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OF
PARAPSYCHOLOGY

The cover features a graphic design with overlapping rectangular blocks in shades of grey and black. The text 'JOURNAL OF PARAPSYCHOLOGY' is rendered in a bold, white, sans-serif font. A central black rectangle contains a white symbol that combines a female symbol (a circle with a vertical line) and a male symbol (a square with a horizontal line), with a star and a caduceus-like staff below them.

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Eberhard Bauer (German), Etzel Cardeña (Spanish),
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GUEST EDITORIAL

PHYSICALISM

BY ROBERT S. GEBELEIN¹

Scientism, reductionism, materialism, physicalism—the assertion that there is no reality beyond the physical or what can be explained by known physical laws—has been accepted at our major educational institutions as some kind of absolute inviolable truth, such that persons suggesting the possibility of such things as precognition, telepathy, clairvoyance, psychokinesis, the existence of a spiritual reality, the power of prayer, reincarnation, levitation, or intelligent design are automatically dismissed as mentally incompetent, and denied publication, funding, and employment. And yet, despite these obstacles, qualified and responsible people are studying these dismissed subjects and building up a body of knowledge (e.g., Radin, 2013; Schmicker, 2002; Tart, 2009). The result is that our major educational institutions, having become paralyzed by their adherence to physicalism, are falling farther and farther behind actual cultural knowledge. I am sending this to the presidents of our top-ranked educational institutions, to see what they can do to end the paralysis and revive the flow of information and ideas.

There seems to be a fear on the part of some people that acknowledging the existence of “spiritual” phenomena will take us right back to religion again. So the first thing we need to do is to separate the spiritual from religion. Religion is primarily fiction created to explain and deal with the unknown, primarily the spiritual. Religion presents itself as a rigid authoritarian belief system, pretending to be absolute ultimate truth, to give people the security they want. Religion will always be incompatible with science, not because it deals with the spiritual, but because it is a rigid belief system. The spiritual can be explored scientifically, as some people are now doing, simply by observing the evidence and drawing valid logical inferences from it. No religious assumptions (like the existence of a “God”) have to be made.

But science has overextended itself by trying to replace religion. With Darwin’s theory of the origin of species, it was no longer necessary to have a Creator to explain our existence. Matter simply assembled itself, according to known physical laws. Everything was known or could be known through physical science.

Biologists themselves have accumulated the evidence to refute Darwin’s theory. New species have appeared too quickly, in geological time, to have evolved through the process of adaptation, and they have appeared fully formed, and not in gradual stages of adaptation (e.g., *Encyclopaedia Britannica*, 1983; *Illustra Media*, 2009). Biologists can’t admit that Darwin’s theory has been refuted, because their whole belief system rests upon it (e.g., Dawkins, 1987). We are thrown back to the realization that we don’t really know. Physicalism has become the new fiction to explain the unknown.

¹ *Editor’s Note:* Robert Gebelein is the Business Manager of the *Journal of Parapsychology*. The editorial is a revised version of a letter he sent to the presidents of over 137 top-ranked American colleges and universities in 2013. As with all our Guest Editorials, the views expressed herein are not necessarily those of the *Journal of Parapsychology* or its Editor. The present editorial does, however, conform to my desire that our editorials be provocative.

What is the scientific basis for physicalism?

In order for physicalism, scientifically, to be the absolute and inviolable truth it is treated as, it would have to be demonstrated scientifically, absolutely and inviolably. And I don't see that proof anywhere. In order to establish scientifically that there is no reality beyond the physical, one would need a complete knowledge of everything. With the discovery of dark matter, it should be clear that we are nowhere near a complete knowledge of even the physical, let alone those dimensions which may yet be undetected.

Conversely, the other side of the logical proposition "There are no such things" is that if we can find only one such thing, the proposition is falsified. In 1958, I dreamed of my grandmother's death an hour before I received the telegram. That's all the evidence I ever needed to know there was a reality beyond what had been explained in my physics courses at Harvard.

The Catholic Church has recorded thousands of miracles. The Christian Science Church has recorded thousands of miraculous cures. All this evidence, along with my own experience, is dismissed as "anecdotal evidence" because it wasn't acquired by members of the scientific establishment. This is supported by the further assertion that all persons outside their social group are unintelligent, uninformed, and superstitious (of course, without the necessary psychological testing).

This is not scientific thinking. This is in-group thinking, where members of the in-group believe they are superior to people in the out-group, who have faults that in-group people don't have (Berelson & Steiner, 1964). It is related to psychological projection and class prejudice.

If you belong to a social group, any group, you must conform to its norms and at least pay lip service to its opinions, attitudes, and beliefs. I have seen this demonstrated with small groups of boys, like the gang on the street corner (Berelson & Steiner, 1964). I believe it also applies to larger groups, like the Catholic Church, the Hippies, and the scientific community.

"Science" is a method of acquiring knowledge. "Science" is also a social group of people who practice the scientific method. Not all of the opinions, attitudes, and beliefs of people in this social group are arrived at by the scientific method. Ideally, scientists would conform to the scientific method, with the highest status in the social group being rewarded to those who practice the scientific method most faithfully. This seems to be generally true when they are working inside their fields of expertise or within the boundaries of physicalism. But many of their views on fields outside the domain of physicalism were not determined by the scientific method, and conformity to these views is enforced by pre-scientific methods of social domination and manipulation like ridicule and ostracism. While the scientific in-group is not allowed to take people's lives for extreme deviation from its norms, it can take away their livelihood, by denying them publication, funding, and employment.

It should be obvious that if scientists limit their study to physical reality, then they are not qualified to give a scientific opinion on what may lie beyond. But science has (rightfully) earned such a huge status in the present culture such that all opinions of scientists are accepted as "scientific," whether arrived at by the scientific method or not. To say that the viewpoint of scientists is "limited," or that they are "not qualified," is a violation of the rules of status. Only persons of status, in this case scientists themselves, are authorized to say who is "qualified" and who is not.

But I am surprised that persons of status have not come forward and recognized that scientists are not qualified to operate outside of their areas of expertise. And I am surprised that persons of status have not come forward and recognized that illegitimate arguments like ridicule and ostracism are keeping physicalism in power. Doesn't every undergraduate learn the difference between legitimate and illegitimate arguments? Yet here is a consensus, among the highest-ranked colleges and universities in the United States, supporting physicalism. The power of in-group thinking is enormous.

In-group thinking is the only way that I know to explain the assertion that Carl Jung was a "mystic." If you know what a mystic is, you know that Carl Jung was not a mystic. A mystic is a person who tries to bypass the evidence of the senses and reasoning in search of deeper truths—just the opposite of a scientist. Carl Jung, actually, was more of a scientist than those who rejected him, because when he saw

evidence of a spiritual reality in his patients' dreams, he accepted it. But because he violated the primary taboo of the in-group, they had to reject him. The way they chose to reject him was to identify him with the out-group. This is a common ingredient in in-group jokes and insults. For example, the editor who recently published a peer-reviewed paper on intelligent design in a major journal was called a "Bible-thumper."

So there is this widespread acceptance in the academic community of this labeling of Carl Jung as a "mystic," without a peep of protest, because everybody in the in-group understands the joke. And, even better, Carl Jung's greatest scientific discovery has become a dictionary definition of the word "mysticism" (Merriam-Webster, 1996), because that word has been used so often by academic people to mean "Whatever Jung was." This is a mess that needs to be unsnarled.

Another assertion in the academic community is that Edgar Cayce (it is whispered) was a fraud. It has to be whispered, because if it were said out loud, it would be grounds for a very expensive lawsuit. I have not seen any legal or scholarly evidence to indicate that he was fraudulent in any way, and I am challenging the academic community to produce such evidence.

Not only has physicalism worked to block our view of the spiritual, but it has inhibited our view of the mental as well. The only way we know that we have such a thing as the "mind" is because we are able to sense certain mental processes—our thoughts, our emotions, our memories, and our dreams. The early psychologists called these internal perceptions "introspection." I prefer to call them "mental senses," to make it clear that I am referring only to internal mechanisms of perception, as differentiated from other mental activity like brooding and fantasizing (Gebelein, 1985).

The evidence of the mental senses has been called "subjective," suggesting that it is biased and therefore inaccurate, whereas the evidence of the physical senses has been called "objective," suggesting that it is independent of the human mind and therefore unbiased and completely accurate. The rationale for this thinking is that more than one person can observe the same physical event, whereas one can observe only one's own mental processes. But actually ALL perceptions are subjective. Having multiple observers only creates a kind of collective subjective, where the average of the observations smooths out the discrepancies of individual observations. "Objectivity" is just another one of the assertions supporting physicalism (Gebelein, 1985; Sheldrake, 2012).

Actually, in practice, there usually aren't multiple scientists observing the same physical event. For example, scientists studying gorillas don't all study the same gorilla. They each study their own gorilla, and then they compare results. In the same way, mental events observed with the mental senses can be replicated.

The early psychologists were having trouble studying mental processes using the mental senses, because there were discrepancies and inaccuracies in their subjects' reports. In addition to this problem, I believe that the continuing ridicule from the physical scientists, saying that the psychologists weren't really doing "science," pressured them into abandoning the study of mental processes and switching over to behaviorism, studying physical processes observable with the physical senses.

In order to study the mind scientifically, one must observe the mind, and the only way to do that is with the mental senses. So in switching to the physical senses, the psychologists abandoned the study of the mind. Studying the physical brain is not the same thing.

There is the assertion that "The mind is nothing but the physical brain." This has been falsified in recent cases where people have had conscious "near-death" experiences when medical instrumentation has shown no brain activity at all. The most publicized of these experiences is described in the book, *Proof of Heaven*, by Eben Alexander, MD (2012). He has not proved that there is a "heaven," or life after death, but he experienced very active mental processes while the medical instruments were showing no brain activity.

Some scientists say, "I don't read that kind of stuff." But ignoring the evidence is not science; it is prejudice.

While the early psychologists were having trouble studying mental processes, the early psychoanalysts like Freud and Jung accumulated a huge body of knowledge about mental processes via the mental

senses, including considerable knowledge of why people's reports of their mental processes are inaccurate (defense mechanisms, rationalizations). When my friends at Harvard in the mid-1950s described Western philosophy as "a complex rationalization of the universe," they were reflecting this new knowledge.

Freud and Jung have now been much maligned, but people who have successfully completed psychotherapy have replicated many of their findings (and falsified others). If the evidence of the mental senses was respected, we would be able to build on that knowledge. But because of the domination of physicalism, the evidence of the mental senses has been dismissed (Alloy, Jacobson, & Acocella, 1999, pp. 107–108), and that whole body of knowledge is lost.

Even within the limitations of physical science, J. B. Rhine was able to show evidence of psychic abilities in people. His experiments (as of 1980) had been replicated in no fewer than six independent laboratories, in five different countries (Beloff, 1980).

And yet in 1988, the National Academy of Sciences issued a report with the assertion, "The committee finds no scientific justification from research conducted over a period of 130 years for the existence of parapsychological phenomena" (Druckman & Swets, 1988, p. 22).

Actually the committee *did not look at* the research of 130 years. The report contained only five references to the peer-reviewed *Journal of Parapsychology*, and no references to the peer-reviewed *British Journal of the Society for Psychical Research*, or the peer-reviewed *Journal of the American Society for Psychical Research*, or the peer-reviewed *European Journal of Parapsychology*. It does not even mention the name "J. B. Rhine," let alone refute his findings and the people who replicated them throughout the world.

In 2011, I mentioned this in a letter to the President of the National Academy of Sciences, Ralph Cicerone, saying that the scope of this study was insufficient to support its sweeping conclusion, and he replied, saying that he was asking a "disinterested, knowledgeable party" to review the 1988 report. At least I can say that the reference to the 1988 NAS study has been removed from the definition of "parapsychology" in Wikipedia. Some progress has been made.

As if ridicule and ostracism and withholding of funding weren't enough, when Cornell Professor Daryl Bem recently demonstrated precognition (Bem, 2011), the scientific in-group actually changed the math in order to dismiss his results (Wagenmakers, Wetzels, Borsboom, & van der Haas, 2011).

Daryl Bem agrees with the establishment view that "Extraordinary claims require extraordinary evidence." I agree with Palmer (1987) that this exerts a bias. The same criteria for evidence should apply to all claims, because, as I explained to him, the word "extraordinary" implies some presupposition of knowledge about the claim that hasn't itself been demonstrated.

Daryl Bem says that his experiments have been replicated in 30 countries by 80 independent observers. In the face of this and other massive evidence, one can ask the question: Who is making the extraordinary claims—those showing evidence of phenomena beyond physicalism, or those trying to dismiss this knowledge?

The combination of the massive amount of evidence refuting physicalism, and the illegitimate arguments supporting physicalism, and the widespread (universal?) acceptance of physicalism as a dominant belief system in our most prestigious colleges and universities, without a peep of protest, is really unbelievable. There must be enormous forces of coercion keeping people in line.

I am hoping that the presidents of our top-ranked colleges and universities have a high enough status in the in-group, collectively if not individually, to be able to question the domination of physicalism and expose it to the scrutiny of critical thinking, perhaps first to identify the social forces that make this belief system so dominant. And then, of course, with their legitimate authority, I am hoping that they will initiate the necessary reforms, in the interests of freedom of inquiry and the accuracy of our cultural knowledge, knowing that reform will come eventually and that those who initiate it will receive the credit for it. Towards that end, I have some suggestions:

1. All subjects should be debatable. No subject should be career-ending.
2. Lawyers who use illegal methods are disbarred. Similarly, scientists who use unscientific methods should lose their credentials. Science needs to police itself, to protect those of lower status in the in-group. To start with, the scientists themselves should understand that they lose credibility when they use unscientific methods.
3. Scientists in any particular field should be considered the best qualified to operate in that particular field, and should be considered the best qualified to determine what the rules of evidence should be for that particular field. For example, physical scientists should not impose their rules of evidence on people studying mental processes.

A majority of academic people accepted the reality of psychic phenomena a long time ago (Bem & Honorton, 1994). Change is long overdue.

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ABSTRACTS OF PRESENTED PAPERS FROM THE PARAPSYCHOLOGICAL ASSOCIATION 56TH ANNUAL CONVENTION, VITERBO, ITALY, AUGUST 8–11, 2013

Editor's Note. Research Briefs and workshops are excluded, as well as abstracts of papers published in full in the *Journal*. Abstracts are edited slightly to conform to *Journal* style, and references and reference citations are omitted.

IS THE GLOBAL CONSCIOUSNESS PROJECT AN ESP EXPERIMENT?

PETER A. BANCEL

ABSTRACT: The Global Consciousness Project maintains a long-term experiment which tests the hypothesis that focused attention of large numbers of people during engaging world events will correlate with deviations in a global network of physical random number generators (RNGs). The Project proposes that the correlation is due to a global consciousness field that is sourced in an aspect of shared consciousness which becomes coherent at the time of major events and that the field perturbs the physical behavior of the RNGs. A 14-year replication experiment tests this hypothesis and finds that, during event periods, RNG deviations exceed null expectation by seven standard deviations. However, the formal experiment cannot distinguish between the GCP hypothesis and a hypothesis based on psi-mediated data selection. Thus, the most pressing question the Project faces is whether the experimental result is due to global consciousness or some form of ESP.

In this paper I present a model for the ESP hypothesis and develop a model of field consciousness. Seven statistical tests are derived to distinguish the models. All tests favor the field model. Five of the tests allow calculations of precise probability values. The combination of these tests yields a z -score of 3.98 ($p = .00003$) against the selection model, indicating strongly that the GCP experiment measures a true PK effect and is not the result of psi-mediated data selection.

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CAN PSI RESEARCH SPONSOR ITSELF? SIMULATIONS AND RESULTS OF AN AUTOMATED ARV-CASINO EXPERIMENT

DICK J. BIERMAN & THOMAS RABEYRON

ABSTRACT: Simulations of a 32-trial ARV experiment with a roulette outcome determining the target suggest that, for viewers that perform with an effect size of around .35 and players using a simple betting strategy, there would be an average net result of about 10 times the starting capital. A review of ARV experiments yielding about 17 experiments for which trustworthy data could be obtained suggests that the mean scoring rate in a binary situation is around 63%. If these results could be confirmed this would falsify theories that predict that it is impossible to use psi in a consistent and robust way and moreover it could be the end of the financial problems in the field of psi research.

An automated ARV-casino system is described that reduces the administrative burden in running ARV experiments. The system has been used over the years in 120 trials with three different viewers of which at least one has performed in RV trials in the past with the required effect size. However, our results

suggest a lower effect size of around a 56% scoring rate.

The system automatically calculates the Local Sidereal Times for the moment the viewer does their prediction and also for the moment that the player bets on red or black. A categorization of these times according to LST periods that have been predictive in old RV and ganzfeld trials shows that in contrast to earlier findings on free-response trials, the period from 17:00–20:00 LST has the largest scoring percentage. None of the results are significant though.

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RETRO-ACTIVE TRAINING OF RATIONAL VS. INTUITIVE THINKERS

ARON BIJL & DICK J. BIERMAN

ABSTRACT: Retroactive effects were investigated in the context of a master's thesis on the effect of instruction on intuitive and rational thinkers in a Go-NoGo task. During the first phase of the task, subjects were instructed to respond to two randomly chosen symbols and to ignore two other symbols. In the second phase of the task, half of the subjects got the instruction to respond as quickly as possible (speed-instruction) while the other half got an instruction to avoid errors (accuracy-instruction). Major research questions of the project dealt with the effect of both instructions on task performance and the interaction of the type of instruction with the type of processing style (intuitive vs. rational).

In the second phase of the Go-NoGo task, only one symbol was to be responded upon. This symbol was randomly chosen from the two that were used as stop-signals in the first phase. In accordance with the growing literature on retroactive influences on cognition and emotions, in which future events seem to have an anomalous, retroactive influence on responses and behavior in the present, we predicted that the second task would have a practice effect on performance during the first task.

This prediction was confirmed. During the first session, the subjects responded significantly faster to the symbol they also had to react to in the second session, than to the symbol they only had to react to during the first session ($p = .038$). The subjects with an intuitive thinking style were totally responsible for the whole effect (intuitives alone: $p < .001$).

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THE GOTHENBURG–KINGS COLLEGE TWIN RESEARCH: FINDINGS AND PROSPECTS

GÖRAN BRUSEWITZ & ADRIAN PARKER

ABSTRACT: For the last two years, there has been collaborative research in Copenhagen, Gothenburg, and London, involved in recruiting identical twins who report exceptional experiences of an apparent telepathic and synchronous nature. The studies have included the real time digital ganzfeld, psychophysiological recordings, questionnaires, and postal survey interviews. Psychophysiological monitoring with one twin while the other experiences random startle stimuli, offers a standard methodology and has, to date, given promising results among those selected for further study. The need to select appropriate twins has led to the development of a standardized questionnaire, the *Exceptional Experiences Questionnaire* (EEQ). Responses to the EEQ by twins attending the “twin day” in London, indicated that about 60% of these twins reported exceptional experiences with about 11% reporting telepathic experiences to be a frequent occurrence in their life. Identical twins reported having these experiences significantly more

often and had a significantly stronger attachment to each other than was the case for non-identical twins. Strong attachment was linked to the frequent reporting of more remarkable exceptional experiences. Most twins reported these experiences as having occurred in a waking state. Almost half of the twins reported the experience of telepathy concerning the bodily welfare of the other twin. However, in the postal survey group, about one-third of the remarkable events were positive events. The use of a private language and the occurrence of shared dreams seem to be further hallmarks of these experiences. The aim is to finally select a pool of twins with exceptional experiences whose experimental results will give a large effect size and findings that are not experimenter-dependent so that progress in this area can be facilitated.

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SÁNDOR FERENCZI: EXPERIENCES AND
“ADVENTURES” IN THE PARANORMAL

GIULIO CARATELLI & MARIA LUISA FELICI

ABSTRACT: Sándor Ferenczi (1873–1933), a Hungarian doctor, Freud’s disciple and friend and a relation—without doubt very privileged with the father of psychoanalysis—met personally for the first time in 1908. This meeting has occupied a place of remarkable importance in the context of the psychoanalytical movement. Ferenczi’s work is parallel with Freud’s work, with the purpose of divulging the basic principles and doctrines and often enriched with his own original theoretical and clinical contributions—sometimes also in contrast with certain fundamental directives. In his works about the “active technique” among others, determined limits to the fundamental technique of “free association” and the use of specific instructions to give the patient are firmly sought. In addition, Ferenczi was important in the development of the so-called “short psychotherapies.”

Ferenczi had a precocious attraction to some “mental” manifestations of mediumship, for the procedure of “automatic writing” and for some extraordinary phenomena—attraction moreover characterized by very interesting personal experiences—a clear interest that certainly comes many years before the meeting with Freud occurred in 1908. Ferenczi’s attitude in this field, in any case, is always scientific, without “acts of faith” and without any kind of prejudice.

In this contribution, six sectors of Ferenczi’s lasting parapsychological interests are pointed out, in which, among other things, he has been involved with personal experiences and direct investigations: (a) early interests; (b) further experiences with reputed “gifted” subjects; (c) a new context of experiences: paranormal phenomena during analysis; (d) the question of the so called “mathematical horses;” (e) those experiences in the family; and (f) completion of the great work on stimulus.

Ferenczi has certainly played a role of great importance about the convictions of, and the first of Freud’s personal investigations about, the phenomena of “thought-transference,” particularly during the temporal interval included between the end of September, 1909 and the first days of 1911, exerting a strong influence that had brought Freud—even among much caution about the phenomena and constant fears of the future of the psychoanalytical movement—to the first and clear acknowledgments about the reality of the telepathic manifestations.

Also, the function of the stimulus precociously exerted by Ferenczi on István Hollós, also a Hungarian psychoanalyst, concerning the telepathic phenomena that can occur during analysis, has to be considered all the same precocious and of primary importance. Their interaction led to the more and more progressive elucidation of the indispensable “psycho-dynamic” factors that form a causal “precondition,” as well as to the occurrence of some genuine paranormal phenomena involving both the analyst and the patient.

Ferenczi, in great disagreement with Freud, had also been convinced of the possibility to know the

future paranormally.

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AIMS: A 55 YEAR-OLD ITALIAN ASSOCIATION
DEVOTED TO PARAPSYCHOLOGY

GIORGIO COZZI

ABSTRACT: For over half a century, the AISM, Associazione Italiana Scientifica di Metapsichica (*Italian Association for the Scientific Study of Metapsychics*), continues to support studies of and interests in parapsychology in Italy. The first international PA Convention that takes place within the borders of Italy seems to be an appropriate occasion to introduce foreign colleagues to the activities and field of action of the Association.

History. In 1946 Ferdinando Cazzamalli, psychiatrist and physician known for his hypothesis on the “radiant brain,” founded the AISM, which has come to represent an important guide for Italian parapsychology. The AISM today is a bulwark of parapsychology studies in Italy.

Objectives. The AISM is committed to inquiries into paranormal phenomena, to ensure the truthfulness and consistency of research data, to study people who seem to have ESP and PK, in order to identify new sensory skills and mental faculties, and to contribute to the scientific development of parapsychological knowledge.

Activity. The AISM has: organized, and currently organizes, international and national conventions, meetings and conferences; run training courses to develop knowledge of parapsychology; and supplied advice on the subject. The Association has a web presence the purpose of which is to spread proper knowledge of the paranormal, as well as to be notified of spontaneous cases and poltergeist events. The Association is also present on media, TV/Radio, to illustrate paranormal phenomena and describe hypotheses and theories. In addition, the AISM is available to give information and to consult on field of parapsychology and maintains a presence on several social networks to assure a correct view of parapsychology.

Experiments. In the past the AISM has conducted a lot of experimental research with traditional tools (Zener cards, dice, seeds and plants for PK effects, and so on) in all of the fields examined by parapsychologists (ESP, PK, “distant healing,” etc.), The Association is now equipped with appropriate technological devices (PCs, RNGs and REGs, EEG) and has performed both free-response and forced-choice tests. In addition, AISM researchers have tested psychics and talented people (e.g., Venia, Eder) and have amassed a lot of data on “empty chair precognition” and psychometrics.

Q.P. Part of AISM’s efforts are now focused on projects for the realignment of some Italian parapsychological activities to experimental methods. Also, a group of AISM researchers are working on the development of a scale to measure the “Paranormal Quotient” (QP), that is the level of “Paranormal Intelligence,” composed of “Logical” and “Emotional” Intelligence, and identified through an appropriate scale.

Metapsichica. *Metapsichica* is a journal edited by AISM, devoted to collecting reports of studies and experiments performed by the researchers of the Association, and to propose a “scientific view” of contemporary parapsychology. In the past, other than Italian parapsychologists, the journal has gathered contributions by a lot of foreign students and researchers. Recently, due to financial circumstances, it has been published irregularly; nevertheless a new issue has been printed on the occasion of the current PA Convention, with in-depth analyses of the meaning and the future perspectives of our discipline.

AIMS International Project. The Association invites worldwide foreign researchers to identify and collect (with a set of specific data) premonitory dreams, said to be experienced by a lot of people, with the aim to make an international registry from which it will be possible to draw data for focused studies.

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HOW TO HANDLE EXPECTATION BIAS IN PRESENTIMENT EXPERIMENTS: A RECOMMENDATION

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ABSTRACT: Here we reconsider expectation bias, with a focus on how to handle it in experiments that attempt to demonstrate presentiment. Usually demonstrated by showing that significant physiological differences *precede* stimuli of different arousal levels, in presentiment experiments all stimuli are presented in a randomized order with replacement. Often the direction of these differences suggests that physiological arousal is more likely to precede arousing rather than neutral stimuli. The possibility exists that such reactions can be explained as resulting from expectation bias. Expectation bias is based on the (false) notion that the likelihood of an arousing stimulus being presented grows as the number of consecutive calm stimuli increases (the gambler's fallacy). Different ways of minimizing or avoiding the bias are discussed.

On the basis of this discussion, our recommendation is to use analysis of variance (ANOVA) to separate the effect of the bias from the hypothetical presentiment effect, preferably at the trial-by-trial level. We also recommend ANOVA to be applied to each participant separately to avoid mixing within- and between-participant pre-stimulus effects, and to use a "counting" method to test for possible presentiment effects at the group level. The favored method is illustrated using both a simulated one-participant example and real, multi-participant data. Finally, we anticipate that ANOVA can be performed to handle not only the expectation bias, but also other similar biases, like the so-called "hot hand" bias, in presentiment experiments as well as in conscious precognition experiments involving feed-back.

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FROM SYMPTOM TO DIFFERENCE: "HEARING VOICES" AS A PARADIGM FOR CLINICAL PRACTICE WITH EXCEPTIONAL EXPERIENCES

RENAUD EVRARD

ABSTRACT: Traditionally considered psychopathological auditory-verbal hallucinations, voices heard by patients, but also by many people from the general population, are currently the subject of much attention from researchers, clinicians, and public authorities. One might think that voice-hearing is a psychopathological experience that has little to do with parapsychological phenomenology, except when information is ostensibly acquired paranormally in the form of a voice. But paranormal and spiritual interpretations of voices are ubiquitous in many studies of voice-hearing, and even are outstanding examples of salutogenic appraisals of psychotic-like experiences. The research on the type of appraisal along the axes of internal/external or personal/impersonal provides direct guidance on clinical intervention strategies. No longer focusing on the "what" but rather on the "how" of these experiences helps to avoid some biases relative to the assessment of beliefs—especially unusual beliefs—in the clinical setting.

In this paper, I first describe the genesis of the Hearing Voices Movement, as presented by the Dutch psychiatrist Marius Romme, and then selected research is reviewed on these anomalous experiences. I argue that parapsychology has much to learn from the Hearing Voices Movement, and *vice versa*. The change of perspective on voice-hearing—from a *symptom* to an individual *difference*—may be generalized for all exceptional experiences, as the late Rhea White had begun to establish with her Exceptional

Human Experiences Network. This leads us to consider how parapsychological research is used by people searching for meaning due to their exceptional experiences, and conversely how researchers attempt to normalize these experiences. How are we to maintain a clinical approach of exceptional experiences when facing a discourse that disqualifies their psychopathological approach? As the figurehead of the broader movement of “recovery,” the Hearing Voices Movement offers a *competitive clinical practice*, but fails to provide a true *differential clinical practice*, starting from a neutral name-referring to several psychopathological pathways that need to be distinguished.

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THE NATURE AND PHYLOGENETIC ORIGIN OF MIND

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ABSTRACT: According to current scientific views, mental activity is equivalent to brain activity, and brain activity is deemed to consist of processes occurring at the molecular, cellular and system levels. In fact, an implicit assumption of the current reductionist approach maintains that the ultimate foundation of biological capacities is placed at the molecular level, irrespective of the common notion that molecules are made of atoms, atoms of quarks, and quarks of elementary particles. Because no objective threshold separates molecules from their lower components, and prevents atoms and subatomic particles from molding qualities of living organisms, that assumption lacks support.

The presumed reduction of mind to brain activity reflects the Cartesian view of the world adopted by science. It beholds the coexistence of a mental substance capable of thoughts (*res cogitans*) and a material substance extended in space (*res extensa*). Accordingly, the scientific observer perceives the outer world (which includes his living body) as made of matter, and is bound to describe and investigate it within a material paradigm. A disturbing consequence of this attitude implies that any physical brain event is supposed to coexist with its related mental event. Given the fully independent nature of mental and material substances, such coincidence is hard to envision.

The dual Cartesian view is not the only attempted description of the world. Monistic versions exist which profess unitary views, but they drastically differ in privileging the material or the mental substance as the only reality. Materialistic visions may acknowledge the existence of mental events, but segregate them in the virtual domain of epiphenomena, a subterfuge that does not provide a convincing explanation of their nature and minimizes their impact, notably those investigated by parapsychology. Conversely, spiritualistic visions emphasized by religions, philosophical systems, and some scientists maintain that mind (spirit, consciousness) is the only substance, and matter is what the subject perceives of the outer aspect of reality.

We recently came to a similar conclusion as a result of our attempt to investigate the mental qualities of living and inanimate objects using criteria based on the elementary features of human mind and their link to bodily structures. This survey has led us to the conclusion that mental aspects have been present throughout the 14 billion years of cosmic evolution which started with the appearance of elementary particles. This view opens novel perspectives to our attempts to envisage mind/body interactions, notably those investigated by parapsychology.

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REMOTE VIEWERS CORRECTLY PREDICT THE
OUTCOME OF THE 2012 PRESIDENTIAL ELECTION

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ABSTRACT: Researchers designed a project to determine whether 11 remote viewers, utilizing a double blind protocol, could describe a human subject in enough detail so raters could choose between two potential candidates in order to predict the outcome of the 2012 United States Presidential Election. Remote viewers utilize intuitive yet structured protocols to obtain information that lies outside their analytic mind or current knowledge base. Unlike other intuitive disciplines that focus on human subjects, these are the least utilized targets in remote viewing.

Researchers set out to answer: (a) How a project involving a human target differs from those utilizing objects and locations? (b) Is use of human targets in remote viewing related research projects or applied precognition projects involving binary outcomes something that researchers or project managers may want to consider? (c) Why are human subjects targets typically not utilized in formal RV research studies when they are quite often the main focus for intuitive practitioners? (4) Could a viewer's unconscious preference possibly impact their session?

Methodology. 11 remote viewers were tasked only with "The target is a person." Sessions were turned in one week prior to the election. Each word and sketch from each session was input into a spreadsheet, and compared to both candidates with the use of the *Poquiz Rating System*. After the election, viewers were informed that they had been tasked with viewing the elected candidate, President Obama. Later viewers were surveyed for their candidate preference. Once the scoring had been completed, the results were sent to Alexis Poquiz who calculated the percent that matched (Correct), did not match (Wrong) and that were Unknown for both candidates.

Findings. Out of 11 sessions, eight matched Obama, and three matched Romney. The "Lower Q%" score also yielded an overall group prediction for Obama. The viewers' preference for a particular candidate was compared to their judged prediction. Seven out of 11 viewers indicated a preference towards a particular candidate. All seven voiced a preference for the candidate that their session pointed to, including one whose session pointed towards the wrong candidate.

Conclusion. (a) Human targets may be more challenging to rate than location/object-based targets due to inherent similarities between humans; viewer's subjective relational descriptors; and rater's personal biases perpetrated by competing media outlets and an inability to perceive a subject's inner life in the way a remote viewer can. (b) Humans as targets in remote viewing related research projects or applied precognition projects involving binary outcomes should not be considered unless only one photo in the set includes a human. (c) Poquiz's Rating Scale proved itself to be a superior rating tool. (d) Viewer preference may be as problematic as telepathic overlay in remote viewing research and projects. Utilizing a blind protocol does not and cannot control against this.

COMPETITION AND INHIBITION AMONG HEALING WAYS OF
CHAKRA-ACTIVATING TYPE, DNA-REWRITING
(LANGUAGE-LEADING) TYPE, AND
ENERGY-CIRCULATION-IMPROVING TYPE

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ABSTRACT: The authors used their gas and fluorescence measurement methods (at four wavelengths) with cucumber pieces of *Cucumis sativus* "white spine type" as a bio-sensor and found three different patterns of responses of the bio-sensor to non-contact healing (bio-PK).

Purpose. Relationships among response patterns of the bio-sensor and healing ways were studied

through principal component analysis (PCA).

Term and place. February 27 to March 30, and June 30 to August 5, 2012 at the International Research Institute.

Participants. Healers (2 males, 9 females; average age, 44.1 years) were recruited through a collaborator's list, the internet and social network systems. Many healers used their own ways of healing.

Informed consent. Explanations of the study were given to the healers.

Measurement of healing power. Healing power was measured by gas and fluorescence measurement methods. J value, which is the natural logarithm of the ratio of gas concentrations (or intensities of fluorescence) of experiment and control samples, was used as an index of the magnitude of healing power. Measured J values were calibrated by the simultaneous calibration technique (SCAT), and calibrated J values were used for analyses. Healers were instructed to increase the gas of the cucumber samples. One trial was 30 minutes, and two trials were done a day. Healers did two or four trials.

Questionnaire. Questionnaire A consisted of 26 items (H-items) to survey healing ways which were used during the trials. Questionnaire B consisted of 26 items (CL-items) to survey client's feeling and responses in usual situations.

Analyses. A combination of averages of gas and fluorescence J values was made per each trial. Next, their patterns were categorized by cluster analysis. PCA was done using J values and dummy parameters of Patterns, H-items and CL-items.

Result 1. Data combinations could be categorized into three patterns, labeled as I, II and III.

Result 2. Through PCA with H-items, three ways of healing were related to three patterns of the sensor's response: (a) Chakra-activating type, (b) DNA-rewriting (language-leading) type, and (c) Energy-circulation-improving type. Moreover, there was a competition between types (a) and (b), and (b) was inhibited by (c).

Result 3. Through PCA with CL-items, when a bio-sensor showed Pattern I, a client is expected to indicate spiritual responses. When the bio-sensor showed Pattern II, physical changes are expected. When the bio-sensor showed Pattern III, physical changes and cleansing reactions are expected.

Discussion. In energy treatments, it is considered that there are many healing ways for which mechanisms or modes differ from each other. The healer is not necessarily aware of the differences in the healing ways. When a healer uses several healing ways in a clinical situation, there is a possibility that various factors act on a client synthetically; for example, different healing ways act on different parts; cells or tissues are activated by repeating of inhibition and strengthening effects. However, researchers should make an effort to limit of the kinds of healing ways if they attempt to study the details of mechanisms of healing. CL item 08 was not considered as a good question. Fluorescence measurement method should be improved in accuracy. In the present study, use of J value was effective and also analyses, which are based on pattern analyses of sensor's responses, were effective.

Conclusion. There were three healing ways, and they were competitive or inhibitive. These findings were obtained through pattern analysis of multivariate data sets using J value. This strategy is useful to study the mechanism of bio-PK.

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EXTRASENSORY PERCEPTION, DISSOCIATION,
AND MOTOR AUTOMATISMS

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I am grateful to the Bial Foundation for their support of this research.

ABSTRACT: Eighty participants completed an ESP task modeled on the Ouija Board. The board was a computer writing tablet on which was affixed a 16-square grid conceptually dividable into four quadrants, with a number 1 to 4 in each square. There were three target designations: square ($P = 1/16$), quadrant ($P = 1/4$), and number ($P = 1/4$). The main dependent variable was "location hits," an unweighted composite of square and quadrant hits. For each of the 36 trials, participants were instructed to explore the surface of the grid with the computer pen and indicate their response by stopping for 1 second. Beforehand, at home, participants completed Watson's *Dissociative Processes Scale*, which contains three subscales: Obliviousness, Imagination, and Detachment.

Participants were randomly assigned to four cells in a 2 x 2 factorial design. Independent variables were hand used to move the pen (Hand: right [R] vs. left [L]) and additional procedures applied during the ESP task to facilitate dissociation (Method). For one of these (Eyes-closed: E), participants were instructed to keep their eyes closed and blank the mind as much as possible. For the other (Quotations: Q), the intent was to distract the conscious mind by having participants read quotations that appeared in succession on a computer screen. An examination of record sheets containing only response sequences and corresponding reaction times indicated that on some trials many participants jiggled the pen, causing registration of an unintended response. This caused adjustments to be made to the ESP scores of 40 participants and the dropping of nine others. An ANOVA of the 2 x 2 design yielded a significant Method by Hand interaction, with significant psi-hitting in the combined ER, EL, and QR conditions (EQR) and significant psi-missing in the QL condition, attributed to frustration to the high task difficulty in this condition.

The prediction of superior performance with the left hand was not confirmed. The other hypotheses were tested using location hits in the EQR condition. As predicted, participants who reported experiencing their hand being moved by an outside force for any amount of time during the ESP task scored significantly higher than other participants. In a similar experiment by the author using a board more similar to the Ouija Board, strong psi-hitting was found among participants claiming the outside-force effect but only 1% to 40% of the time. The present result was considered a replication of the previous one because of a plausible reinterpretation of the earlier finding. Positive responses to the outside-force question were predicted by DPS Detachment. Significant positive correlations were found between location hits and DPS Imagination and Detachment. In both cases, the effects had been predicted for Obliviousness. All DPS subscales positively predicted number hits in the QL condition.

The data were interpreted as reflecting the operation of two distinct processes mediating different trials in the ESP run: (a) a (primarily) motor process restricted to location hits in the EQR condition and (b) a (purely) cognition process operative for location and number hits across all conditions.

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THE COST OF BEING DIFFERENT: THE RELATIONSHIP BETWEEN
PARANORMAL EXPERIENCES AND POSITIVE/NEGATIVE SCHIZOTYPY

ALEJANDRO PARRA

ABSTRACT: The present study investigated how subjective paranormal experiences relate to positive and negative schizotypy. It was hypothesized that paranormal experiences correlate with schizotypy proneness, schizotypy sub-factor Unusual Experiences, and positive schizotypy. Undergraduate students, family members and friends, 57% females and 42.2% males (Mean age = 33 years), filled two questionnaires: the *Oxford-Liverpool Inventory of Feelings and Experiences*—which assesses schizotypy in four dimensions—and the *Paranormal Experiences Questionnaire*, which collects information on spontaneous paranormal experiences. Participants with experiences were both less cognitively disorganized and reported subjectively more pleasant paranormal experiences, were less impulsive, more social, and displayed less eccentric forms of behavior, which often suggests a lack of self-control. The majority of paranormal experiences were related with positive schizotypy scores. It is noteworthy that, in an inverse direction, some paranormal experiences are also related with negative schizotypy. In conclusion, the present study implies an interaction between schizotypal personality factors in predicting the subjective quality of odd experiences. Consistent with previous research, results indicate a potentially adaptive, and indeed protective, role for paranormal beliefs/magical thinking.

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A PHENOMENOLOGICAL EXAMINATION OF PREMONITION
EXPERIENCES: A SURVEY STUDY

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ABSTRACT: A premonition is defined as a feeling or impression that something is about to happen, yet about which no normal explanation is available. The main aim in carrying out this survey was to estimate the proportion of people who claim to have had various kinds of premonition experiences, and to explore correlations between these experiences and other variables, such as content, symbols, clearness, vividness, emotional intensity, the ability to discern paranormal/normal explanations, time range, the people involved, states of consciousness, and gender differences.

Two groups were surveyed, 255 participants (mean age = 30.75) interested in paranormal topics and 429 undergraduate students (mean age = 33.97) as a “control” group. Overall, 233 participants of the paranormal group (90.7%) and 21.7% of the nonparanormal group reported having experienced premonitions in dreams, and 99.2% of people interested in the paranormal and 51.7% of students reported having experienced premonitions not related to dreams (hunches or other events). For premonitions in dreams, the paranormal group reported having experienced serious events, very real events that take place as they dreamed them, and the people involved were acquaintances. For the nonparanormal group, the content of the dreams were trivial events, and the people involved in the dreams were relatives. They also tended to be higher on clearness and vividness but lower on emotional intensity than the nonparanormal group.

The nonparanormal group, who had both premonitions in dreams and premonitions not related to dreams, tended to experience lower clearness in relation to negative emotions. For premonitions not related to dreams, the paranormal group reported having experienced serious events, and the people involved were acquaintances. The nonparanormal group reported having experienced trivial events. For the paranormal group, males, serious events, and acquaintances, and unknown scored higher than the nonparanormal group. The paranormal group also scored higher on clearness, emotional intensity, and

vividness than the nonparanormal group. The paranormal group scored higher on assaults/robberies, major accidents, events related to unknown ones, and events reported in the media than the nonparanormal group. The paranormal group also scored higher on negative emotions. The paranormal group reported having experienced a number of other premonition experiences, mainly having the experience of anticipating what another person in the conversation was about to say, having a vision of a situation, or having an experience of a sudden feeling of a future event. For the paranormal group, states of consciousness and other premonitional experiences were highly correlated. Participants who reported other premonitional experiences correlated mainly with awake state, meditating, and falling asleep or awakening.

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PSI AND DEATH OF THE PERSON-TARGET: AN EXPERIMENT WITH HIGHLY EMOTIONAL ICONIC REPRESENTATIONS

ALEJANDRO PARRA & JUAN CARLOS ARGIBAY

ABSTRACT: A number of psychics have gained a reputation as psychic detectives using such clues as photographs, a town map, or a piece of clothing. In fact, dowsing has long been espoused as a technique for helping individuals to utilize untrained psi abilities, in terms of unconscious muscular movements, while the pendulum acts as an amplifier of subconscious ideomotor movements. The aim of this study was to compare mental and motor conditions using images of dead people as targets. In one iteration, photographs were used of the person-targets in order to determine if the participants scored differently when using mental or motor procedures. In another, the same approach used highly emotional iconic representations, that is, images of people who had committed suicide.

The sample consisted of 214 female and male participants (mean age = 43.84; $SD = 13.40$) who had reported personal experiences suggestive of psi. Four trials were performed for the “mental” (psychometry) procedures and four for the “motor” (pendulum) procedures. After a number of security measures, including randomized procedures and control groups, the results showed that the “mental” (psychometry) condition scored significantly above chance ($MCE = 2$; mean mental = 2.39, $t = 4.55$; $p < .001$), and also scored significantly higher than the “motor” condition ($p = .004$). In the second group of trials, the results also showed that the “mental” condition scored significantly above chance (Mean Mental = 2.14; $t = 1.44$, $p = .075$); however, in this group, the “mental” condition did not score significantly higher than the “motor” condition.

We conclude that the study offers support for the claim that iconic representation through psychometry is psi conducive. However, in the second analysis, one tentative interpretation would be that the psi information was blocked by some psychological defense mechanism in response to an unpleasant association with the stimulus.

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THE JOURNAL OF EXCEPTIONAL EXPERIENCES AND PSYCHOLOGY

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ABSTRACT: The *Journal of Exceptional Experiences and Psychology* (www.exceptionalpsychology.com) is an online, international, and scholarly journal dedicated to the exploration and advancement of

exceptional psychology, which is a field that studies experiences and phenomena traditionally germane to parapsychology and yet, goes beyond in breadth. Some examples of experiences under investigation by exceptional psychology include survival after death, out-of-body experiences, extrasensory perception, psychokinesis, poltergeists, mediumship, and hauntings. Also included are cryptids, abduction scenarios, possession, psychic healing, and synchronicity.

Exceptional psychology approaches these phenomena from a neutral and bracketed stance. Simply put, exceptional psychology uses an integrative and phenomenological approach. This includes embracing the varieties of inquiry such as experimentation, ethnography, phenomenology, personal narratives, art, and poetry. Each seeks to reveal, in its own way, the essence of the exceptional experience. What is more, exceptional psychology encourages the application of helpful aspects of certain exceptional experiences to clinical praxis. This is just as much a part of the project as research and theorizing. For instance, clinical approaches include the use of psychic healing practices and the application of mediumship to the bereavement process.

The *Journal of Exceptional Experiences and Psychology* encourages the submission of manuscripts, creative writing, artwork, and video related to exceptional experiences. The journal is peer-refereed; submissions will be blindly reviewed and a recommendation for acceptance, revisions, or denial will be made to the editors. *JEEP* is published biannually and welcomes submissions all year. Technical manuscripts should conform to APA style. Creative writing and narrative accounts do not need to adhere to a professional style, although proper citation of sources is required. All written documents must be sent as a Microsoft Word file (.doc /.docx). Visual submissions should be sent as separate attachments, preferably in either .jpeg or .pdf format. Video and/or audio submissions should be sent as a YouTube link. Authors will be notified by email of the review board's decision.

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FOLLOW-UP STUDY OF THE RELATIONSHIP BETWEEN LOCAL GEOMAGNETIC ACTIVITY AND PSYCHIC AWARENESS

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ABSTRACT: For the past three decades, research in parapsychology has found evidence that psychic experiences are related to fluctuations in the Earth's magnetic field; these fluctuations are termed geomagnetic activity (GMA). This research, however, exhibits an anomaly: in some studies psi is related to higher GMA and in some with lower GMA. Most research has used global measures of GMA, and it has been suggested that this anomaly may be clarified by studying local, high time-resolution, measurements of the geomagnetic field.

In order to explore this possibility, a four-year investigation has been conducted with long-term meditators. In the preliminary study from 2008–2010, throughout the whole period of experimentation, solar activity, and consequently GMA, was at the lowest level seen for 100 years. The psi data collected did, however, exhibit seasonal effects similar to those found by Sturrock and Spottiswoode in their 2007 paper.

For this follow-up study the experimental design was identical to that in the preliminary study. After a 15-minute meditation period, the participant attempted to identify a "target," which was a pseudo-randomly selected video clip. The computer program (PreCOG) chose a target set at random from a pool of 25 sets, and a target video clip at random from the four-clip set. PreCOG also pseudo-randomly selected whether the target would be chosen before the participant saw the set (clairvoyance), or after (precognition). Each participant completed a minimum of eight sessions (trials) each year. There were 22 participants, all meditators residing at Kagyu Samye Ling Tibetan center or in the nearby village, who had

practiced meditation for at least ten years.

Three questionnaires and one psychological test were completed: the *Meditation Attainment Questionnaire* (MAQ) is a measure of the level of meditation attainment achieved; the *Freiburg Mindfulness Questionnaire* (FMI) assesses the level of mindfulness attained; the Necker cube test is a measure of focus of attention; and the *Temporal Lobe Epilepsy Questionnaire* (TLE) assesses temporal lobe lability, which may indicate both a participant's propensity for psi-type experiences and the degree to which the person is affected by GMA. The meditation and psychological data will be presented in a separate paper.

Geomagnetic field measurements were supplied by the British Geological Survey's Eskdalemuir observatory, which is located two miles from Samye Ling.

There were two formal hypotheses: (a) Psi scoring for sessions conducted during periods with high band 3 (.025–.1 Hz) GMA would be lower than during low band 3 GMA. (b) Psi scoring for sessions conducted during high band 1 (.2–.5 Hz) GMA would be higher than during low band 1 GMA.

Results for both the preliminary and follow-up studies combined were: Levels of GMA were at their lowest for 100 years, and lower than the normal minimum level. This was totally unexpected and prevented the planned analyses to explore psi scoring across a range of conditions. By the pre-planned analysis, there was no significant difference between sessions conducted during periods with high or low band 3 activity. But with a post-hoc analysis using a lower high/low threshold, psi scoring was significantly lower at high levels of band 3 GMA ($p = .03$, two-tailed); in a separate analysis scoring was also significantly higher during periods of very low GMA ($p = .01$, two-tailed). There was no enhancement of psi scoring during periods of high band 1 activity, possibly due to the extremely low GMA.

Overall, males scored significantly negatively (mean psi score = -0.15 , $p = .02$, two-tailed), whereas females scored at chance levels (mean psi score = 0.02); the difference was significant ($p = .03$). An exploratory hypothesis that the participants responding most strongly to GMA would be those with the highest scores on the TLE questionnaire was marginally significant ($p = .06$). But this was primarily due to one outlier and was only observed in precognition sessions, and so should be treated with caution. A second exploratory hypothesis postulating a link between seasonal effects and psi scoring was not significant, but did show a correlation with previous research.

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THE NATURE OF PRECOGNITION

JON TAYLOR

ABSTRACT: This paper describes a theory explaining precognition as a connection with the percipient's brain in the future—a link with his or her future experience of the event. The theory considers precognition to be the fundamental phenomenon of ESP.

The meta-analyses performed on the results of precognition experiments give outstanding evidence for contacts with events that actually occur in the future. This suggests that the future events must “already exist” in some sense, and it conforms to a block universe model in which past and future events already exist in the space-time continuum, in accordance with the special theory of relativity. However, this conflicts with the orthodox interpretation of quantum mechanics, according to which the outcome of a quantum process is probabilistic, so that it would be impossible to know the nature of the outcome until *after* that outcome has been produced. Nonetheless, some modern interpretations do conform to the concept of a determined universe. David Bohm proposes the existence of an implicate order which extends throughout all space and all time, and out of which the successive “slices” of space-time are unfolded to form the block universe. Bohm suggests that similar structures “resonate” in the implicate order, with the

result that they are unfolded in a form in which they are more closely similar to one another. This would enable information to be transferred without requiring a “transmission” of information through time.

