). In the psychological literature at the time that article was published authors were also speculating on the impact of marriage and family, the division of labor among colleagues in work and at home, and other aspects of the social context on women’s participation in science prior to the time of Zingrone’s earlier work (e.g., Spender, 1983, White, 1970). Then, as now, the studies of individual women researchers can be useful for a deeper understanding of gender and scientific participation in our field. A useful way to conduct such research would be to look at specific groups of women, such as those who, in addition to Louisa E. Rhine, were members of the early Parapsychology Laboratory at Duke University. This includes Esther May Bond, Betty M. Humphrey, Margaret H. Pegram, and Margaret M. Price. The last two conducted ESP tests with the blind (Price & Pegram, 1937).

Eventually historical studies should provide us not with a one-sided view of women’s work, but a balanced view of parapsychology’s past in which we obtain a better understanding of the interactions between, and work of, female and male workers in specific historical periods. The past is gendered. It is as gendered as the present, with men and women often having clearly different experiences in access to education, job opportunities, social hierarchies in research teams, and recognition of contributions, not to mention expectations of work/life balance or a lack thereof as a measure of success. The many inequalities that still exist between men and women in the modern world (Ceci, Ginther, Kahn, & Williams, 2014; Rosser, 2004) may also be explored in parapsychology.

Cardena (2018) also asked: “Has the field fully acknowledged the essential early contributions of the ‘subjects’ Mrs. Piper, Mrs. Leonard, and other women mediums/shamans?” (p. 99). In our opinions there is still much to acknowledge. First, there is no question that mediums and psychics (both male and female), have contributed much to provide evidence of psychic functioning, and thus a good proportion of the subject matter of psychical research, at least before the 1930s. A case in point is the mental trance medium Leonora E. Piper. The work conducted with her led to the development of the first systematic and controlled studies of the veridical content of mental mediumship (e. g., Lodge, 1890).

Second, in addition to evidence, the performances of female mediums have contributed in other ways, as seen in various histories of the field. For example, in Gauld’s (1968) study, both mental and physical mediums contributed much to the development of the Society for Psychical Research, sometimes by being at the center of controversies that brought to the fore various procedural and theoretical concerns. The contributions of the early studies with Piper, and of those with later mental mediums such as Gladys Osborne Leonard, went beyond the accumulation of veridical communications and assisted in the development of methodology to study mediumship, and its psychology, a topic discussed elsewhere (Alvarado, 2013).

The performance of mediums, interacting with the ideas of researchers, has contributed to the creation of various views and ideas. Alvarado (1993) has argued that the performances of Eusapia Palladino were instrumental in greatly publicizing psychical research, sometimes creating negative images

of mediumship. Furthermore, this medium's physical phenomena actively contributed, via its interactions with the interests of researchers, to the use of instruments in physical phenomena séances, and the development of various concepts of force to explain table levitations and materializations.

One can only speculate about the dynamics, and possible associated demand characteristics affecting the performances of female mediums and psychics working over time with male researchers who attempted to direct, control, and interpret their phenomena. Examples are the partnerships of Eusapia Palladino and Cesare Lombroso (e. g., Zingrone, 1994), Hélène Smith and Théodore Flournoy, Eva C. and Albert von Schrenck-Notzing, Kathleen Goligher and William J. Crawford, Gustav Pagenstecher and María Reyes de Zierold, and Mary Craig Sinclair and Upton Sinclair. Interestingly, Flournoy (1901) commented that "it is not good for a medium to be studied too long by the same investigator, because the latter, despite its precautions, inevitably ends by shaping the suggestible subconsciousness of its subject . . ." (p. 116), something that may limit the participant's potential repertoire.

Such interactions of female research participants and investigators have also been important for the development of ideas about therapy and the unconscious mind in the histories of psychiatry and psychology, as seen in the patients of Freud, Janet, and others. Several female patients at the Salpêtrière presented (or invented) behaviors and phenomena that, interpreted by clinicians, created influential ideas about "hysteria" and hypnosis. An example was Blanche Wittmann, who produced a variety of sensory and motor phenomena for Jean-Martin Charcot, as well as for Gilbert Ballet, Alfred Binet, Charles Féré, Jules Janet, and Paul Richer (Alvarado, 2009).

Obviously, then, we agree with Cardeña on the importance of taking a historical lens to the lives and contributions of women as subjects and participants. The importance of such studies is as clear to us now as it has been across our careers. It is our hope that younger scholars will take up this work and that scientists writing today will keep in mind the complex relation of gender and science in our own field.