The principles are applied to the neuronal spatio-temporal patterns that are activated in the brain. For example, a precognition would occur when the pattern activated at the time of the future experience of an event resonates with any similar pattern that is (spontaneously) activated in the present. This might enable the activation of the present pattern to be sustained until the threshold is reached at which it produces the conscious awareness of an event similar to the event that will be experienced in the future. Thus, precognition is explained as a transfer of information from the brain in the future to the brain in the present. Telepathy could similarly be explained as a transfer between different brains. However, telepathic contacts may be extremely difficult to obtain, on account of the differences between the neuronal patterns involved. Furthermore, the possibility of clairvoyant contacts being made directly with an inanimate object or event is eliminated, because of the dissimilarity between the object and the pattern activated in the brain.

The structural replication tendencies responsible for the information transfer refer to *processes* that occur in the environment. These processes are represented in the brain by processes in which the neuronal networks are connected together (by association) to form spatio-temporal patterns of activation. A precognition refers to the information contained in the association between a pair of networks. For example, in the case of an event caused by the percipient, the networks may refer to the percipient “doing something to cause the event.” Thus, if a percipient intends to cause an event in the present, and he does cause the event in the future, a resonance occurs, and he may precognize the fact that he will successfully fulfill the intention. However, if he is unable to cause the event to occur in the future, a resonance does not occur, and the absence of a resonance may serve as an *intuitive warning*, indicating that something will prevent him from fulfilling the intention. This enables him to decide to do something else, without a risk of confronting the intervention paradox.

The mechanism is applied to the target-guessing experiments in precognition. The participant intends for his selection of a given target option to cause the effect of “scoring a hit.” In the case of an incorrect selection, there is no resonance and an intuitive warning is produced. The percipient unconsciously moves on to another option. When he comes to the correct option, a resonance occurs and he registers the option. That is because his future experience will be one in which he does associate the option with the knowledge of scoring a hit, when he receives feedback of the target information. In a free-response experiment, the participant may have to identify a combination of target elements that he can associate with “producing a successful result,” in this case when feedback of the result is given. The mechanism suggests some important conclusions concerning the nature of the precognitive contact:

1. **Precognition is the fundamental phenomenon of ESP.** Telepathic contacts would seem unlikely to be detected in the laboratory; the results of telepathy and clairvoyant experiments are explained in terms of precognitive contacts with the participant’s future knowledge of the target information. This means that feedback about the target (or about the result of the experiment) must be given to the participant in the future. Replication problems may have occurred when this was not done. By giving feedback, it enables the participant to collect and encode the target information *via* his ordinary senses. Selectivity is obtained because the information refers to the actual target, and the participant does not have the task of trying to distinguish between the target and the “decoys.”
2. **Precognition is more likely to occur when the experience of the event in the future produces a stronger emotional impact.** If the future experience corresponds to an “emotional” event, the degree of activation of the pathways through the networks is increased. This produces a stronger resonance which is more likely to have influenced the networks activated in the present. For example, the pre-stimulus response experiments detect an “emotional” stimulus given to the participant in the future, but not a “calm” stimulus. The target-guessing experiments detect the participant’s future emotional experience of “scoring a hit.” When the participant becomes bored with the experiment, the future experience no longer produces an emotional impact and the results fall closer

to chance expectation (i.e., the decline effect).

3. **Precognition is more likely to occur when the time-interval up to the moment of the future experience is shorter.** The synapses forming the present and future patterns of activation are subject to constant changes due to brain plasticity. Closer matching and a stronger resonance are therefore to be expected when the *precognitive interval* is shorter. A meta-analysis shows that the results are highly significant for precognitive intervals of a few hundred milliseconds, and they fall to non-significance only when the interval is increased to more than one month.
4. **The results of an experiment go in the direction of the percipient's "belief" towards obtaining those results.** This is the well-known sheep-goat effect, in which a believer in ESP scores above chance, whereas a non-believer scores below chance. That is because the non-believer makes intuitive decisions to try to select the target options which lead to the future experience of scoring "misses." He therefore produces a larger proportion of misses, and the number of hits falls to below chance expectation.
5. **The results of REG experiments may be due to precognition, and not to PK.** Experiments have been performed in which REG outputs are ostensibly influenced in accordance with the operator's conscious intention. However, the results can be explained in terms of intuitive decisions to achieve an optimum sampling of the data stream, in accordance with Edwin May's data augmentation theory. This would tend to refute the observational theories which have been used to support the clairvoyant interpretation of the target-guessing experiments, because they suggest that the participant's consciousness might be able to collapse the wave-function of the target to the state that is reported.

The predictions of the theory are subject to testing, and they suggest that a new approach may have to be taken in the design of ESP experiments if better repeatability is to be expected in the future.

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RE-EVALUATING MENTAL ABSORPTION IN ANOMALOUS EXPERIENCES: AN INFORMATION PROCESSING MODEL OF PSI AND ITS CONCOMITANTS

MICHAEL TREMMEL

ABSTRACT: Certain personality traits and disorders correlating with paranormal experiences also correlate with one another and have been assimilated to higher-order concepts, like *anomalous sensitivity*, *anomaly-proneness*, *boundary thinness*, *environmental sensitivity*, and *transliminality*. Such neologisms have little explanatory value. These concepts are missing a mechanism that causes mental content to cross from unconscious into consciousness, between different mental functions or processes in general, or a mechanism that causes persons to become sensitive or prone to anomalies. This poster presents two possible mechanisms that could cause all that.

Not all of the traits and disorders may be related directly to psi. Their relation may be based on underlying processes. Such processes may be *mental absorption*, *cognitive dedifferentiation* (CDD, including eidetic imagery and synesthesia), and something to be termed *sensory-processing amplification* (SPA, to be found in hyperaesthesia, sensory-processing sensitivity, sensory defensiveness, and sensory over-responsivity). A variety of findings and anecdotal reports suggest that these processes are concomitants of psi and that psi and its concomitants co-vary from weak and temporary forms to strong forms and traits or even disorders. Tellegen and Atkinson conceptualized absorption as a trait marked by the proneness to experience episodes of total attention. Re-evaluating absorption, it is assumed that this trait is a weak form and strong forms include absorption as a trait marked by rather consistent total attention (to

be found, e.g., in cases of autism spectrum disorders) and absorption as a skill mastered through intensive focused attention meditation.

Psi, CDD, and SPA all result in experiences involving some kind of anomalous perception. Because attention moderates perception, in the information-processing model introduced here, absorption moderates the intensity of these experiences. It amplifies and dedifferentiates mental input (emotions, imagery, memories), psi input, and sensory input.

While strong forms of absorption are assumed to result rather consistently in strong forms of CDD leading to strong synergetic experiences as well as in strong forms of SPA leading to strong high-sensitivity-related experiences, this may not necessarily be the case for psi and paranormal experiences. A gatekeeper mechanism may inhibit psi input. It is hypothesized that the inhibition of this gatekeeper mechanism moderates the frequency of paranormal experiences. If psi input with personal meaning is subliminally perceived and captures attention bottom-up, the gatekeeper mechanism may be temporarily inhibited, resulting in a spontaneous paranormal experience (e.g., in a case of crisis psi), and a conscious one, too, given that absorption is strong. If the gatekeeper mechanism gets disintegrated and absorption is strong, psi input may reach constantly conscious perception (as can be found in some psychics), resulting in consistently conscious paranormal experiences.

Possible implications of this model are discussed.

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TESTING THE IMPLICIT PROCESSING HYPOTHESIS OF PRECOGNITIVE DREAM EXPERIENCE

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RACHEL NUTTALL, & GRACE RENWICK

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ABSTRACT: It has been proposed that experiences of putatively precognitive dreams might be a result of a person's picking up on subtle environmental cues without being aware of it and having an implicit inference based on these cues manifest itself in the person's dreams. Here we present two studies exploring the predictions of the implicit processing hypothesis of precognitive dream experience.

Study 1 investigated the relationship between implicit learning ability, transliminality, and precognitive dream belief and experience. Participants completed the Serial Reaction Time task, a widely-used method of assessing implicit learning, and a battery of items. We predicted a positive relationship between the variables. However, this prediction was not supported.

Study 2 tested the hypothesis that in the absence of a relationship between implicit processing and precognitive dream belief and experience, a difference in the ability to notice subtle cues explicitly might account for these beliefs and experiences. Participants completed a modified version of the flicker paradigm used in change blindness research. Their task was to detect a change in two stimuli presented in quick succession. If they failed to do so, they were asked to indicate a change or lack thereof using their "gut feeling." We predicted a negative relationship between the ability to detect explicitly changes and reported precognitive dream belief and experience. This relationship was not found in the data. There was also no relationship between precognitive dream belief and experience and performance on the "gut feeling" trials, thus further supporting the findings of Study 1.

Results and limitations are discussed and potential alternative implications of the implicit processing hypothesis for future research are identified.

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THE SHAREFIELD: A NOVEL APPROACH FOR FORCED-CHOICE GESP RESEARCH

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We would like to express our deep gratitude to the Bial Foundation for its support of the Sharefield project. We thank Annie Diot for her enthusiastic involvement, her critical spirit and positive contributions to the project. We also thank Sophie Kim for her melodious voice in the Relaxation procedure. Dr. Paul Smith generously granted permission to use images posted on his website www.rviewer.com. The Heartdrone music was composed by Dr. Harold Moses.

ABSTRACT: While the ganzfeld paradigm is still among the most reliable protocols in free-response GESP research, it is in the long term interest of our field to continue to explore alternative approaches that are more efficient in terms of data-collection rates. Both the ganzfeld and other free-response protocols involving noise reduction procedures, are time- and resource-intensive experimental approaches. Despite their respectable effect size, they are not well-suited for process oriented research—especially in a field of limited resources. This may account for the fact that an abundance of non-standard ganzfeld studies, that do not adhere closely to the original protocol, have emerged in the past few decades. It is argued here that a plausible alternative to the free-response/noise-reduction approach would be one using noise-reduction—or optimization—procedures—in a forced-choice context.

As shown by a recent meta-analysis, forced-choice studies, while yielding lower effect sizes, have produced positive results over the course of 70 years. While the trial effect sizes associated with this research is clearly inferior to that of free-response studies, the data collection rate is far higher, and replication rates are still adequate for process-oriented research. Above all, as argued in the present paper, a systematic introduction of participant optimization procedures may considerably improve forced-choice effect sizes. We thus present a novel approach for combining forced-choice protocols and participant optimization procedures, within an automated testing framework. A first study exploring this approach is reported, involving a dyadic-ESP or telepathy protocol named the Sharefield. We outline here some of its most salient characteristics.

No mentation, multiple trials. Unlike free-response approaches, individual trials are short, and involve no mentation period; a full experimental trial, including judging, is completed in two minutes. This allows for multiple trials during a 45-minute experimental session.

An immersive environment. Both participants wear an audiovisual head-mounted display (HMD) which immerses them in a slowly animated starfield and meditative soundtrack. This audiovisual background is present across trials, and across the different phases of each trial (instructions, sending/receiving and judging).

Symmetric participant roles. Participants alternate sender/receiver roles on a trial-by-trial basis; at the beginning of each trial, the software announces the participant's role on his/her screen and accordingly launches either sender or receiver tasks.

Simplified judging task and target sets. Compared to typical free-response studies, the participant's judging task here is relatively simple. Essentially, the percipient's ESP task is to sense whether the agent is experiencing a visually complex and stimulating photograph (randomly selected from an image pool) or a relatively neutral gray form, that remains the same throughout.

A training process and baseline condition. Participants in a Sharefield session find themselves in a cognitively complex situation—involving multiple trials, alternating sender/receiver roles, and multiple

phases within each trial (sending/receiving, judging, feedback, and inter-trial breaks). Furthermore, given the fully automated protocol, they go through the session without any guidance from the experimenter, while potentially in an altered state of consciousness. To better prepare them for all this, we decided to have participants first go through a training session that would familiarize them with the ESP tasks and phases of the protocol. We also conceived this training session as a way to collect data on participants' "baseline" psi performance, which could then be compared to their psi results under the optimization conditions. Thus, the participant pair first went through a 10-minute Non-Optimized Experience (NOE) session, that involved the basic ESP task (with alternating sender-receiver roles, judging, feedback, etc.), but no relaxation, immersive audiovisual displays, or HMD system (a standard computer monitor was used instead). They then went through a 45-minute Optimization Experience (OE) in which the monitor was replaced by the HMD, and the ESP tasks situated within relaxation suggestions and the immersive audiovisual environment.

We report here the results of the first Sharefield study. Its principal objective was to assess empirically the viability of the overall approach, and thus contribute to the development of future protocols. Nevertheless, we did formulate three formal hypotheses for this experiment: (I) the trial effect size for the OE condition would be statistically significant; (II) the trial effect size for the OE condition would be significantly superior to the NOE effect size; (III) the OE session effect size would be significantly superior to that established for the ganzfeld.

Twenty-five participant-pairs (50 participants) were run in the laboratory of the Institut Métapsychique International (IMI). Prior to arrival, each completed online versions of two questionnaires: the *Big Five Inventory*, measuring five personality dimensions (Extraversion; Agreeableness; Conscientiousness; Neuroticism; and Openness to Experience); and a questionnaire concerning participants' attitudes and experiences as related to psi phenomena, mental disciplines, and dreams and absorptive states. Upon arrival at the IMI, and following introductory procedures, participants were first run through the NOE session; then, following a brief pause, they went through the OE session. Finally, a half hour debrief allowed us to collect qualitative participant impressions concerning their experience of the Sharefield.

None of the three hypotheses were confirmed to a significant degree, although a near-significant trend was shown for Hypothesis II. Post-hoc analyses did produce some suggestive evidence that, in the OE condition, the null averaged trial results may have been due to high variability in scoring (i.e., hitting and missing), rather than a total absence of psi. In particular, we focused on three factors known to impact effect sizes in psi tasks (target quality, subject ability, and position effects) and, for each of these, applied two tests assessing scoring variability. We obtained statistically significant results in two of the six tests; by contrast, applying the identical test matrix to the NOE condition yielded no significant results. For the hit rate variability tests in the OE condition, we ran a Monte Carlo simulation to estimate the probability of finding two out of any of the six tests with P-values of .03 and .02, or less. The simulation yields a significant overall p-value of $p = .012$.

Post-session debriefings with participants allowed us to establish potential problems with the protocol, at least from an experiential perspective. In particular, over half the subjects reported considerable physical discomfort with the HMD system, and found the trial-by-trial hit/miss feedback stressful and distracting.

These quantitative and qualitative data will be quite useful in terms of our long-term objective, which is to develop a viable tool for process-oriented psi research. Our modular software approach facilitates implementation of protocol improvements (e.g., with respect to the judging and feedback procedures). More generally, the software allows the creation of protocols addressing a range of research issues. In this context we intend to quickly develop single-subject versions of the software, geared toward clairvoyance or precognition protocols.

Above all, we are encouraged by the successful use of optimization procedures and multiple-trial psi tasks within an automated protocol. The optimization procedures fluidly integrated into all stages of the experimental trials, and participants' reports during debriefings suggest that the relatively sustained

rhythm of 20 trials/session did not perturb their experience of the OE. Indeed, nearly all under-estimated the duration of their sessions (a sign that they found the experience engaging rather than tedious) and a clear majority expressed interest in returning for more sessions. This suggests that the general approach is sound, and has potential as a long-term tool for process-oriented research.

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PSYCHOLOGICAL FACTORS IN PRECOGNITIVE DREAM EXPERIENCES:
THE ROLE OF PARANORMAL BELIEF, SELECTIVE RECALL
AND PROPENSITY TO FIND CORRESPONDENCES

CAROLINE WATT, NATALIE ASHLEY, JACK GILLET, MEGAN HALEWOOD, & REBECCA HANSON

We are grateful to the Perrott-Warrick Fund, which has made this research possible. We would also like to thank our research participants for contributing to these studies, Dr. Scott Madey for kindly granting permission to use and adapt his study materials, and Milan Valášek for his helpful comments on an earlier draft.

ABSTRACT: We report two studies into psychological factors that have been proposed to contribute to the experience of having had a precognitive dream.

Study 1 investigated the role of selective recall in precognitive dream experiences. Participants read two diaries, one purporting to be a dream diary, and one purporting to be a diary of events in the dreamer's life. The events either confirmed or disconfirmed the reported dreams. After undertaking a distractor task, participants were given a recall test. As predicted, a significantly greater number of confirmed than disconfirmed dream-event pairs were recalled. Study 1 also investigated whether paranormal belief moderated the selective recall effect, but no relationship was found.

Study 2 investigated the hypothesis that paranormal beliefs may in part arise from a propensity to associate unrelated events. Participants undertook two tasks, one "contextual" that was designed to simulate precognitive dream experiences in which dreams and events are seen to coincide, and one "neutral." For the contextual task, participants were asked to find correspondences between randomly-paired world news articles taken from a public broadcaster's online archive, and dream reports taken from an online dreambank. The neutral associations task invited participants to produce a noun that would provide an associative connection between two unrelated nouns. As predicted, paranormal belief and precognitive dream belief were found to correlate significantly with ability to find correspondences between the dreams and news event pairs. Contrary to prediction, no relationship was found between belief and performance on the neutral association task.

Together, these studies illustrate the operation of mechanisms that, when present in individuals having dreams and experiencing subsequent events, would tend to lead to an increase in the number of experiences of a seeming coincidence between dreams and events that can be interpreted as precognitive.

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PANEL: ALTERATIONS OF CONSCIOUSNESS AND PSI

CHAIR: ETZEL CARDEÑA

Throughout history, ostensible psi phenomena have been related to qualitatively distinct states of consciousness or procedures associated with them, including meditation, dreams, and states of possession by spiritual beings. Although the research program of J. B. Rhine did little to evaluate this reputed association, various studies, found that some altered states of consciousness did seem to increase psi abilities in controlled studies, a conclusion that was generally held in a more recent review by Luke. This general idea was a catalyst for the development of one of the most successful psi research paradigms, the ganzfeld, which homogenizes sensory stimulations and, presumably, affects the state of consciousness of various participants. An unfortunate side effect of the success of the ganzfeld paradigm has been the neglect of systematic research on other procedures and states, and psi research in general has failed to keep up with developments in the study of consciousness, including appropriate measures to use and multivariate analyses. In this panel we will center on three techniques to affect consciousness and their effects on psi performance: hypnosis, meditation, and psychedelic drugs. We will discuss what has been found so far and, as importantly, what additional questions remain to be investigated systematically.

HYPNOSIS, DISSOCIATION, AND PSI

ETZEL CARDEÑA

ABSTRACT: Dissociation has been related to psi functioning in different ways: as the lack of integration between conscious and non-conscious processes (implicit measures of psi); the psi ability of some mediums who, by definition, experience a dissociated identity; and the correlation between dissociation as a trait and reports of ostensible psi experiences. There have also been anecdotal reports of psi abilities among people diagnosed with dissociative identity disorder (erstwhile known as “multiple personality disorder”). However, there has been no concerted attempt to evaluate whether dissociation as a trait correlates with psi performance in controlled experiments. Similarly, from its inception, mesmerism and later hypnosis was related to reports of psi abilities. Although many of these reports could nowadays be explained away through deficient experimental controls, some remain a challenge for skeptical interpretations. More recent meta-analyses continue to find that hypnotic conditions seem to increase psi performance, although the mechanisms through which this may happen are debatable. We are attempting to elucidate how dissociation and hypnosis may relate to psi in controlled protocols. So far, the pattern seems to point out to a complex interaction between these variables, experienced alterations of consciousness, and other variables. Finding personality traits and consciousness states that facilitate psi performance should help in the search for the elusive conditions that may produce more reliable psi results.

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PSI AND PSYCHOACTIVE SUBSTANCES

DAVID LUKE

ABSTRACT: This presentation will discuss the relationship between psychoactive substances and psi, although focusing mainly on so-called extrasensory perception (ESP)—telepathy, precognition, and clairvoyance—rather than psychokinesis (PK), because this latter phenomenon suffers from a paucity of research in relation to psychopharmacological agents. The review is based on research borrowed widely,

but by no means exhaustively, from parapsychology as well as transpersonal studies, anthropology, ethnobotany, phytochemistry, psychiatry, psychotherapy, psychopharmacology, and neurobiology, particularly neurochemistry. The overview will cover: (a) field reports of intentional and spontaneous phenomena incorporating anthropological, historical and clinical cases, and personal accounts, (b) surveys of paranormal belief and experience in relation to substance use, (c) experimental research on drugs and psi, and (d) a methodological critique of the experimental research with recommendations for further work.

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MEDITATION AND PSI: RESEARCH REVIEW

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ABSTRACT: During the 1970s interest in maximizing conscious awareness of psychic information focused on the effects of altered states of consciousness. Part of this program of research investigated meditation as a state of consciousness that was potentially psi-conducive. Sixteen studies were run, with mixed results, that Honorton (1977) found gave a highly significant finding of improvement in psi scoring after meditation ($p = 6 \times 10^{-12}$). Between 1978–1992 there were six more studies, which Schmeidler summarized with the conclusion that meditation may be psi-conducive when the meditators accept the testing procedure. Most of the research used beginners in meditation and looked at the effect of meditation on receptive psi using both forced-choice and free-response methodologies. More recent research has also looked at the effect of meditation on active psi, such as a study by Radin et al. looking at the effect of mental intention on the double-slit experiment in quantum physics, which found that meditators affect the outcome. One series of research looked at the effect of distant influence on quality of meditation. Schmidt (2012) did a meta-analysis of the twelve studies run between 1993 and 2006 again finding significant results ($p = .009$). Some of this research was done with Western meditators and some in Bali, this being the first time that a series of research studies were done with non-Western participants. There were clear cultural differences, with Eastern meditators showing far less distraction. Four studies run between 2002 and 2008 looked at the difference between beginners and advanced meditators in India, working both with Yogis and Tibetan Buddhist monks. The results indicated that years of practice correlated with increasing levels of psi scoring. Another recent study, working with advanced meditators, looked at the effect of meditation on presentiment (the unconscious physiological response to a forthcoming stimulus), again with significant results.

Overall though, research with meditators has been fairly sparse despite the clear effect of meditation on both psi awareness and psi influence. However, a huge variety of types of meditation have been used and only one preliminary attempt has been made to compare different types of meditation. It is necessary now to start exploring the characteristics of meditation that makes it psi-conducive. Nor have the cultural differences been explored—is this another effect of belief or some other characteristic of meditation? This is a promising line of research that needs far more attention.

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PANEL: THE CONTRIBUTIONS OF ITALIAN PARAPSYCHOLOGISTS TO INTERNATIONAL PARAPSYCHOLOGY

CHAIR: ALEJANDRO PARRA

Interest in psychic phenomena in Italy has a long history. A list of renowned Italian psychical researchers includes Cesare Lombroso and Enrico Morselli, known for their studies of medium Eusapia Palladino and their psychological and psychiatrically-oriented observations of mediumship, as well as such figures as Ferdinando Cazzamalli, Giovanni Battista Ermacora, and William Mackenzie, whose research and theories of psychic phenomena were important developments in the history of parapsychology in Italy. However, none of them achieved the fame, published so much, or explored so many diverse areas of the field as Ernesto Bozzano, considered by Nandor Fodor to be “the dean of Italian psychical researchers and spiritualists.”

In Italy, the coordinated planned study of Italian parapsychology started in November 1901, when Angelo Marzorati founded the *Società di Studi Psicici* (Society of Psychical Studies) in Milan, and started a series of experimental studies with the mediums Charles Bailey, Augusto Politi, Eusapia Palladino, and Lucia Sordi. Among the members, there were such well-known personalities as the anthropologist, psychiatrist and criminologist Cesare Lombroso; the physiologist Filippo Bottazzi; and the neuropsychiatrist Enrico Morselli, whose book *Psicologia e Spiritismo* (*Psychology and Spiritism*) is certainly a classic in our field. We must also cite Luigi Barzini, Antonio Fogazzaro, Luigi Capuana, Ernesto Bozzano, Antonio Bruers, William Mackenzie, and Rocco Santoliquido who were interested in parapsychology at different levels.

In Rome, in 1937, four well-known scholars—Ferdinando Cazzamalli, Luigi Romolo Sanguineti, Giovanni Schepis and Emilio Servadio—founded the Società Italiana di Metapsichica (Italian Society of Metapsychics), which, on January 23rd, 1941, was recognized by a State Government decree. In 1946, after the war, a section of Italian Society of Metapsychics led by Professor Cazzamalli left the Society and formed the present Associazione Italiana Scientifica di Metapsichica (AISM, Italian Scientific Association of Metapsychics) in Milan. Later on the Società Italiana di Metapsichica changed its name to Società Italiana di Parapsicologia, using the term “parapsychology” instead of the more traditional “metapsychics.” In 1948, the Centro Studi Parapsicologici (Center for Parapsychological Studies) was established in Bologna. The founders were Dr. Buscaroli, Dr. Marabini and Dr. Cassoli. At first it was a section of the AISM of Milan; then it led an autonomous life asserting itself as the most active center, particularly in the experimental field.

In 1959 in Naples, the magazine *Uomini e Idee* (Men and Ideas) started publication. In 1965 it was replaced by *Informazioni di Parapsicologia* (News on Parapsychology), as an organ of the Centro Italiano di Parapsicologia (Italian Center of Parapsychology), a new association that joined the other three already in existence. At the end of 1968 there was established in Pavia the Centro Italiano di Studi Metapsichici (Italian Center of Metapsychic Studies), with a more limited program: the organization and study of psychic healers in Italy. Finally, in Rome, in 1960 the Facoltà di Scienze Psiciche e Psicologiche (Faculty of Psychical and Psychological Sciences) of the Accademia Tiberina was established.

This concludes the historical survey of the associations interested in parapsychology in Italy. I think it is appropriate now to present an idea of the work of each of these associations, and of the trends, too often not very clearly stated, of the association itself or its members.

PARAPSYCHOLOGY IN ITALY: AN OVERVIEW

MASSIMO BIONDI

ABSTRACT: As well as in other European countries, in Italy psychical research sprang from an interest in hypnosis and the phenomena that can be obtained in hypnotic trance. After some isolated antecedents around the half of the 19th century, it was in 1885–1886 that some neuro-psychiatrists began to observe and experiment with such unorthodox topics as the reversal of the states of mind because of magnets and the “transmission of the will,” as showed by “artists” in theaters. These beginnings were completely autonomous from the foundation of the Society for Psychical Research (SPR) in 1882 and from the activities in the field of Spiritism. However, within a few years, most of the studies of, and interest in occult matters applied to the mediumship of Eusapia Palladino, and in the subsequent 30 years, this was the issue most discussed, debated and experimented on (with committees, instruments, rigorously planned tests) by a lot of men of science and medicine. It should be noted that those who dealt with Eusapia were split between supporters of the genuineness of her supernormal powers (and of the intervention of the spirits at her séances) and critics, who believed that the woman was cheating, if not always, at least very often. The question remains unresolved.

Only a few of the “psychical researchers” of that time broadened their studies to embrace other kinds of phenomena. Between these, we have to remember Cesare Lombroso (telepathy, poltergeist/hauntings), Enrico Morselli (telepathy, mediumistic phenomena with Eusapia Palladino and other people), Giovanni Battista Ermacora (all psi phenomena, poltergeists). Ermacora also founded a journal, on the example of the *Proceedings of the Society for Psychical Research*, and was the first one to carry systematically in Italy the interests, the debates, and the criteria of analysis of the SPR. In a few years after his death (1898), however, his work was dispersed and none had the interest or the skill to resume it.

From the second decade of the 20th century, with the decline of the activities of Eusapia Palladino, new topics and new men did emerge in Italian psychical research. The biologist and philosopher William Mackenzie examined the “clever horses” of Elberfeld and other animals that seemed to possess the ability to communicate with humans. Mackenzie also studied a few mediumistic cases. The physician Rocco Santoliquido, head of the Italian Administration for Health and Medicine, was involved in a strange case of mental mediumship, after which he became interested in psychical research, so that in subsequent years he was instrumental in strengthening the spiritistic monthly journal, *Luce e Ombra* (Light and Shadow), and in the creation of the Institut Métapsychique International in France. The psychiatrist Ferdinando Cazzamalli experimented with various kinds of “energetic” phenomena, like cases of psychokinesis, dowsing, and the presumed effects of the laying on of hands on the sthenometer of Paul Joire, and was convinced that he had found evidence that electromagnetic brain waves coincided with supernormal activities of the mind. From a historical perspective, Cazzamalli was lucky to have founded (thanks to aid from Fascist authorities) a Society, the first one of this kind in Italy, that was not only active for decades in promoting and spreading a good public opinion of many parapsychological themes, but also attracted to this field many personalities and students coming from various areas of the Italian main culture: between them, a lot of physicists and physicians, and such eminent figures as Emilio Servadio, Ernesto de Martino, Alighiero Naddeo, Vincenzo Nestler and others. Almost all of these men conducted field investigations, and experimental research on different “psychical” topics.

After World War II, other societies similar to Cazzamalli’s arose in different towns of Italy, and research and other types of studies were conducted almost everywhere. Of main relevance were, however, the works done in Rome (Naddeo, Nestler etc.) and Bologna (Piero Cassoli, Enrico Marabini), which consisted of analyses of spontaneous cases like hauntings, telepathic dreams, religious apparitions and other phenomena (weeping statues of the Virgin Mary and the like); tests with psychics and “spiritual healers”; and experiments on ESP and PK. These men often used procedures somewhat different from those used by Rhine and his followers, such as representation of animated scenes, new methods to re-submit targets

to subjects in ESP tests, among others. Continuous in those decades (as in the last twenty years of the 19th century) a number of journalists have also been active, often biased toward a spiritistic view of the discussed phenomena, but open to all the topics of psychical research. Their writings in the main newspapers and magazines, and ultimately their participation in radio and television programs, greatly contributed to the dissemination of information on parapsychology. The birth and activities of a committee of skeptics, similar to the American CSICOP, around the end of the 20th century, produced in Italy a clear cutback of space for and interest in parapsychology and the activities of the parapsychologists. As a result of this and other social crises, at the beginning of the 21st century, the research (observations, surveys, experiments) and discussions (conferences, seminars, courses) in the field of parapsychology declined significantly. Today this activity is practiced with difficulty and by a small number of people.

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THREE IMPORTANT ITALIAN PARAPSYCHOLOGICAL PERSONALITIES OF THE FORTIES AND FIFTIES OF THE PAST CENTURY

GIULIO CARATELLI

ABSTRACT: There are three personalities, serving inside the Società Italiana di Metapsichica (SIM), founded in 1937 and from 1955 called the Società Italiana di Parapsicologia (SIP)—nowadays no longer active—who are worthy of a renewed consideration for their constant engagement in the investigation of paranormal phenomena, their proposals, and the specific contributions they made to the parapsychological community. Moreover their work takes place in a period that is considered very important for that organization of research, that is the years between the 1940s and the 1950s. These individuals are Tito Alippi (1870–1959), Giovanni Schepis (1894–1963), and Francesco Egidi (1880–1969).

Tito Alippi, a physicist, tried to address the problem of the possible physical and material foundations of some paranormal manifestations. He stressed the need not to interrupt the investigation of great physical mediumship in favor of the so-called “statistical-quantitative” approach. The ability to find reliable mediums to investigate is often not considered favorably, as such mediums were not easily an object of experimental research.

Giovanni Schepis, a statistician, mainly studied in an in-depth way the different topics and methodological levels involved in the the investigation of paranormal manifestations, mainly applying statistics to the results of laboratory experimental tests.

Francesco Egidi, a man of letters, studied mediums in-depth. He was particularly interested in Daniel Dunglas Home and the Roman mediums Vincenzo Sassaroli and Augusto Politi. Egidi was also involved in the relations that can exist between painting and parapsychology, asking himself about what are often called “modified states of consciousness” in artists, researching the features of produced works, and the possibility that perceptions of other realities may be determined by internal and individual stimuli towards artistic work.

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THE BOLOGNA CENTER FOR PARAPSYCHOLOGICAL
STUDIES (CSP): RESEARCH BETWEEN 1970 AND 1985

FERDINANDO BERSANI

ABSTRACT: In this talk I will try to summarize the research activity carried out by the CSP between 1970 and 1985, mainly focusing on the work in which I was directly involved, which is a significant part of the entire activity. Unfortunately the results of these studies were only published in Italian, and thus are practically unknown to the international community of parapsychologists, except their mention in a book on the history of parapsychology by John Beloff.

In the beginning of the Seventies most of the research was directed toward the observation of spontaneous cases, including psychics; one of the most gifted was Luisa Godicini, an exceptional Italian clairvoyant. In the same period, many well-known psychic healers were studied by Piero Cassoli, who reported his medical observations and results in a seminal book on this topic. Another extraordinary case studied by the CSP was that of the mediumnistic painter Giuseppe Lanzillo, who produced something like 230 paintings of exceptional quality in a restricted interval of time (about 12–14 months) while in a nocturnal trance-like state, and before stopping as suddenly as he had started. Also at the beginning of the Seventies, the Raudive Voices phenomenon (or “metaphonia”) attracted the CSP’s attention, it became popular in Italy and among many people, usually individuals who had lost children or other loved ones, then wrote books about or otherwise publicized their experiences.

A group of the members of the CSP, including myself, were deeply investigating the phenomenon. We tried to obtain anomalous voices with different techniques and to simulate them in different ways. After about a decade of observations and experiments, the most unusual conclusion was that the phenomenon could be explained in terms of psycho-acoustic illusions, a sort of acoustic “Rorschach inkblots.” In the middle of the Seventies, the self-proclaimed psychic star Uri Geller came upon the scene and became popular all over the world. We had a few informal meetings with him in which we tried to make non-systematic observations, some of them were very exciting at first sight. But the possibility of a systematic study was offered by a number of children (the so called “mini-Gellers”), who, watching Uri Geller on TV, started to imitate him, obtaining apparently paranormal metal bending and other anomalous effects. In particular, a small group of the CSP (myself as a physicist, Aldo Martelli as a chemist, Angela Peduto as a medical student, Anna Bononcini as a psychologist) followed four mini-Gellers, three of them for at least five to six years, making observations both in spontaneous situations and in systematic laboratory experiments.

A critical report summarizing these numerous experiments was published in *Psychoenergetics: The Journal of Psychophysical Systems* in 1983. We considered these experiments (together with those performed in the UK by John Hasted) to be the most accurate research on this kind of phenomenon. At the end of the Seventies, a systematic study was conducted by Bersani and Peduto on mediumnistic painters, which was the basis for a University thesis that reported an attempt to compare this kind of artistic production with that of schizophrenics. Other studies were also conducted in this period on different cases of poltergeists. Except for some isolated reports in Italian journals and some papers in CSP’s publications, most part of these investigations were published in internal reports.

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THEORETICAL AND EXPERIMENTAL CONTRIBUTIONS
AT THE LEVEL OF PUBLIC AND PRIVATE INSTITUTIONS

PATRIZIO TRESSOLDI

ABSTRACT: I will present a description of the status of theoretical and experimental contributions at the level of public and private institutions now active in Italy. At present there are only three people working in public institutions and universities: one at the Dipartimento di Psicologia Generale (Department of General Psychology) at Padua University, one at the Dipartimento di Fisica (Department of Physics) at Bologna University, and a third at the Dipartimento delle Scienze Biologiche (Department of Biological Sciences) at Naples University. In contrast, there are at least four independent private groups with an interest in parapsychology now active. What impact does this have on their scientific activity in mainstream science and on informing lay people?

The private groups play an important role in the dissemination of information related to different parapsychological arguments, allowing them the possibility to meet and exchange information with people who have the same interests. However, this level of activity does not contaminate in any way the scientific community and the media that disseminates scientific findings. Simply put, it flows as it was in a parallel world.

At the level of mainstream science the situation is similar to all European countries, except England. That is, there are no formal courses for undergraduate or graduate students and the word “parapsychology” must be banned or used with much care so as to prevent aversive reactions, and mental and emotional associations with pseudoscience. This well-known situation is comprised of a combination of multiple negative components, that, in my opinion, are mainly caused by theoretical and experimental parapsychologists, the rest being a result of the dominant theoretical paradigms related to the functioning of the human mind.

Which problems are caused by active parapsychologists? I see basically the following: That their scientific contributions are almost exclusively disseminated by specialized journals with restricted accessibility. The consequences of this is that they are simply ignored (i.e., “*We originally set out to survey the 12 studies referenced in Storm et al. [2010] that yielded z scores over 2.0. Unfortunately, it is difficult to obtain these studies as they are neither carried by many academic institutions nor available through interlibrary loan.*” Personal communication, Rouder, Morey and Province, 2013). The solutions are: (a) Specialized journals must be open access; (b) Parapsychologists must disseminate their findings by using mainstream journals preferring those with open access. The second solution will force parapsychologists to move mainstream science, psychology in particular, towards their theoretical models and experimental protocols instead of waiting for the contrary. In my view, this is the only strategy that could break the wall of prejudice against the types of phenomena that apparently violate commonly held assumptions about the functioning of the mind.

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INVITED ADDRESS: WHERE DOES
CONSCIOUSNESS COME FROM?

SIMON THORPE

ABSTRACT: We all know what it is to be conscious. But how did this consciousness appear during evolution? The standard scientific view is that our consciousness results from the activity of the billions of neurons in our brains. If that is the case, there must have been a point in evolution when nervous systems became sufficiently sophisticated to allow consciousness and we can ask when this point occurred. Is it

limited to primates? Or mammals? Or vertebrates?

These are tricky questions. But another problem is inherent in the idea that consciousness can be understood in the standard information-processing model common to much scientific thinking. According to this view, consciousness allows some specific functions to be implemented, functions that can be modeled in software simulations. But a major problem with that idea is that if those functional explanations are true, why are our brains not just sophisticated computers? Why do we need to be conscious, if all that is happening is stuff that can be run in software?

In this talk I will discuss some of the reasons why I believe that even hard-nosed materialists will at some point be forced to admit that there is more to consciousness than just neuronal activity. Recent developments in psi research seem to be making this change more and more inevitable.

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RSPK AND CONSCIOUSNESS

BY WILLIAM G. ROLL (DECEASED) AND WILLIAM T. JOINES

ABSTRACT: We review some important RSPK cases and discuss physical theoretical concepts that may account for the phenomena. A major problem for the RSPK researcher has been to identify the energy that causes object movements. As a first step in understanding RSPK, Puthoff proposes that the agent makes coherent the random fluctuations of the zero-point energy (ZPE), a plenum of electromagnetic energy that fills space and interacts with gravitation and inertia. Joines has previously suggested that the RSPK process involves psi waves from the agent. The ZPE concept fills in the picture: Psi waves produce a coherent signal directed at a physical object and ZPE provides the energy for RSPK. In the light of the ZPE theory, Joines analyzed the attenuation effects in the Miami, Olive Hill, and Tina Resch cases. The best fit was the product of an exponential decay curve and an inverse distance curve, suggesting that the ZPE may be the connection between psi waves and electromagnetic waves. Friedan's theory, presented in his book *Physics from Fisher Information*, has implications for the understanding of how RSPK and psi information can be acquired by physical objects, including human observers and information taken to be a physical entity that can flow from one system to another.

Keywords: poltergeist, conscious, subconscious, agent, object movement

RSPK primarily consists of movements of household objects and furniture, that is, objects weighing a few ounces to several pounds. In other words, the occurrences are energetic displays involving material objects that ordinarily are constrained by inertia and gravitation. As a rule, couches and tables move shorter distances than lighter objects, which is to be expected if the light and heavy objects are both subject to energies of the same intensity. At the same time the events reflect the psychological relationship between the agent and others in the area, including investigators.

The first poltergeist case one of us explored (WGR) (Pratt & Roll, 1958) was "the house of flying objects" in the town of Seaford on Long Island. Detective Joseph Tozzi, who was in charge of a police investigation, said that he and another police officer had witnessed some of the occurrences and could not explain them away as trickery. At first Tozzi suspected Jimmy, the 12-year-old son in the family, because he was usually at home and awake when things moved. Pratt and WGR subsequently spent several days in the home during which time there was an incident in the basement when they were with the family upstairs.

Similarly to most other psi researchers, Pratt and WGR thought the incidents were due to unconscious PK by the person who was at the center of the activity, in this case Jimmy. They named the phenomena "recurrent spontaneous psychokinesis" or RSPK. The things that were affected usually belonged to the parents and the events often happened in their living space. For instance, two porcelain figurines, a male and a female, broke in the sitting room, which was reserved for the adult members of the family (Roll, 1968). Psychological studies of the boy suggested that he had strong feelings of anger, especially towards his father.

Jimmy was evidently the source of the energy because the incidents clustered around the boy and then became less frequent with increased distance. Such attenuations are also shown by known forms of energy. Unlike inanimate forces, however, the activity in Jimmy's home was confined to the living space he shared with his family. There were no incidents at his school nor, as far as Pratt and WGR knew any occurrences in the yard outside the home. The energy seemed to have had a psychological component that was confined to the space Jimmy shared with his family.

WGR made similar observations at other RSPK sites. For instance, in the Newark case (Roll,

1969), the disturbances occurred in an apartment occupied by the 12-year-old agent and his grandmother. The neighbors knew about the incidents but none of them reported anything out of the ordinary in their own apartments. The incidents did not extend beyond the boy's psychological space.

The six cases we investigated all showed a significant attenuation with distance. At this time, we were collaborating with a colleague of one of us (WTJ) from the Department of Electrical Engineering at Duke University, Dr. John Artley, through the Psychical Research Foundation where WGR was project director. This collaboration was extended to include Dr. Don Burdick of the Department of Mathematics at Duke, and we four examined similarities between the RSPK attenuation and known physical forms of attenuation.

But was the effect real? There seemed to be genuine RSPK incidents in all six cases, as attested to by WGR and other witnesses. Objects that moved in close proximity to the agent often did so when the agent was unobserved, such as when the agent was preparing to go to sleep. It was possible that some of the incidents close to the agent were due to normal throwing of nearby objects and that this resulted in the clustering of occurrences close to the agent. There were three cases in which this could not have been the explanation. In the Miami case (Roll & Pratt, 1971), the Olive Hill case (Roll, 1972, Ch. 11; Roll & Stump, 1969) and the Resch case (Roll, 1993), the incidents used for our analysis took place when the agent was being observed by outside witnesses, usually by WGR or his colleagues. This was also true for occurrences in close proximity to the agent. A summary of the three cases follows.

Three Evidential Cases

Miami, Florida: An Experiment at an RSPK Site

When Gaither Pratt and WGR (Roll & Pratt, 1971) arrived at Tropication Arts, a warehouse for novelty items in Miami, Florida, the police had noticed that there were certain shelves from which things were more likely to take off than others; so-called area focusing. The incidents were rarely seen, and when news media pointed their cameras to the active sites, this too inhibited the occurrences. Because direct observation suppressed the activity, the officers used empty soft drink bottles as "decoys" placing them in the special sites. Several crashed to the floor when no one was near, including Julio Vasquez, a 19-year-old shipping clerk who seemed to trigger the incidents. There had been object focusing as well, beer mugs and "Zombie" glasses being especially active. Direct observation inhibited the events, so an experiment was set up by using these types of objects as targets for macro-PK, placing them in the special sites, and having the owner and employees stay away from these parts of the warehouse. In this way Pratt and WGR could be certain that no one except themselves were near the targets. For instance, WGR was watching Julio place a toy alligator on a shelf when a Zombie glass four feet behind him fell to the floor. Both his hands were occupied; in the right he held the alligator, in the left his clipboard. Two other workers were present but they were more than 15 feet from the glass. They could not have picked it up previously and then thrown it because WGR had placed the glass on the shelf and no one had been near it since then. The incident had an intriguing aspect. WGR wanted to find out if the objects simply slid off the shelves or if they could be made to rise up in the air. He had therefore placed some notebooks in front of the glass and other objects along the sides. These were undisturbed, so the glass must have moved up at least two inches before falling to the ground. Later, a box of ten beer mugs WGR had placed as a target on the shipping desk crashed to the floor two to three feet away. Julio was five feet from the desk, walking towards WGR and away from the desk, and WGR was looking directly at him when the box came down. The only other employee present was behind WGR.

The Zombie glass and the box of beer mugs were among ten target objects that moved from an experimental area under the following conditions. Pratt or WGR had previously examined the object and the area where it was placed; one of the two had the area under surveillance from that time and until the event. One of the two went to the area immediately after each event, and before any of the employees.

Once there, they again examined the object and area. The two incidents were also among seven that occurred when Pratt or WGR had Julio in direct view. These events could not be accounted for except by macro-PK.

Mischo (1968) has suggested that the objects affected by RSPK are “substitute objects” that represent people associated with the objects. The Miami case is a good example. The events mostly consisted in the movement and breakage of merchandise belonging to the owner. According to Gertrude Schmeidler, who analyzed the Thematic Apperception Test and the Rorschach test (in this study as in most of others studies conducted by WGR), Julio regarded the owner as “phony and cheating” (Roll, 1972, p. 171). There was a subtle change during the investigation. Pratt and WGR hoped to witness the occurrences, and after a few days things began happening in their presence, often when they were looking at Julio. It seemed as if he was rewarding their attention with object-movements. The breakages would probably have continued whether they were there or not, but they would obviously not have involved the objects they set out. The meaning of the events had changed, and thereby, the course they took.

Olive Hill, Kentucky: Direct Observation of Moving Objects

John and Ora Callihan had seen most of their crockery lamps, porcelain figurines and other breakables carried out as buckets of shards (Roll, 1972; Roll & Stump, 1969). The Callihans occupied a four-room house in Olive Hill, a small town in the Kentucky mountains with their grown daughter. When their 12-year-old grandson, Roger, visited to help with chores, he would share their bedroom. To escape the “raw gas” they thought caused the incidents, they moved to another house. After about a week, the occurrences started up again, and then spread to Roger’s own home. He was present during 178 of the 199 reported incidents. When John Stump, a research associate from the Psychical Research Foundation, arrived things had been quiet for two days but the next day there were more than 50 incidents. It seemed that the poltergeist liked the attention and it was not shy about performing in front of strangers.

At one point, John told WGR that he was in the grandparents’ living room looking at Roger, who was sitting with his back to the TV, when there was a loud crack. Roger jumped away and John saw a cloth doily and a large plastic bowl on the TV fall to the floor behind the set, while the plastic flowers that had been in the bowl remained. Then the flowers slowly moved off the set and also landed behind the TV. Here John found the three items arranged as before, the flowers in the bowl and the bowl on the doily. At the same time these objects moved behind the TV, a clock that had also been on the set moved forward, landing on the floor in front of John, about four feet from the TV. Two Chinese plaster of Paris figurines remained in place. John found no strings or other contrivances, and it seemed impossible that Roger or anyone else could have caused the events normally.

WGR came three days later and joined John, Roger, his parents, and younger sister at their home. Until then the object-movements had been confined to the grandparents’ home, but this changed after WGR’s arrival. Shortly after midnight Roger went into the kitchen with WGR trailing behind, when the kitchen table flew up, rotated 45 degrees and fell down on the backs of the chairs that stood around it, its four legs off the floor. When this happened, both the table and Roger were in full view. The boy had just turned around and was facing WGR when the incident took place.

WGR was quite impressed. The event took place right in front of his eyes and it was substantial. Helen Callihan, Roger’s mother, had served them coffee at the same table a short while before, and the cups and plates crashed to the floor. WGR was prepared if something were to happen. There had been several incidents when Roger was by himself so WGR stayed close by. He and WGR were alone in the kitchen, and WGR could find no contrivances to cause the event. Five minutes later Roger had gone into the living room and was facing WGR, when the coffee table behind him flipped upside down. There was no normal way for him to have done this. Beverly, Roger’s sister, was sitting next to the table in WGR’s line of vision. She might have touched it but could hardly have turned it upside down without detection. John and WGR estimated that the coffee table weighed at least 60 pounds.

Finally, when WGR was standing in the doorway between the living room and the children’s bed-

room, a bottle came off the dresser and landed four feet away. WGR was facing the dresser and saw the bottle in the air. It did not slide off and roll into the room but was clearly airborne. When this took place, Roger was walking away, but clearly within WGR's field of view in the living room. Beverly was standing slightly behind WGR on his left; there was no one else in the room. The bottle had been involved in an earlier incident that WGR had not observed. At that time WGR checked it and the dresser for mechanisms that might have been involved in a fraudulent scheme. He could discover no way in which this event could have been produced normally by Roger or anyone else in the family.

WGR speculated that Roger had been upset at spending his time with the grandparents and that this was part of the explanation for the RSPK breakages in their home. WGR thought that the increase in occurrences when John arrived, and the inclusion of Roger's own home when they were there, might have been due to the attention the investigators paid the boy. As in Miami, the presence of the researchers seemed to have changed the meaning of the events and thereby the course they took.

WGR had hoped to bring both Roger and Beverly to Duke University for psychological tests but the parents were not willing. Mrs. Callihan had formed the opinion that the occurrences were caused by a demon and that far from being helpful, John and WGR had brought the demon from the grandparents' house to her own. She said that the phenomena had to stop and that she must ask them to leave, hoping the demon would follow them to Duke. This did not happen.

Chapel Hill, North Carolina: RSPK in a Laboratory

Stephen Baumann, a neurophysiologist at the University of North Carolina, was setting up tests for micro-PK at Spring Creek Institute in Chapel Hill, a non-profit company founded by researchers WTJ, Edward F. Kelly, and Ross Dunseath, all close friends of WGR and Baumann (Baumann, 1995; Baumann, Lagle, & Roll, 1985). When the equipment was ready, in October of 1984, Tina Resch was invited to participate.

The previous March of 1984, the 14-year-old had been the center of an RSPK case in which massive destruction occurred in her home in Columbus, Ohio. At first, the case did not seem promising. Before WGR arrived at her home, a TV news crew had filmed Tina pulling over a lamp, and the incidents that took place over the first three days that WGR was in the home could have been faked. But then there was a string of occurrences in WGR's presence that he could not dismiss. The first involved an empty teacup WGR had just placed on Tina's bedside table; the teacup flew 12 feet when she was in view on the other side of the bed. Shortly afterwards WGR's tape-recorder and a pair of pliers he had just put down moved several feet.

The first test of the Resch phenomena was done by an electrician (Bruce Claggett); the family had called him when lights and electrical appliances turned on by themselves (Roll, 1993). Claggett found nothing wrong and supposed that Tina had surreptitiously turned on the switches.

After WGR arrived at the home, he and Claggett did an experiment. After Mr. and Mrs. Resch had gone on an errand and only Tina and four young foster children were home, Claggett, WGR and Tina made a circuit through the ground floor of the home, turning off lights and taping down switches as they went. WGR insisted that Tina stay right beside him and not get ahead of him. She did this, and at no time was she out of WGR's sight during the next three or four circuits that were made through the home. As fast as WGR would tape light switches down, he would look over his shoulder and see the lights come on. He would look at the switch that controlled that particular light and see that there was no tape there, and yet there was no one in the house except Tina. Claggett, WGR, and four young foster kids who were playing in the family room and oblivious to what was going on at that time. (The family room was outside the circuit.) Claggett never saw a switch move. At one point WGR decided to try to catch a switch in motion. He sat in the living room observing a particular switch for 15 minutes, but nothing occurred.

It is doubtful that the focusing on light switches would have happened if Claggett had not been present; certainly his Scotch Tape would not have disappeared. It seemed that Claggett's interest in the events matched Tina's need for attention; the occurrences were meaningful to both. After Claggett's visit

there was much breakage of glass, throwing of food and flights of objects, some of these hitting Tina. The occurrences seemed to reflect her feelings about her family and herself (Carpenter, 1993). But when Claggett was with the girl, and later when she came to North Carolina, the incidents lost their angry edge. The RSPK that had been destructive in her own home in Ohio became supportive of Tina's social relationships in North Carolina.

When WGR brought Tina to North Carolina, the incidents continued in his home, at the office of Dr. James Carpenter, a parapsychologist and psychotherapist, and in the presence of another psychologist.

By the time Baumann was ready to test her, the activity around Tina had died down, except for the bending of four eating implements. To reactivate the phenomena, it was decided to use hypnosis (Stewart, Roll, & Baumann, 1987). A psychotherapist, Jeannie Stewart (now Dollar) hypnotized Tina in the garden of WGR's home in Durham where she was staying. Stewart was counseling Tina and also participated in the research. The focus of the procedure was to evoke the bodily sensations associated with the occurrences. When Stewart asked Tina to recall an RSPK episode and pay attention to the way her body felt, Tina said her head and stomach hurt, as they had during the RSPK events, and Stewart suggested that the sensation in the stomach could be one of warmth and that instead of the headache there would be a sense of excitement. When Tina said she felt the warmth, Stewart asked her to visualize the movement of one of the objects that had been placed on a table. Four were the eating implements she had bent at home and the others were personal items. Nothing happened and they got up to get a drink. As they walked towards the house, one of the spoons fell to the ground. Stewart was not watching the girl so it was possible she had thrown it.

After having checked that all objects were on the table, Stewart had Tina walk in front of her as they started the walk to the kitchen again. As the girl approached the door, a deodorant stick moved to the ground six feet from the table. Stewart was watching Tina and saw no unusual movements. Next a spoon moved three feet when Tina was inside the house with Stewart. Finally, when Tina once again was walking from the table to the house, Stewart saw something hit Tina's head and found the fork on the ground. Tina cried, "stop hurting me," and flung the fork away.

The question in WGR's mind when he brought Tina to Spring Creek Institute was whether PK could be used as an adjunct to medical treatment. Baumann (1995) did two tests with Tina; in one she tried to influence electric discharges (action potential) of a nerve cell preparation, in the other she tried to change the resonant frequency of a piezoelectric crystal. These materials are found in the tissues and bones of the human body. The results were promising but there were problems in the test procedure that made them difficult to evaluate.

The RSPK continued at Spring Creek Institute during breaks in the tests with the nerve cell and the crystal. Tina was evidently able to control the timing of the events as well as the targets. The PK machines and computers were spared, the occurrences being restricted to tools and unbreakable laboratory equipment.

Because Tina had a degree of control over the occurrences, albeit unconscious, a table was set up with PK targets. If any of these moved, Baumann and WGR would know exactly where the objects in question originated. As a further record, WGR focused a video camera on the table. He had tried to film the occurrences in Tina's home, but the activity stopped when the camera was operating. It seemed that the best chance of recording a moving object was to use a concealed camera so Tina would not know she was being filmed. Baumann, however, felt it was unethical to film without Tina's permission; when she was informed, she gave her permission but the activity ceased. The occurrences resumed after the camera had been dismantled.

Tina was not allowed near the target table; otherwise her movements during the rest periods in which the macro-PK occurred were not restricted. When there was a sound of an object hitting the floor, everyone froze in their positions so that these could be recorded. The heaviest object to move was a 12-inch crescent wrench that had been inside a closed tool box near the target table. While Stewart and Baumann were standing between Tina and the target table and facing her, there was a loud noise from down

the hallway behind the girl. The wrench from the tool box near the target table had smashed against the open door to a second laboratory room, several feet behind Tina, and landed inside. An indentation on the door showed the point of impact. After passing Baumann, WGR, Stewart, and Tina without notice, the wrench had traveled 18 feet down the narrow hallway, took a curved path to enter the open door of the laboratory and then moved another four feet after hitting the open door. It was a powerful flight.

WTJ and one of his graduate students (Randall Takemoto-Hambleton) were assembling a piece of equipment in the second laboratory room during the flight and crash of the wrench. WTJ was facing a glass window on the hallway that ran the full length of the laboratory wall. He observed some movement through the window to the hallway just before the wrench crashed into and bounced off the opened door, but that could easily have been reflection off the glass. The flight of this wrench was most impressive: It came from a closed tool box in one laboratory room and traveled approximately 25 feet along a zigzag path to a second laboratory. To get out of the tool box and travel unobserved by several alert observers may be a case of what Hans Bender refers to as “the penetration of matter through matter” and travel through a higher dimension (Bender, 1969).

A bit later that day, as Randall was walking down another long hallway to leave Spring Creek Institute, he observed that Tina and Stewart were also leaving and walking down the same hallway some 30 feet behind him. Just then he heard a loud crash behind him, and he turned to observe that a fire extinguisher had jumped from its moorings on the wall to crash onto the floor midway between him and Tina. Randall did not see how this could happen by any normal means. It is noteworthy that Randall and Tina had had a lively and friendly conversation earlier in the day. It could be that the wrench and fire extinguisher occurrences had to do with Tina’s need for attention and her positive connection with Randall.

Most of the targets at Spring Creek Institute were too small to cause damage. WGR was seated at the target table when a small plastic level disappeared without notice. It evidently moved down the central hallway, making two turns and traveling about 38 feet to the room where Stewart and Tina were standing. Stewart heard a sound behind them and found the level on the floor. When this happened Tina had both hands in her purse searching for her plane ticket. Another time WGR was sitting at the table and watching Tina seat herself by the window, when a battery hit the window above her head. Stewart sat opposite Tina and also had her in view. A minute later, when they were in the same positions, an “L” bracket hit the window. Both were PK targets. Tina then went to the door of the room, and was standing quietly with her back to the room when Stewart and WGR heard a sound and found a drill bit from the table on the floor about ten feet away. When this happened WGR was watching Tina; she was standing quietly with her hands resting on either side of the door frame, looking out. Altogether, there were 21 movements of objects when Tina was under observation, of which eight came from the target table.

Zero-Point Energy

In each of the three cases, the number of object movements decreased with distance from the agent. Taking the agent to be the origin of the force or signal affecting the objects, this force or signal appeared to be attenuated in the empty space between the agent and the objects.

In WGR’s attempt to understand psi phenomena, he speculated (Roll, 1964) that an object is associated with a “psi field” which interacts with the physical component of the object and also with the psi fields of other objects, thereby resulting in ESP and PK. The psi field of an object, which could be animate or inanimate, contains information about the object and is also a source of energy that may affect the psi fields of distant objects and thereby their physical condition.

More recently (Roll, 1977, Roll & Persinger, 1998), WGR proposed that RSPK may be due to electromagnetic energy from the agent which is converted to the kinetic energy of object movements. He speculated (Roll, 2000) that the process may involve the suspension of the earth’s gravitational field in proximity to the agent. Since then we have also learned about an electromagnetic medium that fills space and could interact with gravity and inertia.

According to Hal Puthoff (1997a, 1997b), a physicist and parapsychologist, empty space is not

truly empty but is filled with zero-point energy (ZPE), which remains active at absolute zero temperature (-273.15 degrees Celsius) where all thermal effects are frozen out. For example, as the temperature is lowered to absolute zero, liquid helium remains a liquid rather than freezing to a solid, due to the remaining ZPE. To cause helium to freeze requires the removal of additional energy equal to 25 atmospheres of pressure. Puthoff's main concern has been to develop a technology to mine ZPE as a non-polluting and renewable source of energy for space travel. For our purposes, his most interesting proposal is that the ZPE may furnish a mechanism for RSPK through the interaction of ZPE with gravitation and inertia (H. E. Puthoff, personal communication, February 8, 2001).

Inertia, the resistance of an object to acceleration, is a familiar phenomenon but lacks a scientific explanation. Puthoff (1997a) regards inertia as a product of the ZPE. The phenomenon, Puthoff explains, results from acceleration of an object relative to the fixed stars. The resistance or drag is delivered by the pressure of ZPE that fills the space between us and the stars. The inertial mass of an object on earth would result from the mass and position of all the matter in the universe. This is known as "Mach's Principle," after the Austrian physicist and philosopher of science, Ernst Mach (1838–1916). This principle was the advent of quantum theory that established the vacuum as an active place, with particles and fields continuously fluctuating about their baseline values (see also Gribbin, 1984, 1995).

If in fact the conscious or unconscious intentions of a person, such as an RSPK agent, may interact with the ZPE, then this implies that the vacuum has a consciousness component or receptor. Puthoff adds, "The question you raise—How does one cohere the ZPE to produce effects?—remains a mystery; we only know that if you can do it, the effects would follow easily, as the energy available is potentially more than enough to account for the observation" (H. E. Puthoff, personal communication, February 8, 2001). The reference here is again to Mach's Principle and the supposition that a coherent message or signal conveying mass and position may be sent via the vacuum fluctuations between objects in the universe.

Puthoff's ZPE theory could further the understanding of RSPK in several respects:

1. If space is not truly empty but filled with energy, there would be a connection through this field of energy between the agent and the objects that the agent seems to affect. The agent, and the rest of us as well, would literally be "in touch" with all objects in the universe.
2. If ZPE represents a source of energy that the RSPK agent taps into, the agent's role would not be to generate the energy for RSPK, but to make coherent the random fluctuations of ZPE and thereby diminish the effect of inertia and gravity (the quantum state) that ordinarily keeps an object in place. The short duration of most RSPK occurrences suggests that coherence is sustained only very briefly. (When there are sounds not caused by object-movements, they are usually percussive rather than sustained.)
3. Again with reference to Mach's Principle, if the agent manipulates ZPE and thereby produces a coherent message or signal directed at a physical object, the process may be attenuated by the random ZPE fluctuations that surround the agent and the object, thereby resulting in the attenuation of RSPK. ZPE at the same time would provide the energy for RSPK and also result in the attenuation of object movements with distance.
4. The selection of objects that are targeted in RSPK would be determined by their quantum informational components and the mind of the RSPK agent. For instance, objects that represented individuals with whom the agent has a tense relationship would be more likely to become RSPK targets than other objects.

Psi Waves and the ZPE

RSPK usually includes movements of objects that occur in the presence of someone, typically a boy or girl in their early teens (Roll, 1977). If this person is absent or asleep, the occurrences usually cease.

If trickery and errors of perception have been ruled out, as has been done in most instances, the investigator is left with the fact that household objects, from drinking glasses and decorative items to heavy

pieces of furniture, move without tangible contact. With such obvious effects there should be an obvious cause. But we could find no evidence of a force that seemed strong enough for the observed effects.

The search has not been entirely fruitless. One of the first things we have noticed about RSPK objects is that they usually belong to, or are associated with, individuals with whom the agent has an intense emotional relationship. This is usually negative but can also be positive. When the occurrences were investigated in Miami, Olive Hill, and at Spring Creek Institute, they often took place when we were observing the agent. It seemed that our attention was a catalyst for the incidents.

A second major feature of RSPK is the attenuation in the number of movements with increased distance from the agent. (Because it is difficult to locate the source of sounds, it is not known whether they follow the same trend.) We have also examined the directions and lengths of movements in relation to the position of the agent in Miami and Olive Hill (Roll, Burdick, & Joines, 1973, 1974). The data seemed to suggest a beam of energy that rotated around the agent. However, when we made a similar study of the object-movements associated with Tina Resch (Roll, Burdick, & Joines, 1999) there was no evidence at all of this pattern. We have no explanation for the discrepancy between the three cases.

A third feature of RSPK is object or area focusing. Certain objects such as a specific piece of furniture, types of objects such as bottles, or areas in the house such as a particular room, are repeatedly affected (Roll, 1977). There were some hints in our research about the type of energy that might be involved. A likely candidate could be subconscious focusing of intent or emotion by the RSPK agent on test subjects, with concomitant electromagnetic radiation in the invisible ultraviolet range of wavelengths (Joines, Baumann, & Kruth, 2012).

The onset of RSPK tends to coincide with disturbing events in the life of the agent such as illness or change of residence (Roll, 1977), and with increases in geomagnetic activity (Gearhart & Persinger, 1986; Roll & Gearhart, 1974). The geomagnetic perturbations, however, seem much too weak to provide the necessary energy. Furthermore, the RSPK usually continued after the geomagnetic field had returned to normal. It seems that a perturbed geomagnetic field could act as a trigger for the initial events but the energy that brings on the occurrences comes from another source. It is quite possible and logical that an increase in geomagnetic activity could change the sensitivity level of the RSPK agent and thus encourage the onset of RSPK activity where otherwise the activity may not occur. Puthoff (2001) suggests that the geomagnetic activity disturbs homeostasis of the normal process so that the function leading to RSPK "can break out of otherwise constraining bounds." The same may apply to local electromagnetic anomalies that have been found at some RSPK sites (Roll & Persinger, 1998).

The brains of RSPK agents may be prone to electromagnetic discharges (Roll, 1977). About a fifth of known RSPK agents show symptoms that suggest complex partial seizure (CPS) which may be due to recurrent electromagnetic discharges. WGR suspected that if the central nervous system of RSPK agents were suitably monitored at the time of RSPK incidents, electromagnetic spikes would be recorded. Although such spikes or signals seem much too weak to affect objects in the environment, they could be examined for correlation with local geomagnetic activity.

WGR suggested (Roll, 1964) that PK and ESP may be understood in terms of "psi fields" that surround animate and inanimate objects. Psi fields have psychological and physical properties and connect people with distant objects thereby accounting for psi phenomena.

WTJ (Joines, 1975; see also Roll & Persinger, 1998) has extended this line of thinking in his proposal that psi energy, like electromagnetism and sound energy, is transmitted in waves. Thus, psi waves are related to physical energies but also have a psychological component. If psi waves represent a new form of energy, there may be no equipment to measure them directly. This may not be an insurmountable obstacle; the same process that generates a psi wave, WTJ suggests, may cause an accompanying electromagnetic wave, which can be measured. As an illustration of a process in which one form of energy is the source of another form, WTJ mentions a tornado which is produced by thermal processes and which generates an electromagnetic wave at specific frequencies due to the swirling electrical charges within the funnel. This wave can be used to detect the approach of a tornado.

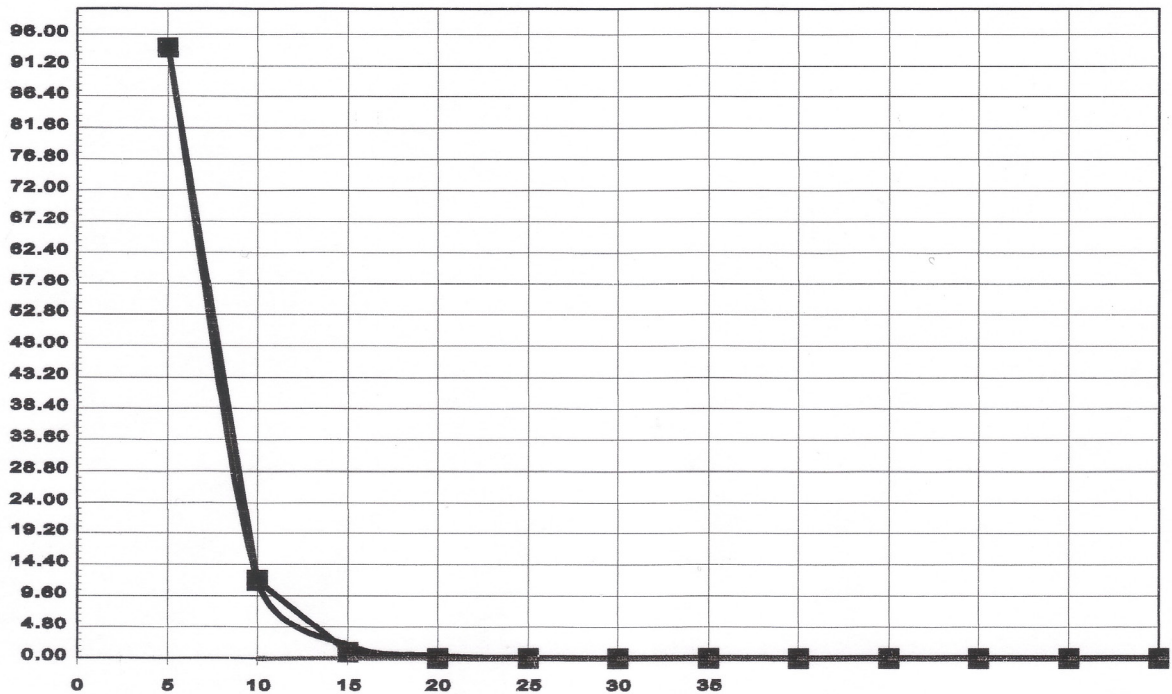


Figure 1. Miami Case: Number of Occurrences versus Distance from Agent Fitted to $(350/D)\text{EXP}(-D/15)$

If a spherical concentration of psi energy contains electrical charges as does a tornado, the region would behave as a tuned electrical circuit and would radiate at a frequency depending upon the size of the spherical region. During an RSPK investigation, WTJ (Joines, 1975) detected a spherical region of space which emitted radiation at a frequency of 146 MHz. This detection was made on two separate occasions using a hand-held radio receiver. The region was about two feet in diameter, which is consistent with the resonant volume that would produce the 146 MHz frequency; and the transmissions persisted for about one minute. Such a concentration of electromagnetic energy of this type lends support for the concepts of both ZPE and psi waves.

A similar observation (Morris, Harary, Janis, Hartwell, & Roll, 1978; Roll, 2000) was made during an out-of-body study at the PRF in which Keith Harary attempted to affect the behavior of a cat one quarter of a mile away. MHz frequencies were measured on six occasions at this site. During one of the trials, a 145 MHz activity lasted almost exactly the duration of the OBE. On four occasions there was an increase in already-present MHz activity during experimental versus control periods, twice at 160–165 MHz and twice at 190 MHz, and in one trial there was no MHz activity during either period. The similarity of most of these values to WTJ's observation is suggestive.

Although WTJ's idea made WGR feel that he was seeing the light at the end of the tunnel, the question remained how a sufficiently intense psi wave to account for object-movements could be generated. The answer may be coherence of the ZPE due to the intense emotions that seem to be associated with RSPK. For example, a small signal of information may organize and generate a large source of energy.

In the light of this possibility, WTJ has analyzed the attenuation effects in the Tina Resch, Miami, and Olive Hill cases. These three cases are the strongest in terms of evidence for RSPK of those that we investigated. In previous analyses of the three cases (Roll, Burdick, & Joines, 1973, 1974, 1999), we found that an exponential decay curve fit the data points better than an inverse distance curve. WTJ has recently reexamined the three cases in the light of the ZPE theory. According to this analysis, the best fit of the data points in the Miami and Resch cases (see Figures 1 and 2) is provided by a product of an exponential decay curve and an inverse distance curve. The equation WTJ used for both cases is:

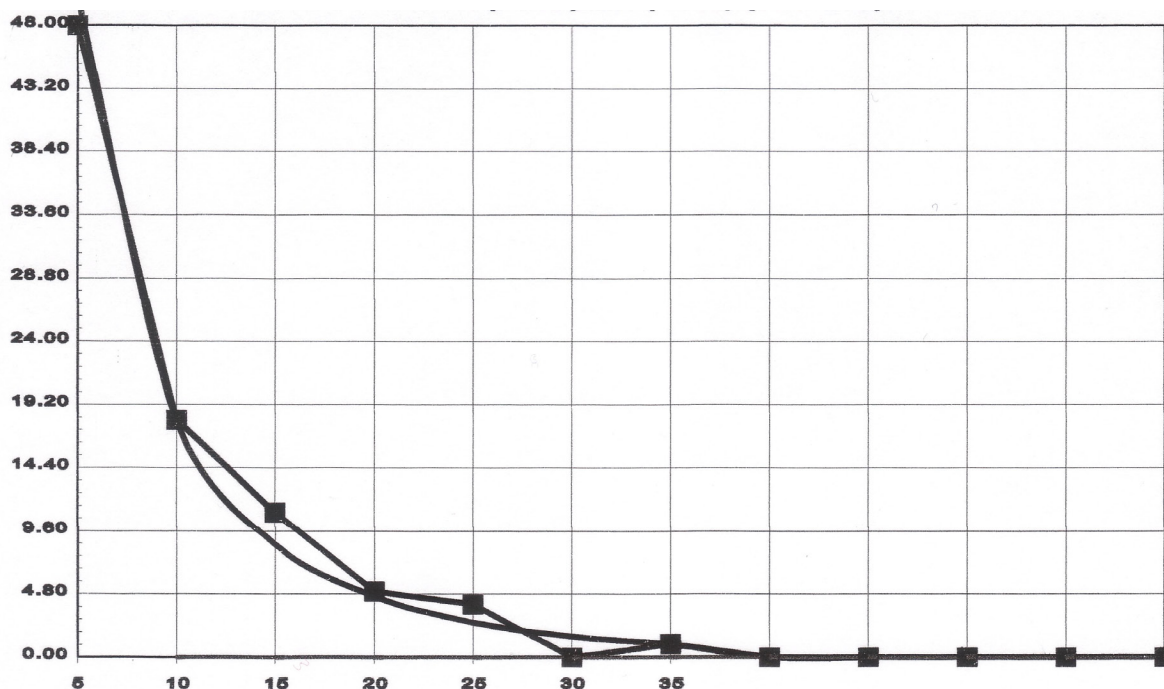


Figure 2. Resch Case: Number of Occurrences versus Distance from Agent Fitted to $(350/D)EXP(-D/15)$

$$N = (350/D)EXP(-D/15)$$

where N is the number of occurrences and D is the distance in feet from agent to event.

The Olive Hill case (Figure 3) had only four points of distance (D), but the number of occurrences again fitted nicely to the same type of curve with different constants. That equation is:

$$N = (1843/D)EXP(-D/3.66)$$

These results are interesting because electromagnetic field intensities propagating outward from a source have this same type of dependence upon distance. If this were an electromagnetic wave, the $350/D$ and $1843/D$ terms would account for the spreading of the field intensity as the wave propagates outward from the source, and the $EXP(-D/15)$ and $EXP(-D/3.66)$ terms would account for the attenuation caused by the medium through which the wave propagates. It is a tantalizing coincidence that the Miami and Resch data points in Figures 1 and 2 fit exactly the same equation with the same constants.

Electromagnetic waves are similar to acoustic waves in that they are described by the same equations. For each type of wave the product of frequency (number of wave oscillations per second) times wavelength (distance between peaks of the wave) equals the velocity of propagation. The acoustic or sound wave cannot propagate through a vacuum. It requires a material, such as water, air, metal or wood, through which to propagate. However, an electromagnetic wave propagates quite well through a vacuum.

A vacuum has no mass and no net electrical charge. A propagating electromagnetic wave relies upon the concept of equal and opposite charge oscillating along with the electromagnetic field intensity. The electric field intensity is a vector beginning on a positive charge and ending on a negative charge. The vacuum may contain the equal and opposite charges, but they must have either no mass, or the mass of one charge must be the opposite of the other. The electric field intensity is polarized in a direction perpendicular to the direction of propagation and the polarization changes sign as the field oscillates through zero to reach a maximum in the opposite direction. This vacuum fluctuation about a zero point is the ZPE

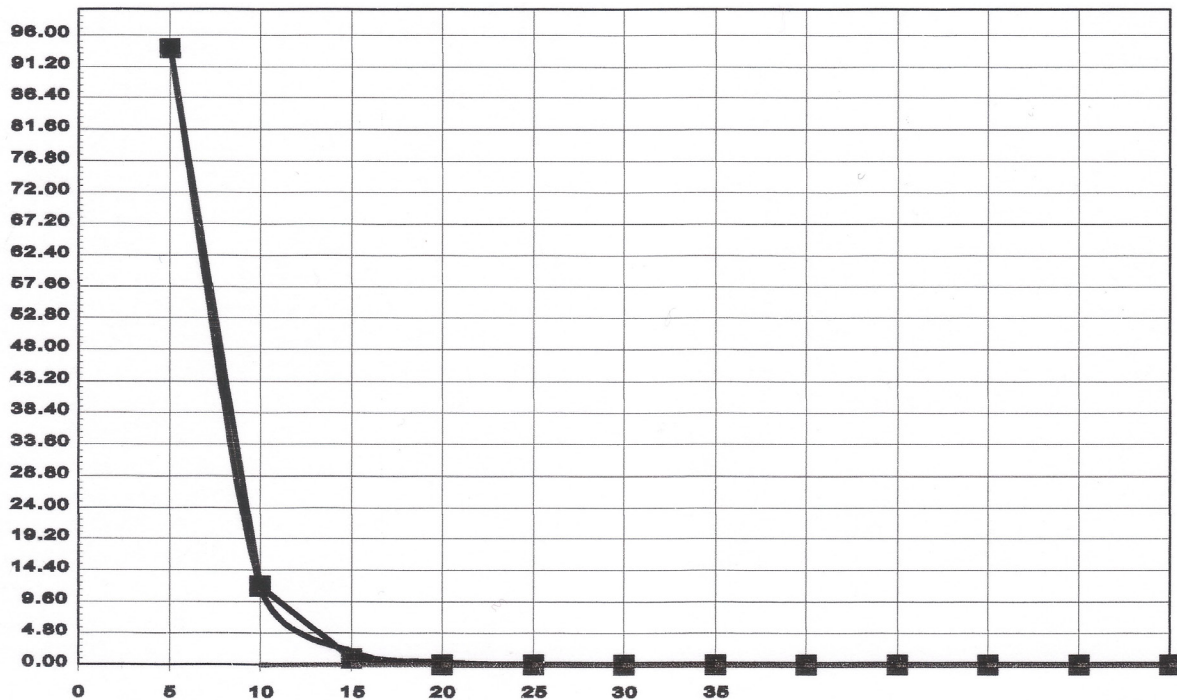


Figure 3. Olive Hill Case: Number of Occurrences versus Distance from Agent Fitted to $(1843/D)EXP(-D/3.66)$

fluctuation, and it has been suggested as the means by which an electromagnetic wave propagates.

Our theory is the psi wave contains coherent information signals from the mind of the agent that is guided through the ZPE to the target. At the target the psi wave signals interact with the ZPE within or around the target such that a directed force is generated that moves the target object to its destination. We do not know exactly how the psi wave (which may be electromagnetic) interacts with the ZPE within or around the target, but consider the following: The stable state of an object can be determined by solving Schrodinger's wave equation. In the solution there appear four quantum numbers that determine the stable state of the object in that particular location. If any one of these four numbers is changed the object may have to move to another location to be stable. One of these numbers has to do with the spin orientation of an electron (clockwise or counterclockwise). It would seem that just a small amount of signal energy at the right frequency could change the electron spin. (The psi wave, or electromagnetic wave, from the agent could be at just the right frequency to induce electron spin resonance.)

Observer Participation

Puthoff (1999) has drawn attention to another physical theory in which consciousness or information is central to physical reality. Roy Frieden (1998) has derived most known physics—from statistical mechanics and thermodynamics to quantum mechanics, the Einstein field equations, and quantum gravity—from a new theory of measurement which incorporates the observer into the phenomenon that he or she observes. "The 'request' for data creates the law that, ultimately, gives rise to the data. The observer creates his or her local reality" (p. i). The theory is not an outgrowth of quantum mechanics but of the work of R.A. Fisher, the British statistician. "Fisher information," written "Fisher I ," is a "kind of 'mother' information" (Frieden, 1998, p. 32–33).

In a review of Frieden's book, Robert Matthews (1999) draws on other sources to outline Frieden's thesis. Frieden's search for the best possible description of physical phenomena focuses on information obtained from nature through observation and information that nature has but which is difficult to obtain.

The two types of information are designated *I* and *J*. *I* is Fischer's information obtained from observation and *J* is the quantity of information presented by the phenomenon measured. The purpose of physics is to extract as much as possible of *J* by measurements that take the form of *I*. In other words, we want the information difference, *J* minus *I*, to be as small as possible.

It turns out that for this difference to be as small as possible, the phenomenon must obey a differential equation. Differential equations are formulae showing how the rate of change of a certain quantity is affected by outside influences. For instance, Newton's second law of motion relates the acceleration of an object to the force applied: $F = ma$, that is, force equals mass times acceleration. Acceleration is the rate of change of velocity, which is the rate of change with distance. Also, Maxwell's differential equations show that a time-varying magnetic field generates an electric field, and a time varying electric field generates a magnetic field, and both fields initially arise from external sources of charge and current. Similar formats show up across all of physics.

From a psychological perspective, you could say that *I* is knowledge of which the observer is aware; it is *conscious* knowledge. On the other hand, *J* is knowledge of which the observer is unaware; it is unconscious knowledge.

By incorporating the observer into the phenomenon under measurement, "the observer becomes both a collector of data and an activator of the physical phenomenon that gives rise to the data" (p. 1). The same idea has been stated by J. A. Wheeler (1990): "Observer participancy gives rise to information; and information gives rise to physics" (Quoted by Frieden, 1998, p. 1.). The equating of perception with reality has been voiced in different terms by the British philosophers, George Berkeley (1710/2008), Bertrand Russell (1926), and H. H. Price (1940).

Frieden "... regards reality as being perpetuated by requests for knowledge. ... Observer participancy ... adds a new, creative dimension to the nominally passive act of observation" (p. 108). He draws a distinction between his concept of creative observation and logical positivism. While logical positivism holds that all statements other than those describing or predicting observations are meaningless, Frieden goes a step further by stating that the observations are themselves meaningless except insofar as they create local physics. Observation, and the information to which it leads, is an energetic exchange between observer and object, it is "... a physical entity that ... can be transferred, or can 'flow,' from one system to another ..." (p. 106).

Frieden's (1998) approach leads to the assertion that "... *the meaning* of the acquired data to the observer" (p. 235) affects the observation. His account is thereby "knowledge based" as well as physical. Stated succinctly, "*acquired knowledge reflects physical state as well*" (p. 236).

This is where Frieden becomes really interesting. When you bring in acquired knowledge you bring in the history of the observer, including the individuals who imparted the knowledge to the observer. In addition to cognitive knowledge that can be expressed by the equations of physics, knowledge has an emotional aspect that infuses observation with energy. Frieden does not deal with the emotional aspect of observation; but emotion undoubtedly affects observation, the observations by physicists and the observations by lay individuals. Following Frieden's approach, we would expect that the emotions of the observer would affect local reality. This is what we see in RSPK.

According to Frieden, "making a measurement is a quantitative way of asking a question." He adds, "It is interesting to consider whether asking a qualitative question, as well, leads in some sense to a physical phenomenon" (p. 108). Continuing along this line of inquiry, the question arises whether the observations and actions of daily living create the reality we inhabit.

Frieden (1998) says that insofar as "the observer is part of the observed phenomenon ... a full quantum treatment of the data collection process should include the observer's internal interactions with observed data values. This would require at least a five-dimensional analysis of the measuring apparatus and the observer as they jointly interact: four-dimensional space-time, plus one 'reading' internal to the observer" (p. 252). The "internal 'reading'" presumably refers to the meaning of the acquired data to the observer.

Because Frieden opens the door to five-dimensional analysis, there are a few RSPK reports in which the object movements invited a five-dimensional analysis. Bender (1969) described how a lawyer who had taken an interest in RSPK—his office was the scene of the Rosenheim events—did an experiment in the home of a family in Nicklheim where RSPK was reported in proximity to the 13-year-old daughter. The family had told him that objects would disappear from the home and then fall to the ground outside. The lawyer placed a bottle of perfume and a bottle of tablets on the kitchen table, asked the family to go outside, then closed all windows and doors and went outside himself. “After a short time, the perfume bottle appeared in the air outside the house, and a bit later on, the bottle of tablets appeared in the air at the height of the roof and fell to the ground in a zigzag manner” (p. 96). Referring to different dimensions Bender noted, “Clearly, no room is closed if an object can take a trajectory in higher space. It will, in addition, appear or disappear instantaneously” (p. 101). Owen (1964, p. 294ff) explored the idea of higher space for similar reasons.

Also, an incident in the Resch home is suggestive of a five-dimensional analysis. Mrs. Resch told WGR that she was making breakfast one morning when the eggs flew up from the carton and smashed against the ceiling. To preserve those that were left, she asked Tina to put them in the refrigerator. When the girl had done so and closed the door, Mrs. Resch said, the eggs continued to come out and smash. She did not see them come out, but Tina claimed she saw an egg penetrate the door. The event is of little evidential value but is reminiscent of other RSPK cases in which objects were reported to move out of or into closed space.

Speaking of RSPK, Bender (1969) found “psyche and matter . . . so inseparably entangled that the discrimination between an external (physical) and an internal (psychological) aspect might . . . be an inadequate way to grasp what essentially happens.” (p. 100). This is true also of ordinary experience. In addition to their sensory side, objects have the quality of meaning. We pay attention to things because of their importance to our lives, not because of their sensory qualities; or more accurately, we pay attention to the sensory aspects of a thing because of its meaningfulness. In extrasensory perception in which the sensory aspect of the object is missing, its meaning may be apprehended. The same may be true for subliminal sense perception (Dixon, 1979). From a psychological perspective, objects are not only material, they have a meaning component. Note that the term is used in a cognitive/informational sense and a conative/energetic sense. It is the meaning of things that determines our movement in four-dimensional space-time, that makes us approach some objects and spurn others. Emotion moves us mentally and physically. If matter and meaning are connected it does seem possible that emotion may move things out of view, into space-time. Consider memory. To remember is to bring a mental object, like an image or emotion from the past into the present; to forget is when a mental object is left behind. If we suppose that the memory/meaning of a physical object is part of the object, the object too may disappear when it is repressed or forgotten.

In studies of PK in which the participants’ task was to affect random physical processes, Robert Jahn and his associates (Jahn et al., 1997) found that subjects who were far removed from the machines were as successful as when in the same room. This would make sense if the intent of the subject as contained in the psi wave is aimed for the target at its particular location. The successful participants spoke of “some form of bond or resonance with the device, akin to that one might feel for one’s car, tools, musical instruments or sports equipment” (p. 359). This emotional bonding or resonance with an object would seem to support Bender’s finding in the previous paragraph.

The RSPK agent is usually unaware of playing any role in the object movements, percussive sounds and other unusual occurrences of which he or she is the center. If we compare this situation to ordinary behaviors, in these too the person is unaware of the (physiological) processes that result in a certain act, but the person is usually conscious of having caused the act, or at least can be made aware of having done so. In RSPK, on the other hand, the person is typically unaware of contributing to the event in any way at all. There are accounts of individuals, such as D. D. Home (Crookes, 1889) and Matthew Manning (Owen, 1978), who have advanced from RSPK agents to subjects in tests of macro-PK in which they were evidently able to exert some degree of conscious volition on the events. Small groups of people who have

no history of RSPK but met regularly for the purpose of generating macro-PK have also reported success, including RSPK-type effects (Batchelder, 1966; Brookes-Smith, 1973; Brookes-Smith & Hunt, 1970; Owen & Sparrow, 1976). It appears that the conscious exercise of macro-PK is not in principle beyond voluntary control.

RSPK is a vivid illustration of the difference between Fisher's *I* type of observer participancy that represents the familiar object and the unknown *J* that is concealed in the object. If the object is a figurine that has just moved, the *I* would include the observation that it is made of porcelain and has certain colors; and the *J* would include the factors that caused the figurine to move, that is the factors that the researcher is seeking to understand, such as the apparent emotional significance of the figurine to the agent, the process that transforms emotion to motion, and so on.

Perception is usually limited to what the biological organism and its brain allows us to perceive, and what it allows us to perceive is what's biologically useful or at least not harmful. What remains unknown in the perceived object (*J* in Frieden's sense) includes knowledge that is repressed from consciousness. This would be knowledge or information that is stored in the object, repressed from consciousness, but known subconsciously by the person. This information is therefore ignored, that is, it remains unconscious. A change in the observer's value system from "personal" to "transpersonal" may widen the interaction between observer and object so that more of the unconscious becomes conscious (or more of the *J* becomes *I*). The unconscious in this case would include information acquired by the observed object. The subconscious information (*J*) in the mind of the observer becomes conscious (*I*) in the observer and his perception of the object.

Frieden does not deal with the emotional-energetic component of objects; this belongs to the realm of *J* as far as most physicists are concerned, but emotion shows itself when objects that have an emotional charge are affected in RSPK. Along with other psi phenomena, RSPK may help to unearth the *J* information that is concealed in the physical environment.

Discussion

In the course of our explorations into RSPK, the movement of large-scale physical objects without tangible contact, we thought that these obvious physical effects must be due to an obvious energetic source. Our investigations, however, have only suggested weak electromagnetic emissions from the agent and possibly weak geomagnetic perturbations at the onset of the occurrences. At the same time, the RSPK agents showed strong emotion, but we knew of no process that could transform emotion to motion except within the body. Puthoff's concept of the vacuum as a plenum of energy and information/consciousness that interacts with inertia may be such a source.

Frieden does not deal explicitly with psi, but his concept of observer participancy has the effect of viewing psi on par with other occurrences in nature. If observation affects the energetic and informational components of its object, other observers may be affected by the prior perception. The assumption is made that the meaning an observer attributes to an object does not vanish when it is no longer in the sensory field. You could say that Frieden regards the environment as an extension of the observer. If the observer packed sufficient energy, there would be no conceptual obstacle to RSPK. Other forms of macro-PK, including RSPK, would be an intense form of observer participancy. "Meaning" is another term for information-emotion-energy. Objects, you can say, are endowed with two types of meaning, the meaning attributed to the object by its present observer, and the meaning the object has acquired from observers in the past. The former meaning is overt (Fisher *I*), the latter usually concealed (*J*).

Also, after many RSPK disturbances have occurred the object movements appear to be more purposeful and less destructive. This is consistent with transferring subconscious information (Fisher's *J*) to conscious information (Fisher's *I*). Both RSPK and PK have the element of intent or motivation that is mostly hidden in the subconscious for RSPK (Fisher's *J*) and is mostly overt in the conscious for PK (Fisher's *I*).

The theory that the observation of an object affects the object may be expressed in predictive

hypotheses that can be tested against past and future tests. For instance, in a typical test of ESP, in which the sensory components of the object are absent, the participant may be able to interact with its information-energy components; in brief, with its meaning. An object's meaning in turn would be provided by the participant, the experimenter and others connected with the test. Observer participancy implies the experimenter effect that has been seen time and again in psi studies.

Here we must bring in psychometry, the practice in which an object is used to evoke images of past events of which the object was part. In psychometry, information acquired by the object in the course of past observations is evidently accessed by a present observer. Psychometry is widely practiced by psychics who are working for the police in solving crimes or locating lost persons (Duncan & Roll, 1995), but it is almost untouched by present-day researchers. In one of the early psychometry tests (Roll, 1967), the participant described impressions about pumice stones that had been cut into similar shapes and then exposed to different treatments (such as being placed in a refrigerated solution or in a wall clock). The participant reportedly gave appropriate responses in all instances (e.g., "I feel a sensation of intense cold, in the tips of my fingers," or, "[I hear] the tick-tock of a watch. There seems to be a church in the vicinity as I hear the sound of bells.") This would be consistent with observer participancy. If observation interacts with its object, it is no longer the same object after it has been observed.

Observation participancy may aid the understanding of common psi occurrences, such as clairvoyance in which there is no "telepathic sender" and the object's known sensory stimulating properties—such as the capacity to reflect light—are unavailable, and if the operational target is not the object's sensory stimuli but its information-emotion-energy, then it makes sense that this could match the information-emotion-energy of the subject.

As regards RSPK, we see that the object is a focus of attention because of its intense meaning. Because observation is a psychological process, the phenomena should not only reflect the laws of physics, but psychological laws as well, and this is what we find in RSPK. If perception creates the data, we would expect these to reflect the intentions of the perceiver and others connected with the study. This would apply also to observations by physicists. It is interesting that in physics experiments in which there is no tangible contact between observer and object, it does not seem possible to distinguish between observer participancy and PK.

Predictions

In future studies of RSPK in which the distances between agent and objects are measured, we would expect the data to fit a product of an exponential decay curve and an inverse distance curve, as shown by WTJ in the present paper. This is what happens with an electromagnetic wave and a sound wave.

In future studies, the weights of objects that moved should be measured. We would predict that the product of object weight times distance moved—the work done or energy expended—would fit the square of field intensity versus distance from the agent.

Therapeutic Intervention

People who experience RSPK are often concerned about three things: the destruction and upheaval resulting from the RSPK, worry that their home or business has been invaded by demons, and how to stop the turmoil. We know enough to assure people that they are not contending with demons but that the phenomena are likely due to stress involving the agent and others and that the best recourse may be therapy to relieve the stress. At the same time, the agent may be offered the opportunity to take part in tests of macro-PK in which the stress would be replaced by the excitement of testing. The possibility that RSPK could aid scientific research may remove its negative connotations. It should also be made clear to the people that RSPK rarely lasts more than a couple of months (Roll, 1977) and may be terminated sooner if the agent or others in the primary social group move from the area.

Myers (1903), one of the principal founders of parapsychology, postulated a “metetherial environment” as a world where life and thought are carried on apart from matter (pp. 215–218). The metetherial environment is equivalent to the “subliminal self” where the self extends beyond the borders of the familiar, waking or “supraliminal” self. Myers thought that the metetherial environment might be continuous with the ether. The ether has been replaced by such concepts as the ZPE. If we follow Puthoff, the ZPE has energetic as well as consciousness components, not unlike Myers’ metetherial environment.

If a message may be sent from agent to object via the ZPE by causing the random fluctuations to become coherent, then such practices as meditation, yoga and biofeedback that facilitate the “one-pointedness” of consciousness may result in the coherence of the ZPE, which in turn may lead to voluntary macro-PK.

If the issue is approached in terms of Frieden’s observer participancy, relatively little of the ZPE is known (the ZPE is mostly *J* rather than *I*). The exploration, moreover, is mostly focused on the energetic aspects of the ZPE (e.g., Chan, Aksyuk, Kleiman, Bishop, & Capasso, 2001; Puthoff, 1997a, 1997b). However, if a conscious or subconscious component from the psi wave extends into the ZPE, scientific observers who are able to enter altered states, as in Tart’s (2000) proposal of “state-specific sciences,” could play a significant role in elucidating this aspect of nature and human nature.

The all pervasive nature of both RSPK and PK occurrences demonstrate that the life energy within or around us, that we may come to understand more fully and tap into, has a greater potential for our use than we have yet realized.

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Abstracts in Other Languages

Spanish

RSPK Y CONSCIENCIA

RESUMEN: Revisamos algunos casos importantes de RSPK y discutimos conceptos teóricos físicos que pueden explicarlos. Un problema central para el investigador de RSPK ha sido identificar la energía que causa los movimientos de los objetos. Como primer paso en la comprensión de RSPK, Puthoff propuso que el agente hace coherentes las fluctuaciones aleatorias de la energía de punto cero (ZPE), un pleno de energía electromagnética que llena el espacio e interactúa con la gravitación y la inercia. Joines sugirió

previamente que el proceso RSPK implica ondas psi desde el agente. El concepto ZPE completa la propuesta: Las ondas psi producen una señal coherente dirigida a un objeto físico y la ZPE proporciona la energía para RSPK. Considerando la teoría ZPE, Joines analizó los efectos de atenuación en los casos Miami , Olive Hill, y Tina Resch . La mejor explicación está basada en el producto de una curva de decaimiento exponencial y una curva de distancia inversa, lo que sugiere que la ZPE puede ser la conexión entre las ondas psi y las ondas electromagnéticas . La teoría de Friedan, presentada en su libro *Physics de Fisher Information* , tiene implicaciones para la comprensión de cómo RSPK y la información psi pueden ser adquiridos por los objetos físicos , incluidos los observadores humanos y la información que puede ser interpretada como una entidad física que puede fluir de un sistema a otro.

French

RSPK ET CONSCIENCE

RESUME : Nous passons en revue certains cas de RSPK et nous discutons des concepts de physique théorique qui peuvent rendre compte de ces phénomènes. Un problème majeur pour le chercheur en RSPK est l'identification de l'énergie qui cause les mouvements des objets. Une première étape pour comprendre la RSPK, Puthoff a proposé que l'agent rendait cohérent les fluctuations aléatoires de l'énergie au point zéro (ZPE), un plénum d'énergie électromagnétique qui remplit l'espace et interagit avec la gravitation et l'inertie. Joines a auparavant suggéré que le processus RSPK impliquait des ondes psi de la part de l'agent. Le concept de ZPE entre dans ce tableau : les ondes psi produisent un signal cohérent dirigé à un objet physique et le ZPE fournit l'énergie pour la RSPK. A la lumière de la théorie ZPE, Joines a analysé les effets d'atténuation dans les cas de Miami, Olive Hill et Tina Resch. Le meilleur ajustement fut le produit d'une courbe de décroissance exponentielle et une courbe inverse de la distance, suggérant que la ZPE peut être la connexion entre les ondes psi et les ondes électromagnétiques. La théorie de Friedan, présentée dans son livre *Physics à partir de l'information de Fischer*, a des implications dans la compréhension de la façon dont la RSPK et l'information psi peuvent être acquises par des objets physiques, incluant des observateurs humains et une information prise comme étant celle d'une entité physique qui peut passer d'un système à un autre.

German

RSPK (SPUK) UND BEWUSSTSEIN

ZUSAMMENFASSUNG: Wir stellen einige wichtige Spuk (RSPK)-Fälle vor und diskutieren physikalische theoretische Konzepte, die die Phänomene erklären könnten. Ein Hauptproblem für den Spukforscher bestand darin, die Energie ausfindig zu machen, die die Bewegungen der Gegenstände verursacht. Ein erster Schritt zum Verständnis von Spukvorgängen besteht einem Vorschlag von Puthoff zufolge darin, dass der Spukagent Zufallsfluktuationen der Nullpunktenergie (NPE) eine Kohärenz verleiht, einer elektromagnetischen Energie, die den Raum vollständig ausfüllt und mit Gravitation und trägen Massen wechselwirkt. Joines hat den Vorschlag gemacht, dass der RSPK-Prozess Psi-Wellen umfasst, die der Agent aussendet. Das NPE-Konzept vervollständigt das Bild. Psi-Wellen erzeugen ein kohärentes Signal, das auf ein physikalisches Objekt gerichtet ist, und die NPE sorgt für die Spukenergie. Im Licht der NPE-Theorie analysierte Joines die mit zunehmender Entfernung schwächer werdenden Effekte, die in den Miami-, Olive Hill- und Tina Resch-Spukfällen beobachtet wurden. Die beste Übereinstimmung lieferte das Produkt einer exponentiellen Zerfallskurve mit einer inversen Distanzkurve, was nahelegt, dass die NPE die Verbindung zwischen Psi-Wellen und elektromagnetischen Wellen darstellt. Friedans Theorie, dargestellt in seinem Buch *Physics bei Fisher Information*, hat Implikationen für ein Verständnis, wie RSPK und Psi-Information durch physikalische Gegenstände aufgenommen werden können, einschließlich

menschlicher Beobachter, und wie Information als eine physikalische Entität aufgefasst werden kann, die von einem System zum anderen fließt.

A CRITICAL TEST OF THE EMF-PARANORMAL PHENOMENA THEORY: EVIDENCE FROM A HAUNTED SITE WITHOUT ELECTRICITY-GENERATING FIELDS

BY BRIAN R. LAYTHE AND KAY OWEN

ABSTRACT. Previous research in electromagnetic and geomagnetic fields (EMF and GMF) and their relationship to paranormal phenomena has been performed under the theoretical assumptions of hallucination due to GMF fields. The current study tests the possibility that nonhallucinatory paranormal phenomena are also associated with EMF/GMF fields. EMF and GMF perturbations were examined in context of collected potential phenomena with data logging equipment at a haunted site with no electricity. Overall results indicate that EMF and GMF fields were significantly greater in both magnitude and variability inside-the-location compared to outside-the-location baseline measurements. Differences in GMF magnitude were small compared to EMF. Through correlation, EMF/GMF fields were demonstrated to change in range and location throughout the duration of the investigation. Results involving individual reviewed phenomena indicate that phenomena are strongly and significantly associated with serial EMF and GMF spikes, that both increases and decreases in EMF/GMF fields are not differentially predictive of phenomena, and that increases in the number (i.e., duration) of serial spikes do not differentially predict phenomena.