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## Instruction for Authors

### TYPES OF MANUSCRIPTS

The Journal of Parapsychology (*JP*) publishes:

1. Empirical papers, presenting new data and/or analyses, and using quantitative, qualitative, or mixed methods. "Empirical" should be interpreted broadly to refer to systematic inquiry including experimental manipulation of variables as well as single case designs, analysis of collection of cases, phenomenological studies, historical analyses, systematic case studies, field research, and so on.
2. Theoretical papers, discussing new theories or novel implications of theories presented previously.
3. Methodological and analytical papers, offering new or alternative ways of conducting research and/or analyzing data.
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5. Debates and letters about current issues in the field and papers recently published in the *JP*.

### SUBMISSION

Manuscripts must be submitted to the *JP* electronically (as an e-mail attachment) in Word or compatible word processing program to: etzel.cardena@psy.lu.se. All submissions must be single column, double-spaced, in Times New Roman size 12. Preparation of the manuscript in all respects must follow the guidelines described in the 6th edition of the *Publication Manual of the American Psychological Association* (APA style; of which there are various summaries in the Web) and must be written at a level commensurate with an academic publication in English. If the writing of the authors is not at this level, they should consider using a professional academic editor service before submission. There are various editing services, including John Palmer's, the former *JP* Editor at john@rhine.org. American English spelling must be used in the manuscript, other than in quotations. Some other style issues for the journal: a) use "volunteer", or "participant" instead of "subject", b) avoid sexist language, c) use "masked" instead of "blind" conditions", d) unless part of a quotation, do not use verb contractions (e.g., write "is not" instead of "isn't"), e) include the appropriate diacritical marks in the case of foreign names and words.

Articles must not exceed 10,000 words, including references, unless previously authorized by the editor. They must include an abstract no longer than 200 words in a single paragraph, and up to 6 keywords. Do not include references in the abstract. Research studies must contain the following sections:

Objective, Method, Results, and Conclusion. To facilitate the evaluation of research study conditions, the methods section must include, besides the usual information (e.g., participants, measures, procedure, analyses, ethical approval and related considerations such as consent form and what was conveyed to participants about the goals of the study), specific information about those who interacted with the participants (basic demographics such as age range and self-identified gender; style of interaction with participants such as friendly, neutral, or peremptory; professional status, such as professor or head researcher, or research assistant), and researchers' a-priori belief that the psi hypotheses in their study would be supported in their project using the following scale (5 -strong belief -, 4 -moderate belief-, 3 -neutral, 2 -moderate non-belief, 1 -strong non-belief). If authors have a reason to exclude any personal information, their submission should include a brief explanation for the exclusion. An institutional review board, when applicable, must have previously approved all research with human and other sentient beings, and research must be conducted according to generally accepted ethical guidelines. The manuscript must include information on funding and any potential conflict of interest.

## FORMATTING

1. Endotes are discouraged; use instead, if at all necessary, footnotes.
2. Formatting of references, quotations, tables, etc. must follow precisely APA (American Psychological Association) style. There are various pages online with examples of proper APA formatting. Manuscripts that do not follow this format will be returned without further review.
3. DOIs must be included for all references that have them by checking them through <https://doi.crossref.org/simpleTextQuery>
4. Before submission the authors must check that all items in the reference list have matching text entries and vice versa.
5. Quotations must be double-checked for accuracy and the page numbers cited in the text.
6. Tables and figures must have a title or caption, be numbered, and follow APA style. Figures and photos must be submitted electronically and they cannot be in color. Resolution should be a minimum of 300 dpi. Vector art (e.g., Adobe Illustrator, encapsulated postscript) is preferable to bitmaps.

## STATISTICAL ANALYSES

1. Statistical values must be checked multiple times for accuracy.
2. Descriptive statistics (e.g., means, standard deviations) must be reported in addition to inferential statistics (e.g., *t* tests, ANOVAs, non-parametric tests), which should also include the specific *p* value and measures of effect size (authors might consider consulting the "Statistical Guidelines for Empirical Studies" by Tressoldi and Utts published in the *Parapsychology: A Handbook for the 21<sup>st</sup> Century* edited by Cardeña, Palmer, and Marcusson-Clavertz, 2015).
3. Following American Statistical Association Guidelines (Wasserstein, R. L. (2016). ASA statement on statistical significance and *p*-values. *The American Statistician*, 70, 131-133. doi.org/10.1080/00031305.2016.1154108), authors are *strongly* discouraged from using *p* values dichotomically to assess the "significance" and importance of their results. Instead, they should use various numerical and graphical data summaries, interpret results in context independently of the *p* value,

and provide complete reporting of analyses carried out and discuss the logical and quantitative import of their results.

4. The paper must clearly state which hypotheses (and analyses) were confirmatory and which exploratory. Meta-analyses are encouraged when multiple studies have basically used the same variables and a similar design.
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