Keywords: anomalous phenomena, electromagnetic fields, haunting

Although electromagnetic and geomagnetic field detectors (i.e., EMF and GMF) are commonly used within ghost-hunting organizations, field research on the ability of EMF to predict haunting activity is very limited. This lack of research is troublesome, as the assumption that variation in EMF activity predicts anomalous phenomena is commonly accepted within amateur field research. Even more, research examining any relationship between EMF and haunting phenomena has been based on individually perceived and sensed internal events that occur in a haunted locale. Indeed, the literature dedicated to EMF and anomalous phenomena has theoretically assumed that variation in EMF/GMF fields must induce hallucinations that are interpreted as anomalous phenomena (Booth, Koren, & Persinger, 2005; Gearhart & Persinger, 1986; Persinger, 2003; St. Pierre & Persinger, 2006; Roll, Persinger, Webster, Tiller, & Cook, 2002; Tsang, Koren, & Persinger, 2004). Whereas a “hallucination” explanation seems viable when accounting for subjective or personal experiences, it cannot logically account for anomalous phenomena that are captured with external recording devices. While literature exists that addresses EMF/GMF with internal psychological perception, there is little work examining EMF/GMF with phenomena that occur as observable external events. As such, there is a neglected avenue of research in field parapsychology, where EMF and GMF fields are examined with events that are not internally perceived, but represent some type of external event (e.g., RSPK; Roll, 1972).

Specifically, this paper focuses on the gap between explaining subjective (e.g., internally and personally perceived) and objective (e.g., external captured via a recording device) anomalous phenomena within haunted locales in context of EMF and GMF. However, to examine any hypothetical relationship that exists between haunting phenomena and electromagnetic fields, we must clarify several methodologically difficult issues. First, and in context of Persinger’s (Booth et al., 2005; St Pierre & Persinger, 2006) work, we address existing research involving varying EMF/GMF fields in purported haunted locales. Second, we address potential confounds in EMF/GMF measurement, including the variable of distance, and assumptions underlying an EMF/GMF phenomena hypothesis. Finally, we address the considerable limitations in the evaluation of “paranormal phenomena.”

EMF/GMF Thus Far in Haunted Locales

Previous research involving fluctuation of EMF/GMF has been strongly influenced by Michael Persinger. The work by Persinger and his colleagues has demonstrated that low-level magnetic fields can induce perceived “haunting phenomena” in laboratory settings (St. Pierre & Persinger, 2006). Laboratory research demonstrated that application of 1 to 3 hertz magnetic fields applied to the parietal-temporal lobes produced a “sensed presence” in about 80% of subjects (Booth et al., 2005). Per these researchers’ work, the sensed presence is described as “the personal proximity of a Sentient being, a presence, or ‘another consciousness’” (St. Pierre & Persinger, 2006, p. 1080). These fields not only seem to facilitate hallucinations involving the presence of nearby entities but have also been shown to affect memory recall. Healey and Persinger (2001) demonstrated that participants placed in a low-level EMF field reported 3 times as many false memories when recalling a narrative as those who were not exposed to EMF. In the context of both meta-analysis and multiple experiments (e.g., St. Pierre & Persinger, 2006), these researchers hypothesize that geomagnetic fields occurring naturally in certain locales might induce hallucinations that can account for haunting phenomena (Gearhart & Persinger, 1986). In essence, GMF-induced hallucinations may account for the bulk of what witnesses report as paranormal phenomena, and worse, may alter memory to create nonfactual memories in haunted locales.

As a result of Persinger’s work, field research examining haunting sites has focused primarily on the presence of abnormal EMF and GMF fields. Several researchers have demonstrated significantly different degrees of both field strength and variation between haunted and nonhaunted locales (Braithwaite, 2004, 2006; Braithwaite, Perez-Aquino, & Townsend, 2004; Braithwaite & Townsend, 2005; Maher, 2000; Nichols & Roll, 1998; Roll & Persinger, 2001; Wiseman, Watt, Greening, Stevens, & O’Keeffe, 2002; Wiseman, Watt, Stevens, Greening, & O’Keeffe, 2003). For instance, Nichols and Roll (1998) demonstrated EMF fields with Tri-Field meters that were significantly greater in areas of reported phenomena compared to locations with no reports of phenomena. Wiseman et al. (2002) found that field strength and variance of EMF/GMF were associated with the location where haunt experiences had been reported. Later research by Wiseman et al. (2003) demonstrated significantly greater variation in EMF/GMF as a whole, but not in magnitude. Braithwaite et al. (2004), with the use of the Magnetic Anomaly Detection System (MADS) which he designed, compared a “hot-spot” to a nonactive area. Their results demonstrated that GMF variability and magnitude were not only significantly different in a test and hot-spot area but also that fields significantly varied during the investigation. In the above studies, Braithwaite and his colleagues were also able to distinguish “pulses” or spikes of GMF that were significantly stronger than baseline readings in the dataset. Of more detailed interest, Braithwaite et al. (2004) demonstrated both substantial magnitude and variability effects within a one-room area and demonstrated that these EMF fields occurred in the 8 to 10 hertz range.

In context of Wiseman et al. (2002) and the findings of Braithwaite et al. (2004, 2006), a “field picture” of EMF/GMF begins to take shape. In general, variability and magnitude of GMF/EMF appear greater within haunted locales but vary over time and location within the site. What is essential with the above studies is that external phenomena, such as recorded sounds or video, were not examined with any type of EMF/GMF readings. Thus, the previous research suggests that “haunted” sites show greater variation in EMF/GMF fields than “un-haunted” sites. As a result of this variation in EMF and GMF, these fields could account for such experiences as hallucinations (e.g., Braithwaite & Townsend, 2005) that individuals interpret as haunting phenomena.

This leaves an entire area of haunting phenomena unexplored within an EMF/GMF hypothesis. Persinger’s research can account for almost any type of subjective (i.e., internally and personally perceived) haunting experiences. Likewise, previous research has demonstrated, at least in part, that EMF/GMF fields in haunted locales seem to fit conditions that could induce a Persinger effect due to variability in EMF/GMF fields (Braithwaite et al., 2004,). Where Persinger’s model does not fit, hypnagogic episodes (e.g., Cheyne, Newby-Clark, & Rueffer, 1999; Furuya et al., 2009; Kampanje, 2008; Sherwood, 2002) or

contagion effects (e.g., Hart et al., 2009; Lorber, Mazzoni, & Kirsch, 2007; Merckelbach, Van Roermund, & Candel, 2007; Peker & Tekcan, 2009) can account for other subjective haunting experiences due to social influence.

However, what about those instances when anomalous phenomena occur and are documented with recording devices? Amateur ghost hunting groups of all shapes and sizes report thousands of videos and audio clips each year of allegedly anomalous phenomena. Although many of these events can be explained with careful evaluation, a percentage remains difficult to explain by conventional means. It follows that if an anomalous event is captured on either audio or video, then this type of occurrence cannot be due to a hallucination. Tradition in ghost hunting has maintained that EMF/GMF perturbation is associated with external phenomena. The purpose of the current research is to examine this particular claim above and beyond any events that are subjective and therefore could be due to Persinger fields or psychological conditions. Thus, the goal of the current research is to test if there is a simple association between objective phenomena (i.e., recorded phenomena of human-shaped entities, captured psychokinesis, or quality electronic voice phenomena) and EMF/GMF.

Critical Issues in Testing the EMF/GMF Phenomena Hypothesis

In order to examine a potential relationship between EMF and objective phenomena, it is essential to examine several difficult issues involved in testing and sampling EMF and evaluating phenomena that occur. We have divided these issues and their potential confounds into three primary experimental concerns. First, we address the conditions regarding how EMF would theoretically perform in the context of anomalous phenomena. Second, we discuss two variables related to EMF that have not been addressed by previous research—EMF vectors and fields—and the confound of distance. Finally, we attempt to deal with the controversial issue of the evaluation of anomalous phenomena as “anomalous” as opposed to environmentally explainable events.

The Hypothetical Nature of EMF/GMF in the Context of Paranormal Phenomena: Issues of Time and Occurrence

Given Braithwaite et al., (2004) and the findings of Wiseman et al. (2002, 2003), EMF/GMF fields are stronger and persistent within a haunted locale. These researchers' findings also suggest that variability and magnitude of magnetic fields can change over time in small spaces. However, it is one thing to demonstrate that overall field magnitude will vary over time in a given area; it is a different thing to analyze EMF/GMF and phenomena that occur in the context of time. In order to test this type of relationship, certain assumptions must be made. First, while EMF/GMF fields change in magnitude and variability (e.g. Braithwaite et al., 2004), the current research makes no claims about the degree of variability, magnitude, or duration of EMF/GMF expected as a result of anomalous phenomena. The research of Braithwaite et al. (2004) indicates that individual spikes occurred during his measurement periods; however, the magnitude of these spikes was not large (± 60 nT/.6 mG) and typically occurred for no longer than 0.5 seconds. Beyond the above researchers' findings which do not address any type of anomalous objective event, no evidence exists to provide guidance on how these hypothesized field changes occur with anomalous phenomena.

As such, to test openly an EMF/GMF phenomena hypothesis, small perturbations of EMF/GMF fields should be examined in detail. It is an assumption that large changes (positive or negative) in variability or magnitude occur in relation to anomalous phenomena. Frankly, this may not be the case. It is equally likely that small perturbations in EMF/GMF fields may predict anomalous phenomena. In either event, data have not been examined to verify or rule out any of these claims.

The Intervening Variables of EMF Fields, EMF Vectors and Distance, and Their Effects on Measurement

In addition to the above issues that involve a lack of data regarding the EMF/GMF phenomena

hypothesis, it is also the case that previous research has not addressed a fundamental confound involving the measurement of EMF/GMF fields. This confound involves the important variable of distance. The distance of a field, or the individual vector of a large field in relation to an EMF/GMF meter's distance, is what determines the recorded measurement of magnitude (Tipler, 1987). However, the magnitude of the field, and therefore its area of detectable effect, its location, and the number of other fields present will all affect the readings of a receptive EMF/GMF meter. What is crucial to understand is that the registered strength of a field decreases as a function of distance of the meter from the source of the field. In fact, the field strength of EMF follows the inverse power law, which in terms of a meter's detection of magnitude practically decreases at a factor of about 10 per 1 foot of distance between the source of the field and the meter (Tipler, 1987).

In a study in which anomalous phenomena are hypothesized to relate to EMF/GMF variation, specific EMF readings become problematic, as a researcher cannot reliably determine what is potentially causing a field, and more importantly, the specific location of its source. Because field sources are difficult to determine, it is never clear whether or not changes in EMF or GMF are due to singular or multiple fields or a large field vector. Likewise, if one entertains the possibility that these fields may be mobile or spontaneously generated (as is the tradition in haunting investigations), then location of a particular field in relation to the meter becomes even more problematic. Because specific location of an EMF field cannot be easily determined, the specific output readings of EMF/GMF meters are substantially confounded by the fact that the location of the EMF source cannot be determined, and therefore, the reading of a meter is going to change as a function of that distance. In essence, EMF/GMF changes recorded from a meter will vary as a function of the distance of the meter from the hypothesized field(s).

As such, two important conditions exist in conducting research in which EMF/GMF is compared to time-dependent potentially anomalous events. First is the understanding that the sensitivity of the meters is crucial in their ability to detect a field as far as 6 to 8 ft away from a meter. This is part of the justification for examining small perturbations in EMF/GMF data around potential events. A small perturbation in the data could theoretically represent a strong generated field as close as 10 feet away from the meter. The fact that the field is far away from the input source will weaken the received reading. As such, taking distance into account with EMF/GMF readings illuminates an important fact about EMF/GMF data measured in either raw volt input, milligauss, or microteslas. Essentially, if the distance of the source of the EMF field is indeterminable, then both the increment of measurement and specific magnitude (in milligauss or microtesla) of the reading are useless aside from comparing a reading to the distributions that are collected. As the distance of the field from the meter (or frequency changes) will alter EMF/GMF magnitude, then a specific magnitude reading is only approximate at best. Thus, field research of this design can only determine if an event produces readings that are significantly different from specific times and distributions of the collected EMF/GMF meter readings, but cannot provide accurate information about the actual strength of the particular field that is being measured because of the confounding variables of distance and location.

Collecting the Observable: Observable Anomalous Events, Their Evaluation and Interpretation

One of the fundamental problems in a research project of this nature involves the anomalous evidence collected. When anomalous events are hypothesized to be related to EMF/GMF fields, the bulk of critique falls on a critical approach to the operational definition of an anomalous event. Whereas EMF fields can be measured in context of the equipment used to detect it, heated debate can occur over whether a particular captured event can be reliably viewed as paranormal or anomalous.

Research in social and cognitive psychology provides good reason for individuals to be skeptical of both subjective and objective anomalous evidence. In terms of the personally experienced events that are reported at haunted locations, the demonstrated effects of Persinger fields (Gearhart & Persinger, 1986; St. Pierre & Persinger, 2006) or hypnagogic hallucination episodes of perceived phenomena around sleep (Cheyne, Newby-Clark, & Rueffer, 1999; Furuya et al., 2009; Kampanje, 2008; Sherwood, 2002) make certain personal events very suspect in terms of their anomalous origins.

However, the effects of Persinger fields and hypnagogic episodes can be controlled by simply mandating that the criterion for objective evidence must be recorded by either audio or video devices. But, objective events are still subject to interpretation, which leads investigators toward several cognitive biases. For instance, contagion effects can change memories (Merklebach, Van Roermund, & Candel, 2007), as well as emotions and behavior (Barsade, 2002), and create stronger biases when individuals are familiar with each other (Peker & Tekcan, 2009). Any of these effects could create bias in qualifying an anomalous event, even when recorded on audio or video. Likewise, research in belief perseverance (Lepper, Ross, & Lau, 1986; Ross, Lepper, & Hubbard, 1975) demonstrates a tendency for people to persist in beliefs in the face of contradictory information. Thus, cues indicating the likelihood of an anomalous event can be ignored if contrary to previous information or beliefs. Similarly, confirmation bias (Drake, 1983; O'Brien, 2009)—the tendency to remember and prefer information that supports one's existing beliefs—can also easily confound the assessment of evidence.

For the sake of the current research, and in a Popperian vein (e.g., Amini & Caldwell, 2010; Machado & Silva, 2007), we suggest that there is never a situation in which an anomalous event is considered fully proven as paranormal. Instead, it seems more scientifically reasonable to claim that some events are much more likely (in terms of probability) to be anomalous compared to other events. However, while physical objective evidence may stand "as is" with human perception, there is always the concern of interpretation. To minimize effects of belief perseverance and confirmation bias, a consistent set of criteria should be used to rate each event as either very unlikely to be paranormal or very likely to be paranormal. Consistently applied, this set of rules, while not definitive, reduces the likelihood that an individual investigator will accept evidence as anomalous that can be easily explained.

The criteria should involve minimum requirements by which an investigator can rule out an event due to environmental or psychological factors. It should also contain criteria that make an event more persuasive in terms of its paranormal validity, such as phenomena that can be perceived as a repeated intelligent response to an investigator. To that extent, the current research employs an Evaluative Model for Paranormal Evidence (EMPE); that is, a set of criteria in which all events are examined for likely environmental explanations. Through the use of this procedure, phenomena can be assigned additional points based on optional, but contributing, factors that would suggest that an event is more likely to be anomalous. All of the EMPE criteria are designed to eliminate psychological and environmental conditions that could lead to the misinterpretation of a nonanomalous event as anomalous.

Summation and Hypotheses

In summation, we propose that more analyses of haunted locations are necessary, beyond the research that establishes EMF/GMF variation and magnitude differences within haunted locations. We make the general claim that a detailed but open-ended study is necessary to determine how EMF/GMF may behave in the context of anomalous phenomena. Specifically, we target the possibility that nonsubjective haunting phenomena, namely anomalous noises and events physically viewed via camera may have perturbations of EMF/GMF that are significantly different than the contextual EMF/GMF readings. Our exploratory hypotheses are as follows:

1. We expect that both magnitude and variability of EMF/GMF readings will significantly differ inside the location compared to baseline readings taken outside the house.
2. As an exploratory function, we examine correlations of meters placed inside the investigation site to determine if any patterns can be explored to understand EMF/GMF fields within a "haunted" location.
3. We hypothesize that better verified anomalous phenomena will occur during significant increases or decreases in EMF and GMF readings.
4. We will explore any differences between increases, decreases, and variability of EMF and GMF in

relation to the occurrence of phenomena, and investigate whether the duration of a given *increase or decrease* of EMF/GMF magnitude is in any way associated with anomalous events.

Method

Participants and Sample

With the help of the Ivy Tech Paranormal Organization (ITPO) and the Association for the Study of Anomalous Field Phenomena (ASAFP), an investigation was conducted at Black Moon Manor (BMM), a site considered to be known for haunting activity by many previous paranormal investigative groups. Ten members of ASAFP participated in the investigation of the site which occurred from 2:30 p.m. to 1:30 a.m. in the Spring of 2011. All members were briefed in protocols for the current study, and have had previous training on data collection methods on previous investigations.

Brief History and Details of Location

Black Moon Manor was built by John C. Eastes in Hancock County, Township of Buck Creek, Greenfield, Indiana, in 1862. However, the current owner purchased the property in 2009 to open a Halloween attraction. The owner relates that the history of the home he obtained was told to him by a woman who claimed to have previously lived at the location. One story contends that the manor was once used as a house for smallpox patients during an outbreak of the disease. The current manager reports more than 200 deaths at the home, and there is an unmarked cemetery in the back of the manor where Eastes family members are interred, including a girl named Racheal Eastes, who was 5 years old at the time of her death. Other claims of deaths include several members of the Eastes family, a woman/girl drowning in the well, and an elderly woman who froze to death while sitting in a wheelchair during the blizzard of 1977. There are also reports of a child named Martha who haunts the home, along with another entity named Henry or Larry (A. Hansford, personal communication, June 18, 2011).

Historical research uncovered partial support for these accounts. The house was a home of the Eastes, a founding family of the area of Hancock County (Richman, 1916). The house was a grand manor that townspeople would visit to hear the storytelling of John Eastes (Richman, 1916). There is a documented drowning of a young girl named Rachael, who was a niece of John Eastes. Similarly, another young girl in the family line named Nettie also died in her childhood; she was nicknamed Martha by family members. Additionally, a farmhand, Henry Beckner, also lived at the location with the Eastes family (Eastes Family History, n.d.; United States Federal Census, 1880). However, evidence of the house being used for smallpox patients and the accounts of 200 burials on the location were not verified with historical records.

Regardless of its history, Black Moon Manor was selected due to reports of and evidence for active external phenomena that have occurred there. Reports of activity made by many investigative groups and the owner of the property included: disembodied voices, psychokinetic events such as objects being thrown or teleported, physical injuries (e.g., scratching, being pushed down stairs), and multiple recorded EVPs of varying quality. The source of the activity has been attributed to both the deceased family members and to the smallpox victims that were reported to have died at the location.

With regard to physical details of the location, the house is situated approximately one quarter mile from a traveled road, in an area approximately three quarters of a mile in all directions away from the nearest residential housing, thus limiting human interference. The house is a two-story dwelling of approximately 2,000 square feet. It was determined that the building lacked electricity based on the following indicators:

1. There were no wires leading from the electricity pole to the building or fuse box, nor any wires leading from the pole to the main electricity poles along the road. Investigation of the outside of

the building demonstrated no generator sources of electricity, and no wires above ground leading to the house. Inspection of the basement, including the underside of the house, indicated no heavy gauge wires or electrical connections.

2. A room-by-room investigation was conducted in search for wires, speakers, or any type of electrically powered equipment that could assist in hoaxing.
3. An Alpha Lab Tri-Field 100XE meter was carefully run along the walls and floor of every room including along electrical outlets so as to verify an absence of electricity. No readings or spikes were detected.

Equipment

Generator An 800–900 watt maximum load gas-powered Chicago Electric generator was placed 25 feet from the investigation site to power all equipment. Power was provided through a 12-gauge extension cord to an equipment table set up on the porch of the building.

Real Time Investigative Ghost Hunting System (RIGS) At the beginning of the investigation, four Alpha Lab Tri-Field 100XE meters with company-installed jacks for output, 100x coils, and four Alpha Lab Natural EM meters with company-installed output jacks were placed in pairs (one Tri-Field and one Natural EM meter) in locations inside the building. One additional Tri-Field 100XE and Natural EM meter (per specifications above) were placed outside the home to collect ambient EMF and GMF magnitude for baseline data. Tri-Field 100XE meters are reported to have a resolution/sensitivity of .2 mG without coils (with coils, .002 mG). Natural EM meters report a resolution/sensitivity of 10 mG. Additional field tests of the meters demonstrate that both types of meters have an approximate range of 8 feet in diameter in terms of detecting a 100 mG+ field. These meters were also immune to fluctuation due to footsteps or general movement around the range of the meter.

For both meter types, the manufacturer claims that calibration is reliable and that drift of readings due to loss of meter calibration over time is not possible. Placement of meters inside the structure was dictated by the owner, who rated each room in terms of the most frequent activity experienced by investigators. With use of Data Q analog connector (DI-205) and digital converter (DI-700), these meters' readings were logged in real-time to a computer system running WINDAQ software. Tri-Field meters were calibrated to detect variation in the EMF field (magnetic setting) from 3 to 100 hertz, which centers on "mains" frequency commonly calibrated for normal electricity and EMF production. In addition, Tri-Field meters in the current study were attached to magnifying coils, which increased sensitivity to detect very small perturbations within the 0–1 mG range. These coils do, however, convert the normally three-axis Tri-Field meter into a single-axis meter. Therefore, readings from our EMF meters represent one-axis assessments. Natural EM meters did not have coils and were calibrated on the magnetic setting, thus measuring the natural geomagnetic field of a location (0–3 Hz) with a range of 0–100 mG. The result was a collection of EMF (detecting 0–1 mG) and GMF (detecting 0–100 mG) field readings that were sampled at 24 times per second in their raw volt output. Consultation with Alpha Lab verifies that analog meters of this type can produce reliable readings at this level of sampling, although a delay or suppression of magnitude can occur at this sample rate. As our analysis examines extreme readings of the meter, this fault in the equipment emphasizes conservative readings, and would not confound EMF spikes in a manner similar to Type I error. Rather, it would make them more difficult to occur; thus, underestimation is more likely. Recordings of these data were collected in anywhere from 2-hour to 4-hour increments and time-synced with other equipment according to the protocol described below.

DVR system. A computer system was specifically set up to record real-time PAL-resolution infrared video and audio of all sites where the meters were placed. These videos were collected continuously in 15-min intervals for each camera for the duration of the investigation. Each video channel was time-stamped to EMF and GMF readings.

AVR units. Battery-powered digital audio voice recorders (AVRs) were also placed where both meters and video had been placed in the location. These battery-powered units were set to "conference"

setting in order to record as much area as possible. The AVRs were time-stamped in order to determine EMF and GMF readings when specific noises or phenomena occurred.

Protocol

Setup. Several steps were taken to minimize human contamination during the course of the investigation. First, only investigators were present on site during the time of data collection. Second, two separate teams, with the use of Tri-Field meters, examined the house for any signs of trickery, including wires, trap-door access, as well as sources of electrical power as mentioned above. In both examinations, no signs of trickery or sources of electricity were present. Access to the site was only available from one side of the house, where non-investigating members could observe entrances or exits from the building across the duration of the investigation.

After setting up room numbers for areas of interest, one Tri-Field XE100 and one Natural EM meter were placed approximately 3 feet apart from one another in the middle of each room, and then connected to the RIGS system. At least two video cameras were placed in each area, positioned from 8 to 10 feet away from any individual meter so as to prevent EMF contamination. Battery-powered AVR units were placed between the meters. However, in previous testing, the electrical output of these units were shown not to register on either type of meter. The combination of audio, video and meter placement within these four specific areas created “data collection traps” by which multiple audio, video, and EMF/GMF readings could be sampled at the same time. Key to this strategy was a precise log of the start and stop times of all three components based on a common time unit. The result of this procedure was that audio, video, and EMF/GMF readings were synchronized, allowing for accurate comparison of all three within a common time frame. This type of meter layout allowed for four hot-spot areas where data could be reliably collected, and for one set of baseline meters placed approximately 7 feet outside of building. Cameras and audio recorders were not placed with baseline meters. Note that any phenomena that occurred in other areas were deemed interesting, but invalid for the purposes of this study.

Once the devices were set up and time-stamped, a log of the individual movements and location of all investigators was maintained at all times. Data collection periods were of two types: interactive and noninteractive. Noninteractive sessions involved all members removing themselves from the site, allowing the meters’ audio and video to run without any human involvement. Interactive sessions typically involved one team of two to four people interacting within the recorded environment, in order to attempt to facilitate PK (e.g., knocking or movement) or EVPs within that location.

Classifying objective and subjective haunting events. Although many personal experiences were common over the investigation, these events were deemed to be subjective, and not of interest to the current study. However, evidence captured on either audio or video was held to a standard set of criteria for evaluation referred to as the Evaluative Model for Paranormal Evidence (EMPE). Eight possible points could be assigned to phenomena based on the following criteria. Points 1–3 are granted to address the basic quality of recorded evidence criteria such as “Is the event external?” “Is the picture clear?” “Is the audio clear?” and “Has the entire event been captured?” Points 1–3 also address common natural phenomena that are mistaken for anomalous activity (e.g., grunts, knocks, thumps, bumps, moans, animals, dust, mist, distant shadows, or light reflection that are likely due to the environment). Any of the aforementioned events were automatically relegated to Class 1 as due to multiple environmental causes that could not be reliably ruled out. Point 4 is granted if any reliable or probable alternative means can be ruled out for a particular phenomenon. For example, this point was granted if other sources of video or audio could not explain the event and/or if the event could not be re-created. Point 5 was granted when human interference or hoaxing could be reliably ruled out (e.g., physical contact with objects, whispering, or subvocalization). An additional point was granted for: events that had no human interaction component; phenomena that were captured and were very clear and distinct in terms of audio or video, thus making subjective interpretation less likely; and phenomena that appeared to be repeated, rational, and intelligent responses to a human agent.

In terms of evaluation, potentially anomalous events were given a rating representing an estimate of the likelihood that each event may or may not have been anomalous. From that rating, the quality of evidence could be examined and understood as either: Class 1, likely to be environmental (EMPE score 1–3); Class 2, possibly environmental, but also possibly anomalous (EMPE score 4–5); and Class 3, more likely to be anomalous (EMPE score 6–8). Events that were clearly environmental (e.g., car, bird, animal, or investigator) or events that demonstrated the presence of additional concurrent noise in other audio sources were labeled as Class 0. Please note that in order for EVP to be considered of quality for the current study mandated, the noise must not have been present at the same time in any of the other audio recorders placed in the house. Thus, the audio event was isolated to one particular recorder, greatly reducing the probability that the voice was due to either the investigators or the environment. Similarly, any video event of note was examined for investigators in the principal video but also checked against additional cameras to ensure that investigator contamination was not present.

Classification occurred in three phases. First, three reviewers did an evaluation of all captured events and assigned them a rating according to the EMPE system. Any individual event that reached Class 2 was compared against all relevant additional audio and video sources by at least two of the three reviewers. Thus, error was minimized by independently performing a full audio or video comparison twice. Reviewers had strict instructions about the acceptance of the captured phenomena as Class 3, based on the lack of presence of additional investigators, or the lack of audio noise on other recorders. Re-creation attempts were also performed on site prior to the designation of Class 3. As such, any event reaching Class 3 represents an event that, to the best of our knowledge, was not caused by human or environmental contamination.

However, initial reviewers were aware of what events were occurring on an EMF spike. Thus, a second group of three evaluators who were naïve as to whether or not an event had triggered a spike, and who had not been present during the data collection period, performed a second review. During the second analysis, the new reviewers were provided only with the core audio and video evidence and did not engage in the full multiple camera or audio comparison process described above. Thus, the second review process served as a simple manipulation check against possible rating bias due to spike knowledge. Congruence between these two series of ratings was 80%. To address the differences in comparison, and to ensure that ratings were not affected by knowledge of a spike occurring with the remaining events, an additional two individuals who were also naïve performed a complete review, following the protocol described above, of all comparison audio and video sources. These new reviewers gave a final rating for any disputed event that reached Class 2 or Class 3. Disputed Class 0 or Class 1 events maintained their original review status. This was due to the fact that all Class 0 events had been factually ruled out as contaminated regardless of spike, and that Class 1 events, due to multiple environmental causes, could not be safely classified as anything reliably anomalous. Thus through this three-step process, the event dataset was fully analyzed against all relevant audio and video sources to ensure a lack of contamination for events, and that the ratings either corresponded to naïve review, or if in contention, were fully vetted through a naïve review.

Analysis and coding of EMF/GMF. As the goal of the current article was to be consistently thorough, the statistical analysis approach to the EMF/GMF data is somewhat unorthodox. Again, the reading of a meter is determined in part on the distance of one or multiple fields. Because of our inability to determine the location(s) of the fields, and of our equipment being limited to magnitude only (and not frequency), we chose to report magnetic data in the raw volt input of the meters themselves. We are aware that it is traditional to convert magnetic readings to mG or nT; however, the mapping process is approximate, and use of mG converted from volt input could add significant error to the analysis. As our main hypothesis involved the simple association of variation in EMF/GMF as a result of potential phenomena that occurred, and our equipment is unable to give us information beyond an increase or decrease in magnitude of the meter, it seemed most honest to present the data as simple volt input distributions. Thus, standard statistical analysis is presented with raw volt input, with the understanding that variation of volt input EMF through the Tri-Field 100XE meters represents a range of 0 to 1 mG, and that volt input of the

Natural EM meters represents a range of 0–100 mG. Again, of primary concern is a change in magnitude that occurs in association (through time) with recorded events in the environment that are independent of the data-logging EMF/GMF system.

Whereas baseline tests and descriptive analysis are performed using standard inferential statistics based on a normal distribution, our hypotheses involving individual phenomena and EMF/GMF behavior were examined differently. For the current study, three or more spikes of EMF and GMF fields within 1 second were isolated from the dataset at either 2.5 or 3 standard deviations above or below the session mean. Each of these spikes (which represent 1/24th of a second) was time-stamped, and investigators then examined audio and video based on the second where a series of three or more 2.5 or 3 standard deviation serial spikes occurred within one second. Each of these data points where EMF/GMF spikes occurred were identified as positive (e.g., increase in magnitude), negative (e.g., decrease in magnitude), or mixed (e.g., both 3-SD increases and decreases in magnitude, indicating extreme variability). Potential phenomena that occurred within the 1-second boundary were considered associated with the spike. However, for clarity, a 0.5-second time lag was allowed for human errors in timing, and potential suppression from the input of the analog meters at 24 samples per second. Other phenomena that did not occur within the 1-second window were also collected and noted.

Of interest in the current dataset were the number of serial spikes (i.e., more than three spikes within 1 second) that occurred. As such, analysis focused not on general significance, but on the number and count of probabilistically unlikely spikes that occurred around the time of analyzed phenomena. The rationale for this method, although unorthodox, is one of precision. Previous research has not explored either the degree or frequency of EMF/GMF fluctuation as a function of paranormal phenomena. Thus, there is no way to know how frequently or how strongly EMF/GMF might rise or decline, should the hypothesis prove to be supported. Looking at the data backwards allows for a precise analysis of EMF/GMF spikes and how often they occur. This process also prevents masking of the data by examining a mean average where three to five spikes over the course of a second are hidden by the overall average.

Results

Social science researchers traditionally worry about having a large enough data set to test hypotheses reliably. The current research has the opposite problem. Sample sizes in some cases are so large due to the collection of 24 samples per second over hours of time that very small mean differences and covariation appear statistically significant, but have no practical significance. In large mean difference tests, we addressed this by calculating the Cohen's d which provides an effect size statistic for the size of the mean difference. In cases of correlation, we encourage the reader to focus on the effect size statistic and not necessarily on the statistical significance of the test.

Descriptive Statistics and Replication: General EMF/GMF Baseline Comparisons

In order to examine and test the overall means of EMF and GMF over a period of time, means and standard deviations for each meter are provided for each recorded session in Table 1. Baseline meters (i.e., meters placed 7 feet outside the location) were meters 9 and 10. In order to test whether EMF/GMF fields significantly differed in either magnitude or variability in the haunted location as compared to outside of the building, independent-sample t tests, and Levene's tests for inequality of variances were conducted for both EMF and GMF fields across all of the sessions. These findings serve as a partial replication of previous research conducted by Braithwaite et al. (2004) and Wiseman et al. (2002, 2003). Results are provided in Tables 2 and 3.

Table 1
Means and Standard Deviations for the 10 Meters in Each of the Four Sessions

Meter	Session 1 (n = 176,586)				Session 2 (n = 165,778)				Session 3 (n = 361,936)				Session 4 (n = 54,019)			
	M	Min	Max	SD	M	Min	Max	SD	M	Min	Max	SD	M	Min	Max	SD
Ch1 T	.16	.12	.20	.01	.17	.13	.21	.01	.19	.11	.26	.02	.22	.18	.27	.01
Ch2 G	.01	-.18	.21	.10	.01	-.18	.21	.11	.01	-.25	.29	.14	.01	-.27	.31	.17
Ch3 T	.27	.23	.30	.01	.27	.22	.31	.01	.30	.20	.37	.02	.34	.30	.38	.01
Ch4 G	.01	-.03	.06	.01	.01	-.03	.06	.01	.01	-.04	.06	.01	.01	-.05	.42	.02
Ch5 T	.17	.10	.22	.01	.17	.10	.22	.01	.18	.10	.25	.01	.19	.13	.25	.02
Ch6 G	.01	-.03	.05	.01	.01	-.03	.05	.01	.01	-.04	.07	.01	.01	-.04	.07	.01
Ch7 T	.07	.03	.10	.01	.07	.03	.10	.01	.07	.03	.11	.01	.08	.03	.12	.01
Ch8 G	.01	-.01	.03	.00	.01	-.01	.03	.00	.01	-.01	.33	.01	.01	-.01	.04	.01
Ch9 T	.11	.07	.14	.01	.11	.07	.13	.01	.11	.07	.14	.01	.12	.09	.15	.01
Ch10 G	.01	.00	.02	.00	.01	.00	.02	.00	.01	.00	.03	.00	.01	.00	.02	.00

Note. Data displayed in millivolts. Numbers are in volt input. Approximate mapping of millivolts to milligauss for Tri-Field: .000-.075 mV = .000-.037 mG; .075-.150 mV = .037 to .085 mG; .150-.225 mV = .085-.250 mG; .225-.300 mV = .250-1.0 + mG. Approximate mapping of millivolts to milligauss for Geomagnetic Meters: .000-.075 mV = .000-3.7 mG; .075-.150 mV = 3.7-8.5 mG; .150-.225 mV = 8.5-25.0 mG; .225-.300 mV = 25.0-100.0+ mG

Results indicated that EMF magnitude and variability were significantly greater for all of the EMF Tri-Field meters inside the haunted location in comparison to single readings taken outside. In terms of mean differences, readings inside the location ranged from 50% to 100% greater compared to outside the location (see Table 2). In all cases, variability inside those locations with activity spots was greater than the variability obtained from the outside baseline EMF/GMF meters. Statistical significance for both mean differences and variability was well beyond $p < .001$, as indicated by the strength of t scores and Levene ratios. Effect sizes provided by Cohen's δ in all cases exceeded 1.0 thus indicating large differences between means.

GMF mean scores also differed significantly ($p < .01$) with one exception: at locations with activity compared to the single outside baseline meters across sessions. However, Cohen's δ tests for GMF show that, while statistically significant, these mean differences were very small in terms of effect size ($\delta = .0$ to $.11$, see Table 3). Although mean differences were small, similar to EMF findings, variability for GMF was significantly greater across all of the sample sets within all sessions in comparison to the baseline data. In this case, variability was similar to EMF, where the significance of GMF variability was less than .001 in all cases.

Correlation of Meter Readings Across Sessions: Test of EMF and GMF as Separate Measurements, and Common Sources of EMF/GMF Generation

Product moment correlations were conducted for each session between all of the meters as part of a manipulation check to ensure that EMF and GMF meters were measuring different hertz ranges, as well as an exploratory investigation of covarying meters as a potential indicator of a common source of EMF/GMF field production. These results are provided in Table 4.

Table 2
 Baseline Tests: Magnitude and Variability Comparison of Tri-Field
 (EMF) Meters for Each Session

Meter No.	Base Mean	Comp. Mean	Mean <i>t</i>	Mean <i>p</i>	Cohen δ	Base <i>SD</i>	Comp <i>SD</i>	Var. <i>F</i>	Var. <i>p</i>
SESSION 1 (<i>n</i> = 176,586)									
1	0.109	0.165	-2113.83	.001	7.32	.006	.009	2.62	.001
3	0.109	0.268	-7188.11	.001	24.38	.006	.007	1.57	.001
5	0.109	0.172	-2150.21	.001	7.11	.006	.011	3.53	.001
7	0.109	0.068	1754.10	.001	5.79	.006	.008	1.90	.001
SESSION 2 (<i>n</i> = 165,778)									
1	0.107	0.167	-2306.23	.001	7.84	.006	.009	2.00	.001
3	0.107	0.269	-6912.62	.001	24.84	.006	.007	1.40	.001
5	0.107	0.170	-2013.02	.001	7.11	.006	.011	3.30	.001
7	0.107	0.068	1548.46	.001	5.15	.006	.008	1.75	.001
SESSION 3 (<i>n</i> = 361,936)									
1	0.114	0.195	-2485.41	.001	5.81	.008	.018	5.03	.001
3	0.114	0.303	-4512.60	.001	10.56	.008	.024	9.10	.001
5	0.114	0.182	-2391.22	.001	5.65	.008	.015	3.56	.001
7	0.114	.073	1991.00	.001	4.52	.008	.010	1.49	.001
SESSION 4 (<i>n</i> = 54,019)									
1	0.121	0.221	-1981.90	.001	11.70	.005	.011	3.91	.001
3	0.121	0.342	-4676.90	.001	27.95	.005	.010	3.25	.001
5	0.121	0.195	-1080.50	.001	6.61	.005	.015	7.95	.001
7	0.121	0.077	857.89	.001	5.14	.005	.011	4.01	.001

Note: Numbers are in volt input. Approximate mapping of millivolts to milligauss for Tri-Field: .000-.075 mV = .000-.037 mG; .075-.150 mV = .037-.085 mG; .150-.225 mV = .085-.250 mG; .225-.300 mV = .250-1.0 + mG

As Table 4 indicates, the vast majority of relationships between meters were statistically significant, due to sample size. However, for practical interpretation, correlations greater than .30 were underlined, indicating where two meters shared approximately 10% or greater covariation. Correlations indicate that Tri-Field meters did not substantially correlate with Natural EM meter readings. In the majority of cases, the *r* between these meters was less than .10, and in some few instances inversely related, but below our arbitrary .30 threshold. In other words, these correlations provided evidence that both types of meters were registering different frequencies of the electromagnetic field. The lack of correlation between EMF and GMF meters suggests that frequencies of EMF were not produced in the higher end of the Natural EM meter, nor in the lower end of the Tri-Field meter. In theory, such a scenario would produce covariation between both types of meters if coming from a common source.

However, as more of an exploratory analysis, correlations were also examined to determine whether common sources of EMF within the “haunted” location produced similar increases or decreases in EMF/GMF readings. These relationships are graphed according to meter placement in Figure 1. A re-examination of the correlation tables within each session indicates that EMF and GMF readings do

Table 3
Baseline Tests: Magnitude and Variability Comparison of Geomagnetic (GMF) Meters for Each Session

Meter No.	Base Mean	Comp. Mean	Mean <i>t</i>	Mean <i>p</i>	Cohen δ	Base <i>SD</i>	Comp <i>SD</i>	Var. <i>F</i>	Var. <i>p</i>
SESSION 1 (<i>n</i> = 176,586)									
1	.012	.013	-7.16	.001	0.01	.002	.104	2565.80	.001
3	.012	.012	-10.29	.001	0	.002	.010	25.42	.001
5	.012	.012	-22.39	.001	0	.002	.010	21.53	.001
7	.012	.012	8.08	.001	0	.002	.005	5.51	.001
SESSION 2 (<i>n</i> = 165,778)									
1	.012	.014	-7.85	.001	0.02	.002	.106	2674.39	.001
3	.012	.012	-14.55	.001	0	.002	.010	25.46	.001
5	.012	.012	-22.48	.001	0	.002	.010	22.41	.001
7	.012	.012	3.78	.001	0	.002	.005	5.67	.001
SESSION 3 (<i>n</i> = 361,936)									
1	.011	.014	-10.28	.001	0.03	.002	.141	4081.98	.001
3	.011	.012	-15.89	.001	0.11	.002	.012	30.96	.001
5	.011	.012	-22.40	.001	0.11	.002	.012	29.79	.001
7	.011	.011	1.22	.22	0	.002	.006	7.52	.001
SESSION 4 (<i>n</i> = 54,019)									
1	.011	.014	-4.13	.001	0.02	.002	.165	4776.00	.001
3	.011	.012	-14.24	.001	0.08	.002	.017	52.00	.001
5	.011	.012	-6.58	.001	0.10	.002	.014	33.90	.001
7	.011	.011	3.24	.001	0	.002	.006	7.12	.001

Note: Numbers are volts input. Approximate mapping of millivolts to milligauss for Geomagnetic Meters: .000-.075 mV = .000-3.7 mG; .075-.150 mV = 3.7 to 8.5 mG; .150-.225 mV = 8.5-25.0 mG; .225-.300 mV = 25.0-100.0+ mG

strongly correlate (or inversely relate) with their own meter type within sessions, despite the fact that pairs of meters were placed more than 15 feet apart in separate rooms. In some instances, these relationships are more perplexing as the meters are more than 30 to 40 feet apart. Although the precise meaning can be debated, as Figure 1 shows, Meters 5 and 6 were always inversely related to other meters in other locations in the house. In some cases, other meters would correlate substantially with each other, depending on the time, and then become unrelated or inversely related, depending on the session. These relationships, particularly when they were inverse, suggest the presence of multiple sources of EMF variation in a house with no known artificial means to create them.

Table 4
Correlations of EMF and GMF Readings Between Meters for Each Session

Session 1 (n = 176,586)										Session 3 (n = 361,936)											
Meter	1	2	3	4	5	6	7	8	9	Meter	1	2	3	4	5	6	7	8	9		
1T										1T											
2G	.14									2G	.11										
3T	-.20	-.14								3T	<u>.73</u>	-.06									
4G	.02	-.04	.00							4G	.00	-.05	-.02								
5T	.08	.11	<u>-.41</u>	.02						5T	.43	.16	.28	.01							
6G	-.02	.01	.02	<u>-.62</u>	-.01					6G	-.04	.02	-.01	<u>-.61</u>	-.02						
7T	-.11	-.22	<u>.40</u>	-.01	<u>-.50</u>	.03				7T	.09	-.27	<u>.34</u>	-.02	<u>-.41</u>	.02					
8G	.03	-.12	-.01	.37	.02	<u>-.64</u>	.00			8G	.00	-.11	-.04	<u>.35</u>	.01	<u>-.61</u>	-.02				
9TB	<u>.31</u>	.01	.01	.02	.25	-.01	-.01	.05		9TB	<u>.68</u>	.03	<u>.64</u>	.00	<u>.44</u>	-.02	.12	.00			
10GB	-.03	.02	.02	-.08	-.02	.19	.04	<u>-.31</u>	.05	10GB	-.06	.01	-.03	-.10	-.06	.19	.03	<u>-.33</u>	-.03		
Session 2 (n = 165,778)										Session 4 (n = 54,019)											
Meter	1	2	3	4	5	6	7	8	9	Meter	1	2	3	4	5	6	7	8	9		
1T										1T											
2G	.16									2G	.21										
3T	-.25	-.14								3T	-.07	-.19									
4G	.02	-.03	.00							4G	.04	-.03	.01								
5T	.11	.12	<u>-.44</u>	.02						5T	.08	.20	<u>-.43</u>	.02							
6G	-.04	.02	.02	<u>-.62</u>	-.01					6G	-.08	.00	.03	<u>-.44</u>	-.02						
7T	-.19	-.22	<u>.39</u>	-.01	<u>-.48</u>	.03				7T	-.14	-.29	<u>.32</u>	.00	<u>-.60</u>	.03					
8G	<u>.04</u>	-.12	-.02	<u>.39</u>	.02	<u>-.64</u>	.00			8G	.07	-.10	-.05	.23	.04	<u>-.60</u>	-.01				
9TB	.22	.01	-.02	.01	<u>.33</u>	-.01	.03	.05		9TB	.22	.06	.05	.01	.10	-.01	-.09	.05			
10GB	-.03	.03	.01	-.12	-.03	.20	.04	<u>-.31</u>	.05	10GB	-.05	.01	.05	-.07	-.06	.12	.07	<u>-.32</u>	.03		

Note: Bold = $p < .05$, Underline = $r > .30$

Phenomena-Based Analysis: EMF/GMF and Its Potential Association to Objective Anomalous Phenomena

In terms of phenomena, the site performed exceedingly well. Although many subjective feelings, noises, and sensations were present during the investigation, this location produced numerous phenomena that were difficult to explain by normal means. Some of these events were captured by our equipment, some were not. For example, both coins and candy appeared on the floors of the room without any apparent means of doing so. In addition, a milk crate both disappeared and reappeared in the basement of the house. In both instances, cameras could not determine how these events occurred.

Likewise, two cases of apparent apparitions occurred in which a series of shadows of 7- to 8-foot-tall people were captured on video while the house was empty. We conducted further investigation with available light sources but were unable to re-create these shadows from any aspect of the room or house. Childlike voices not belonging to any investigator were also captured on audio, despite the fact that there

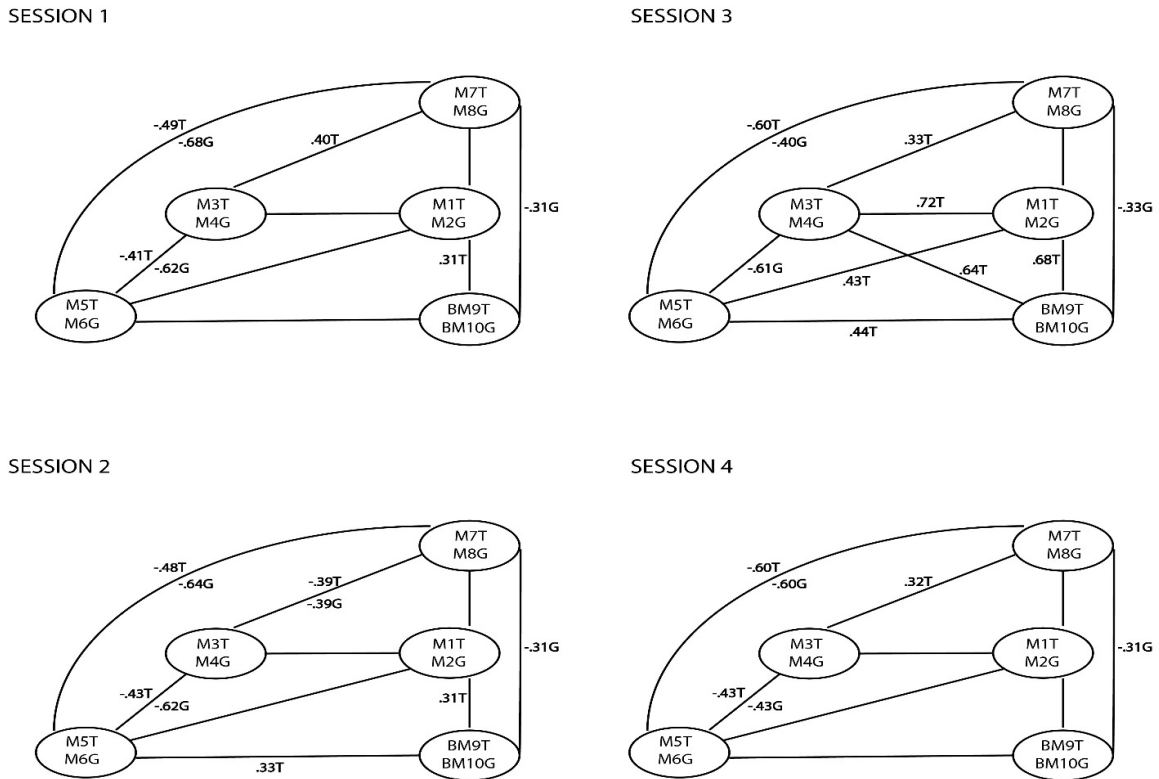


Figure 1. Correlation Coefficients Greater Than .3 By Physical Location for EMF (T) and GMF (G) Meters in Each Session

were no children present and residential houses were not nearby. Thus, this house appeared to have genuine anomalous activity occurring within it.

Examination of Events With and Without EMF/GMF Spikes in Comparison to Captured Potential Phenomena

In order to test the hypothesis that EMF/GMF increases and decreases were associated with phenomena, a series of chi-square tests were conducted within each series of counts for each classification category of phenomena collected. Results are provided in Table 5. The expected count for events that occurring a spike was determined by the overall ratio of spike seconds (e.g., the number of seconds during which three or more 3 SD spikes occurred) in comparison to total seconds over the investigation. The assumption of the test is that if phenomena events are random then the number of events that occur during spikes should not exceed the overall ratio of spike seconds compared to nonspike seconds during the course of the investigation. In order to account for the fact that some events lasted more than 1 second, the expected ratios were multiplied by 4, providing an expected ratio representing the random expected occurrence of these spikes over 4 seconds. Please note that all events recorded across the classes of phenomena were shorter than 4 seconds. However, using a 4-second anomalous event time in comparison to the overall seconds of spikes creates a more conservative test with regard to the expected counts of the chi square. Thus, the chi-square analysis conducted was artificially deflated to present a more conservative estimate. As Table 5 demonstrates, across all categories of phenomena, including ruled out and explainable events, chi squares were highly significant for analysis examining EMF and GMF, EMF only, and GMF only ($p = .0006$ to 10^{-6}).

Table 5
Chi-Square Tests of Evidentiality Categories by Presence or Absence of Serial Spikes

Category (Tri & Geo)	Events with Spikes		Events Without Spikes		χ^2	p
	O	E	O	E		
Class 0	32	8.20	9	32.80	86.34	10 ⁻⁶
Class 1	57	18.8	37	75.20	97.02	10 ⁻⁶
Class 2	10	3.60	8	14.40	14.22	.000162
Class 3	8	1.80	1	7.20	26.69	10 ⁻⁶
Percentage Expected ^a		20		80		
Category (Tri Only)	O	E	O	E	χ^2	P
Class 0	14	1.60	6	18.40	104.45	10 ⁻⁶
Class 1	29	3.84	19	44.16	179.18	10 ⁻⁶
Class 2	3	0.56	4	6.44	11.55	.000675
Class 3	6	0.56	1	6.44	57.44	10 ⁻⁶
Percentage Expected ^b		8		92		
Category (Geo Only)	O	E	O	E	χ^2	p
Class 0	18	2.52	3	18.48	108.06	10 ⁻⁶
Class 1	28	5.40	17	39.60	107.48	10 ⁻⁶
Class 2	7	1.32	4	9.68	27.77	10 ⁻⁶
Class 3	2	0.24	0	1.76	14.66	.000128
Percentage Expected ^c		12		88		

Note: ^aExpected = 1,592(spike seconds)/31,597(total investigation seconds) = 5% rounded times 4 (20%). ^bExpected = 534(spike seconds)/31,597(total investigation seconds) = 2% rounded times 4 (8%). ^cExpected = 1,058(spike seconds)/31,597(total investigation seconds) = 3% rounded times 4 (12%)

Examination of Positive, Negative, and Mixed EMF/GMF Spikes and Captured Potential Phenomena

In order to examine whether increases, decreases, or mixed increases and decreases (variability) differentially predicted events, additional chi squares were conducted within each class of phenomena. Results are shown in Table 6. Expected counts were calculated by the percentage of serial increases, decreases, and mixed-second events collected within the total sample. Again, the assumption of the test is that if a particular type of spike is more predictive of phenomena, then it will exceed the expected percentage of its spike type from the entire sample when compared with phenomena. As Table 6 indicates, the proportion of increases, decreases, and variability do not significantly differ from the overall sample. As such, serial spikes associated with phenomena do not appear to relate specifically to a particular type (e.g., positive, negative, or mixed) of EMF/GMF spike.

Table 6
Chi-Square Tests of Evidentiality Categories by Types of Spikes

Category (T&G)	Positive Spikes		Negative Spikes		Mixed Spikes		χ^2	<i>p</i>
	O	E	O	E	O	E		
Class 0	12	9.61	14	16.74	5	4.65	1.07	.58
Class 1	19	17.67	30	30.78	8	8.55	0.15	.92
Class 2	5	2.79	2	4.68	2	1.35	3.75	.15
Class 3	2	2.48	5	4.32	1	1.20	0.23	.88
Percentage Expected ^a			31		54		15	
Category (Tri-Field Only)	O	E	O	E	O	E	χ^2	<i>p</i>
Class 0	4	3.85	9	9.08	1	1.04	0.01	.99
Class 1	9	7.97	18	18.82	2	2.15	0.18	.91
Class 2	1	0.55	1	1.298	0	0.15	0.58	.74
Class 3	1	1.65	4	3.89	1	0.44	0.95	.62
Percentage Expected ^a			27.5		64.9		7.4	
Category (Geo Only)	O	E	O	E	O	E	χ^2	<i>p</i>
Class 0	8	6.20	5	7.58	4	3.20	1.60	.48
Class 1	10	10.22	12	12.48	6	5.26	0.13	.93
Class 2	4	2.55	1	3.12	2	1.36	2.56	.27
Class 3	1	0.73	1	0.89	0	0.38	0.49	.78
Percentage Expected ^a			36.5		44.6		18.8	

Note: ^aExpected percentages derived from total number of positive, negative, and mixed spikes over duration of investigation.

Examination of Number of Spikes in Association with Captured Potential Phenomena

Finally, in order to determine if the overall number of serial spikes (e.g., variability) differentially predicted phenomena, chi squares were again employed within each phenomena category. Results are shown in Table 7. As per the previous analyses, expected counts were determined by the total sample percentage of the number of serial spikes (within 1 second) that occurred within the total dataset. As Table 7 indicates, across all categories of phenomena, the number of spikes that occurred on the given second of the event and, therefore, the duration of the spike, was not a significant predictor of events across categories with the exception of Class 2 events ($p = .007$). Examination of Table 7 suggests this significant finding comes from a greater number of 5 or more serial spikes in 1 second occurring at a greater frequency than expected.

Discussion

The goal of the current study was to examine the hypothesis that EMF/GMF changes as a function of anomalous phenomena that occur in purportedly haunted locations. We deemed our hypotheses exploratory, because previous research (e.g., Braithwaite, 2004, 2006; Braithwaite & Townsend, 2005; Wiseman et al., 2002; 2003) has examined degree and magnitude of EMF or GMF in a supposed haunted location but has not examined objective captured evidence of potentially anomalous events in relation to these fields. The overall findings of the current research appear to support previous research that showed that

Table 7
Chi-Square Tests of Evidentiality Categories by Numbers of Serial Spikes

Category	3 Spikes		4 Spikes		5 Spikes		6+ Spikes		χ^2	<i>p</i>
	O	E	O	E	O	E	O	E		
Class 0	21	22.40	7	4.80	3	1.80	1	2.70	2.93	.40
Class 1	41	39.90	11	8.55	1	3.36	4	4.95	2.58	.46
Class 2	5	6.30	1	1.35	3	0.55	0	0.78	11.99	.007
Class 3	5	5.60	1	1.20	1	0.46	1	0.69	0.84	.83
Percentage Expected ^a		70		15		5.8		8.7		

Note: Expected percentages derived from total number of serial spikes collected over duration of investigation.

EMF/GMF fields are abnormal, or at least different, in these “haunted” locations. Also, we provided the first field evidence (to our knowledge) that EMF and GMF do seem to predict potentially anomalous phenomena. We address individual hypotheses below.

General EMF/GMF Magnitude and Behavior

Our examination of EMF/GMF demonstrated that field strength in terms of magnitude and variability was significantly greater at locations with activity compared to the single pair of outside baseline meters. These findings lend partial support to previous research, although Braithwaite et al. (2004) and Wiseman et al. (2002, 2003) noted more differences in the geomagnetic fields, and found less variability and magnitude differences with standard “mains” frequency EMF.

What is interesting is that both magnitude and variability of EMF “mains” frequency fields demonstrated the most variability and magnitude despite a lack of EMF generating sources in the location. GMF fields could be expected to vary simply as a function of environmental conditions of the earth, solar rays, and other effects, but EMF is most often affected by artificially created means. One explanation is that the frequency of the fields during the investigation lay somewhere in between EMF and GMF frequencies, thus increasing the magnitude readings of 60-Hz calibrated EMF meters. However, correlations between EMF and GMF were essentially nonexistent, which rules this possibility out. As such, we have no explanation as to why these EMF fields were greater and why they varied as they did.

EMF meters were attached to extremely sensitive coils, whereas GMF meters were not. One reason why GMF may not have shown the magnitude differences that EMF did is that the GMF meters were not sensitive enough to pick up that smaller variations in magnitude that the EMF meters could detect. In either event, GMF still produced significantly greater degrees of variability. However, despite smaller differences from baseline measurements, GMF appears to predict anomalous events as well as EMF does.

From a broader perspective, the above findings do generally support some of Persinger’s earlier hypotheses (e.g., St. Pierre & Persinger, 2006). Even though specific frequencies of fields could not be determined, there are definite differences in EMF and GMF fields above and beyond baseline measures. As such, the EMF/GMF readings within a potentially haunted house suggest that these sites are a likely place where a person’s perception could be affected.

The current research examined multiple areas within the site in comparison to baseline readings. When the correlations are examined by session, a very intriguing finding seems evident. Correlations across sessions demonstrated that readings in different rooms either correlated or inversely correlated depending on location and time. The results of these correlations lead to some tentative conclusions about the source and behavior of EMF/GMF in “haunted” locations. First, we accept the likelihood that one field or vector of EMF/GMF affecting two sets of meters that are physically distant from each other would increase or decrease the readings at the same time and in the same way. If this assumption is theoretically

correct, then the current findings demonstrate through correlation that multiple sources of EMF were present inside the house affecting different meters at different times. Given the quick decay of magnitude that occurs as distance of a meter increases from a source of an EMF/GMF field, multiple and numerous fields within the house would account for varying positive and negative relationships between meters. Degrees of correlation would indicate the extent to which a particular field was affecting a meter in a different location.

One potential explanation is that these changes in correlation over time may represent the reflection of fields from metallic content inside the house. However, this explanation does not entirely fit with the data. A closer inspection of Figure 1 and Table 4 demonstrates that different meter areas would strongly correlate with other meter areas, but only at certain assessment times. At other times during assessment, these areas were unrelated. Using metal reflection to explain these changes in association becomes difficult for a simple reason: The metal in the house is presumably fixed and immobile. As such, if the fields in the house are not mobile, then the reflection angles of the metal would not change, and thus, relationships between meter areas would remain constant in terms of the pattern of correlations between meter areas across all four sessions.

Thus, if this site is typical, an examination of the correlations across sessions suggests that EMF/GMF in these locations do not represent one large encompassing field that is occurring at the location. Rather, multiple sources of EMF of varying strength seem apparent. We would suggest that the correlations across time suggest multiple fields that are changing in size and areas of effect as well as covering and effecting different areas of the house as time progresses. This interpretation is at least partially congruent with Braithwaite et al.'s (2004) finding of fields that changed in variability and magnitude over time. However, as electricity sources were deemed nonexistent in the house, we have no explanation as to why, or how these fields could have been conventionally generated.

Coded Analysis of EMF/GMF Spikes and Associated Phenomena

In terms of our principal hypothesis regarding the association of EMF and GMF with phenomena, our results lend initial support to the idea that EMF and GMF are associated with captured nonhallucinatory phenomena that occur within purportedly haunted locations. The ratio of events occurring during spikes was highly significant compared to what we would expect from random association of spikes to phenomena.

These findings are theoretically important in terms of understanding and explaining haunting phenomena, with a few caveats that will be mentioned below. Primarily, the demonstrated relationship between audio- and video-captured phenomena and EMF/GMF provides the first evidence that "paranormal phenomena" cannot be fully accounted for by Persinger's (e.g., Gearhart & Persinger, 1986; St. Pierre & Persinger, 2006) hypothesis of GMF-stimulated hallucination. This, by no means, discredits GMF hallucinations, but it does provide evidence that would rule out an entirely neurological explanation of haunting phenomena. Although the explanation of what these events represent is something we leave to others, the data in their simplest interpretation suggest that difficult-to-explain phenomena do occur within some purportedly haunted locales, they are associated with EMF and GMF, and that internal sensation and perception are not sufficient to explain their occurrence.

However, these spike-to-event ratios were highly significant even with Class 1 and ruled-out Class 0 phenomena, which presents a quandary. Our goal for performing the analyses on Class 0 (ruled-out events) and Class 1 (likely non-anomalous events such as bumps, thumps, and noises) was to provide transparency to the event classification process. Although Class 0 and Class 1 phenomena show high percentages of spikes during their occurrence, our classification system and method could not influence when spikes occurred over the data set. Thus, some sort of association exists between these "likely non-anomalous" phenomena and EMF. Several potential explanations exist. First, particularly with Class 0 phenomena, many of the events were noises due to either airplanes overhead or cars passing by. Both of the objects in question are metal, and both have strong electrical power supplies which in turn create EMF

fields. It may be the case that, as the meters are highly sensitive, the EM fields of these cars and planes were being picked up. In a somewhat similar vein, Class 1 phenomena most frequently consisted of loud bangs, bumps, and knocks that frequently occurred in the house, as well as voices that were more likely to be investigators than EVP, or lights or dust that appeared to have odd trajectories. While interesting, by EMPE criteria this type of phenomena was too easily explainable, and therefore relegated to Class 1. Although better safe than sorry, some of these events may not, in fact, have been due to environmental means, and thus the number of events categorized as Class 1 phenomena may have been inflated due to Type II error.

Regardless of the significance of the ratios of Class 0 and Class 1 phenomena, they exist for comparison purposes. The remaining classes of phenomena, particularly Class 3, represent very closely examined and analyzed events that most people would interpret as “paranormal.” We are at a loss to explain all of the Class 3 phenomena, and the percentage ratios of events occurring on spikes are highest with this class. Events in this category included actual human-shaped shadows that we could not explain after considerable effort, audio voices of children who were not present, sounds of footsteps and keys jingling with investigators absent, and several instances of a male voice with a southern accent repeating what appears to be “dee-dup.” Ratios of spikes for Class 3 events, which were much less common in the dataset, ranged from 85–100%. However, despite other sources of EMF that may add error to the model and false positives to the lower classifications, the prediction rate of spikes to the events that were likely to be anomalous, while not perfect, is strong enough to warrant the claim that spikes do seem to be associated with closely examined anomalous events.

Increases, Decreases, and Variability in EMF/GMF and Length of Spike and Captured Phenomena

Secondary analysis of EMF/GMF spikes overall was not significant. Results showed that both three-*SD* increases or decreases, as well as increases and decreases within a 1-second interval (i.e. variability), did not appear to differentially predict phenomena occurring in any of our phenomena categories. Likewise, the number of serial spikes that occurred within 1 second (e.g., the length of the perturbation) also did not seem to differentially predict phenomena events. However, our non-significant findings actually provide very telling information about EMF/GMF that, until now, has not been examined. Essentially, nonsignificant results in these tests demonstrate that both increases and, more importantly, decreases from average field strength are associated with phenomena. These data suggest that any type of perturbation—whether the field increases, decreases, or varies positively and negatively—is a potential sign of anomalous events.

Our lack of relationship between both the type of EMF/GMF spikes and the duration of spikes with anomalous events is also useful for understanding how EMF/GMF behave in the context of anomalous phenomena. The current research seems to suggest that very brief magnitude small spikes and longer sustained spikes are equal potential predictors of anomalous activity. Practically speaking, this has relevance to the hobbyists of ghost hunting as well as to parapsychological field research. Meters used for either ghost hunting or formal research must be both sensitive to small perturbations and able to sample EMF quickly enough to detect spikes and decreases within a fraction of a second in order to test EMF as a predictor in the field. Although speculative, the current research suggests that most of the inexpensive EMF meters do not have the processing speed or sensitivity to capture EMF spikes that might predict quality phenomena. It also suggests that the practice of ignoring small variations in EMF may mean missing or not capturing a potentially anomalous event.

Weakness, Perspective, and Future Research

The methods used in the current study have some weaknesses, some of which are due to the nature of EMF/GMF, and others which can be improved or are philosophically and scientifically thorny. The most

obvious issue with the current research is a desperate need for replication. Although probability in many ways protects the investigator from Type I error, the current research can make no claims that the field and phenomena behavior here is consistent either with the site itself or other locations. As such, our current goal is to return to conduct additional investigations, implement software to better review evidence, and make a comparison of other sites that have reliably demonstrated objective anomalous phenomena.

As to the association of EMF/GMF spikes in relation to phenomena, while every conceivable precaution was taken with regard to the accurate estimation of the EMF/GMF equipment we used, the equipment is by no means perfect. We hope to expand on our equipment in order to examine frequency or add additional meters to areas in hopes of triangulating fields. Yet, the nature of these findings cannot be discounted by a perceived deficiency in the equipment. If the reader can accept that the meters and data-logging equipment employed register changes in EMF/GMF magnitude, and were applied, implemented, and recorded in a consistent manner, then any error in the equipment cannot explain why registered spikes (produced from data logging) would correspond to external events recorded in the environment. Even if some internal error of the equipment was occurring, such as electrical feedback, it still would not explain why particular feedback was occurring at a time that corresponded to the recording of external phenomena.

Related to the above, general magnitude and variability readings regarding EMF/GMF may have been different if coils had been available for all meters. Whereas three-standard-deviation spikes were plentiful with GMF meters, overall magnitude readings and the number of spikes may have differed if coils had been employed with GMF. Because these spikes were plentiful with GMF meters, we do not believe that the EMF/GMF phenomena relationship demonstrated here was significantly confounded by a lack of coils for these meters, but we do intend to examine this possibility in future research.

Finally, and in a more theoretical context, we wish to state that the phenomena that have been captured are not intended to be considered “proof” of ghosts or haunting. Scientifically and philosophically, we prefer to make a clear statement that the captured phenomena were consistently evaluated only on their ability to be easily explained. We leave the interpretation and personal meaning of such phenomena as child-like female voices or shadow apparitions to the individual reader. Unfortunately, people will go great lengths towards disavowing or accepting this type of research according to their belief systems, which in many cases go above and beyond reasonable conclusions whether they are skeptics or believers. As such, we feel the only reliable position to take is within the stated methods of evaluation that we employed to determine the likelihood that these relationships exist.

Although the current research methods can always be improved, the findings are strong enough to demonstrate that a relationship exists between phenomena that are difficult to explain by environmental means and changes in EMF and GMF readings, even when factoring in considerable degrees of error. A definitive explanation for the occurrence of the phenomena, either by very unlikely but normal causes or by supernatural means, is not something we can provide.

Conclusion

The overall research, despite some unavoidable weaknesses, provides initial evidence that video- and audio-captured phenomena are associated with perturbations in the EMF/GMF fields of a “haunted” location. Through careful classification of these events, and the independently measured variation in EMF/GMF that is associated with them, we cannot help but conclude that a hallucination-based explanation for haunting phenomena alone does not account for these findings or phenomena. However, we openly claim that this study represents initial findings, and we are in the process of replicating this research at the same location, as well as at other locations. We welcome theoretical contributions and other researchers’ interest in these phenomena, as well as independent replication of these findings.

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Abstracts in Other Languages

Spanish

UNA PRUEBA CRÍTICA DE LA TEORÍA PARANORMAL DE FENÓMENOS EMF-GMF: INVESTIGACIÓN DE UNA CASA ENCANTADA SIN CAMPOS GENERADORES DE ELECTRICIDAD

RESUMEN. Las investigaciones previas sobre los campos electromagnéticos y geomagnéticos (EMF y GMF) y su relación con los fenómenos paranormales se han realizado bajo los supuestos teóricos de alucinaciones debida a los campos GMF. El presente estudio evalúa la posibilidad de que fenómenos paranormales no alucinatorias también estén asociados con campos EMF/GMF. Examinamos las perturbaciones de EMF y GMF en el contexto de fenómenos potenciales recolectados con equipos de registro de datos en una casa encantada sin electricidad. Los resultados globales indican que los campos EMF y GMF fueron significativamente mayores en magnitud y variabilidad dentro de la casa en comparación con las mediciones iniciales realizadas fuera de dicha ubicación. Las diferencias en la magnitud de GMF fueron pequeñas en comparación con EMF. Las correlaciones mostraron que los campos EMF/GMF cambiaron en rango y ubicación a lo largo de la investigación. Los resultados relacionados con los fenómenos individuales revisados indican que los fenómenos están fuerte y significativamente asociados con los picos EMF GMF en serie, que los aumentos y disminuciones en los campos EMF/GMF no predicen diferencialmente los fenómenos, y que el aumento en el número (es decir, duración) de picos en serie no predicen diferencialmente los fenómenos.

French

UN TEST CRITIQUE DE LA THÉORIE DES PHÉNOMÈNES PARANORMAUX PAR CHAMPS ÉLECTRO-MAGNÉTIQUES (EMF) : PREUVES EN PROVENANCE D'UN SITE HANTÉ SANS CHAMPS GÉNÉRANT DE L'ÉLECTRICITÉ

RESUME : Les précédentes recherches sur les champs électromagnétiques et géomagnétiques (EMF et GMF) et leurs relations aux phénomènes paranormaux ont été réalisées en partant du postulat théorique que les champs GMF produisaient des hallucinations. La présente étude teste la possibilité que les phénomènes paranormaux non-hallucinatoires soient également associés avec les champs EMF/GMF. Les perturbations EMF et GMF furent examinées dans le contexte des phénomènes potentiels collectés avec un équipement collecteur de données sur un site hanté sans électricité. Les résultats globaux indiquent que les champs EMF et GMF étaient significativement plus grands tant en magnitude qu'en variabilité au sein du lieu par rapport à des mesures de base prises en dehors du lieu. Les différences dans la magnitude GMF étaient petites comparativement à celles dans l'EMF. A travers une corrélation, on a pu montré que les champs EMF/GMF changeaient en ampleur et en localisation durant tout le temps de la recherche. Les résultats impliquent des phénomènes pris individuellement impliquent que les phénomènes sont fortement et significativement associés avec des pics en série d'EMF et GMF, que tant les augmentations et les diminutions dans les champs EMF/GMF ne sont pas différentiellement prédictifs des phénomènes, et que cette augmentation dans le nombre (cf. la durée) des pics en série ne prédit pas différentiellement les phénomènes.

EIN KRITISCHER TEST DER THEORIE ÜBER EMF UND PARANORMALE PHÄNOMENE: HINWEISE VON EINEM SPUKORT OHNE ELEKTRIZITÄT SERZEUGENDE FELDER

ZUSAMMENFASSUNG: Frühere Forschungen über mögliche Zusammenhänge zwischen elektromagnetischen und geomagnetischen Feldern (EMF und GMF) mit paranormalen Phänomenen wurden unter der theoretischen Annahme durchgeführt, dass GMF-Felder Halluzinationen induzieren. Die vorliegende Studie überprüft die Möglichkeit, dass nicht-halluzinatorische paranormale Phänomene auch mit EMF/GMF-Feldern zusammenhängen. Änderungen des EMF und GMF wurden im Kontext möglicher Phänomene mit Geräten zur Datenerfassung an einem Spukort ohne Elektrizität aufgezeichnet. Die Gesamtergebnisse weisen darauf hin, dass die EMF- und GMF-Felder sowohl in Grössenordnung wie Schwankung innerhalb der Örtlichkeit signifikant grösser sind—verglichen mit Baselinemessungen ausserhalb der Örtlichkeit. Unterschiede in der Grössenordnung zwischen GMF und EMF waren gering. Durch Korrelation konnte nachgewiesen werden, dass sich die EMF/GMF-Felder im Verlauf der Untersuchung in ihrer Reichweite wie Lokalisierung änderten. Die Nachprüfung an ausgewählten Phänomenen ergab, dass die Phänomene deutlich und signifikant mit Gruppen von EMF- und GMF-Spikes zusammenhängen, dass sowohl der Anstieg als auch der Abfall der EMF/GMF-Felder nicht zur Vorhersage bestimmter Phänomene beiträgt und dass Anstiege in der Anzahl, d. h. in der Dauer von Spikeserien die Ausprägung bestimmter Phänomene nicht vorhersagt.

METHODOLOGY FOR CONFIRMATORY EXPERIMENTS ON PHYSIOLOGICAL MEASURES OF PRECOGNITIVE ANTICIPATION

By J. E. KENNEDY

ABSTRACT: Research on physiological measures of precognitive anticipation or presentiment is transitioning from exploratory to confirmatory methodology. Appropriate confirmatory practices include (a) using the physiological measures to predict the outcomes of random events with the prediction criteria developed from previous data, (b) prospectively developing and validating the programming for processing the physiological data, (c) using only data prior to the random stimulus on a trial and no data from subsequent trials when developing parameters for adjustments or artifact rejections, and (d) multiple experimenter designs that make misconduct by one experimenter difficult. The physiological measures in precognitive anticipation experiments can be expected to violate the assumption of independence between trials when used as the dependent variable and may produce counterintuitive, false positive biases with standard statistical methods. The most convincing research strategy is to develop prediction criteria using an initial set of data and then apply the criteria to predict the random events on new trials. Other research strategies can be expected to be controversial. In addition, when the physiological values used for analysis are derived after trials with feedback have been completed, data processing must be handled very carefully to avoid bias from retrospective selection of data processing parameters.

Keywords: presentiment, precognitive anticipation, dependent variable dependence, expectation bias, retrospective selection, ESP

Most studies of physiological measures of precognitive anticipation have been exploratory, and the time has come to apply methods for convincing confirmatory research. Mossbridge, Tressoldi, and Utts (2012) recently pointed out the need for the diverse experimental procedures and analysis methods to converge to standard practices that can be directly replicated.

This article focuses on certain methodological issues that require particular attention for precognitive anticipation experiments. The discussion here does not cover all aspects of confirmatory experiments. Important methodological practices that should be implemented for any confirmatory experiment but are not discussed here include power analysis, study registration, documented software validation, and data sharing (Kennedy, 2013a, 2013b, 2013c; Koestler Parapsychology Unit, 2012). The present article focuses on issues that are more specifically associated with precognitive anticipation experiments.

The basic design of a precognitive anticipation experiment is that a participant receives randomly selected stimuli while certain physiological data are collected prior to the stimuli. The physiological data are analyzed to see if the person unconsciously anticipates the specific stimulus that occurs. Various stimuli can be used, such as the display of either an arousing image or a calming image, or either a signal that requires a fast action by the participant or a signal that requires no action. A wide range of physiological measures can indicate anticipation in situations like these, including skin conductance, electrical activity in the brain, pupil dilation, muscle activity, and heart rate. The term *presentiment* has often been used for experiments using emotional or arousing stimuli, but that is a subset of precognitive anticipation research.

Three basic strategies have been used to analyze precognitive anticipation experiments. One analysis strategy is to *predict new events*. An initial set of data is analyzed to develop criteria for using the physiological measures to predict the random events. The methods for developing criteria for making predictions are often called classification or discriminant analysis methods. These methods may be simple such as using a median value, or may involve complex multivariate techniques. The initial process of de-

veloping criteria is often called the *learning* or *training* step. The criteria are then applied to physiological measures on new trials to predict the random events for those trials. Statistical significance for precognitive anticipation can be evaluated with a simple binomial test (or normal approximation) on the proportion of correct predictions for the new trials.

Another analysis strategy is to classify the learning data. Predictive criteria are developed as described above, but statistical significance is evaluated by applying the criteria to the data used to develop the criteria rather than to new trials. This strategy must attempt to adjust for the extent to which the process of developing the criteria incorporates random fluctuations and other properties of the learning data that are not applicable for future random events. These adjustments generally are not straightforward, particularly when multivariate methods are involved. The most convincing way to evaluate the validity of the predictive criteria is to apply the criteria to new trials as described above. Attempts to eliminate that step can be expected to be controversial.

The third analysis strategy is to evaluate the *differences in the physiological measures*. Statistical significance is based on testing the difference between the average physiological measures for the different types of stimuli in the study. This strategy uses the physiological measures (rather than the random events) as the dependent variable. As discussed in the next section, this strategy is prone to false positive biases because the physiological data can violate the assumptions for standard statistical analysis as a dependent variable.

The topics discussed in this article all point to the conclusion that predicting new events is the optimal strategy for analyzing precognitive anticipation experiments. The results are highly convincing if the predictions are made prior to generating the random stimuli, and particularly with appropriate multiple experimenter study design. The analysis strategies of differences in physiological measures and classifying the learning data can be expected to be controversial.

It may be helpful to consider how these three strategies would apply to the evaluation of a person claiming to be able to beat the odds and win money at a gambling game in a casino. The strategy of predicting new events is a direct, unambiguous measure of whether the person actually can reliably beat the odds and win money. The strategy of classifying the learning data is analogous to the person recording some outcomes for the game, then retrospectively developing an algorithm that could have been used to beat the odds for that particular set of data—and then arguing that this shows success even though actually beating the odds and winning money was not directly demonstrated. The analysis strategy of differences in physiological measures is equivalent to the person arguing that larger average bets on the trials that won than on the trials that lost is evidence for success. However, this difference between average winning and losing bets can be achieved with certain betting strategies that do not actually produce net winnings. For example, increasing the amount of the bet on each trial until a winning bet is obtained, and then starting over with a low bet on the next trial tends to produce this difference. With this betting strategy, the largest winning bets occur after a series of losing bets. The average bet for the winning bets may be larger than for the losing bets, but the averages do not indicate whether the total amount won exceeded the total amount lost. This betting strategy does not beat the odds, but tends to produce the differences claimed to indicate success. Here too, actually beating the odds and winning money is not directly and unambiguously demonstrated. The strategy of increasing the bet on each trial until a win is obtained is similar to the gambler's fallacy discussed below.

Dependencies Between Trials

In recent years, the analysis strategy of differences in physiological measures has been frequently used to analyze precognitive anticipation experiments. The evaluation has been based on the difference between the average values of the physiological measures for the different stimuli rather than evaluating the proportion of new trials when the physiological measure correctly predicted which random stimulus occurred.

Physiological measures of anticipation often have dependencies between trials that make them

prone to false-positive artifacts when used as the dependent variable. The gambler's fallacy is the well-known tendency for people to anticipate that the random event on the next trial will have a different outcome than on the previous trial. The degree of anticipation often increases when the same outcome occurs several times in sequence. This introduces dependencies between sequential trials.

Standard statistical methods are based on the assumption that the value for the dependent variable on a trial is independent of the values of the variables on other trials, except for factors that are included in the statistical model. Violation of this assumption can produce misleading results. One of the simplest forms of dependency is a positive serial correlation between the values of the dependent variable on consecutive trials. This dependency causes the p values for standard statistical hypothesis tests to be misleadingly significant (false positive) and makes the standard tests inappropriate (Miller, 1986; Neter, Wasserman, & Kutner, 1985, p. 445). It is important to note that the error variance is incorrect if standard statistical methods are applied, and that simply adding a covariate with the value of the dependent variable on the previous trial does not produce accurate hypothesis tests.

With the gambler's fallacy, the anticipation measure on a precognitive anticipation trial depends on an interaction between the stimulus on the previous trial and the anticipation measure on the previous trial. This dependency between trials violates the assumptions for analyzing a dependent variable using standard statistical methods. Unfortunately, the effects of this violation are not easy to discern.

If the physiological measure is used as the dependent variable, determining the effects of the dependencies between trials requires detailed analyses. These dependencies can be considered a type of expectation bias and that term has been used in some writings. Wackermann (2002) used numeric and analytic approaches to investigate the problem and Dalkvist and Westerlund (2006; Dalkvist, Westerlund, & Bierman, 2002) used paper and pencil models and computer simulations. A simple simulation model that offers insight into the nature and implications of the dependencies between trials is described in the Appendix of the present paper.

These analyses found that the dependencies between trials can cause artificial differences between the average physiological values for different stimuli in ways that mimic precognitive anticipation. As described in the Appendix, these differences can create the illusion of precognitive anticipation when the actual anticipation is incorrect for the majority of trials. Certain aspects of these biases are notably counterintuitive.

It is not safe to assume that dependencies between trials can be ignored if the measures of anticipation do not become stronger during a string of trials with the same stimulus. As described in the Appendix, the simulations show that biases can occur in that situation.

Similarly, the currently available analyses do not justify confidence in the assumption that dependencies between trials can be safely ignored if data are pooled from different participants. The available analyses are proof of concept rather than justification for technical guidelines for hypothesis testing. These analyses focus on biases for the mean values, which is useful for demonstrating that biases occur. However, the development of guidelines for hypothesis testing would require evaluating the biases for p values when standard methods are applied. That is a much more complicated evaluation that involves the bias for the error variance as well as the bias for the mean. Also, as noted in the Appendix, different forms of dependencies between trials need to be considered, not just one of the weaker forms as investigated by Dalkvist and Westerlund (2006).

Using physiological measures as the dependent variable is particularly problematic for process-oriented research that evaluates factors associated with better precognitive anticipation. In general, the biases from dependencies between trials for anticipation measures are reduced as larger amounts of data are pooled. However, process-oriented analyses evaluate subsets of data and therefore have higher potential for biased results. The unit of analysis in process-oriented research is typically the participant. As Dalkvist and Westerlund (2006; Dalkvist, Westerlund, and Bierman, 2002) pointed out, the number of trials for each participant in a typical precognitive anticipation study cannot be expected to overcome the biases. Determining whether the effects in process-oriented research are due to differences in precognitive antic-

ipation or to differences in the dependencies between trials would be difficult.

Extensive research would be needed to develop a convincing working understanding of the effects of dependencies between trials in precognitive anticipation studies using physiological measures as the dependent variable. The complexity of the biases is significantly increased by the often highly skewed nature of physiological data and the possibility that the dependencies may vary across people and during an experimental session, as well as in response to different instructions and tasks. The effects of these complexities would need to be understood through analyses.

False positive biases also manifest with the analysis strategy of classifying the learning data. The criteria for the predictions or classifications are derived from a group of trials and then applied to the trials in that group. The retrospectively developed criteria were adapted to the specific targets for the group of trials. The dependencies between trials may contribute to the misleading effectiveness of the criteria in this situation.

The safest, most convincing research strategy is to predict new trials using criteria developed from previous data. If randomization is handled properly, the stimulus on a new trial is independent of the stimuli and the physiological measures on previous trials. This analysis strategy does not raise questions about violating the basic assumptions for standard statistical methods and can be used reliably for process-oriented research. The new trials could be with the same participants as the initial learning data or with different participants. Another interesting strategy is to have each participant do only one trial (Dalkvist, Mossbridge, & Westerlund, 2013; Mossbridge, 2013). This eliminates the dependencies between trials, but the validity of the results can still be expected to be controversial unless criteria can be developed that successfully predict new trials.

Realistically, the analysis strategies of differences in physiological measures and classifying the learning data may be best considered as exploratory efforts in the development of methods for predicting random events on new trials. These analysis strategies raise extremely complicated, counterintuitive technical issues that most cautious scientists will find to be more plausible than psi for explaining significant results. The Appendix has additional discussion of these technical issues.

Using the physiological measures to predict the random events on new trials is also more relevant for the practical application of precognitive anticipation. For example, if precognitive anticipation were developed for applications such as airplane pilots anticipating an emergency response, the physiological measures would be used to predict the event.

Processing the Physiological Data

In most precognitive anticipation experiments, the physiological values used in the analysis are derived from relatively complex processing of the raw data. The raw data are seldom used directly. This data processing usually includes modifications described with terms like normalization, baseline adjustment, and/or artifact rejection. Decisions must be made about the parameters for this processing. In addition, decisions must be made about which of many different options will be used to reduce the physiological data for a trial to one number for analysis.

In many cases, the processing of the physiological data to obtain the values for analysis is done after the trials have occurred and feedback has been given. That is very different from a traditional ESP experiment, which has the call or prediction for a trial unalterably registered before the target is revealed. Obtaining the physiological values by data processing after the targets are known introduces significant potential for bias. This potential for bias applies whether the physiological values are used as predictor variables or as dependent variables.

Retrospective selection of data processing parameters that produce favorable results can occur through several mechanisms during data processing. If the processing of the physiological data involves decisions by an analyst, these decisions should be made with the analyst blind to the random events. Blinded evaluations eliminate the almost irresistible temptations to introduce subtle biases, as well as more overt data manipulations. For confirmatory studies, decisions about data adjustments or artifact re-

jection can normally be automated with programming that does not involve the random events.

However, even when the processing is automated, the derived physiological values are susceptible to bias from retrospective data processing. The physiological data after the random stimulus on a trial typically contain information about which stimulus occurred. Analysts need to be vigilant that any normalization, baseline adjustment, artifact rejection, or other processing of the physiological data does not involve data after the stimulus on a trial.

An adjustment can introduce biases if the parameters are derived from a group of trials and the adjustment then applied to the trials in the group. The biases described in the Appendix are applicable when making adjustments to the data as well as in the final statistical analysis. The physiological data for trials with feedback may have dependencies between trials that reflects information about the targets and introduces subtle, counterintuitive biases when parameters are retrospectively derived. For example, if an adjustment to the physiological data is based on the mean of a group of trials, the mean used for a particular trial should be based on prior trials only with no data from subsequent trials.

Any adjustment of the pre-stimulus physiological data that involves post-stimulus data, including from subsequent trials, has the potential to compromise the integrity of the pre-stimulus data. Biases can result from technical details that are difficult to identify from published reports. This issue may be handled more casually in exploratory research, but confirmatory experiments should manage the processing of the physiological data very carefully.

The optimal analysis strategy is for prospectively developed automated programming to predict the random stimulus for a trial using only physiological data prior to the random event. Ideally, the prediction would be made before the random stimulus and any physiological data after the stimulus have been generated or read by the programming. Here too, the most convincing research strategy is to develop predictive criteria with initial data and apply those criteria to predict the random stimuli on new trials. To verify that biases did not occur, the number of trials rejected due to artifacts should be reported and also the number of each type of stimulus on the rejected trials.

Multiple Experimenter Designs

Study designs with procedures that involve multiple experimenters and make misconduct by any one person difficult are highly valuable for confirmatory experiments in a controversial area of research. Experimenter misconduct has occurred many times in parapsychology and is a constant threat (Kennedy, 2013b). Experimenter fraud has occurred in all areas of science. However, the controversial nature of psi research combined with prominent experimenter differences in producing effects make experimenter misconduct particularly salient in parapsychology.

Contrary to what many scientists assume, independent replication and peer review generally have not been effective at detecting or deterring scientific fraud. Most frauds have been detected by coworker whistleblowers. These conclusions are supported by the experiences in parapsychology (Kennedy, 2013b) and in other areas of science (Strobe, Postmes, and Spears, 2012). Multiple experimenter study designs recognize the importance of coworkers in preventing misconduct.

The highly automated methods used in the precognitive anticipation studies typically appear to have been developed without consideration of multiple experimenter designs. For most studies, it would appear to be relatively easy for one experimenter to make a version of the data collection program that fraudulently manipulates the data in a way that would be very difficult or impossible to detect later.

The experimental procedures could be adapted to involve multiple experimenters in the generation of random events and the collection of physiological data. The optimal strategy is to have copies of the random event data and the physiological data held by two different experimenters prior to unblinding. This prevents any one experimenter from easily altering the data in an undetectable manner. Here too, multiple experimenter study designs can be most effectively implemented with the analysis strategy of predicting new events.

One option would be for the computer program that conducts the experiment to obtain random

numbers from a remote site through the internet or a more direct connection. The program would collect the pre-stimulus anticipatory physiological data for a trial, then transfer a copy of that data to the remote site and obtain the random number for the type of stimulus. A copy of the random numbers used in the experiment, or the parameters for a random algorithm, would previously have been transferred to another experimenter or to a third party. With this procedure, the data for both the random stimuli and the physiological measures are held in two independent locations prior to unblinding for a trial. After the initial development of such systems, they could be routinely implemented with little overhead.

Another strategy would include control trials in which the random stimulus was not displayed. The program conducting the experiment would collect data and prepare to display the randomly selected stimulus, but would obtain a random number from a remote site immediately prior to displaying the stimulus. Based on the random number, the stimulus would not be displayed on certain trials that would serve as a control condition. Any unexpected effects on the control trials would presumably indicate experimenter effects of some type rather than precognitive anticipation by the participant. This strategy might be useful for investigating psi-mediated experimenter effects as well as for preventing undetected experimenter misconduct.

Recommendations

Experiments on physiological measures of precognitive anticipation have often had two major methodological differences from traditional ESP experiments. First, traditional ESP experiments use the random events as the dependent variable, whereas precognitive anticipation studies have often used the physiological measures as the dependent variable. Second, traditional ESP experiments have the calls or predictions unalterably registered before the target is revealed, whereas precognitive anticipation studies have often obtained the physiological values used in the analysis by relatively complex data processing after the trials were completed and feedback given. These methodological practices in precognitive anticipation studies introduce significant potential for subtle, counterintuitive biases that are difficult to detect and virtually assure that the results will be controversial.

The recommendations for confirmatory experiments on studies of physiological measures of precognitive anticipation are:

1. The random events can and should be used as the dependent variable, with the prediction criteria developed from previous data.
2. The computer program for processing the physiological data should be programmed and validated prior to collecting the data in order to limit the potential for retrospective selection or modification of data processing parameters.
3. All processing of the physiological data should be very carefully managed to eliminate any criterion, parameter, or adjustment that is derived using any data after the feedback on a trial, including any data from subsequent trials.
4. Experiments should be designed with procedures that involve multiple experimenters and make it difficult for any one experimenter to make unintentional or intentional mistakes that affect the experimental results.

A planned confirmatory experiment by Patrizio Tressoldi (2012) represents a significant methodological advance for precognitive anticipation research. The physiological measures are used to predict new random events, and the programming for the study makes the prediction for a trial before the stimulus is displayed. In addition, the study was prospectively registered at the Koestler Parapsychology Unit study registry, and the planned sample size was based on power analysis.

This discussion is intended as a starting point for methodological improvement as the research shifts from exploration to confirmation. The factors discussed in this article can be routinely used for study quality ratings in meta-analyses or other data syntheses. Creative thought will likely produce other options

for enhancing methodology in these experiments.

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Appendix

A simple simulation model shows the nature and effects of dependencies between trials for pre-cognitive anticipation experiments. Assume that a person anticipates the occurrence of a random event with two possible outcomes. For example, the outcomes could be the display of either an arousing image or a calming image. As another example, the outcomes could be display of one of two stimuli, with one requiring a fast action by the participant and the other requiring no action. For purposes of this simple

simulation, the outcomes are labeled “outcome-plus” and “outcome-minus.”

Also, assume that a physiological measure has different values prior to the random event, depending on which outcome is anticipated and the degree of anticipation. A wide range of physiological measures can indicate anticipation in situations like this, including skin conductance, electrical activity in the brain, pupil dilation, muscle activity, and heart rate. For purposes of this simple simulation, the physiological measure has negative values -1, -2, -3, etc. for increasing anticipation that outcome-minus will occur, and positive values 1, 2, 3, etc. for increasing anticipation that outcome-plus will occur. The basic effects developed with these assumptions apply widely.

In addition, assume that the participant anticipates that the outcome on the next trial will be different than on the previous trial and that the physiological measure of anticipation increases when a sequence of trials with one outcome occurs. This is the well-known gambler’s fallacy. For example, if outcome-plus occurs, then the physiological measure on the next trial has value -1, indicating that the person anticipates outcome-minus will occur. If outcome-plus occurs on that trial, then the physiological measure of anticipation become stronger to -2 for the following trial. Increasing negative values of the physiological measure continue until an outcome-minus event finally occurs. In general, the person maintains increasing anticipation for the opposite outcome until that outcome occurs.

If a person increases anticipation for an outcome until that outcome occurs, the final trial in that sequence has the most extreme anticipation value and has correct anticipation. For example, a sequence of five trials with outcome-minus ends when a trial with outcome-plus occurs. The participant has increasing anticipation for outcome-plus over the six trials. In this case, the average physiological value for the five outcome-minus trials is $(1 + 2 + 3 + 4 + 5) / 5 = 3$ and the value for the final outcome-plus trial is 6. The average for the outcome-minus trials is less than for the outcome-plus trials. If the analysis is based on the difference between the average values of the physiological measures for the two outcomes, this result is consistent with precognitive anticipation.

In general, for a sequence of trials with the same direction of anticipation, the final correctly anticipated trial will have a more extreme correct physiological value than the previous incorrectly anticipated trials—which appears to support precognitive anticipation.

Note that this positive result for the difference of the averages occurs even though the physiological measure fails to predict the correct outcome on five of the six trials. However, this point is based on a priori knowledge of the prediction criteria—as would happen if the criteria had been developed previously using different data. If the criteria for making predictions were developed from only the data in this example, the fact that most trials have incorrect anticipation would not be recognized. The criteria would incorporate the biases in the data and would be prone to false positive results when applied to the data used to develop the criteria.

The biases for individual sequences like this would be counterbalanced if all possible sequences were present in the analyses. For example, five trials with outcome-plus followed by a trial with outcome-minus produce averages of -3 for outcome-plus trials and -6 for the final outcome-minus trial. This difference of the averages is consistent with precognitive anticipation. However, when the data for this sequence are pooled with the complementary sequence described above, the pooled averages are 1.5 for the outcome-minus trials and -1.5 for the outcome-plus trials—which is appropriately contrary to the precognitive anticipation hypothesis given that only two of twelve trials have correct anticipation. The data for the two sequences are shown in Table 1.

However, an experiment has a finite number of random events and may not include counterbalancing sequences for all sequences. As indicated by these examples, each of the individual sequences alone erroneously tends to support precognitive anticipation if the physiological measure is the dependent variable.

In a simple simulation of a run of 40 trials with these assumptions for anticipation, I found that the average physiological measures for outcome-plus trials were higher than for outcome-minus trials in 69% of 3000 simulations. The degree of bias was reduced if the number of trials in a run increased and became

Table 1
Data for Complementary Sequences

Data for Original Sequence

Trial number:	1	2	3	4	5	6
Stimulus outcome:	minus	minus	minus	minus	minus	plus
Physiological measure:	1	2	3	4	5	6
Correct prediction:	no	no	no	no	no	yes

Average physiological measure for outcome-minus = $(1 + 2 + 3 + 4 + 5) / 5 = 3$

Average physiological measure for outcome-plus = $6 / 1 = 6$

Difference consistent with precognitive anticipation: yes

Correct physiological predictions: $1 / 6 = 17\%$

Physiological predictions consistent with precognitive anticipation: no

Data for Complementary Sequence

Trial number:	1	2	3	4	5	6
Stimulus outcome:	plus	plus	plus	plus	plus	minus
Physiological measure:	-1	-2	-3	-4	-5	-6
Correct prediction:	no	no	no	no	no	yes

Average physiological measure for outcome-minus = $-6 / 1 = -6$

Average physiological measure for outcome-plus = $(-1 - 2 - 3 - 4 - 5) / 5 = -3$

Difference consistent with precognitive anticipation: yes

Correct physiological predictions: $1 / 6 = 17\%$

Physiological predictions consistent with precognitive anticipation: no

Data for Pooled Sequences

Average physiological measure for outcome-minus = $(1 + 2 + 3 + 4 + 5 - 6) / 6 = 1.5$

Average physiological measure for outcome-plus = $(6 - 1 - 2 - 3 - 4 - 5) / 6 = -1.5$

Difference consistent with precognitive anticipation: no

Correct physiological predictions: $2 / 12 = 17\%$

Physiological predictions consistent with precognitive anticipation: no

worse if only the trials with more extreme values of the physiological measure were evaluated.

As expected, precognitive anticipation based on the physiological measure predicting the random events using the a priori prediction criteria was at chance in these simulations.

A more counterintuitive result is that biases also occur when the degree of anticipation does not increase during a string of trials with one outcome. My simulations found that about 57% of the simulations were in the direction supporting precognitive anticipation even when the degree of anticipation remained constant over a string of trials with one outcome. The physiological measures were set to +1 or -1 and remained at that level until switched to -1 or +1 after the random outcome changed. This situation retains some of the dependency between trials and apparently also retains some of the false positive bias. I verified this result with three different sources of random numbers. Dalkvist and Westerlund (2006) used similar assumptions for their simulations and reported corresponding effects—which also brings into focus the fact that their findings are based on a type of dependency that produces much weaker effects than when anticipation increases for sequential trials with the same stimuli (57% versus 69% of the simulations in the direction consistent with precognitive anticipation).

One way to gain some insight into this counterintuitive result is to recognize that when the random

events happen to alternate outcomes for some trials, the strategy of anticipating a different outcome from the previous trial produces completely correct results. On the other hand, longer strings such as a sequence of five trials with outcome-minus followed by a trail with outcome-plus results in average physiological values of $(1 + 1 + 1 + 1 + 1) / 5 = 1$ for the outcome-minus trails and 1 for the outcome-plus trail. The averages are tied, and with finite amounts of random data the longer strings apparently do not fully offset the results for the trials with alternating outcomes.

It may be useful to comment on the use of permutation tests to evaluate precognitive anticipation studies with the physiological measures as the dependent variable. A permutation test assumes the trials are independent and tests the hypothesis that the physiological value on any trial could have occurred equally likely with the random stimulus on any trial. A significant result indicates that this hypothesis is false and there are differences in the data. However, the test does not indicate why the differences occurred. Significant results could be due to precognitive anticipation or to the trials not being independent. A permutation test intended to exclude biases from the dependencies between trials would include for a trial only the permutations that have the same values for the stimulus and anticipation measure on the previous trial.

Dalkvist and Westerlund (2006; Dalkvist, Mossbridge, & Westerlund, 2013) propose handling the dependencies between trials with a 2-way ANOVA that includes a factor for the stimulus on the previous trial. Putting the values in Table 1 into the cells for the ANOVA and examining the means suggests that the ANOVA is susceptible to biases. It appears to me that attempts to adjust for or partial out the effects from the previous trial would need to include the physiological measure on the previous trial as a term (covariate) as well as the stimulus on the previous trial. However, as with serial correlation between trials, simply adding terms for the values on the previous trial cannot be assumed to provide accurate hypothesis tests.

In general, statistical tests for evaluating the effects of the dependencies are also subject to methodological problems from the dependencies. In addition, for any conclusions based on statistical tests with nonsignificant outcomes, the power of the test is of central importance.

Even mild to moderate skeptics of psi will likely find biases from dependencies between trials to be a plausible explanation for significant results when the analysis is based on differences in physiological measures or classifying the learning data. Great effort would be needed to obtain a useful understanding of the effects of the dependencies with these analysis strategies, and probably greater effort to convince other researchers that adequate understanding had been achieved. Studies that develop prediction criteria on initial learning data and then successfully predict the random events on new trials are much simpler and more convincing. The evidence for precognitive anticipation can be expected to remain controversial until this strategy is reliably demonstrated.

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Abstracts in Other Languages

Spanish

Metodología para Experimentos Confirmatorios sobre Medidas Fisiológicas de Anticipación Precognitiva

RESUMEN. La investigación sobre las medidas fisiológicas de anticipación precognitiva o presentimiento está pasando de ser una metodología exploratoria a una confirmatoria. Las prácticas confirmatorias apropiadas incluyen (a) el uso de medidas fisiológicas para predecir los resultados de eventos aleatorios con criterios de predicción desarrollados a partir de datos anteriores, (b) desarrollo y validación de forma

prospectiva de la programación para el procesamiento de los datos fisiológicos, (c) usar solamente los datos previos al estímulo aleatorio de una prueba y no datos de pruebas posteriores durante desarrollo de parámetros para los ajustes o rechazos de artefactos, y (d) diseños con varios experimentadores para hacer que la mala conducta de un experimentador resulte difícil. Se puede esperar que las medidas fisiológicas en experimentos de precognición anticipatoria violen el supuesto de independencia entre las pruebas cuando se usen como variable dependiente y pueden producir sesgos contra-intuitivos positivos falsos con el uso de métodos estadísticos estándar. La estrategia de investigación más convincente es el desarrollo de criterios de predicción utilizando un conjunto inicial de datos y luego aplicar los criterios para predecir los acontecimientos aleatorios en nuevas pruebas. Se puede esperar que otras estrategias de investigación sean controversiales. además, cuando los valores fisiológicos usados para el análisis se derivan después de que se ha dado feedback después del experimento, el procesamiento de datos debe ser manejado con mucho cuidado para evitar el sesgo de la selección retrospectiva de los parámetros de procesamiento de datos.

*French***MÉTHODOLOGIE POUR LES EXPERIMENTATIONS CONFIRMATOIRES SUR LES MESURES PHYSIOLOGIQUES D'ANTICIPATION PRÉCOGNITIVE**

RESUME : Les recherches sur les mesures physiologiques d'anticipation précognitive ou de pressentiment sont en train de passer d'une méthodologie exploratoire à confirmatoire. Les pratiques confirmatoires appropriées incluent (a) l'utilisation de mesures physiologiques pour prédire les résultats des événements aléatoires avec les critères de prédiction développés à partir des données antérieures ; (b) le développement prospectif et la validation du programme de traitement des données physiologiques ; (c) l'utilisation uniquement des données avant le stimulus aléatoire sur un essai et non des données des essais subséquents lors du développement des paramètres pour l'ajustement ou le rejet d'artefacts ; et (d) des dispositifs avec de multiples expérimentateurs qui rendent difficile d'expliquer les résultats par la mauvaise conduite d'un seul expérimentateur. On s'attend à ce que les mesures physiologiques des expérimentations d'anticipation précognitive puissent violer l'hypothèse de l'indépendance entre essais lorsqu'elle est utilisée comme variable dépendante, ce qui peut produire des biais contre-intuitifs de faux-positifs avec les méthodes statistiques standards. La stratégie de recherche la plus convaincante est de développer des critères de prédiction en utilisant un ensemble initial de données et d'appliquer ensuite ces critères pour prédire les événements aléatoires sur les nouveaux essais. D'autres stratégies de recherche seront nécessairement controversées. De plus, lorsque les valeurs physiologiques utilisées pour l'analyse sont dérivées après que des essais avec feedback aient été effectués, le traitement des données doit être réalisé de façon très prudente pour éviter les biais de sélection rétrospective des paramètres de traitement des données.

*German***EINE METHODOLOGIE FÜR BESTÄTIGUNGSEXPERIMENTE VON PHYSIOLOGISCHEN MESSUNGEN ZUR PRÄKOGNITIVEN ANTIZIPATION**

ZUSAMMENFASSUNG: Die Forschung zur physiologischen Messung der präkognitiven Antizipation oder Presentiment befindet sich im Übergang von der explorativen zur Bestätigungsmethodologie. Angemessene Techniken zur Bestätigung umfassen (a) die Verwendung physiologischer Messungen zur Vorhersage von Zufallsereignissen, wobei die Vorhersagekriterien aufgrund früherer Daten formuliert wurden, (b) die prospektive Entwicklung und Validierung von Programmen zur Verarbeitung der

physiologischen Daten, (c) die Verwendung nur solcher Daten, die dem zufälligen Stimulus bei einem Trial vorhergehen und keiner Daten darauffolgender Trials, wenn es um die Entwicklung von Parametern zur Anpassung oder zum Ausschluss von Artefakten geht, und (d) Versuchspläne mit mehreren Experimentatoren, wodurch Fehlverhalten eines Experimentators erschwert wird. Es steht zu erwarten, dass die physiologischen Messungen bei Experimenten zur physiologischen Antizipation die Annahme der Unabhängigkeit der Trials untereinander verletzen werden, wenn sie als abhängige Variable verwendet werden und bei den statistischen Standardmethoden zu contra-intuitiven falsch-positiven Biases führen werden. Die überzeugendste Forschungsstrategie besteht in der Entwicklung von Vorhersagekriterien unter Verwendung eines ursprünglichen Datensatzes, um dann diese Kriterien zur Vorhersage von Zufallereignissen bei neuen Trials heranzuziehen. Andere Forschungsstrategien dürften sich als kontrovers erweisen. Sobald die in die Analyse eingehenden physiologischen Werte, die von Trials mit Feedback gewonnen wurden, endgültig vorliegen, muss die Auswertung der Daten äußerst sorgfältig geschehen, um einen Bias aufgrund der retrospektiven Selektion der Parameter der Datenauswertung zu vermeiden.

SHAMANIC-LIKE JOURNEYING AND PSI SIGNAL DETECTION: II. PHENOMENOLOGICAL DIMENSIONS

BY ADAM J. ROCK, LANCE STORM, KYLIE HARRIS, AND HARRIS L. FRIEDMAN

ABSTRACT: Storm and Rock’s imagery cultivation (IC) model regards shamanic-like techniques as being psi-conducive, with the alleged psi signal being somehow embedded in the cultivated imagery. In the first replication study, hit rates were above chance (not significantly) in all three shamanic-like conditions, and below chance in the control condition. In the present study, we aimed to replicate these findings with regards to phenomenological correlates of psi performance and phenomenological differences between stimulus conditions. While the present study failed to replicate the results of Rock and Storm, post hoc analyses demonstrated that, for the instructions + drumming group, direct hits were significantly positively correlated with altered time sense, altered perception, and altered experience; and significantly negatively correlated with memory. In addition, an analysis of phenomenological data revealed that the treatment groups reported an “altered state of consciousness” relative to the control group. Our findings suggest that phenomenology can be changed using a shamanic-like journeying treatment, and these changes are conducive to the generation of source material that can be an aid to psi processes.

Keywords: phenomenology, Phenomenology of Consciousness Inventory, shamanic-like journeying, shamanism

Shamanism has been referred to as humankind’s oldest religion (Eliade, 1964). Fundamentally, shamanism is a social construct that emerged during an era of pre-literacy and, thus, its precise origins are unclear (Rock & Krippner, 2011a). Although the term “shaman” is of uncertain derivation, it is regularly traced to the Tungus-speaking Siberian reindeer herders, among whom the term “šaman” translates into “one who is excited, moved, or raised” (Lewis, 1990, pp. 10–12). Shamanism may be defined as a set of practices that purportedly enable its practitioners to produce alterations in phenomenology (subjective experience) for the purpose of obtaining information intended to benefit the members of their community (Krippner, 2000, 2002). This information is often acquired by the shaman engaging in what is variously termed soul-flight, ecstatic journeying, or simply journeying whereby the shaman’s “soul” purportedly leaves the physical body and travels to independently existing (i.e., exosomatic) “spirit” worlds (Rock & Krippner, 2008; Walsh, 1995, 2007). A variety of methods may be used to elicit journeying states, such as sleep deprivation (Achterberg, 1987), cultivating visual mental imagery (e.g., entering “tunnels” leading to the “underworld”; Noll, 1985), ingesting psychoactive substances (e.g., ayahuasca, psilocybin; Harner, 1987), sweat lodges (Jilek, 1982), and sensory deprivation (Achterberg, 1987). However, the most commonly used method is auditory driving, a technique in which the shaman listens to a monotonous percussive sound, most frequently drumming (Harner, 1990).

There is a long-standing link in the anthropological literature, based on informal observations and interviews, between shamanism and psi (Krippner, 1989; Storm & Rock, 2011). However, few experimental studies have been conducted. For example, Rose (1956) reported a significant psi effect whereby Australian Aborigines were able to guess correctly the design on cards focused on by an experimenter, but concealed from the participant. In a series of three studies Geisler (1985a, 1985b, 1986) investigated psi among “Afro-Brazilian cultists.” It was reported that the control group (non-cult participants) demonstrated significant psi-hitting, whereas the cult shamans group and initiates group scored at chance levels. In another study, Saklani (1988) tested the PK ability of five adult Shamans in Garhwal Himalaya, and reported that the participants were “able to influence plant germination and protect seeds from the deleterious effects of saline” (p. 60).

Given the claim that shamans use ostensibly paranormal information in order to “meet the needs

of [their] group and its members” (Rock & Krippner, 2011a, p. 7; see also, Rogo, 1987), Storm and Rock (2009a) developed their Imagery Cultivation (IC) Model which incorporates a shamanic-like journeying protocol based on shamanic practice. They expressly designed this protocol in such a way as to facilitate and stimulate the imagination (see Harner, 1990), thereby cultivating the production of images from the unconscious, said to be the source of psi (see Storm & Rock, 2009a, for details on the IC Model).

In Part 1 of this two-part study, we (Rock, Storm, Harris, & Friedman, 2012) tested our IC model, which we regard as psi-conducive, on the assumption that an alleged psi signal is embedded in the cultivated imagery. With an express process-oriented aim in mind, we tested the full-treatment (i.e., shamanic-like instructions + drumming) and two sub-components (instructions only; and drumming only) of the journeying procedure to ascertain the psi-conduciveness of each. We found that psi hit rates were above chance (not significantly) in all three treatment conditions, but were below chance in the control condition (no instructions; no drumming).

Subsequently, we combined the data-set from our initial study (i.e., Storm & Rock, 2009b) with the corresponding dataset from Rock et al. (2012), to obtain a more up-to-date and reliable indication of the situation as it stands for our IC model. It was found that for the combined shamanic-like group ($N = 107$), which is the same as the shamanic-like instructions + drumming condition, the direct-hit rate was approximately 31% (33 hits). However, this statistic did not reach significance ($p = .10$, one-tailed).

Continuing our process-oriented aim for this the present study, we report here the results for psi tests other than those reported previously in Rock et al. (2012). At this stage, however, some background information about altered states of consciousness (ASCs) and subjective experience is necessary. Concerning ASCs, Rock and Krippner (2012) argue “altered states of consciousness” are more accurately described as “altered states of phenomenology.” However, for the purpose of the present paper, the commonly accepted nomenclature will be used.

Altered States of Consciousness and Psi

It might be assumed that shamanic-like journeying states are altered states of consciousness (ASCs), both of which have been associated with psi. For example, psi/shamanic-states relationships have been reported in the literature (e.g., Nelson, Jahn, Dunne, Dobyms, & Bradish, 1998). More generally, researchers have made claims for psi effects as a result of other ASCs, such as the Ganzfeld (e.g., Bierman, 2001), hypnosis (e.g., Marcusson-Clavertz & Cardeña, 2011), dreaming (see Storm, 2006, for a review of dream-ESP studies), meditation (e.g., Roney-Dougal & Solfvin, 2006), and relaxation (see Storm & Thalbourne, 2001, for a review).

Occasionally, inadequate measures of “altered states” were taken, if at all (e.g., Honorton & Harper, 1974), or the measures of same were dubious and/or confusing (especially in some meditation studies), or (overwhelmingly) control groups were not used. Occasionally, psi effects, which have been attributed to ASCs, were significant but not always in the hypothesized direction, or were only significant for sub-groups in the samples. For example, Parker (1975) reported “psi missing effects” for those participants who experienced “large alterations of state” (p. 41; see also, Palmer, Khamashta, & Israelson, 1979), and more recently, Marcusson-Clavertz and Cardeña (2011), in their Ganzfeld study, found that “psi z scores correlated strongly to moderately positive with experiencing an altered state and other changes in consciousness, *but only for high hypnotizables*” (p. 235; emphasis added). This ambiguous finding suggests ASCs do not make a sufficient (i.e., measurable) contribution to the psi process for low hypnotizables, or ASCs were not induced at all for low hypnotizables. Like Alvarado (1998), Marcusson-Clavertz and Cardeña raise the issue of expectancy effects: “... ganzfeld may work because experimenters and participants believe in it, a kind of placebo effect” (p. 236; see also, Stanford, 1992, p. 53, on placebo and expectancy effects). Perhaps high hypnotizables are particularly vulnerable to these effects, whereas low hypnotizables are not.

Thus, for over 40 years, it has often been implied, or even boldly stated, that induced ASCs account for psi effects, as if the lack of control groups in many studies, as well as “expectancy effects,” and

other “design and individual differences problems” (Alvarado, 1998, p. 45; see also, Braud, 2005) were of no consequence. (Note that we also acknowledge the role that noise reduction [Braud, 1978; Honorton, 1977] might play in eliciting psi, but see our comments in Storm & Rock, 2009a, pp. 6–7, 13–15.) On ASC induction, we find support from Cardeña (2011) who warns researchers not to assume that the induction processes of hypnosis, meditation, Ganzfeld, etc., guarantee changes in consciousness. And, as noted above, nor do they guarantee planned (i.e., hypothesized) psi effects, if at all. Clearly, at the very outset, researchers must seek evidence of ASCs in psi studies, and we endorse the efforts of those researchers who have endeavored to hone in on the subjective (i.e., “phenomenological”) experiences of participants as a means by which much-needed information about ASCs can be gleaned. Naturally, we acknowledge the importance of objective measures of ASCs (e.g., EEG), but on pragmatic grounds no such measure can compare to the participant’s account of his/her subjective experience in terms of its richness and detail. A major aim of the present study, therefore, was to measure participants’ subjective experiences (particularly ASCs) during the IC treatment and, by so doing, gauge and possibly map the relationships between those ASCs and psi. Specifically, we set out to investigate the phenomenological correlates of psi (i.e., direct hits) and group differences in phenomenology. A quantitative measure of phenomenology is now discussed.

The Phenomenology of Consciousness Inventory

Shamanic-like experiences may be quantified using a methodology that was developed by Pekala (1985) to “operationally define, map and diagram states and altered states of consciousness” (p. 207). The methodology consists, in part, of a novel retrospective phenomenological assessment instrument referred to as the Phenomenology of Consciousness Inventory (PCI; Pekala, 1991). The PCI is a 53-item questionnaire consisting of 12 major dimensions or phenomenological (i.e., subjective) elements (e.g., Positive Affect, Altered Experience, Visual Imagery, Rationality), and 14 minor dimensions (e.g., Fear, Joy, Altered Body Image, Absorption).

The PCI allows one to define operationally or ‘map’ phenomena typically referred to as states of consciousness and ASCs by producing “psygrams” (graphs) that provide two types of information associated with exposure to a stimulus condition: (a) the average intensity values (ranging from 0–6) for each PCI major dimension; and (b) the strength of association between pairs of PCI major dimensions (Pekala & Kumar, 1986). One creates a psygram by first producing a correlation matrix consisting of the 12 PCI major dimensions. The non-significant correlations ($p > .05$) are removed and the significant obtained r values are converted to r^2 values (i.e., coefficients of determination). Subsequently, the r^2 values are converted to percentages. Each line linking a pair of major dimensions constitutes 5% of the r^2 or variance in common (Pekala, 1991).

The PCI has been used to quantify phenomenology associated with, for example, hypnosis (e.g., Pekala & Kumar, 2007; Pekala, Kumar, Maurer, Elliott-Carter, Moon, & Mullen, 2010a, 2010b; Terhune & Cardeña, 2010), progressive relaxation (e.g., Pekala, Forbes, & Contrisciani, 1989), partial epileptic seizures (e.g., Johanson, Valli, Revonsuo, Chaplin, & Wedlund, 2008), and sitting quietly with eyes closed (e.g., Pekala & Kumar, 1989). Recent experimental research (e.g., Woodside et al., 1997) has applied this methodology to shamanic-like journeying experiences. However, to date, only one study (Rock & Storm, 2010, discussed below) has applied Pekala’s (1985) methodology to map the phenomenological effects of a shamanic-like condition designed to assess psi performance.

The performative function of a psygram directly aligns with Tart’s (1975) notion of a discrete (i.e., specific) state of consciousness (d-SoC), which may be defined as a “unique configuration or system of psychological structures or subsystems ... that maintains its integrity or identity as a recognizable system in spite of variations in input from the environment and in spite of various (small) changes in the subsystems” (p. 62). Pekala (1985) stated that, in Tart’s view, it is the pattern formed by these various psychological structures (i.e., phenomenological elements) that comprises a d-SoC. Consequently, if the pattern structure associated with a baseline or control condition is significantly different relative to the pattern

structure associated with, for example, a shamanic-like journeying condition, then one may conclude that the journeying condition was associated with a “major reorganization in pattern structure that is hypothesized by Tart (1975) to be associated with an altered state of consciousness” (Woodside et al., 1997, p. 84). Thus, a significant change in the pattern structure (irrespective of its nature) of phenomenological elements that constitute a d-SoC compared to the pattern structure of an ordinary waking state allows one to conclude that the d-SoC is an ASC.

Shamanic-Like Journeying, Phenomenology, and Psi

In a recent study, Rock and Storm (2010) randomly assigned 108 non-shamans to either a control condition (sitting quietly with eyes open) or a treatment condition (shamanic like-journeying instructions followed by listening to monotonous drumming). Significant differences between the shamanic-like and control groups were found on three PCI major dimensions (higher Negative Affect, Altered Experience, and Imagery in the shamanic-like group) and four minor dimensions (higher Anger, Body Image, Perception, and Meaning in the shamanic-like group). In addition, direct hits correlated significantly with PCI major dimension, Internal Dialog, for the shamanic-like group, but not the control group. We note that the treatment condition used by Rock and Storm (2010) consisted of a composite activity: following shamanic-like journeying instructions *and* listening to monotonous drumming.

Consequently, it would be edifying for future research to isolate each component of the aforementioned composite activity and explore its potential psi-conduciveness with a focus on the phenomenological correlates of psi performance.

Aims of the Study and Hypotheses

In order to investigate whether or not the present study replicated the findings of Rock and Storm (2010), we formulated the following two confirmatory hypotheses:

- H1: The PCI major variable Internal Dialog correlates positively with psi performance in the voice/drum group, but not in the control group. The voice/drum condition of the present study (i.e., shamanic-like instructions coupled with listening to monotonous drumming) was identical to the shamanic-like condition administered by Rock and Storm (2010).
- H2: After controlling for pre-test PCI scores, there is a difference between the voice-drum and control groups on the three PCI major dimensions with higher Negative Affect, Altered Experience, and Imagery in the voice/drum group; and four minor dimensions with higher Anger, Body Image, Perception, and Meaning in the voice-drum group.

Method

Participants

The sample ($N = 200$) consisted mainly of students from the Phoenix Institute of Australia, Melbourne. The first three authors of the present paper were affiliated with the Phoenix Institute of Australia at the time the study was conducted. The last author was, and remains, retired. This institution did not have an IRB or require IRB approval. Participants were recruited by the third author (KH). Participation was voluntary. The method of recruitment was snowball sampling (i.e., word-of-mouth) and convenience sampling using a ballot box placed in the Institute’s library.

The participants ranged in age from 17 to 67 years ($M = 39$ years, $SD = 11$ years, median age = 39 years). The 25th percentile was aged 30 years, and the 75th percentile was aged 46 years. The minimum age requirement for the study was 18 years (consenting age). Fifty-two participants were randomly assigned to the instructions + drumming condition (“voice/drum” = “shamanic-like” as described in Storm & Rock, 2009a, 2009b), 51 to the instructions condition (i.e., “voice”), 54 to the drumming condition (i.e., “drum”), and 43 to the control condition. The experimenter (KH) supervised participants in all conditions

as described below. The mean age was 39 years for voice/drum group ($SD = 11$ years), 39 years for the voice group ($SD = 10$ years), 40 years for the drum group ($SD = 12$ years), and 36 years for the control group ($SD = 11$ years).

The sample was comprised of 48 males (24%) and 152 females (76%). A chi-square test showed no significant difference in these sex proportions across conditions, $\chi^2(3, N = 200) = 2.19, p = .53$, two-tailed.

Utts (1986) examined and listed the power of a series of ganzfeld studies, and placed the expected proportion of hits for a typical study between 33% (Rosenthal, 1986) and 38% (Hyman, 1985), where $P_{MCE} = 25\%$. For the present study, it is reasonably expected that the hit rate will fall in this range. Utts's Table 1 (p. 396) gives a recommended N of 100, with critical limit of at least 33 participants, with corresponding β values of .45 and .82, for the two proportions 33% and 38%, respectively. It was anticipated that the four factorial combinations (voice/drum: $n = 52$; voice: $n = 51$; drum: $n = 54$; control: $n = 43$) would therefore be of sufficient size.

Experimenter

Given that the experimenter was directly involved in testing participants, the experimenter was administered the Australian Sheep-Goat Scale (ASGS; sheep = high-ASGS score; goat = low-ASGS score). The raw range for ASGS data is 0 to 36; Raw mean = 18. The experimenter obtained a raw score of 36. The ASGS data are also Rasch-scaled (Lange & Thalbourne, 2002). The Rasch-scaled score for the experimenter was $M_{RASGS} = 23.69$. This RASGS score is above the sample mean.

Analysis

Hypothesis 1 (H1) was tested using a Pearson's correlation. Hypothesis 2 (H2) was addressed using a one-way between-subjects multivariate analysis of covariance (MANCOVA). Separate MANCOVAs were performed for the PCI major dimensions and PCI minor dimensions in order to avoid violating the assumption of multi-collinearity (Woodside et al., 1997).

Regarding H2, we point out that it is more parsimonious to perform multivariate, rather than univariate analyses when one wishes to examine group differences on multiple, related dependent variables. Consequently, in the case of the PCI major and minor dimensions, multivariate analyses of covariance (MANCOVAs) were performed. MANCOVAs yield multivariate results (i.e., results concerning the combined dependent variables). If a significant multivariate effect is found, then examination of the various univariate effects (i.e., results concerning each individual dependent variable) is warranted. Thus, a "multivariate effect" refers to an effect on combined dependent variables (on MANCOVA, see Tabachnick & Fidell, 2007).

Design

The present study consisted of a 2×2 between-subjects factorial design. The first factor, instructions, had two levels (shamanic-like journeying instructions vs. no instructions) and the second factor, drumming, had two levels (drumming vs. no drumming). This design resulted in four factorial combinations:

1. Shamanic-like journeying instructions + drumming (i.e., voice/drum)
2. Shamanic-like journeying instructions + no drumming (i.e., voice)
3. No shamanic-like journeying instructions + drumming (i.e., drum)
4. No shamanic-like journeying instructions + no drumming (i.e., a control condition).

In the drumming conditions, monotonous drumming was maintained at 8-beats-per-second (b.p.s.; total time: 19 minutes.). Monotonous drumming at 8 b.p.s. for 15 minutes was used in the present study because Rock et al. (2005) found that that it was associated with a statistically significantly higher num-

ber of ostensibly shamanic journeying images reported by non-shamans compared to a control condition, whereas, for example, 4 b.p.s. for 10 or 15 minutes and 8 b.p.s. for 10 minutes were not. We acknowledge that Harner (1990) recommended a drumming tempo of 205 to 220 beats-per-minute. However, we also note that Rock et al.'s findings suggest that a more rapid tempo may be required to elicit shamanic-like experiences in non-shamans. One research assistant was assigned to prepare the target sets and target. The other research assistant was the experimenter.

In advance of the session, the target-setter randomly selected a four-picture set from the pool of 45 picture sets using random number tables (<http://stattrek.com/statistics/random-number-generator.aspx>) and, using the same random number tables, a target picture was selected from the four (thus, a target set was comprised of the target picture plus three decoys). As there are 45 pictures sets, and 200 participants, some sets were used more than once. The target-setter photocopied the target picture, which was then wrapped in aluminum foil, and concealed in a target envelope (the four-picture set was also wrapped in foil and sealed in an envelope in aluminum-foil). The prepared and numbered sets were then placed in a filing cabinet for subsequent retrieval by the experimenter. The experimenter was 'blind' to the targets during the trials. The experimenter tested participants in small groups two or three at a time with a different set for each participant; they administered the Plain Language Statement (PLS) and consent form to each participant.

Questionnaires

Two questionnaires were used in the experiment: (a) *Plain Language Statement* (PLS; a non-technical description of the research project), which included the Consent Form; and (b) the *Phenomenology of Consciousness Inventory* (Pekala, 1991).

The *Phenomenology of Consciousness Inventory* (PCI; Pekala, 1991) is a 53-item scale used to assess the phenomenological effects of different stimulus conditions (i.e. hypnosis, meditation). The PCI contains 26 (sub) dimensions including 12 major dimensions (Positive Affect, Negative Affect, Altered Experience, Visual Imagery, Attention, Self Awareness, Altered State of Awareness, Internal Dialog, Rationality, Volitional Control, Memory and Arousal), and 14 minor dimensions (Joy, Sexual Excitement, Love, Anger, Sadness, Fear, Altered Body Image, Altered Time Sense, Altered Perception, Altered or Unusual Meaning, Amount of Imagery, Vividness of Imagery, Direction of Attention and Absorption; Pekala, 1985). Participants are asked to respond to each item on a seven-point Likert scale. The PCI has respectable psychometric properties (e.g., Pekala, 1991). For example, the PCI has been shown to reliably discriminate between qualitatively different states of consciousness (thus supporting the scale's criterion validity), and has demonstrated good internal consistency, yielding coefficient alphas between .70 and .90 (Pekala, Steinberg, & Kumar, 1986).

ESP Targets

A gallery of 180 hand-drawn pictures by Thalbourne (1981) was used as the target pool; words were randomly selected from a dictionary and then hand-drawn and thus included a random array of many different types of images ranging from simple shapes, everyday items, and animals large and small. We acknowledge that line drawings could be replaced with more realistic pictures (e.g., photos, paintings), but we note that random access to dictionary words, as a valid means of generating an objectively determined range of diverse subject matter, does become a labor-intensive and possibly restrictive process in itself in terms of finding pictorial material that matches the randomly selected words. Inevitably, however, future research will no doubt feature realistic stimuli (e.g., still photos and even movie film) as has been done in the ganzfeld. Each picture had a four-digit number written on the back. The set of 180 pictures was randomly divided into 45 sets of four drawings each. For the ESP test, the target picture was wrapped in aluminum foil and placed inside a manila envelope that was sealed. The target set (one target picture + three decoys) was placed inside another manila envelope.

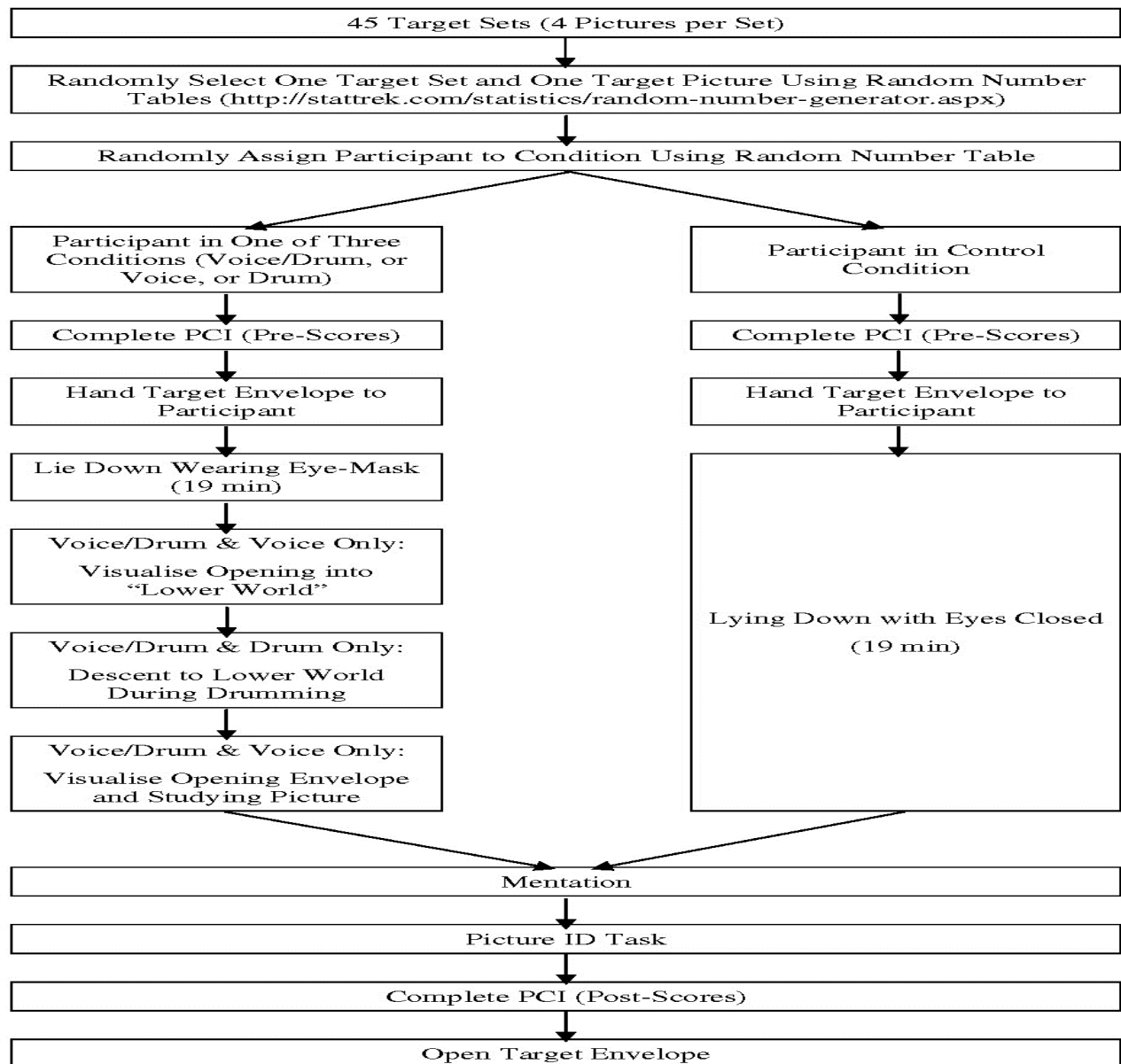


Figure 1. Schematic diagram of experimental protocol.

Procedure

Using a random number table (<http://stattrek.com/statistics/random-number-generator.aspx>), participants were randomly assigned to one of the four aforementioned factorial combinations:

1. Shamanic-like instructions + drumming (voice/drum) condition. After reading the Instruction Sheet, the participant signed the consent form. The experimenter then (a) instructed participants to sit on the floor; (b) handed over a concealed target picture to each participant (each participant had their own set); (c) instructed participants *not* to open the envelope (instead, participants placed the envelope in front of them); (d) directed participants to lie on the floor, and instructed participants to place a light-proof eye mask over their eyes; (e) played the CD-R recording which consists of instructions adapted from Harner (1990, p. 32; see Appendix for a transcription of the recorded instructions).

Table 1
Participants' Rank Scores

Voice/Drum Group Data (<i>n</i> = 52)		
Rank Score	Frequency	%
1	14	26.9
2	15	28.8
3	11	21.2
4	12	23.1
Total	52	100.0
Voice Group Data (<i>n</i> = 51)		
Rank Score	Frequency	%
1	15	29.4
2	13	25.5
3	9	17.6
4	14	27.5
Total	51	100.0
Drum Group Data (<i>n</i> = 54)		
Rank Score	Frequency	%
1	14	25.9
2	13	24.1
3	14	25.9
4	13	24.1
Total	54	100.0
Control Group Data (<i>n</i> = 43)		
Rank Score	Frequency	%
1	10	23.3
2	11	25.6
3	12	27.9
4	10	23.3
Total	43	100.0

After the CD-R recording was finished, the experimenter then: (a) instructed the participants to spend a few minutes writing down their impressions of the line drawing still concealed in aluminum-foil inside the envelope (the participants were permitted to re-read the record of their mentation, in order to prompt their memory, thereby assisting them in the ranking process; the experimenter did not offer personal interpretations of mentations as this may have misled participants); and (b) instructed the participants to rank the four pictures from 1 to 4 (#1 being the “most likely” picture concealed in the envelope, #4 being the “least likely”) using the Picture Identification Scoring Sheet. Throughout testing, the exper-

imenter monitored participants to ensure that they did not advertently or inadvertently open the envelope and look at the line drawing.

2. Shamanic-like instructions + no drumming (voice) condition. Procedures and instructions were the same for participants as in condition 1 except there was no drumming.

3. No shamanic-like instructions + drumming (drum) condition. Procedures and instructions were the same as for participants in condition 1 except there were no shamanic-like journeying instructions. Participants were instructed to do nothing other than lie on the floor with their eyes closed and remain silent.

4. No shamanic-like instructions + no drumming (i.e., control) condition. Participants were instructed to do nothing other than lie on the floor with their eyes closed and remain silent.

Psi hitting. Hit rates for the four groups are shown in Table 1. The hit rate for the control condition was 23.3% ($N = 43$), which is below chance, and lower than the direct hit rates for all three experimental conditions (i.e., 26.9%, 29.4%, 25.9%), all three rates being above chance, where $P_{MCE} = 25\%$. However, no significant differences were found between the four groups, $\chi^2(3, N = 200) = .47, p = .463$ (one-tailed).

Figure 1 illustrates the sequence of steps for the conditions.

Results

Preliminary Data

Testing was conducted between June and December 2011. Participants were debriefed after testing. The average time taken to complete the experiment ranged between 40 and 90 minutes, but only because some participants were slower than others. No adverse events or side effects of the treatment were reported by any participant. Neither age nor sex correlated with direct hitting or rank scores. There were 52 participants in the voice/drum group, 51 participants in the voice group, 54 participants in the drum group, and 43 participants in the control group.

Planned Analyses

H1: The PCI major variable Internal Dialog correlates positively with psi performance in the voice/drum group, but on the control group. The significant direct hitting correlation with Internal Dialog did not replicate, $r(51) = .01, p > .05$. The hypothesis was not supported.

H2: There is a difference between the voice/drum and control groups on three PCI major dimensions with higher Negative Affect, Altered Experience, and Visual Imagery in the voice/drum group; and four minor dimensions with higher Anger, Body Image, Perception, and Meaning in the voice/drum group.

A one-way between-subjects MANCOVA was conducted with condition (voice/drum vs. control) as the independent variable (IV) and the post-test scores on Negative Affect, Altered Experience, and Imagery as the dependent variables (DVs). The pre-test scores for Negative Affect, Altered Experience, and Visual imagery were the covariates. After controlling for pre-test scores, a significant multivariate effect was not found for condition on the post-test scores, $F(3, 87) = 2.10, p = .106$ (*Wilks' Lambda* = .93; *partial* $\eta^2 = .07$). There was a strong relationship between the pre-test and post-test scores for Negative Affect, Altered Experience and, Visual Imagery, as indicated by a partial η^2 value of .37, .12, and .11, respectively. The hypothesis was not supported.

A one-way between-subjects MANCOVA was conducted with condition (voice/drum vs. control) as the IV and the post-test scores on Anger, Altered Body Image, Altered Perception, and Altered Meaning as the DVs. The pre-test scores for Anger, Altered Body Image, Altered Perception, and Altered Meaning were the covariates. After controlling for pre-test scores, a non-significant multivariate effect was found for condition on the post-test scores, $F(4, 85) = 1.96, p = .11$ (*Wilks' Lambda* = .92; *partial* $\eta^2 = .08$). There was a medium to strong relationship between the pre-test and post-test scores for Anger, Altered Body Image, Altered Perception, and Altered Meaning, as indicated by partial η^2 values of .20, .04, .19, and .20,

Table 2
PCI Variable Means and Standard Deviations for all Four Conditions

PCI Dimension	Voice/Drum		Voice		Drum		Control	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Negative Affect	1.34	0.94	1.42	1.10	1.12	0.95	1.07	1.03
Anger	1.16	1.08	1.32	1.21	.96	1.03	.94	1.05
Altered Experience	3.26	1.26	3.05	0.96	3.26	0.96	2.95	1.03
Body Image	3.44	1.25	3.32	1.14	3.56	1.05	3.38	1.26
Perception	3.22	1.41	2.97	1.24	2.86	1.09	2.67	1.23
Meaning	2.82	1.22	2.65	1.06	2.97	1.27	2.50	1.06
Visual Imagery	4.14	1.05	3.97	1.24	4.13	1.26	3.66	1.55

respectively. The hypothesis was not supported. The means and standard deviations for the PCI variables are shown in Table 2.

Post Hoc Analyses

In the interests of exploring the possibility that various PCI dimensions might be correlates of psi, we conducted a series of post hoc tests. The inflation of the Type 1 error rate due to multiple correlations was corrected using the Benjamini-Hochberg (1995) procedure for controlling the false discovery rate in which each individual p -value is compared to $(i/m)Q$, where i is the rank of each individual p -value ordered from the smallest (i.e., 1) to the largest, m is the total number of correlation tests performed and Q denotes the chosen false discovery rate. In the present study, 26 correlations were performed for each condition. Results are presented in Table 2. After controlling for the false-discovery rate due to multiple tests (Benjamini & Hochberg (1995), for the Voice/Drum group psi hit rates were positively and significantly correlated with Altered Time Sense, $r(51) = .37, p = .008$; Altered Perception, $r(51) = .33, p = .017$; and Altered Experience, $r(51) = .37, p = .007$. In addition, psi hit rates were negatively and significantly correlated with Memory, $r(51) = -.31, p = .03$.

Using a Fischer r to z transformation, the correlation for the Voice/Drum group was significantly different to that of the Control group for Altered Time Sense, $z = 1.67, p = .048$ (one-tailed), but only approached significance for Altered Experience, $z = 1.64, p = .051$ (one-tailed), and Altered Perception, $z = 1.52, p = .064$ (one-tailed). In addition, the correlation for the Voice/Drum group was significantly different to that of the Control group for Memory, $z = -2.04, p = .021$ (one-tailed).

There were no significant correlations for the Drum condition, Voice condition, or the Control condition.

Given the long-standing assumption that various psi-conducive stimulus conditions (e.g., the Ganzfeld) induce ASCs (Alvarado, 1998), it seemed prudent to assess whether the pattern structure (i.e., the patterns of relationships between pairs of PCI major dimensions in the form of a covariance matrix referred to as a "psygram") associated with each of the shamanic-like conditions was significantly different relative to the control condition. The Box test is typically held to be overly sensitive with regards to the detection of differences between independent correlation matrices. Consequently, convention dictates that the alpha level associated with the Box test should be set at $p < .001$ (Tabachnick & Fidell, 2007). We note that the Jenrich (1970) Test is the appropriate statistical procedure to assess pattern differences associated with the 12 major dimensions of the PCI (Pekala, 1991). However, Pekala (1991, p. 235) asserts that the Jenrich Test is a "large-sample multivariate procedure" requiring a minimum of 60 participants per condition (provided that all 12 major dimensions of the PCI are being examined). Given that the present study

Table 3
*Pearson Correlations Between Psi (Direct Hits) and the PCI Dimensions
 for the Four Conditions (Voice/Drum, Voice, Drum, and Control)*

	Voice/Drum	Voice	Drum	Control
Positive Affect	.19	-.00	.25	-.06
Joy	.20	.12	.32	.03
Sexual Excitement	.19	-.18	.02	-.07
Love	.08	.05	.30	-.13
Negative Affect	-.05	-.08	.12	-.11
Anger	-.13	-.12	.11	-.05
Sadness	.05	-.09	.17	-.08
Fear	-.06	-.02	.04	-.18
Altered Experience	.37***	.06	-.06	.04
Body Image	.23	.06	-.14	-.04
Time Sense	.37**	.06	-.05	.03
Perception	.33*	.04	-.01	.02
Meaning	.16	.02	.01	.14
Visual Imagery	-.02	-.12	-.12	-.13
Amount	-.03	-.10	-.12	-.20
Vividness	-.02	-.12	-.12	.07
Attention	.12	.17	.00	-.12
Direction	.18	.09	.04	-.17
Absorption	.01	.19	-.03	.13
Self-Awareness	-.28	-.23	-.02	.30
Altered State	.23	.10	-.01	.11
Internal Dialog	.01	-.26	.22	.11
Rationality	-.26	-.06	.06	.02
Volitional Control	-.28	-.01	.18	.19
Memory	-.31*	.06	-.04	.12
Arousal	-.00	-.09	-.03	.20

* $p < .05$. ** $p < .01$. *** $p < .001$.

did not meet this sample size requirement, the Jenrich Test was not appropriate. Consequently, a Box Test comparison was performed (Pekala, 1991).

The pattern structure associated with each of the four conditions is depicted in Figures 2 through 5. Box M tests of equality of covariance matrices were performed to evaluate the pattern structure of each of the three treatment conditions relative to the control condition (note that the Box M statistic “tests the homogeneity of variance-covariance matrices”—Tabachnick & Fidell, 2007, p. 252). A Box test of the equality of covariance matrices revealed that the difference between the covariation matrices of the four

conditions was significant, $F(234, 75943.42) = 2.43, p < .001$; Box M = 637.75. More specifically, the covariation matrices of the voice/drum, $F(78, 24358.88) = 1.75, p < .001$; Box M = 159.01, voice only, $F(78, 24207.57) = 2.45, p < .001$; Box M = 222.86, and drum only, $F(78, 24580.05) = 1.68, p < .001$; Box M = 152.14. The Box M values for all the experimental groups were significantly different from that for the control group.

Discussion

We have argued that accurate measurement of the induction of shamanic-like states may be achieved by administering scales to participants that measure subjective (i.e., phenomenological) experience. To that effect, we used Pekala's (1991) *Phenomenology of Consciousness Inventory* (PCI) in the present study. In addition, the PCI allows one to investigate the phenomenological correlates of psi.

In contrast to the findings of Rock and Storm (2010), direct hitting was not significantly correlated with the PCI Internal Dialog dimension (see H1). Thus, in the present study, cognitive activity in the form of auditory mental imagery (i.e., internal "chatter" that the participant experiences as he/she dialogs or "thinks" silently to him- or herself) was not linked to psi performance. We note that Rock and Storm (2010) stated that, "the significant correlation between Internal Dialog and direct hitting may be an artifact of performing multiple tests (e.g., 52 correlations), and thus a Type I error" (p. 59).

The present study found a non-significant multivariate effect for condition with regards to various PCI dimensions (H2). This finding is inconsistent with the results of Rock and Storm (2010) who reported significant post-test PCI effects for Negative Affect, Altered Experience, Imagery, and Altered State of Awareness, Anger, Altered Body Image, Altered Perception, and Altered Meaning. This result suggests that there was not a significant overall effect for the condition factor on the post-test PCI dimensions, while partialing out the influence of pre-test PCI dimension scores. We note, however, that (1) Rock and Storm (2010) did not treat pre-test PCI scores as a covariate, and (2) in the present study, pre-test PCI scores were highly correlated with post-test PCI scores and, thus pre-test scores may have influenced post-test scores.

Post Hoc tests revealed that numerous PCI variables correlated significantly with our psi measure, "direct hitting." More specifically, for the Voice/Drum group, direct hitting was significantly positively correlated with Altered Time Sense, Altered Perception, and Altered Experience. These outcomes replicate similar altered-consciousness/psi effects found by Marcusson-Clavertz and Cardeña (2011) in their sub-group of participants. The Altered Time Sense dimension assesses the degree to which "the flow of time changed drastically" or whether it appeared to "speed up or slow down" (Pekala, 1991, p. 132). The Altered Perception dimension evaluates "changes in the perception of the world in terms of color, form, size, shape, or perspective" (p. 132). Whereas the Altered Experience dimension consists of the four minor dimensions: Altered Body Image, Time Sense, Perception, and Meaning. In addition, for the Voice/Drum group, direct hitting was significantly negatively correlated with Memory. The Memory dimension assesses the extent to which the percipient can remember their experience.

The pattern differences between the treatment conditions and the control condition were significant. These results suggest that compared to the control group the treatment groups reported a "major ical elements (e.g., visual imagery, positive affect, rationality) that constituted a d-SoC associated with the treatment conditions was significantly altered relative to the pattern structure of the d-SoC associated with the control condition. This finding suggests that participants' cognition in the treatment groups was fundamentally different relative to participants' cognition in the control group.

Despite the promising results of the present study, we caution the reader that the PCI is a general measure of phenomenological responses to stimulus conditions and was, therefore, not specifically designed to quantify the phenomenology of journeying states. Thus, there may be phenomenological variables that are integral to journeying states and thus correlates of psi that are not measured by the PCI. Future research might use Walsh's (1995) phenomenological mapping technique that consists of a number of key dimensions pertinent to journeying and has been used successfully to distinguish between shamanic,

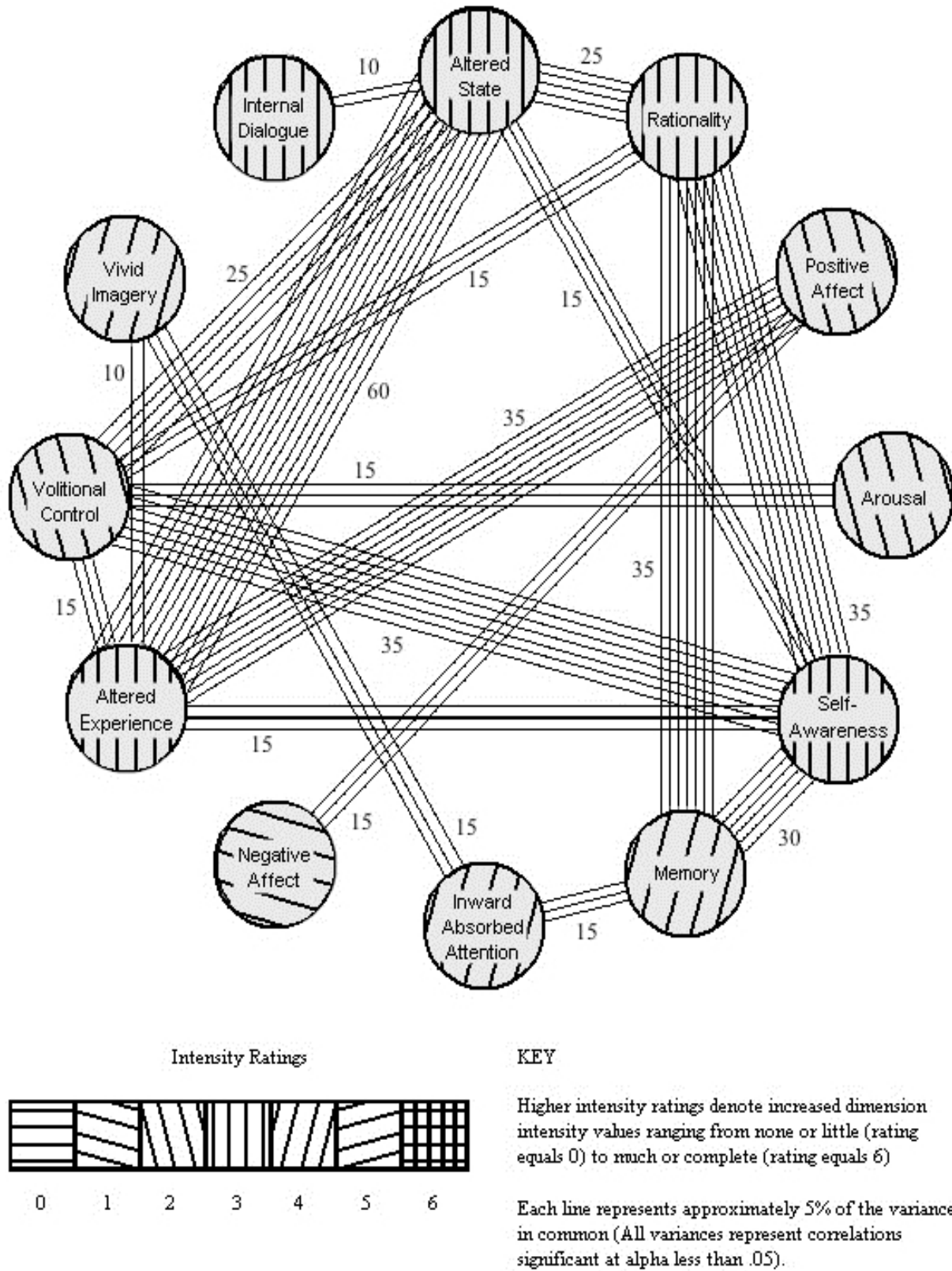


Figure 2. Psygram of Control Condition

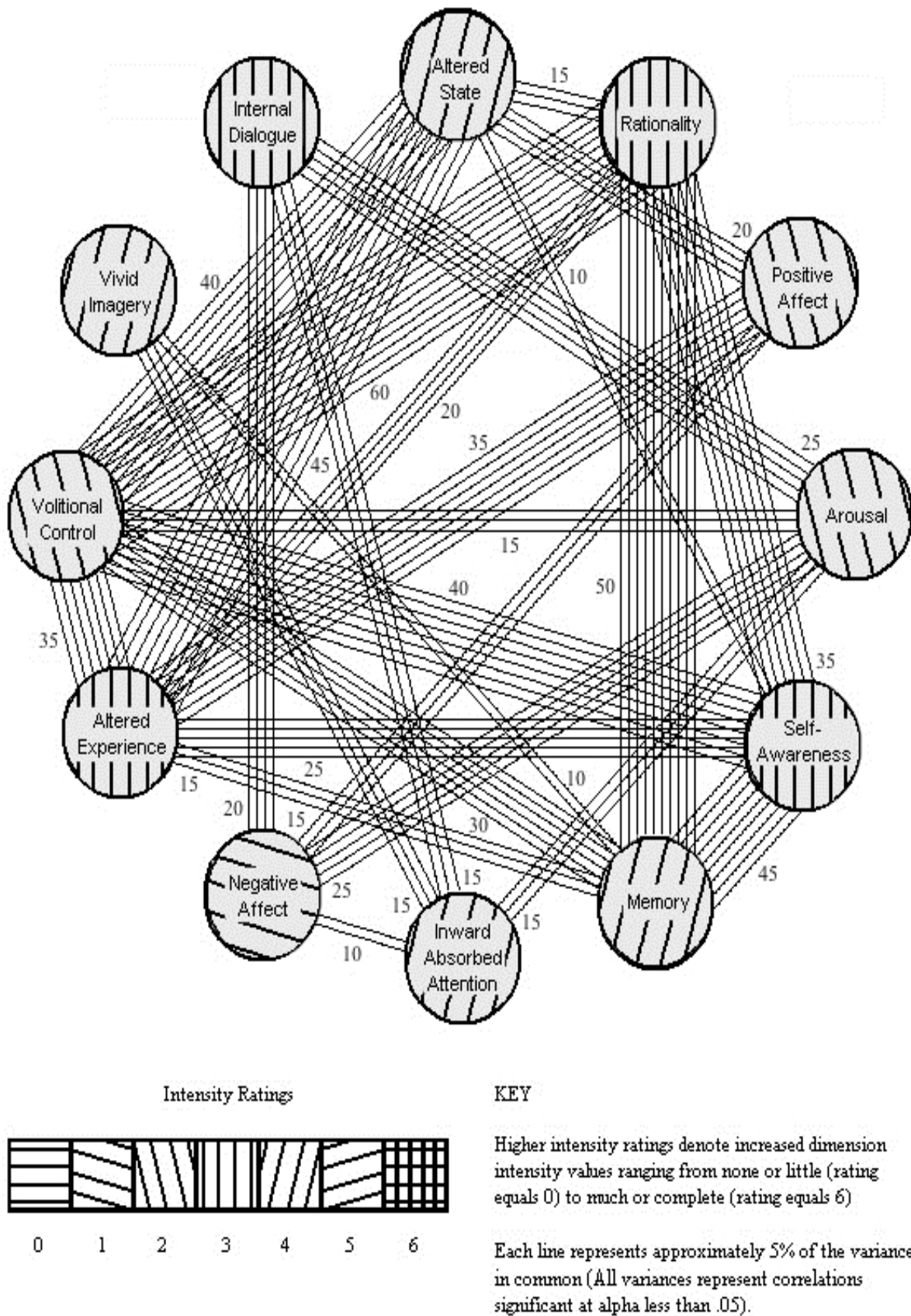


Figure 3. Psygram of Voice/Drum Condition

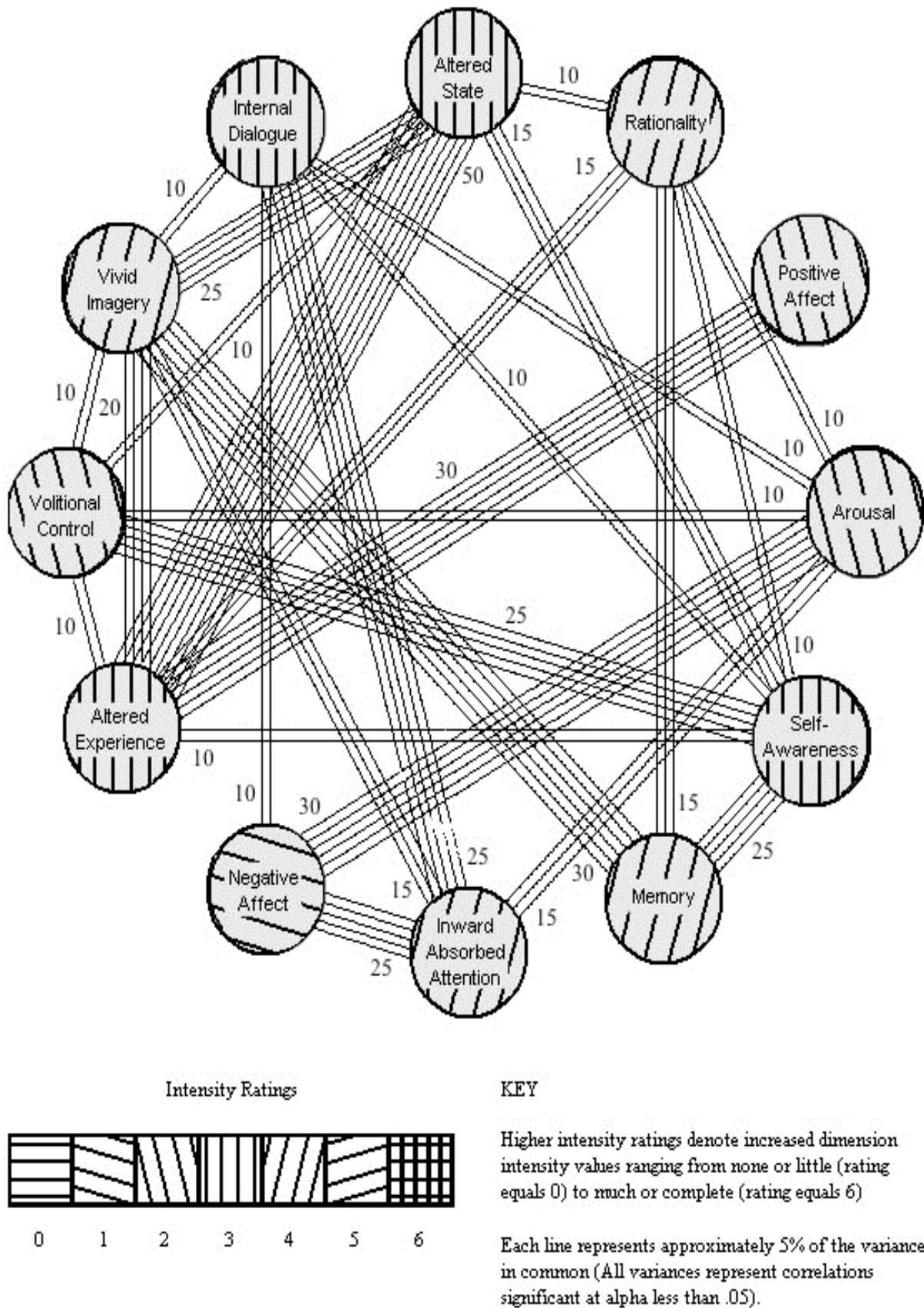
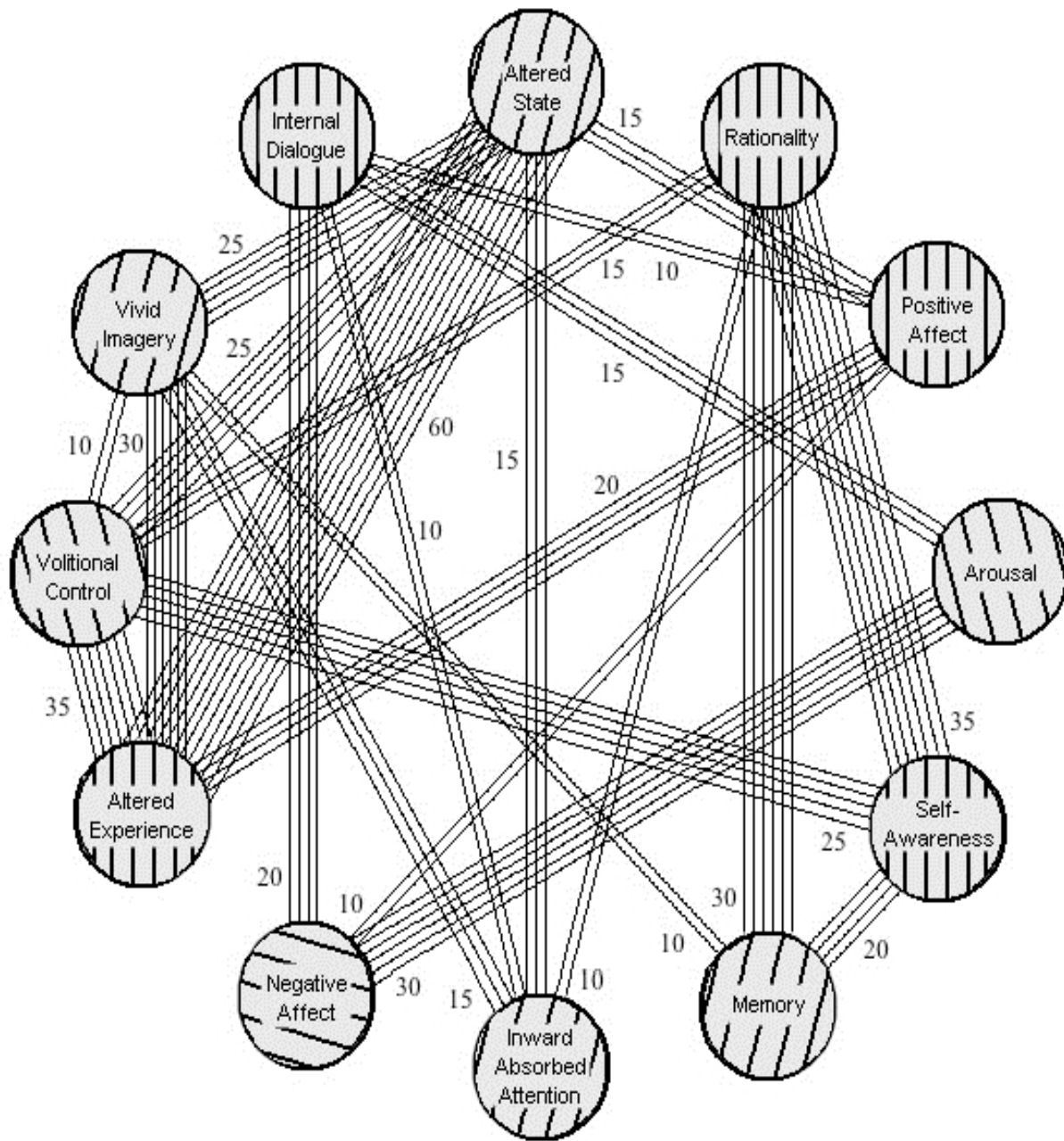


Figure 4. Psygram of Voice Condition



Intensity Ratings



0 1 2 3 4 5 6

KEY

Higher intensity ratings denote increased dimension intensity values ranging from none or little (rating equals 0) to much or complete (rating equals 6)

Each line represents approximately 5% of the variance in common (All variances represent correlations significant at alpha less than .05).

Figure 5. Psygram of Drum Condition

Buddhist, yogic and schizophrenic states. Alternatively, other measures such as the *APZ-OAV Questionnaire* (Abnormer Psychischer Zustand = altered states of consciousness; Dittrich, von Arx, & Staub, 1985) might be used to quantify the phenomenological effects of journeying.

It is noteworthy that shamans typically undergo mental imagery training in order to facilitate journeying to non-ordinary reality (see, for example, Noll, 1985; however, we emphasize that not all shamans engage in journeying). Consequently, it may be useful for future shamanic-like participants to undergo mental imagery training prior to descending to the ‘lower world’ and completing the picture identification task.

Conclusion

In our previous study (Rock, Storm, Harris, & Friedman, 2012), we found that psi hit rates were above chance (not significantly) in all three treatment conditions, and below chance (not significantly) in the control condition. In addition, we found that neither Thalbourne’s psychological construct of transliminality—a measure of flow of mental contents between conscious and unconscious domains (see Thalbourne & Houran, 2000); Thalbourne’s (1995) paranormal belief measure, the Australian Sheep-Goat Scale (ASGS); or Friedman’s (1983) Self-Expansiveness Level Form, predicted direct hit rates. These findings were uncharacteristic, particularly in the case of the ASGS measure, given that paranormal belief is a noted correlate of psi performance (see Lawrence, 1993).

Our present study, however, was more fruitful in terms of identifying phenomenological dimensions that may underlie the psi process. First, various PCI major and/or minor dimensions were significantly correlated with direct hitting for the voice/drum condition. In a number of instances these correlations were significantly different relative to the corresponding correlations for the control group. Second, an analysis of pattern differences revealed that the treatment groups reported what has traditionally been referred to as an “altered state of consciousness” relative to the control group. Taken together, the results of the present study highlight the usefulness of applying a process-oriented approach to the study of ostensibly anomalistic cognition. We caution, however, that significant results that are not replications should be regarded as tentative pending replication, and corrections for multiple analyses do not qualify as a substitute for replication. In the present study, none of the significant results were replications and thus, in the context of this study, this qualification is universal.

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Appendix

Instructions to Participants

Visualize an opening into the earth that you remember from some time in your life. It can be an opening that you remember from your childhood, or one you saw last week, or even today. Any kind of entry into the ground will do—it may be a hole made by a burrowing animal, a cave, a hollow tree stump, a spring, or even a swamp. It can even be a man-made opening. The right opening is one that really feels comfortable to you, and one that you can visualize. Spend a couple of minutes seeing the hole without going in it. Note its details clearly.

[2 minute pause]

When the drumming begins, visualize your opening into the earth ... [5 second pause] ... enter it ... [5 second pause] ... and begin the journey. Are you ready, OK, here we go.

[Drumming begins.]

Go down through the opening and enter the Tunnel ... [5 second pause] ... At first the tunnel may be dark and dim ... [5 second pause] ... It usually goes underground at a slight angle, but occasionally it descends steeply ... [5 second pause] ... The Tunnel sometimes appears ribbed, and often it bends ... [5 second pause] ... Occasionally one passes through the Tunnel so fast it is not even seen ... [5 second pause] ... In following the Tunnel you may run up against a natural wall of stone or some other obstacle ... [5 second pause] ... When this happens, just go around it or through a crack in it ... [5 second pause] ... If this fails, simply come back and try again ... [5 second pause] ... Now continue this journey down the Tunnel until I give you further instructions.

[Approximately 9 minutes of drumming without accompanying instructions]

You are now reaching the end of the Tunnel ... [15 second pause] ... you will see a set of doors ... [15 second pause] ... now visualize the doors in front of you ... [15 second pause] ... Now push open the doors ... [15 second pause] ... Now visualize your envelope before you ... [30 second pause] ... Imagine opening the envelope and look at the picture ... [1 min pause] ... Study the picture in all its detail ... [1 minute pause] ... Remember this information for later.

The journey is now almost over ... [15 second pause] ... The drum tempo will now become very rapid for the next half minute to accompany you on your return journey ... [5 second pause] ... come back up through the Tunnel ... [5 second pause] ... The session will conclude with four sharp strikes of the drum to signal that the journey is over.

Abstracts in Other Languages

Spanish

VIAJES TIPO CHAMÁNICO Y DETECCIÓN DE SEÑAL PSI: II. DIMENSIONES FENOMENOLÓGICAS

RESUMEN: El modelo de Storm y Rock del cultivo de imaginación considera a las técnicas chamánicas como propicia para psi, con la presunta señal psi incrustada de alguna manera en la imaginación cultivada. En el primer estudio de replicación, los aciertos estuvieron por encima del azar (no significativamente) en las tres condiciones de tipo chamánico, y por debajo del azar en la condición control. En el presente estudio, intentamos replicar estos hallazgos con respecto a los correlatos fenomenológicos con el acierto psi y con las diferencias fenomenológicas entre las condiciones de estímulo. Aunque el presente estudio no replicó los resultados de Rock y Storm, los análisis post-hoc demostraron que para las instrucciones + el grupo de tambores, los aciertos directos correlacionaron positiva y significativamente con el sentido del tiempo alterado, la percepción alterada, y la experiencia alterada, y significativa y negativamente con la memoria. Además, un análisis de los datos fenomenológicos reveló que los grupos tratados informaron estar un “estado alterado de conciencia” en comparación con el grupo control. Nuestros hallazgos sugieren que la fenomenología puede cambiar con un tratamiento de viaje tipo chamánico y que estos cambios son propicios para la generación de material que puede ayudar a los procesos psi.

French

RITUEL SIMILI-CHAMANIQUE ET DÉTECTION DU SIGNAL PSI : II. DIMENSIONS PHÉNOMÉNOLOGIQUES

RESUME : Le modèle de culture de l'imagerie (IC) de Storm et Rock considère les techniques simili-chamaniques comme étant facilitatrices du psi, avec le supposé signal psi qui se retrouve en quelque sorte intégré dans l'imagerie cultivée. Dans la première étude de répliation, les taux de succès étaient au-dessus du hasard (bien que non significatifs) dans les trois conditions simili-chamaniques, et en dessous du hasard dans la condition contrôle. Dans la présente étude, nous avons souhaité répliquer ces résultats en prêtant attention aux corrélats phénoménologiques de la performance psi et aux différences phénoménologiques entre les conditions de stimulation. Bien que la présente étude échoue à répliquer les résultats de Rock et Storm, des analyses post hoc démontrent que, pour le groupe avec instructions + percussions, les succès directs étaient significativement corrélés positivement avec la sensation d'une altération du temps, une perception modifiée et un vécu modifié ; et significativement corrélés négativement avec la mémoire. De plus, une analyse des données phénoménologiques a révélé que les groupes avec traitement relataient un « état modifié de conscience » par rapport au groupe contrôle. Nos résultats suggèrent que la phénoménologie peut être modifiée en employant un traitement de rituel simili-chamanique, et que ces modifications facilitent la génération de matériel psychique qui peut être une aide pour les processus psi.

German

SCHAMANENÄHNLICHE REISEN UND DIE DETEKTION DES PSI-SIGNALS: II. PHÄNOMENOLOGISCHE DIMENSIONEN

ZUSAMMENFASSUNG: Das von Storm und Rock entwickelte Modell der Imagery Cultivation (IC) (Kultivierung geistiger Bilder) betrachtete schamanenähnliche Techniken als psi-förderlich, wobei das mutmassliche Psi-Signal in den hervorgebrachten mentalen Bildern irgendwie enthalten ist. In der ersten Wiederholungsstudie ergaben sich in allen drei schamanenähnlichen Bedingungen überzufällige (nicht-signifikante) Trefferwerte, unterzufällige in der Kontrollbedingung. Die vorliegende Studie wurde mit dem Ziel unternommen, diese Ergebnisse in Bezug auf die phänomenologischen Korrelate der Psi-Leistungen und die phänomenologischen Unterschiede zwischen den Stimulusbedingungen zu replizieren. Die Ergebnisse von Rock und Storm konnten mit der vorliegenden Studie nicht repliziert werden, wobei post hoc-Analysen ergaben, dass bei der Gruppe aus Instruktionen + Trommeln direkte Treffer signifikant positiv mit einem veränderten Zeitempfinden, einer veränderten Wahrnehmung und veränderten Erfahrung korreliert waren; und signifikant negativ mit Erinnerungsvermögen. Weiterhin ergab eine Analyse der phänomenologischen Daten, dass die Experimentalgruppen verglichen mit der Kontrollgruppe über einen „veränderten Bewusstseinszustand“ berichteten. Unsere Ergebnisse legen nahe, dass die Phänomenologie durch die Bedingung einer schamanenähnlichen Reise verändert werden kann, und diese Veränderungen tragen zur Produktion von Primärmaterial bei, das für Psi-Prozesse förderlich ist.

FLOATING SENSATIONS PRIOR TO SLEEP AND OUT-OF-BODY EXPERIENCES

BY ALEXANDER DE FOE, GEORGE VAN DOORN, AND MARK SYMMONS

ABSTRACT: Research suggests that a sensation of floating prior to sleep may be indicative of several sleep-related phenomena such as sleep paralysis, hypnagogic imagery, and out-of-body experiences (OBEs). Previous research into OBEs in particular has been limited in considering the broad range of tactile, auditory, and visual phenomena reported by individuals prior to sleep which relate to a floating sensation that tends to precede an OBE. In the present study, 178 participants were surveyed regarding their experience of a floating sensation prior to sleep as part of a larger OBE questionnaire. A thematic analysis was conducted in order to determine commonalities in floating sensations prior to sleep reported among participants. Themes in reports of tactile and emotional content during a floating sensation were noted. Tactile sensations of feeling light or weightless, body detachment or loss of physical sensation, sensations of flying and sensations of falling were most common. Emotions relevant to a sense of floating were reported as being negative, positive, or associated with a feeling of freedom. A number of the floating sensations reported prior to sleep overlapped with common descriptions of OBEs found in literature, while others did not. Implications are discussed.

Keywords: floating sensation, sleep paralysis, out-of-body experience, OBE, hypnagogic, sleep conditions

It is common for tactile hallucinations to arise prior to sleep as part of the hypnagogic pre-sleep state (Ohayon, Priest, Caulet, & Guilleminault, 1996). These may include a sense of body paralysis, imagined sensations of crawling or tingling along the skin and a sense of floating, as well as other visual, kinesthetic or auditory hallucinations. Ellison (1988) suggested that a sensation of floating experienced prior to sleep could be related to out-of-body experiences (OBEs), in which a person experiences a sensation of “floating” out of body while progressively relaxing. Other researchers have also suggested that OBEs may be more likely to occur as part of the sleep transition phase, in which one’s body is relaxed and in a sedentary state (Nelson, Mattingly, & Schmitt, 2007; Tart, 1998).

During an OBE, a person experiences their center of consciousness from a different location to that of their physical body. Previous research notes that 10%–20% of the general population has had an OBE on at least one occasion (Alvarado, 2000; Ellison, 1988). Descriptive anecdotes of OBEs tend to differ broadly across participants, with some reporting a brief sense of separation from their body that lasted less than a few seconds, while others report longer, in-depth experiences that had a significant psychological impact upon them (Blackmore, 2005; Greyson, 1981; Monroe, 1992). Those who report a sense of floating associated with sleep-related phenomena may, in some cases, be classified as OBEs given that these individuals could, in fact, be having a less immersive form of the experience.

Accounts of paralysis, losing a sense of body awareness, and body displacement have been noted as common precursors to OBEs (Cheyne, 2005; Hishikawa, 1976; Nelson et al., 2007). Ellison (1988) argued that partial body displacement also occurs in some instances of OBE. He suggested that those who have OBEs prior to falling asleep, on occasion, experience their consciousness partially displaced from their body. For example, “perhaps the top half sits up while the whole physical body remains lying down [...]” (pp. 68–69). Other literature has suggested that “sometimes a sensation of bodily paralysis precedes the OBE” (Levitan & LaBerge, 1991, p. 1) and that some accounts report “rising out of body and floating above the bed” (p. 2) at the commencement of OBEs. Levitan and LaBerge (1991) stated that in some but not all cases, experiencers report a distinct sensation of floating above the body at the commencement of their OBE(s).

Up to 42% of experiencers have reported a sense of leaving their physical body prior to their OBEs (Alvarado & Zingrone, 1999; De Foe, Van Doorn, & Symmons, 2012a). Further, Alvarado and Zingrone (1999) found that 77% of 400 OBEers responding to a questionnaire identified a sense of floating as part of their experience. De Foe, Van Doorn and Symmons (2012b) found that a sensation of floating out of one's body is more likely in accounts of induced rather than in spontaneous OBEs. In light of these findings, it could be that some people experience a sense of floating which then articulates into a "full OBE," while others may experience a sense of generalized floating prior to sleep.

Notably, some experiencers report no sense of floating and no sense of leaving the body as part of their OBE(s). Irwin and Watt (2007) provided an example of one OBE account in which an experiencer stated "I was sitting in the bath when I became aware that I was in the ceiling corner of the room looking down at myself in the bath" (p. 175). In this particular case, the OBE occurred spontaneously, with no noted progressive sense of body separation.

The issue of defining the characteristics of an "authentic" OBE is not only problematic from a participant's perspective (due to subjective accounts), but also from a research standpoint. Some researchers have suggested that a sense of leaving one's body is sufficient in order to define an OBE (Gelkopf & Meyerson, 2004), while others have argued that "objective laboratory demonstration of a separation of 'mind' from 'brain' is required to meet the definition of an out-of-body experience" (Twemlow, Gabbard, & Jones, 1982, p. 450).

Here we argue that contrary definitions in the literature have made it difficult for researchers to classify the "OBE" as distinctly different from a sense of floating away from the body. Are these, in fact, two different phenomena? Or are they more similar in nature than researchers have previously assumed? In order to address this question we endeavored to examine thematic overlap between accounts of a floating sensation reported by participants in the present study and OBE accounts found in previous literature.

In the present study we consider such questions as, how can we best define a sensation of floating associated with OBEs? Could the sense of floating be described in the same way as leaving the body? Perhaps anecdotes describing a floating sensation could be referring to a vision of perceiving their own body from a point of consciousness above their physical body. A strong visual component involving seeing one's own body from a distance during an OBE is reported commonly throughout the literature (e.g., Monroe, 1992). Finally, perhaps associated emotions such as a feeling of freedom while experiencing a sensation of floating could be relevant, especially as a sense of feeling free is commonly reported as part of a floating sensation that leads to an OBE (see Twemlow et al., 1982). In order to address this issue, the present study explores accounts of floating sensations in depth.

It is hypothesized that individuals who experience a sensation of floating prior to falling asleep are more likely to also report having OBEs. It is also anticipated that their descriptions will overlap with typical characteristics of OBEs found in the literature, allowing us to clarify a link between accounts of floating prior to sleep and of OBEs.

Method

Participants

Data was utilized from a questionnaire administered to study OBEs (see De Foe et al., 2012a). The questionnaire was completed by 370 participants between the ages of 18 and 65 years ($M = 37$, $SD = 13$). Of these 159 were men and 211 were women. Participants were located via University social media channels (Facebook and Twitter pages) as well as through a number of online psychology newsletters. The explanatory statement introduced participants to the research question, provided a brief explanation about the nature of OBEs, and a definition of the term. The definition was as follows: "An out-of-body experience is defined here as an experience where the center of awareness appears from a person's perspective to move to a position which is in a different physical space from his or her body."

Materials

The original questionnaire contained 20 items that divided into five sections. The first set of questions related to gender, age, and prior encounters with OBEs. Section two included questions about OBE-associated sensations. This section consisted of three questions pertaining to participant experiences of a floating sensation while lying in bed and preparing to fall asleep. Participants were asked whether they have experienced this sensation. Those participants who answered “yes” were also asked to provide a descriptive account of their experience. Section three related to religious inclination, day-dreaming propensity and fantasy proneness. Section four consisted of a transitional question related to prior OBEs: “Have you ever experienced an OBE?” Those participants who responded “yes” to this question were asked to complete the questions in the section that followed.

The final section included questions which pertained to prior OBEs and were completed only by participants who indicated having had one. This section consisted of four questions related to physiological sensations associated with OBEs and the nature of participant’s prior OBEs. These were closed questions, apart from one item, “in recalling your previous OBE(s), how would you describe your surroundings during most of your experience(s)?” which prompted participants about whether the environment during their OBE(s) was mostly realistic or imaginary. Participants had the option of providing a textual response expanding upon the nature of the environment during their OBE(s).

Procedure

The descriptive text-based responses regarding a sense of floating prior to falling asleep were considered by using a thematic analysis consistent with grounded theory (see Corbin & Strauss, 1990). Grounded theory mandates that researchers must carefully review textual data to identify all themes and concepts within text-based responses. In line with grounded theory, subjective interpretation of the themes was left out of the initial analysis; the aim was to classify themes correctly, prior to interpreting potential implications. Common patterns of words, related words, and linked phrases were identified in participant responses to the questions “Have you ever experienced a floating sensation while lying in bed prior to falling asleep?” If the response was “yes,” participants were asked, “How would you best describe this sensation?” This item aimed to assess a general sense of floating prior to sleep which may or may not have been associated with participants’ prior OBEs.

The researchers coded, and then categorized interrelated themes which were noted in participants’ textual responses. Responses were manually coded, as it was important to determine both implicit and explicit descriptions of a floating sensation. The descriptive content of themes was analyzed based on the overall meaning of each theme in relation to the entire dataset. Themes were categorized more broadly based on their interrelatedness, rather than examining specific words in isolation. For example, in cases in which a participant described a sense of disconnection from their physical body, this was coded as “dissociation from the body.” Braun and Clarke (2006) noted that themes identified during thematic analysis “would need to be an accurate reflection of the content of the entire data set. In such an analysis, some depth and complexity is necessarily lost ... but a rich overall description is maintained” (p. 83); thus it was important to consider themes more broadly based on sleep-related phenomena rather than in isolation.

Overlapping themes were included as part of the analysis, whereby a response was coded as two or more specific themes. Themes reported by $> 5\%$ ($N \geq 10$) of participants were not considered as part of the analysis. As per the procedure of thematic analysis consistent with grounded theory, categories of responses were then considered based on how well they fit into literature relevant to OBEs and sleep-related phenomena.

Results

Of the 370 participants who responded to the questionnaire, 194 indicated having had an OBE in the past. 43.3% of these were men ($n = 84$) and 56.7% were women ($n = 110$). Two-hundred and twenty-three participants reported a sensation of floating prior to falling asleep. 42.1% of these were men ($n = 94$), and 57.9% were women ($n = 129$). The data showed that 82% ($n = 159$) of the participants who had reported a floating sensation also reported having at least one OBE. A statistical relationship was noted between experiencing a sensation of floating prior to sleep and having an OBE, $\chi^2(1, N = 370) = 72.46, p < .0005$. The effect size for this finding was moderate to large, $\Phi(1, N = 370) = .45, p < .001$.

Only 19 of those who had reported an OBE provided a textual description of their experience in response to the question "In recalling your previous OBE(s), how would you describe your surroundings during most of your experience(s)?" Though a preliminary thematic analysis of these responses was conducted, responses were too varied and too few for the data to have been meaningful.

Of the 223 participants who responded to the question "Have you ever experienced a floating sensation while lying in bed?" One hundred and seventy-eight supplied a description of their experience. The thematic analysis highlighted two categories of themes in participant responses regarding a sense of floating prior to falling asleep. These were: (a) kinesthetic factors and (b) emotional factors.

Kinesthetic Factors

Themes in kinesthetic/tactile sensations were identified, with the most common descriptions discussing a sense of feeling light or weightless (17.94% of participants who responded to the question about their experience with floating prior to sleep, $n = 40$). Among these responses some indicated sensations such as: "I've experienced feelings best described as weightlessness while lying in bed," "I was weightless, almost like being under water or in zero-gravity. I was very aware of my surroundings and I knew the bed was beneath me, yet part of me felt like it was above the bed," and "a weightless sensation. I could feel my body but didn't feel the bed beneath me."

Other themes included a sensation of flying or being airborne (10.31%, $n = 23$), such as "it feels like dreaming but flying, I cannot see anything though" and "like flying through space." Others described a falling sensation (8.07%, $n = 18$), "falling from an elevated region" and "a sudden feeling of expanse and the intermittent falling sensation once I become aware of what is happening," for example. Additionally, a sensation of horizontal or vertical movement (5.38%, $n = 12$), a relaxing sensation (4.93%, $n = 11$), a pulling or rising sensation (4.93%, $n = 11$), and a sensation of dissociation from the body (4.93%, $n = 11$) were identified as less common, but nonetheless relevant, kinesthetic themes.

Emotional Factors

A number of respondents discussed their experience in terms of the emotions associated with a sensation of floating. The most common theme was that of fear which was classified as including feeling scared, feeling unsettled, a disconcerting feeling, being afraid, being terrified, a frightening experience, feeling desperate, an unnerving feeling, or an unpleasant experience (8.07% of participants, $n = 18$). The following are samples of responses that described negative emotions such as fear: "Strange and unsettling. I am not myself" and "initially feeling scared and puzzled."

Positive emotions also constituted a main theme in accounts of emotions associated with a sense of floating; these included descriptions of pleasant feelings, feeling fantastic, feeling good, feeling great, or mentioning emotions and states of being such as happiness or awe (6.73%, $n = 15$). For example: "It feels warm and very pleasant, a feeling of freedom and happiness also arise" and "lightness of body, surreal, fantastic feeling."

Finally, a theme of freedom (or feeling free) was identified among responses (5.38%, $n = 12$). "As if I was out of my body and could do/go where ever I wanted, it was a free lovely feeling" and "your body becomes heavy, and then you feel much lighter, followed by a sense of freedom with a touch of love" are

two examples of respondents who described a sensation of freedom associated with a floating sensation.

Discussion

In the present study we anticipated a significant association between having a sensation of floating and having an OBE. A significant relationship between floating sensations prior to sleep and OBEs was noted with a moderate to large effect size, thus providing support for this hypothesis. This finding also provides support for Ellison's (1988) notion that OBEs tend to occur when a person is laying down, and can often be preceded by a sense of floating. As a strong association between these two phenomena was noted, we argue that it would be quite valuable for parapsychologists to investigate generalized accounts of floating for a potential link to OBE(s).

Although we acknowledge that common sense would prompt parapsychologists to conduct such an assessment as standard procedure, there is a lower likelihood that a broader OBE assessment would be administered in other professions in which practitioners work as clinical psychologists or medical practitioners (without a parapsychological background). Therefore, we argue that in cases in which a sense of floating is reported prior to sleep, the possibility that a person is experiencing aspects of an OBE should also be considered. Making such a consideration would serve to reduce the misrepresentation of a sense of floating prior to sleep as the result of a hallucination, a sleep disorder, or the side effects of medication, for instance, when, in fact, the floating sensation in a specific case is associated with OBEs.

Kinesthetic Descriptions of a Floating Sensation

Sensations of weightlessness were most commonly mentioned by participants in their description of a kinesthetic sense of floating. Some consistency can be noted in literature in which weightlessness has been mentioned as one of the features associated with OBEs. Easton, Blanke, and Mohr (2009) collected responses from 11 OBEs and noted that four participants associated weightlessness with their experiences. However, Gow, Lang, and Chant (2004) found that among 32 OBEs only one respondent mentioned a sense of weightlessness. Therefore, although our findings fit with some of the literature, there is a lack of consistency regarding the instances of reports.

Descriptions of dissociating from the body are relevant to findings by Levitan and LaBerge (1991), which suggest that floating sensations related to OBE are often coupled with sleep paralysis and body dissociation. However, as a low proportion of participants mentioned a sense of disconnection from the body, it could be that only some of these accounts related to OBEs. A different, but also plausible, explanation for the low instances of a dissociative sensation is that some participants could have been experiencing pre-OBE markers, rather than having a full OBE as part of their floating experience.

The above theory is consistent with Cheyne, Rueffer, and Newby-Clark's (1999) observations that during the hypnagogic pre-sleep state it is common to experience a number of kinesthetic hallucinations such as a sense of floating, body dissociation, and other tactile aberrations in addition to sleep paralysis. In some cases, the onset of OBE-related sensations such as a sense of floating that may or may not articulate into full disembodiment is reported during pre-sleep hypnagogia. Further, Gow et al. (2004) found that a sense of body separation was reported by 29 participants (56.86%) in a study of 51 OBEs, however, in an analysis of sensations that participants experienced prior to the commencement of their OBEs, characteristics were reported in much less prominence. In fact, only one marginally common sensation was reported by $\geq 5\%$ of participants pre-OBE, a sense of perfect peace (5.88%, $N = 3$).

It was not surprising to note that participants mentioned a relaxing sensation associated with a sense of floating, as Twemlow et al. (1982) found that more than half of all of the participants in their study ($N = 700$) mentioned sensations prior to an OBE as including "feeling physically relaxed" and "feeling mentally calm" (p. 452). This overlap suggests that some of those participants who experience a relaxation sensation in conjunction with a sense of floating could be encountering the initial stages of an OBE. However, as we noted a much lower percentage of participants who had experienced a sense of relaxation

associated with floating in the present study, this could also be accounted for by assuming that participants may have been referring to pre-OBE experiences, rather than during-OBE experiences.

Particular features of floating noted in the thematic analysis were not considered in previous studies which examined floating sensations, such as instances in which ‘floating’ does not refer to ‘floating’ at all, but rather a sensation of falling or a sensation of horizontal movement. These themes were found to be relevant in the present study. This indicates that previous research (Anzellotti et al., 2011; Ellison, 1988; Levitan & LaBerge, 1991) which has discussed “floating” as a precursor to OBEs should have given greater consideration to specific features in descriptions of pre-OBE sensations. There is the possibility that individuals who report “floating” associated with their OBEs may not have had similar experiences, and coupling the general question with other criteria such as whether the sensation was of a horizontal, rather than a vertical movement would make that plain.

Although Anzellotti et al. (2011), Ellison (1988), and Levitan and LaBerge (1991) have discussed floating as a precursor to OBEs, a clearer definition of “floating” could be explored to determine whether certain types of floating (for instance, dissociation and weightlessness) are more effective in predicting OBE likelihood than other types of floating sensation (for instance, a sense of falling as opposed to a sense of flying upwards). A further exploration of how kinesthetic floating sensations relate to OBEs could also lead to a broader understanding of the physiological processes occurring prior to OBE.

Emotions Relevant to Accounts of Floating and OBEs

Gow et al. (2004) found that 31.37% ($n = 16$) of participants in their research associated their OBEs with feelings of anxiety. However, as a number of participants in the present study discussed negative emotions in terms of fear and confusion, some of these cases could be related to sleep paralysis rather than anxiety. Cheyne, Newby-Clark, and Rueffer (1999) noted that sleep paralysis is often linked with negative, fear-oriented, feelings and their case descriptions match some of the accounts of fear in the present study. They also pointed out that the potential link between floating and sleep paralysis is also worth considering as some overlap between OBE accounts and accounts of sleep paralysis that has been noted in literature.

Themes related to positive emotions and a feeling of freedom reported in the present study overlap with OBE descriptors noted by Twemlow et al. (1982), some of whose participants reported experiencing feelings of “joy, freedom ... and peace” (p. 454) during their OBEs, especially in relation to a sense of mental calmness and relaxation that accompanied their experiences. Gow et al. (2004) also noted that a sense of peace was commonly noted in OBE accounts (60.78%, $n = 31$) in their study. However, interestingly, a sense of peace was only associated with 5.88% ($n = 3$) of accounts related to pre-OBE sensations. This statistical result has a close link with the descriptions of positive emotions and emotions related to freedom in the present study. The finding provides further support for the argument that participants who were experiencing floating may have been in the initial stages of an OBE, without having experienced a full OBE (in which case reports of peace would be expected to have been anticipated in higher instances).

Conclusion

It is important to note that the most commonly reported themes were in the range of 4.93%–17.94% of responses. Although thematic analysis procedure does not mandate that themes must occur at a certain frequency to be considered meaningful (see Braun & Clarke, 2006), for the purposes of the present study we anticipated that certain themes would occur at higher frequencies. In Alvarado and Zingrone’s (1999) research which examined people who have had multiple OBEs, a number of prominent features emerged. For example, 44% reported seeing their own physical body during their OBEs, 33% reported hearing voices, and 35% saw spiritual entities. It was expected that similar themes (in content and occurrence) would have been noted among instances of floating in the present study, however, this was not the case.

Interestingly, almost no participants spoke of a floating sensation as having involved a visual

component (i.e., a vision of floating out and above their physical body). Prior research has suggested that OBEs often do contain a visual component. As the question utilized in the present study asked participants whether they had ever experienced a floating sensation prior to sleep, it is not surprising that most participants did respond in terms of a tactile sensation (rather than visual or auditory accounts of floating). The lack of a visual experience of being out-of-body could also be related to participants experiencing pre-OBE markers rather than full disembodiment. Nonetheless, at least some visual reports were anticipated. If they had been reported, these could have been explored further had we asked more specific questions related to the nature of the experience. As Hishikawa (1976) pointed out, visual/auditory hallucinations are common in the hypnagogic state, even in cases in which a person does not experience an OBE.

The present questionnaire was limited in that it did not ask participants whether their sense of floating, body displacement, or paralysis led to their previous OBEs. Instead, we examined common themes between the separate variable of a sense of floating while lying in bed and common sensations associated with OBEs found in previous literature. Typically, the results of a thematic analysis would be considered across studies which examine the same phenomenon (i.e., OBEs, in this case). However, as this study was a preliminary investigation on how a sense of floating prior to sleep could relate to OBE, we examined participant accounts of such an experience using common themes already available in the OBE literature. Notably, we recorded some overlaps between a sense of floating prior to sleep and common characteristics of OBEs, a number of which were consistent in terms of content, but not in terms of incidence.

Another limitation of this research is that participants who completed the questionnaire knew beforehand (based on the Explanatory Statement) that the questions were related to OBEs. This could have skewed their responses in answering the question “Have you ever experienced a floating sensation while lying in bed?” as participants could have interpreted this question as specifically related to OBEs.

In conclusion, common themes in sensations of floating were reported, although with less frequency than is typically expected in OBE accounts. However, a strong statistical association was noted between a sense of floating and OBEs. This finding suggests that individuals who experience a sense of floating prior to falling asleep have a high likelihood of also experiencing OBEs. However, the disparity found in the thematic analysis reinforces the idea that a sense of floating should not be equated with a traditional OBE. Although a sense of floating may correspond with many of the characteristics of OBEs, these are in fact, two distinct phenomena. Therefore, we suggest that individuals who report descriptions of floating prior to sleep could be experiencing pre-OBE sensations, rather than having a full-blown OBE. Due to the constraints of our research design, it was not possible to uncover which factors would allow us to determine whether a sense of floating would articulate into a full OBE. Therefore, it is important for future research to examine the nature of the relationship between a sense of floating prior to sleep and the OBE. Such research would provide valuable information about the factors that cause one to progress from a mild sense of floating into complete disembodiment.

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Abstracts in Other Languages

Spanish

SENSACIONES DE FLOTACIÓN ANTES DE DORMIR Y EXPERIENCIAS EXTRACORPORALES

RESUMEN: La investigación sugiere que una sensación de flotar antes de dormir puede ser indicativa de varios fenómenos relacionados con el sueño, tales como la parálisis de sueño, las imágenes hipnagógicas, y las experiencias extracorporales (OBE). Las investigaciones previas sobre las OBE, no han considerado

suficientemente la amplia gama de experiencias táctiles, auditivas, y fenómenos visuales reportados por los individuos antes de dormir y relacionados con una sensación flotante que suele preceder a las OBE. En este estudio, hicimos una encuesta con 178 participantes sobre sus experiencias de una sensación de flotar antes de dormir, como parte de un cuestionario sobre OBE más grande. Un análisis temático se llevó a cabo con el fin de determinar aspectos comunes en las sensaciones flotantes antes de dormir reportadas por los participantes. Observamos temas en los informes sobre contenido táctil y emocional durante sensaciones de flotación. Los más comunes fueron las sensaciones táctiles de sentirse ligero o sin peso, desprendimiento del cuerpo o pérdida de la sensación física, sensaciones de vuelo, y sensaciones de caída. Las emociones relacionadas con la sensación de flotación fueron negativas, positivas, o asociada con una sensación de libertad. Algunas de las sensaciones de flotación antes de dormir se solapan con las descripciones comunes de OBE que se encuentran en la literatura, en tanto que otras no. Discutimos las implicaciones.

French

SENSATIONS DE FLOTTER AVANT LE SOMMEIL ET EXPÉRIENCES DE HORS CORPS

RESUME : Des recherches suggèrent que la sensation de flotter avant le sommeil pourrait indiquer divers phénomènes relatifs au sommeil tels que la paralysie du sommeil, l'imagerie hypnagogique et les expériences de hors corps (EHC). Les précédentes recherches, en particulier sur les EHC, se sont limitées à repérer une vaste gamme de phénomènes tactiles, auditifs et visuels relatés par les individus avant de s'endormir qui pourraient être reliés à l'expérience d'une sensation de flotter qui tendrait à précéder une EHC. Dans la présente étude, 178 participants furent interrogés sur leurs expériences d'une sensation de flotter avant de s'endormir au sein d'un questionnaire plus large sur les EHC. Une analyse thématique a été conduite afin de déterminer les éléments communs dans les sensations de flotter avant le sommeil relatés par les participants. On a repéré quelques thèmes récurrents au niveau tactile et émotionnel durant les sensations de flotter. Les plus communes étaient les sensations tactiles de se sentir léger ou sans poids, de sentir un détachement du corps ou une perte de sensations physiques, des sensations de voler et des sensations de chuter. Les émotions associées à la sensation de flotter étaient négatives, positives, ou apparentées avec un sentiment de liberté. De nombreux aspects de la sensation de flottement avant le sommeil recouvrent les descriptions habituelles des EHC que l'on trouve dans la littérature, bien que certaines ne le fassent pas. Les implications de cette étude sont discutées.

German

SCHWEBEGEFÜHLE VOR SCHLAFBEGINN UND AUSSERKÖRPERLICHE ERFAHRUNGEN

ZUSAMMENFASSUNG: Die einschlägige Forschung weist darauf hin, dass ein Schwebgefühl vor Schlafbeginn zusammen mit verschiedenen, zum Schlaf gehörenden Phänomenen wie Schlafparalyse, hypnagogischen Bildern und ausserkörperlichen Erfahrungen (AKE) auftreten kann. Die bisherige Forschung insbesondere zu AKE hatte sich darauf beschränkt, das breite Spektrum taktiler, auditiver und visueller Phänomene, die von Einzelnen vor Schlafbeginn berichtet wurden, zu berücksichtigen, die sich auf ein Schwebgefühl bezogen, die einer AKE vorherzugehen schienen. In der vorliegenden Studie wurden 178 Teilnehmer hinsichtlich ihrer Erfahrungen eines Schwebgefühls vor Schlafbeginn als Teil eines umfassenderen AKE-Fragebogens befragt. Eine thematisch orientierte Analyse wurde durchgeführt, um Gemeinsamkeiten der Schwebgefühle vor Schlafbeginn unter den Teilnehmern zu erfassen. Die Themen, die sich in den Berichten auf taktile und emotionale Inhalte bezogen, wurden festgehalten. Taktile Gefühle des sich leicht oder schwerelos Empfindens, körperliche Leichtigkeit oder Verlust der Körperwahrnehmung, Gefühle des Fliegens oder des Fallens waren am verbreitetsten. Wahrnehmungen,

die mit einer Schwebempfindung einhergingen, wurden als negativ oder positiv gewertet oder mit einem Freiheitsgefühl assoziiert. Eine Anzahl von Schwebefühlen vor Schlafbeginn deckten sich teilweise mit den bekannten Beschreibungen in der AKE-Literatur, andere hingegen nicht. Die Implikationen werden diskutiert.

INTO THE UNKNOWN: USING INTERPRETATIVE PHENOMENOLOGICAL ANALYSIS TO EXPLORE PERSONAL ACCOUNTS OF PARANORMAL EXPERIENCES

BY KEN DRINKWATER, NEIL DAGNALL, AND LAUREN BATE

ABSTRACT: Research exploring general subjective paranormal experience (GSPE) has traditionally used a quantitative approach. Resultant statistical analysis focuses upon categorization, validity and reliability, and fails to consider fully the impact of paranormal experiences at an intimate/personal level. Using Interpretative Phenomenological Analysis (IPA), this paper explored how individual understanding of paranormal events was constructed. IPA focuses on personal experience and considers the meaning individuals attach to phenomena. Analysis of four interviews gave rise to three themes: distortion of reality (physical and mental fantasy of experience), you are not alone (third party sensory presence), and personal growth (effect on self). Emergent themes suggested an inextricable link between belief, behavior and perception. Paranormal event comprehension and rationalization profoundly affected individuals; was accompanied by fear of the unknown, and an unwillingness to accept the uncertain.

Keywords: general subjective paranormal experience; interpretative phenomenological analysis

The current paper focused on percipients' accounts of general subjective paranormal experiences (GSPE). Such narratives are of interest to wider society and academics because GSPEs are common (Haraldsson & Houtkooper, 1991) and experiences often affect individuals (Blackmore, 1988; Nelson, 1990; White, 1990). Schmied-Knittel and Schetsche (2005) provide a commentary on the prosaic nature of exceptional/paranormal experiences.

GSPE refers specifically to an experience that a person believes is paranormal, that is an exceptional experience beyond the comprehension of conventional science (Neppe, 1990). Further, disambiguation is provided by Irwin (1999), who refers to paranormal experiences as "apparent anomalies of behavior and experience that exist apart from currently known explanatory mechanisms that account for organism–environment and organism–organism information and influence flow" (Irwin, 1999, p. 1).

Misleadingly, the term anomalous experience has been generalized to paranormal experiences (Wilde & Murray, 2010). These terms, in their intended sense, possess different meanings. Anomalistic refers to extraordinary phenomena (behavior and experience) without the supposition of paranormality, bizarre experience being explained in terms of known factors. Semantic confusion may arise because extraordinary phenomena may be labeled as paranormal (French, 2001).

Cardeña, Lynn and Krippner (2000) delineate usual experiences as encounters (experienced by a substantial amount of the population) that deviate from accepted explanations of reality. This definition is useful because it touches on an individual's perception of reality (considers personal experience), and raises important issues about the way in which society views anomalous experiences (Wilde & Murray, 2010).

Considering previous work on paranormal experience, several prominent studies have employed quantitative methods. The quantitative approach typically draws upon self-report measures, uses statistics and seeks to categorize data. A seminal example is John Palmer's Charlottesville (Virginia) survey, which explored the alleged incidence of subjective paranormal experience. Palmer (1979) developed a 46-item standardized questionnaire comprised of categories assessing: psychic experiences, psi-related experiences, psi-conducive altered states of consciousness, and psi-related activities. Surveys were posted to Charlottesville residents (300 students and 700 adults). Analysis of responses revealed two groups, respondents reporting no/few psi experiences vs. those reporting several. Despite limitations, Palmer's

(1979) survey produced valuable findings and informed several subsequent studies (e.g., Blackmore, 1984). For example, Kohr (1980), developed measures of the pervasiveness of paranormal and related effects by summing the types of reported experience in each of Palmer's categories.

The paranormal literature contains other important examples of quantitative experience measures. One frequently used example is The Survey of Anomalous Experiences (SAE) constructed by Gallagher, Kumar and Pekala (1994). The SAE comprises 29-items addressing anomalous/uncanny experiences. If the participant acknowledged an experience, they were asked to clarify whether they attributed their experience to a specified paranormal vs. non-paranormal process. Additionally, other researchers have developed measures assessing both subjective experience and general belief. For example, Glicksohn (1990) constructed a 10-item scale comprising five beliefs about subjective paranormal experience, and five general beliefs about the paranormal.

Overall, the quantitative approach has made a valuable contribution to paranormal experience research: large databases collated, data systematically appraised, and general trends identified. However, the reduction of data to numeric values results in the loss of valuable experiential data. For this reason, a qualitative/person centered approach is necessary because it considers all interpretive aspects of paranormal experience. Understanding the nature and perception of paranormal experience is a multifaceted/complex process involving perception and interpretation (self-negotiation and reconciliation). When a person reports a parapsychological experience, they may typically be asserting two occurrences: that of an anomalous or seemingly inexplicable event, and their interpretation of this event (Irwin, Dagnall & Drinkwater, 2013). Moreover, percipients may believe a paranormal experience is not real. Blackmore (1997) asserts that people frequently construe connected events as chance coincidences, thereby missing real connections. Alternatively, percipients may interpret chance events as connected. For these reasons, the present study adopted a phenomenological approach to understand better paranormal experiences.

Phenomenological methodology is widely used within psychological/ parapsychological research (Von Eckartsberg, 1998) because it describes the essential features (themes) that characterize human experience. Particularly, phenomenology attempts to explain the meaning of exceptional human performance experiences (c.f., in sports, Alessi, 1994, Murphy & White, 1995; and in trance mediumship, Barrett, 1996). For example, Heath (2000) used phenomenology to uncover process-oriented aspects of performing psi, and analyze spontaneous and intentional psychokinesis (PK) experiences. She concluded there was one core PK experience, composed of a number of discrete elements (constituents), which formed a fluid pattern (organic in quality). Her work provided important insights into qualitative aspects of PK and demonstrated that phenomenology was an effective tool for understanding paranormal phenomena.

In this context, the work of Aanstoos (1986) and Roll (1987) is of relevance. Drawing on an example from Native American Iroquois culture (the long body), Aanstoos and Roll argued that the human self is not restricted to the body studied by physiology and behavioral psychology; the experienced self is a larger self, a "long body" (Aanstoos, 1986). The long body is a function of the Iroquois' attunement to the world and suggests a holistic, interconnected, and integrative model for understanding paranormal experiences (Glazier, 2013). The metaphor describes the perception of the Iroquois that their bodies extended in time and space to other tribal members (significant other people, places, and objects) (Glazier, 2013; Roll, 1988). Their approach acknowledges an experiential view of psi and recognizes that the world of matter is interlinked with mind and meaning (Roll, 1987). Roll successfully applied this concept to his 1988 study of apparitional experiences.

Also, important to the present paper, is the work of Wilde and Murray (2009), who applied hermeneutics and idiographic analysis to out-of-body experiences (OBE's) and near death experiences (NDEs). Their methodology was based upon vicarious introspection (Ornstein & Ornstein, 1995) and subjected paranormal experiences to evocative examination. Particularly, the approach of Wilde and Murray (2009) provides a person-centered framework for developing a meaningful and interpretive self-conception for any given experience (Smith, Jarman, & Osborn, 1999).

To this end, the use of semi-structured interviews facilitates an understanding of personal attribu-

tions, the way in which people assign meaning to their experiences, social interactions and world (Grinstead, 2005). Thus, an active collaboration between interviewer and interviewee is essential. Suchman and Jordan (1992) suggest that the procedures surrounding interviewing are about how to generate sincere responses to questions and how to engage in common-sense inference. Validity requires a method that will make sure that the participants have a common understanding of what the questions mean and how the answers are to be understood/interpreted. Open-ended questions achieve this by structuring a collection of rich and detailed information.

Finally, the work conducted by the Institute for Frontier Areas of Psychology and Mental Health (IGPP) requires consideration. Schmied-Knittel and Schetsche (2005) conducted a representative survey of the German population (1,510 people) about paranormal attitudes and experiences. Three quarters of interviewees reported at least one paranormal experience; 50% of experiences involved classic paranormal phenomena (prophetic dreams, apparitions etc.). Age influenced the frequency and incidence of reported paranormal experiences; younger people found supernatural phenomena (primarily psi) more plausible and reported more instances of it. In the second phase of the IGPP project, 220 telephone interviews were thematically analyzed. The results indicated that experiencers were affected in different (individual) ways and that phenomena (e.g., apparitions and déjà vu experiences) occurred rarely (they were by definition exceptional experiences). Experiences showed consistent similarities and characteristics. Additionally, experiencers frequently forwarded rational explanations for perceived phenomena (supernatural powers or the existence of psychic abilities) and seamlessly integrated their exceptional experiences into the individual biography (Schmied-Knittel & Schetsche, 2005).

Interviewees typically, classified experiences in the form of an anecdote, abnormal-normal incident, every-day miracle. Schmied-Knittel and Schetsche (2005) concluded that while exceptional experiences could not be defined by one specific characteristic, communication/reporting typically involved a secure mode of (shielded) speech. To convince the listener that experiences were authentic (real) interviewees employed a number of specific strategies: naming witnesses and experts, emphasizing their rational attitude, while eliminating other logical possibilities. Schmied-Knittel and Schetsche (2005) resolved that a process of normalization occurs, whereby percipients feel their experiences are unspectacular; even though experiences are remarkable and memorable, they seldom require special interpretations. This process of normalization makes it increasingly easy for the people to talk about their experiences.

Study Design

Interpretative Phenomenological Analysis (IPA) (Smith, 1996; Smith, Flowers, & Osborn, 1997) is a qualitative, phenomenological approach combining hermeneutics and idiography (Smith, Flowers, & Larkin, 2009). IPA has origins in phenomenology (Giorgi, 1995), provides an in-depth analysis of, and engagement with, subjective experiences; searches for objective truth and meaningful explanation/interpretation of the world, while producing an objectively rich data set providing a suitable qualitative means for analyzing subjective accounts (Reid, Flowers & Larkin, 2005). IPA seeks to honor recollections, observations and narratives of an individual's experience (Reid et al., 2005). Particularly, IPA focuses on how people construct meaning from their experiences and considers the way in which experiences affect individuals (Brocki & Wearden, 2006). IPA is especially useful when researchers are concerned with complexity, process, or novelty (Smith & Osborn, 2003). These qualities are inherent within paranormal experiences and mirror the central concerns of anomalistic experiential research as identified by Braud (2004); authenticity, underlying process, and phenomenology.

IPA has successfully been applied to the study of paranormal experiences (Wilde & Murray, 2009, 2010). IPA provides anomalistic psychological researchers with a unique approach for understanding how percipients find meaning in and make sense of their paranormal experiences. Importantly, IPA also provides insights into the effect anomalous experiences have on those who experience them (Braud, 1993, 2004). As a caveat, it is important to note that IPA does not attempt to validate experiences (construct objective truth about an experience); rather, IPA is concerned with the subjective nature of accounts and

the meaning of the experience (Brocki & Wearden, 2006).

Method

Participants and Sample

The current study outlined the personal accounts and perceptions of four interviewed experiencers (two female and two male); interviewee names were changed to an alias to establish anonymity:

Sarah (white British, age 35) described how she was a child, in her hometown, when she first had an experience of what she terms “a paranormal event.” Later on, she explains that her first real anomalous experience was as a teenager (13 years), although many years later she recounts a more recent family bereavement as a particular event that changed her perception regarding belief in the paranormal. Several repeated experiences over a 16-year period led to her being more open to spiritual and religious perceptions. She describes how she felt when confronted by an apparition for the first time and then again many years later.

Leanne (white British, age 19) recalls a singular experience, which occurred after her grandfather’s death. The first time she stays at her grandmother’s house (following the death of her grandfather) she experiences a strange dream in which she sees her grandfather standing over her looking as he did before he died.

Neil (white British, age 35) discussed numerous anomalous experiences (e.g., UFO, apparitions). Neil is an avid believer in the paranormal and goes in search of paranormal phenomena.

Nick (white British, age 25) explained how he had his first anomalous experience (an encounter with a shadow figure/evil presence) one night coming home from a friend’s house. He also believes in the paranormal. Nick was very scared of his experience and it profoundly affected him afterwards. Nick has had paranormal experiences before, none of which has influenced him as much.

All participants had experienced at least one memorable anomalous event and wished to articulate their experience(s). Sample size was consistent with the idiographic approach, and with the work of Smith et al. (2009), who advocate small samples for IPA studies. Working with small, homogeneous samples enables the researcher to commit to producing detailed interpretative accounts and promotes analytical depth (Smith, Jarman & Osborn, 1999). Participants were recruited from a database of respondents who had participated in a UK research study assessing belief in the paranormal (1,217 respondents). The final section of the survey asked whether participants had experienced paranormal phenomena and whether they wished to outline an experience. From the sample, 56 participants agreed to be interviewed; 28 interviews were conducted and 4 were randomly selected for inclusion in the present study. The study followed the code of ethics of the British Psychology Society (BPS) (BPS, 2009).

Interview Procedure

An interview schedule containing a list of main topics to be covered was prepared. This included an outline of the study (including procedure and ethics), biographical details, background, and circumstances of their GSPE. Interviews began with a standardized brief detailing: the research purpose, semi-structured nature of the interview, and approximate time scheduling. The first author then asked each participant, “Can you please tell me about your experience (s)?”

Consistent with the approach of Wilde and Murray (2009, 2010) the semi-structured interviews were participant led. To promote dialog, the researcher adopted an empathic approach, based on non-judgemental acceptance and openness, while retaining a critical distance (Smith & Eatough, 2006). Interviews, conducted by the first author, lasted approximately 30 minutes. Following interviews, participants

were debriefed and thanked for their contribution.

The first author and a postgraduate research assistant (undertaking a period of “work experience”), transcribed all interviews; in the US, the role would be similar to that of an intern. IPA focuses on text, accordingly full verbatim transcripts of interviews were produced (these included both interviewer questions and participant answers) (Smith & Osborn, 2008; Wilde & Murray, 2009, 2010). IPA is concerned with semantics, hence prosodic features were not transcribed.

Analysis followed four distinct stages outlined by Willig (2001). Stage one involves data immersion, in order to gain rich understanding of percipient experience. The second stage involves specific theme generation: using psychological language and terminology. In stage three, the researcher looks for common reference points between themes and theme grouping begins. Finally, a summary of clusters and themes emerge, providing a clear overview of how the clusters and themes fit together as a coherent analysis (Smith & Osborn, 2008). With IPA, predetermined hypotheses are not tested rather the area of interest is explored flexibly and in detail.

Themes were compiled for each interview, and comparisons were made across participants in order to identify common experiences. Transcripts were examined independently to ensure that themes accurately reflected each interview. Analytical comparisons enabled a check on the validity of the primary researcher’s analysis and interpretation of participants’ accounts.

Results

Three master (major) themes emerged from the analysis: (a) distortion of reality (physical and mental fantasy of experience), (b) “you are not alone” (third party sensory presence), and (c) and personal growth (effect on self). All the themes were considered inter-textually; they were found to interact and influence what the participants extracted from their paranormal experience(s).

Distortion of Reality (Physical and Mental Fantasy of Experience)

A dominant cultural perspective is that of positivist science. This theme highlights contradictions between aspects of culture, and what we as humans interpret as reality. Particularly, it describes unreal and unusual characteristics of the experience; particularly, those which lie outside the accepted norms of society. This theme manifested itself via internal and external distortions, reflecting the participants’ views of themselves and their perception of society and reality.

Leanne describes a mental distortion, where she is struggling to determine whether the anomalous event actually occurred, or whether it was merely a dream state: “I don’t know if it actually happened or I was just, cos it was in the dream, if I was dreaming and I thought about him before I went to sleep or something.”

Leanne attempted to describe the nature of her experience. In doing so, she struggled to place and categorize the experience within her internal reality. This was reflected by her uncertainty and lack of clarity. The experience was something she had not encountered previously and therefore she found it difficult to interpret (make sense of). Consequently, Leanne questions whether the experience was merely a dream.

Contrastingly, Sarah outlined a coherent interpretation of her experience; it was justified in terms of distorted perception (a perceptual abnormality). This definition was grounded in her personal experience of psychosis and hallucinations: “If I hadn’t had psychosis (...) I would have probably thought yeah that’s definite. A definite apparition whatever it is.”

Sarah’s perspective was that the mind is powerful and can distort what is seen. She freely described and comprehended her experiences, unlike Leanne, who encountered difficulties. Sarah rationalized and explained her experience in a straightforward manner; accepting that her mind/thoughts were producing the experience(s). This illustrates how past experiences can influence the interpretative process and inform attribution of causation. Sarah believed her experience(s) to be a mundane product of the mind; a normal spontaneous process.

But with having this psychosis I know that the mind can produce images (...) but I think because I have had that I realize that your mind is very powerful to what you're feeling. And that's why I think I could have produced that image myself.

Distortion also arose in the transcripts of Neil, Nick and Sarah. Nick and Neil congruently reported shadowy figures, whose features were not identifiable.

There was a wavy/shadow figure in the middle of the road about twenty yards away, could make out the legs and hands but the face was blacked out. [Nick].

There was a face at the window (...) but the corner of the eye type (...) so I went to the front door, opened the front door and no one was there. [Neil].

Sarah reported a heat source, which materialized into the shape of a figure near her bed. She described this as the kind that emanates from hot tarmac under the sun: "I saw this heat coming from nowhere (...) it was like heat, but you know what heat looks like."

Paranormal interpretations may reflect participants' desire to explain simply what was seen, i.e., rationalize a perceived paranormal experience in terms of existing societal and cultural beliefs. Perceiving meaning in randomness may be an important factor in the formation of paranormal beliefs (Dagnall, Parker, & Munley, 2007; Fyfe, Williams, Mason, & Pickup, 2008). Particularly, interpreting the unknown qualities of the experience by drawing on existing knowledge and understanding (i.e., "heat," "figure," and "face") in order to normalize the phenomena made them appear congruent and typical. Particularly, interviewees attempted to explain/rationalize experience(s) in the context of how (they believed) society interprets paranormal/anomalous experience(s).

You Are Not Alone (Third Party Sensory Presence)

This theme focused upon the sensory nature of the experience (visions, smells and feelings). Ascribed sensual features gave experiences an acute intensity, which was attributed to an unknown, inexplicable presence. In some instances, the interviewee felt uncomfortable/anxious; the presence was perceived as menacing and malevolent.

He was kinda looking over me. [Leanne]

There was a feeling that someone was watching ya (...) rather than somebody actually being there (...) but it's a feeling that even though the rooms empty apart from two people, there was a feeling walking through that room. [Neil].

I could feel something, footsteps behind me (...) it felt like, slight static, like the hairs on the back of my neck, I felt them go up. [Nick]

It didn't feel good, it felt like it was evil and it was looking at me. [Nick].

Interviewees typically depicted the presence as a mysterious entity. Participant's experiences embodied the notion of powerlessness, positioning the experiencer as passive and lacking control. From the perspective of the interviewees, perceived experiences were intense and real. Even those experiences from ten years ago appeared vivid in detail.

Similar to the previous distortion theme, vividness reflects the impact of the experience upon the individual. Strong emotional content together with detail provide a sense of realness and lucidity, which helps to establish the experience(s) as authentic.

Personal Growth (Effect on Self)

The experience(s) influenced the individuals at a personal and intimate level, in both positive and

negative ways.

Leanne described the pleasant experience of her Grandfather watching over her.

Erm my grandpa died in, erm I think it was 2009. I stayed at my grandma's house for the first time since he died. If I was just dreaming and I thought about him before I went to sleep or something. I don't know, but it was really weird. He said something and I can't remember now what he said. He was kinda looking over me.

This focus on her grandfather revealed a pronounced sense of personal loss. She remembered her grandfather fondly, showing concern for his passing. Leanne acknowledged that she may have been thinking about him prior to sleeping, and that this may have caused the phenomenon to occur. Leanne recalled vivid details and accounts of previous shared experiences with her grandfather, which relayed her belief that in both life and death her grandfather was/is there to protect and watch over her. This interpretation has helped Leanne to come to terms with the grieving process.

Similarly, despite the figure in her experience having no physical identifiable features, Sarah attributes the experience to her recently passed away friend.

Our best friend of the group (who was my best friend) got killed um... on a cross country run, by a tractor. Um... and a few months following my friends and I had a party at my house, and after my friends had gone, I saw what I think was an apparition. I wasn't scared or anything, I just accepted that it could have been her.

Sarah stated that she was no longer grieving, and that the party was one which her recently passed friend would have attended. Sarah assigned the experience to her friend. This interpretation allowed Sarah to perceive the experience without fear; Sarah believed her friend cared and hence would do her no harm. Thus for Sarah, the experience was a positive one; the association between her friend and the experience provided Sarah with comfort and reassurance.

Sarah possessed a different understanding of her paranormal experience than the other interviewees. She was aware that the mind can be powerful and may influence what we see and how we interpret information. Prior to interview, Sarah explained that several years before her friend's death she had suffered from psychosis (involving hallucinations). While recovered, Sarah felt that this experience had a bearing on her interpretation of her unusual event.

Sarah and Leanne described the passing of friends/relatives as a means of providing an explanation for their experiences. This is different from both Nick and Neil, who do not ascribe person specific features to their experience(s). For example, Nick's negative experience involved a potentially malevolent featureless figure/person.

When I came back in her exact words to me was you look like you've seen a ghost. And I went I think I just have and it was something that I didn't like it I picked up a bottle and I drank nearly three quarters of it in one go and I'm just not frightened that easily but that frightened me.

Nick reported his experiences to be frightening and unsettling, so much so that he consumed a large quantity of alcohol following the encounter. His experiences produced an alteration in behavior; Nick disliked walking home alone, changed his route, and now avoids paranormal material. Prior to the experience, Nick had a keen interest in ghostly and uncanny happenings and read paranormal books; he felt that his experiences were an indication of something sinister, a perception that encouraged him to discard his paranormal books.

I don't know what it is, but there was no other human there, that's my feeling anyway. I thought that's evil that, and I just ran (...) the next day I got rid of my books, I just had a weird feeling, I'm getting rid of these ghost books.

The words “evil” and “no other human” in Nick’s description are pertinent. “Evil” here refers to a malevolent, corrupt, destructive and wicked force. In this context, “no other human” suggested that Nick has been in contact with something that (he felt) was potentially supernatural: “I just had a bad feeling like I needed to get away you know hearing them footsteps and then seeing that figure, it really did scare me.”

Nick attributed the experience to a third party, a paranormal entity, as discussed in the previous paragraph. There is a lack of embodiment, indicative of a lack of control. In order to avoid these feelings and recurring thoughts, Nick avoids the passageway where the event took place and avoids the paranormal.

The notion of normality is inherent within this theme: individuals experience the events as unusual (i.e., beyond recognized social norms).

I turned that way cos it felt really real. Like when I woke up I could have turned to where he was stood in the dream and nothing was there. It was really weird. [Leanne].

Yeah it was very unusual to me definitely. [Sarah].

I haven’t told anyone about it until... my mum knows all about it because she was having a bit of a party that night when I came back in, her exact words to me was “you look like you’ve seen a ghost”. [Nick].

Three Themes Emerge

The notion of culture and society is a superordinate theme; it is intrinsic within and overlaps the subordinate themes (outlined above). Particularly in this account, it refers to the prevailing societal norms and cultural expectations, which influence and color the perception and interpretation of unusual experiences. Any interpretation is constructed and viewed within the context of society, particularly the individual’s perception of the prevailing dominant view/perspective. Typically, paranormal experiences were normalized, adjusted to conform to the conventional and mundane.

Considering this with respect to the individual themes: distortion, the experience is viewed in relation to what the individual considers as normal and real; you are not alone, individuals attribute the experience to a third party (anthropomorphize); personal growth, where individuals personalize the experience in terms of their previous experience, knowledge and understanding.

Discussion

In this section of the paper, we explore emergent themes from a theoretical standpoint. General subjective paranormal experiences (GSPEs) were characterized by a lack of embodiment (sense of one’s own body or bodily self-consciousness) (Legrand, 2006; Longo, Schüür, Kammers, Tsakiris, & Haggard, 2008). Embodiment is a central issue within phenomenology (Merleau-Ponty, 1962) and refers to the embedding of cognitive processes in brain circuitry, and the origin of sensory experience in relation to environment (Fuchs, 2009). The present study identified the complex social processes which influence and structure understanding of GSPEs and give meaning to anomalous/unusual phenomena (Wilde & Murray, 2010). Particularly when explaining GSPEs, interviewees looked outside (beyond) the self, comprehending their unusual experiences by referring to stereotypical, cultural beliefs. This process is similar to the long body metaphor (Aanstoos, 1986; Glazier, 2013; Roll, 1987, 1988) in which bodies extend in time and space to other people, places, and objects. It is also consistent with Bruner’s (1990) view of the body as a biological assemblage of restraints and possibilities; meanings derived via an individual’s immersion with his or her cultural world.

Within the present study, culture and society (super-ordinate theme) framed and shaped the interpretation of paranormal experiences (Schmied-Knittel & Schetsche, 2005). Culture/society provided participants with a safety net, served to normalize exceptional/anomalous events; gave them meaning

and context. Reification in this context may constrain individual growth because everyday explanations dominate perception and frame interpretation. For example, Sarah, Leanne, and Nick validate their GSPEs by referring to dreams (“I was just dreaming”), mental illness (“but with having psychosis I know that the mind can produce images”), and ghosts (“I opened the door and there was a figure moving into the kitchen area”). Collectively, there was a tendency to personify GSPEs, ascribing physical characteristics to perceived phenomena.

Complex interpretive processes were evident within the emergent subordinate themes: distortion of reality (physical and mental fantasy of experience), you are not alone (third party sensory presence), and personal growth (effect on self). Interviewees described their attempts to make sense of the unknown and establish a sense of control, distortion of reality (physical and mental fantasy of experience). For example, Leanne saw what she thinks was an apparition of her deceased friend in her bedroom. She explained that, “there could have been a rational explanation for it, such as it could be some kind of heat formation or something”; “I think because I have had that, I realize that your mind is very powerful to what you’re feeling, that’s why I think I could have produced that image myself.” Often, interviewees questioned the validity of their experience(s); there was (internal) dispute as to whether the experiences constituted a genuine paranormal event. Irrespective of this, experiences had a profound effect (psychologically/emotionally) on each individual (personal growth and the effect on self).

Interviewees, through the process of retelling, questioned the veracity and validity of their own accounts and were frequently presented with two contrasting choices, to accept their paranormal experience(s) as genuine, or to reappraise them using mundane and conventional explanations (e.g., Nick, who explained a shadow figure as “a trick of the light.”). In doing so, interviewees may perceive that adopting paranormal explanations can leave them open to criticism. Neil explains that, on several occasions, unusual sightings made him feel apprehensive: e.g., “got to the top of the stairs (obviously after seeing a figure) they thought what’s going on, she/it vanishes...there’s no way that a person, if it was a person, could have got out.” This is because interviewees are aware/conscious that experiences are unconventional and outside those of mainstream society; this may explain why the interviewees frequently rationalized their experience(s) using orthodox beliefs (Schmied-Knittel & Schetsche, 2005).

Apprehension/anxiety associated with the unknown and an unwillingness to accept the uncertain were common features of the experiences. Neil explained that, “Carers have said that they have heard things upstairs, erm... footsteps down the stairs, movement upstairs as well. Which is weird as my mum is in a wheel chair.” Particularly, interviewees frequently attributed their experiences to an unknown force/power and expressed feelings of helplessness; experiencers often positioned themselves as forlorn victims, with little or no control over the event, you are not alone (third party sensory presence) and personal growth (effect on self). Alternatively, if a sense of dread/foreboding was perceived, the desire to avoid/escape was articulated (e.g., Nick explained, “I felt the hair on the back of my neck go up looked a cross and the wavy figure in the middle of the road about twenty yards away could make out the legs and hand but the face was blocked out, it just scared me to death. I just turned round and just literally ran, I legged it.”). This took the form of an action. For one participant, this involved altering behavior. Nick stopped walking a particular way home and discarded all material associated with the paranormal. Other studies report similar findings: fear is a relatively common initial reaction to paranormal phenomena (Lange & Houran, 1999).

Contrastingly, interviewees frequently communicated positive affect(s) arising from paranormal/anomalous experiences (e.g., being watched over by a deceased relative); interviewees outlined feelings of enhanced wellbeing and spirituality (McClenon, 1994). Two interviewees, who attributed phenomena to important deceased people (dead relative/close friend), expressed feelings of closure, and the ability to emotionally progress (to move on). These positive affirmations suggest that some paranormal experiences were guided by motivations or needs (Broughton, 1988; Stanford, 1974a, 1974b; Weiner & Geller, 1984).

The interaction between affect and paranormal experiences can be dynamic and complex. Both positive and negative experiences can have a profound effect on the individual (e.g., some people expe-

rience feelings of grief, despair, and fear following a visit to a kind of hellish purgatory or void; Irwin & Bramwell, 1988). As such, fear is a relatively common initial reaction to paranormal phenomena, although the long-term effects can also be positive (e.g., a sensation of love, a feeling of joy, and feeling more peaceful). This is especially true when people have near-death or out-of-body (Ring, 1980, 1984) and religious experiences (Hay, 1979).

Conclusion: Cultural Influences and Social Process

IPA has been successfully used across a number of psychological disciplines (i.e. health, clinical and social psychology) and increasingly in parapsychology. When considering the use of IPA as a tool for investigating anomalous/paranormal experience, it is important to consider how language reflects both internal and external representations and influences the construction of reality. Paranormal beliefs are engrained in our sense of what is real and normal. Interviewing provides a safe and comfortable forum, narrative medium through which experience and societal involvement can be expressed. Bruner (1990) described this as the stuff of human action and human intentionality, the mediation between the canonical world of culture and the more idiosyncratic world of beliefs, desires, and hopes. The interpretation of paranormal experiences was an intimate and person-specific affair. In the present study, it was more useful than a statistical model for understanding the personal nature and impact of paranormal experiences. Additional qualitative studies would add validity to the field of parapsychology. Moreover, the role of IPA is not to prove or disprove the existence of paranormal phenomena, but to examine what experiences mean for individuals (Cardeña et al., 2000; Mathijssen, 2009).

Using IPA, the current study explored the effect that general subjective paranormal experiences (GSPE) have on the individual. Previously, IPA has been instrumental in highlighting the subtle personal and social factors influencing a limited range of paranormal phenomena (e.g., NDE & OBE; Wilde & Murray, 2009, 2010). This approach could be extended to specific paranormal experiences, beyond those already examined (alien encounters, abduction experiences, demonic possession, etc.). In this context, IPA may prove to be an invaluable tool in the further development of theory and knowledge (epistemology) in parapsychology.

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Abstracts in Other Languages

Spanish

A LO DESCONOCIDO: USO DEL ANÁLISIS INTERPRETATIVO FENOMENOLÓGICO PARA EXPLORAR RECUENTOS PERSONALES DE EXPERIENCIAS PARANORMALES

RESUMEN: La investigación que explora la experiencia paranormal subjetiva general ha utilizado tradicionalmente un enfoque cuantitativo. Los análisis estadístico resultante se centran en la categorización, validez, y fiabilidad, y no toman en cuenta plenamente el impacto de las experiencias paranormales en un nivel íntimo/personal. Usando un Análisis Interpretativo Fenomenológico (IPA), este trabajo explora cómo se construye la comprensión individual de los acontecimientos paranormales. El IPA se centra en la experiencia personal y considera el significado que los individuos atribuyen a los fenómenos. El análisis de cuatro entrevistas dio lugar a tres temas: la distorsión de la realidad (fantasía física y mental de la experiencia), que uno no está solo (presencia sensorial de un tercero), y el crecimiento personal (efecto sobre uno mismo). Los temas emergentes sugieren un vínculo indisoluble que existe entre la creencia, la conducta y la percepción. La comprensión y racionalización del evento paranormal afectó profundamente a los afectados y estuvo acompañada por el miedo a lo desconocido y el no querer aceptar lo incierto.

French

DANS L'INCONNU : UTILISER L'ANALYSE PHÉNOMÉNOLOGIQUE INTERPRÉTATIVE POUR EXPLORER LES TÉMOIGNAGES PERSONNELS D'EXPÉRIENCES PARANORMALES

RESUME : La recherche explorant les expériences paranormales subjectives générales (GSPE) a

traditionnellement employée une approche quantitative. Les analyses statistiques qui en résultaient se focalisaient sur la catégorisation, la validité et la fiabilité, et échouait à considérer pleinement l'impact des expériences paranormales à un niveau intime/personnel. En utilisant l'analyse phénoménologique interprétative (IPA), cet article explore comment la compréhension individuelle des événements paranormaux est construite. L'IPA se focalise sur le vécu personnel et considère la signification que les individus associent au phénomène. L'analyse de quatre entretiens fait émerger trois thèmes : la distorsion de la réalité (l'imaginaire physique et mental associé au vécu), vous n'êtes pas seul (la présence sensorielle d'un tiers), et la croissance personnelle (effet sur le soi). Les thèmes émergents suggèrent un lien inextricable entre la croyance, le comportement et la perception. La compréhension et la rationalisation des événements paranormaux affectent profondément les individus ; elles sont accompagnées par la peur de l'inconnu et un refus d'accepter l'incertain.

German

HINEIN INS UNBEKANNTE: DIE VERWENDUNG EINER INTERPRETATIVEN PHÄNOMENOLOGISCHEN ANALYSE, UM PERSÖNLICHE BERICHTE ÜBER PARANORMALE ERFAHRUNGEN ZU UNTERSUCHEN

ZUSAMMENFASSUNG: Die bisherige Forschung zur Untersuchung allgemeiner subjektiver paranormaler Erfahrungen (ASPE) war traditionellerweise quantitativ orientiert. Bei der daraus resultierenden statistischen Analyse steht die Kategorisierung, Validität und Reliabilität im Vordergrund und vernachlässigt den Einfluss paranormaler Erfahrungen auf einer privaten/persönlichen Ebene. Unter Verwendung der Interpretativen Phänomenologischen Analyse (IPA) untersucht dieser Artikel, wie ein individuelles Verständnis paranormaler Vorgänge zustande kommt. Im Mittelpunkt der IPA steht die persönliche Erfahrung und die Bedeutung, die Individuen den Phänomenen zusprechen. Bei der Analyse von vier Interviews ergaben sich drei Themen: Realitätsverzerrung (physische und mentale Fantasieerfahrung), Du bist nicht allein (die sensorische Präsenz eines Dritten) und persönliche Entwicklung (Auswirkung auf das Selbst). Die sich daraus ergebenden Themen legten eine unauflösbare Verbindung zwischen Einstellung, Verhalten und Wahrnehmung nahe. Das Verständnis und die Rationalisierung paranormaler Vorgänge übten auf Individuen einen tiefgreifenden Einfluss aus und war begleitet von der Furcht vor dem Unbekannten und der mangelnden Bereitschaft, das Ungewisse zu akzeptieren.

BOOK REVIEWS

TELEPHONE CALLS FROM THE DEAD: A REVISED LOOK AT THE PHENOMENON THIRTY YEARS ON by Callum E. Cooper. Old Portsmouth: Tricorn Books, 2012. Pp. xiii + 193. £8.99 (paperback). ISBN: 978-0-9567597-2-6.

In 1979, parapsychologists D. Scott Rogo and Raymond Bayless published *Phone Calls from the Dead: The Results of a Two-Year Investigation into an Incredible Phenomenon* which addressed “experiences which most parapsychologists have been ignoring for years” (p. 3); that is, anomalous telephone contacts (ATCs) which appear to come from the deceased. Rogo and Bayless asked “Could the telephone ... actually be used on occasion as a channel for psychic communication between the living and the dead?” (p. 3). They reported that “these phone calls actually do occur and are, indeed, probably more common than you might imagine” (p. 3).

Fast forward roughly 30 years and we find Callum Cooper discovering contemporary reports of anomalous telephone phenomena while “trolling the internet” (p. 6). Finding continuing reports of these phenomena inspired Cooper to track down Rogo’s original archives at the California Institute of Integral Studies and begin his own investigation of ATC phenomena.

Cooper discusses the original findings published in 1979 while also providing commentary and including additional material about the back story of the Rogo and Bayless research as well as new analyses of the original cases. In addition, Cooper includes new analyses of previously unpublished cases collected by Rogo and Bayless. With the original Rogo and Bayless volume out of print and both authors deceased, the publication of Cooper’s book makes their original material as well as additional information available to a new generation of researchers. *Telephone Calls from the Dead* serves as a modern collection of spontaneous case reporting.

Cooper seems well suited to address this topic. He holds a BSc (Hons) in psychology from the University of Northampton, an MRes in psychology from Sheffield Hallam University, and is currently pursuing doctoral research in psychology and parapsychology at the University of Northampton. Prior to publication of the book, Cooper had published peer-reviewed articles on the topic.

The writing style of the book is non-technical and conversational. As is common in science writing, Cooper had to find the balance between making the material accessible to a general audience while providing enough details to support his case; this, for the most part, he accomplished successfully.

Although the book is suitable for the general public, one serious limitation of *Telephone Calls from the Dead*, is the lack of a detailed discussion of the methods used to collect and analyze the data. The inclusion of this information would have gone a long way in helping the more technical or skeptical reader better appreciate the significance of the findings and the relevance of the phenomenon. In addition, it is unclear whether Cooper’s analyses include only cases collected by Rogo and Bayless, or if additional cases collected by Cooper were included.

The book contains a Foreword by Elizabeth McAdams, PhD, and ten chapters. In Chapter 1, “Introduction”, Cooper sets the stage by providing a fictional example of an ATC along with a brief discussion of the scope and history of parapsychology. He finishes with a description of an ATC that was reported in the popular media in 2008 which inspired him to examine and expand upon the original work of Rogo and Bayless.

Chapter 2, “The Researchers,” provides details about Rogo and Bayless and includes information “not only [about] the lives of both authors, but also their research, and their friendship” (p. 9).

Chapter 3, “The History of Anomalous Telephone Communication,” covers cases starting with David Wilson and the wireless telegraph (1913) through to Thomas Edison (1920) and then Cooper’s current work on the subject.

In Chapter 4, “The Variety of Phone Call Cases,” Cooper provides descriptions and examples of

the different categories of call cases. These include Apparent Cases (when someone receives a call from someone who is dead); Intention Cases (when a call or message is received which refers to a call the receiver intended to make, but never did); and Answer Cases (calls made by the living and answered by a person who the caller does not know is dead). Cooper then further expands these case categories into five Types: Type 1, Simple Calls (“the dead caller says only a few words and is unresponsive to any questions asked;” p. 47); Type 2, Prolonged Calls (longer calls which include an actual conversation); Type 3, Answer Calls (described above); Type 4, Mixed Calls (a mixture of Type 1 and Type 2); and Type 5, Intention Calls (described above).

In Chapter 5, “Analyzing the Experiences,” Cooper shares the results of his “thematic content analysis to explore re-occurring themes” (p. 80) from 50 cases and includes a frequency breakdown of the call types with Type 1 being the most common ($n = 14$) followed by Types 4 and 5 (each with $n = 6$); Type 2 ($n = 5$); and Type 3 ($n = 1$). The remaining 18 cases are classified as Miscellaneous Accounts (described below). Descriptions of the main characteristics of the five Call Types are also provided which include Audible Anomalies, Anniversary Calls, and Warnings and Emergencies.

Chapter 6, “Miscellaneous Accounts,” offers examples of cases which do not fit into the previously defined Call Types. These cases include Dream Calls, Haunted Telephones, Coincidence Calls, and Voice-mail Messages from the Dead.

In Chapter 7, “Psychology of the Phone Calls,” Cooper reviews responses by Rogo to critiques that phone calls from the dead could be explained by such normal processes as hallucinations, dreams, human error, fraud, expectancy and suggestion. Cooper states that these factors need to be carefully considered and concludes that once

“We can confidently rule out all the possible psychological explanations and technological faults, we may be left with no option but to consider the reality of psychic abilities being involved in these events and even the possibility of communication with the dead.” (p. 128)

Chapter 8, “Theories of the Phone Call Mechanics,” starts with Cooper asking: Are telephone calls from the dead factually possible after all rational explanations have been considered? The chapter then provides a brief overview of telephone technology (including that of mobile phones). Cooper posits that “if these calls are being originated by paranormal means, then it follows that something must be manipulating the system of pulse dialing, transmission of information by radio waves, or the telephone itself in some form” (p. 132). Finally, possible causes for the ATCs including Electronic Voice Phenomena (EVP) and living agent psychokinesis, are considered.

Chapter 9, “Text Messages, Emails and Beyond?” covers several cases of alleged messages from the dead received on modern devices and discusses possible explanations for them.

Chapter 10, “Peer Comments,” includes feedback on this work from experts including John Randall and John Palmer. Randall, when discussing the original Rogo-Bayless text stated, “I felt that all the cases in ‘Phone Calls’ could have alternative explanations, and one shouldn’t claim something is paranormal until you have eliminated all other possibilities” (p. 166) such as user error and hoaxes. Randall also stressed the need to be able to separate paranormal calls from those with non-paranormal explanations. This issue is also raised by Palmer who writes, “The most important question to me about the phone call cases is whether any of them reflect an anomalous process” (p. 169). Palmer continues to make the point that should an anomalous process be identified, it does not necessarily mean that the calls are communication with the dead because we are still left with the classic source of psi problem and the super-psi hypothesis.

Overall, I echo the issues raised by both Randall and Palmer. As an empiricist, I am very interested in these types of spontaneous case catalogs because they allow for hypothesis development and testing regarding the nature of certain phenomena. Additionally, collections of case reports allow not only for analyses of data about a phenomenon but also about the individuals who experience it.

As ATCs from the dead continue to be experienced and reported, *Telephone Calls from the Dead* is a useful review of the phenomenon and of the investigations into it.

Reference

Rogo, D. S., & Bayless, R. (1979). *Phone calls from the dead: The results of a two-year investigation into an incredible phenomenon*. Englewood Cliffs, NJ: Prentice-Hall.

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SCIENCE, THE SELF, AND SURVIVAL AFTER DEATH: SELECTED WRITINGS OF IAN STEVENSON, edited by Emily Williams Kelly. Lanham, MD: Rowman & Littlefield, 2013. Pp. 415. \$65.00 (hard cover). ISBN: 978-1-4422-2114-7.

Ian Stevenson is best known both within and outside parapsychology for his field studies of what he called cases of the reincarnation type, but these form only a part of his life-long struggle to understand how the mind and body relate to one another. That he left psychiatry for parapsychology is widely appreciated, but probably fewer people know that he specialized in psychosomatic medicine before psychiatry, and doubtless fewer still realize that he started out studying history. This welcome introduction to Stevenson's oeuvre constitutes an intellectual autobiography and is the first work to trace the development of his concerns over his professional life.

Emily Williams Kelly decided against writing a traditional biography of Stevenson in favor of letting him speak in his own words. She is well-positioned for the task she set herself because she was Stevenson's research assistant and later colleague at the University of Virginia from 1978 until his death in 2007. Her close acquaintance with the man and his writings shows in her selection of articles and her comments on them. She has chosen 34 pieces, some journal papers or commentaries, others book chapters. A few are reprinted in full, but most are excerpted to a lesser or greater degree. They are arranged in five sections with introductory remarks by Kelly, who also contributes introductory and closing chapters. The book concludes with a comprehensive (although not definitive, if I may make the distinction) classified bibliography of Stevenson's publications.

Stevenson was born in Montreal, Quebec, in 1918. His father was a Scottish political journalist, his mother an English devotee of Theosophy. In her "General Introduction," Kelly describes Stevenson's early life, his study of history at the University of St. Andrews in Scotland, and his switch to medicine at McGill University in Montreal. She sketches his medical career in the United States and his growing involvement in psychical research, the term he came to prefer for his branch of parapsychology.

Stevenson himself traces these steps in more detail in the first selection of his writings, a 1989 address entitled "Some of My Journeys in Medicine." At the start of his medical career he did experiments on the oxidation of rat kidneys, an experience that turned him against reductionism. He moved into psychosomatic medicine, but when that field failed to develop into a regular specialty, took up psychiatry. Psychiatry was then (in the 1950s) dominated by psychoanalysis, which was not to his liking. He rejected the Freudian dogma that the human personality becomes fixed in early childhood and faulted Freud's failure to test his ideas about sexuality. He began to read extensively in psychical research, finding in that field a more congenial approach to the human experience.

Stevenson's mother's commitment to Theosophy sometimes has been presumed to have been the source of his interest in reincarnation, but this introductory section makes clear that although Theosophy

had the general effect of acquainting him with a dualistic conception of mind and body and alerting him to the possibility that mental states impacted disease, it had no direct influence on his thinking. Stevenson considered Theosophy to be a religion and it had no more appeal to him than did psychoanalysis. Psychological research, on the other hand, provided a scientific basis for studying relations between the mind and the body that he had not found elsewhere. He was drawn to extrasensory communications and phenomena suggestive of survival and reincarnation because, if these processes could be established, they would demonstrate that human beings were more than their physical bodies. Stevenson came to concentrate on reincarnation because he saw that it posed an especially keen challenge to materialistic assumptions. It also had clear implications for medicine. Reincarnation might help to explain, among other things, the origins of individual differences and why a given person developed a given disease, one of the "leitmotif" questions of his career.

Following the introductory section, the two selections of section 1, "New Ideas in Science," delineate another leitmotif, the resistance of much of institutionalized science to new ideas, an obstacle Stevenson confronted throughout his career. Section 2, "The Nature of Human Personality," comprises ten selections that further explore his dualistic conception of mind/body relations and his holistic approach to medical care. Although the arrangement is not strictly chronological, it nevertheless conveys both the continuities of Stevenson's main interests and the evolution of his thinking about them. Section 3, "Psychical Research—Principles and Methods" consists of three selections, "Changing Factors in the Study of Spontaneous Cases" (1987), a reply to a paper by philosopher Michael Scriven that deals with veridicality (1962), and "Thoughts on the Decline of Major Paranormal Phenomena" (1989). These introduce the reader to spontaneous cases and explain why Stevenson preferred them to laboratory investigations. He believed that factors like emotional rapport play such a significant part in psi functioning that parapsychology would better emulate botany than physics and study phenomena in their natural setting. He granted a place for experimentation but looked forward to a day when parapsychology was better balanced between the lab and the field.

Stevenson believed strongly that the agent played a key role in spontaneous psi events, a point of view perhaps best expressed in a protracted exchange with Louisa Rhine (not included in the book). Rhine (1969, 1970a, 1970b), who made little effort to investigate the thousands of spontaneous cases reported to the Parapsychology Laboratory at Duke University by percipients, came to the conclusion that the agent had nothing to do with them. Stevenson (1970a, 1970b), on the other hand, insisted that the value of a case was revealed only through investigation and this often showed the attitude of the agent to be crucial. It is a pity that Kelly chose not to include Stevenson's contributions to this exchange (at least in her expository comments), because they do much to clarify his approach to spontaneous cases. Also missing from the book are selections related to Stevenson's research on cases not directly related to survival, such as telepathic impressions, precognitive dreams, and psychokinesis. These show the breadth of his interest in psi and their inclusion would have provided a context for his better-known work on survival phenomena.

Section 4, "Research on the Question of Survival after Death: Reviews and Representative Case Reports" is by far the largest section of the book. It includes 16 selections arranged in nine subsections, "Apparitions," "Deathbed Visions," "Out-of-Body and Near-Death Experiences," "Mediumship," "Cases of the Reincarnation Type," "Cases of the Reincarnation Type with Birthmarks and Birth Defects," "Maternal Impressions," "Possession," and "Xenoglossy." Kelly's selections and comments seem to me appropriate and well-founded. Collectively they give a good sense of the range of Stevenson's engagement with the survival problem. They could have been supplemented, however, by his 1972 paper, "Are Poltergeists Living or are They Dead?," which questions whether RSPK is an adequate explanation for all poltergeist phenomena and deals with agency in a survival context.

Section 5, "Implications," is considerably weaker than the sections that have preceded it, as if Kelly has become concerned about the length of the book and wishes to bring it quickly to a close. One of Stevenson's most important statements about the implications of his reincarnation research, "The Explanatory Value of the Idea of Reincarnation," which received over 1,000 requests for reprints when it appeared

in the *Journal of Nervous and Mental Disease* in 1977, is excerpted to the extent of three paragraphs. In the following selection, Stevenson's insightful reflection on schizophrenia treatment and outcome in Asia (1979) is abbreviated to a single paragraph. Another selection receives a longer excerpt, and the last selection, "Assumptions of Religion and Psychiatry," is reproduced in full. The placement of this last piece is odd, because it was originally published in 1955, before Stevenson took up psychical research. Its point is that contemplative religion provides avenues to personal change that complement those of psychiatry. It is essentially an attack on Freud's view of religion as an infantile delusion. "The Phenomenon of Claimed Memories of Previous Lives: Possible Interpretations and Importance," published in *Medical Hypotheses* in 2000 (but not included in the book), represents Stevenson's reflections on the implications of his later work and would have been a more fitting closing selection.

In her concluding chapter, "Toward a Tertium Quid," Kelly identifies the goal toward which Stevenson was striving as the common ground between science and religion. I see the point she is after, but I am not sure that that is the best way to read Stevenson. He strikes me as a committed empiricist concerned above all with challenging the reductionistic, materialistic view of the relationship of mind to body. Stevenson wrote little about religion, and although he expressed appreciation more than once for William James's *Varieties of Religious Experience*, I cannot see that he connected mystical experience directly to his own work. I fear that Kelly's reading will feed the suspicion of some in the mainstream that parapsychologists are covertly religious believers seeking to impose their perspective on the world. But Kelly knew Stevenson much better than I did, and I don't want to belabor this point.

A secondary burden of this final chapter is an appraisal of Stevenson's reception by mainstream psychiatry and science, to which he spoke constantly, but which rarely listened to or heard what he was trying to tell them. In broad strokes, Kelly shows that mainstream attitudes have softened in the last ten to fifteen years. She notes that astronomer and science writer Carl Sagan, a lifelong skeptic of paranormal claims, in his last book (1996) identified Stevenson's research as one of three areas of potential significance (the others were psi tests with random number generators and under mild sensory deprivation, i.e., the ganzfeld).

Kelly barely mentions (and then only obliquely alludes to) the fact that for most of his career in parapsychology, the majority of parapsychologists had little time for Stevenson. This was due in part to his having entered the field at a point when J. B. Rhine's experimental paradigm was dominant, especially in the United States, and spontaneous case and survival investigations were downplayed or dismissed as misguided. Stevenson was a charter member of the Parapsychological Association (formed in 1957) and served as its President in 1968 and 1980, but resigned in the mid 1980s and began to call himself a psychical researcher to distinguish his methods and interests from those of the experimentalists. Stevenson's double isolation (from mainstream psychiatry and science, and from parapsychology) for much of his professional life is an important part of his story. The resistance from mainstream science, which is committed to a materialistic world view, is easier to understand and to justify than is the resistance from experimental psi research. Psi implies a dualistic interaction between mind and body, and that dualism opens the door to the survival of consciousness after death. The hostility of many parapsychologists—more in the past assuredly than today—to the notion of survival in general and to Stevenson's work in particular is a conundrum that historians will long puzzle over.

The bibliography of Stevenson's publications that comprises the Appendix is divided between his contributions to psychiatry and psychical research, with the latter subdivided by topic. Kelly includes all of Stevenson's books, journal papers, incidental pieces, and abstracts of conference presentations, but omits his book reviews and only selectively includes his journal correspondence. The bibliography goes a long way in making up for subjects (such as Stevenson's psi studies) slighted elsewhere in the book, but the decision not to include more of his correspondence is unfortunate. The reply to Scriven and the comments on schizophrenia in Asia included as readings first appeared in correspondence, and other correspondence is listed in the bibliography as well—all of it addressed to mainstream authors, most of it originally published in mainstream journals. But while these letters are included, correspondence with

colleagues in parapsychology and members of the skeptical community are not. I have in mind responses to Leonard Angel (Stevenson, 1995), C. T. K. Chari (Stevenson, 1962, 1973, 1986c), Renée Haynes (Stevenson, 1979), L. E. Rhine (Stevenson, 1967), D. Scott Rogo (Stevenson, 1984, 1986a, 1986b, 1987), and Ian Wilson (Stevenson, 1988). These show Stevenson replying to criticisms and their omission cuts the reader off from learning about how he handled the many controversies his work engendered.

I can only speculate about the reasons for these and the other omissions described above. I assume that Kelly is conversant with the relevant materials and that she chose to leave them out. Perhaps she did so for want of space, but at 415 pages the book does not seem to me overly long and could have been extended for another 30 pages or so to accommodate additional pieces, longer excerpts and more detailed discussions. Several of the omissions deal with parapsychological issues in a less than superficial way, and this suggests another possibility. Kelly may have decided that they got too much “in the weeds” for the general reader (for whom I think the book is primarily intended) or that they introduced details that would detract from her main message. I don’t believe that they would have done so, but the concern is legitimate. In any event, in the end, we must ask how detrimental the omissions and other deficiencies are to the book, and here I must answer that for the general reader looking for an introduction to Stevenson’s life and work, they will likely make little difference. For the parapsychologist they are more consequential, but on balance, the book’s strengths outweigh its weaknesses and I can recommend it without reservation to all readers of this journal.

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MEN AND WOMEN OF PARAPSYCHOLOGY, PERSONAL REFLECTIONS: ESPRIT VOLUME 2, edited by Rosemarie Pilkington. San Antonio: Anomalist Books, 2013. Pp. 422. \$18.08 (paperback). ISBN: 978-1-9383-9801-8.

In reviewing a book that chronicles the lives of 21 prominent individuals in the field of parapsychology, the commonalities, pieces of wisdom, helpful insights, and “boggle” experiences were as interesting and varied as were their writing styles, what they chose to emphasize, and the backgrounds and professional interests both in and out of the parapsychological realm.

The participants were asked to respond to the following five questions:

1. How did you become intrigued with, and involved in, investigating the so-called paranormal?
2. What do you feel has been your most important contributions to the field?
3. What might you have done differently, or what beliefs did you have when you entered the field that were changed through your experiences?
4. What unusual experiences have you had that exceeded your “boggle threshold?”
5. What advice would you give to young people entering the field as to what areas are of utmost importance and as to pitfalls of which they should be aware?

With question one, the most frequent response for what drew individuals into the field was hearing J. B. Rhine lecture, reading or having others talk about him, or, in Sally Rhine Feather’s case, growing up with him. Roger Nelson states that he found Rhine’s book *Extrasensory Perception After Sixty Years* “by chance” (p. 242). Stephan Schwartz studied both Rhine and Ian Stevenson’s works while William Braud had read about Rhine in magazine and newspaper articles. Arthur Hastings read his *New Frontiers of the Mind* while John Palmer discovered him in the book, *Treatise on Parapsychology* by René Sudre. Stanley Krippner heard about Rhine from his college instructor at the University of Wisconsin. Similarly, Rex Stanford first became acquainted with him in high school after hearing another student describe his work.

Hans Bender was another inspirer for such people as Erlendur Haraldsson who heard his lectures on parapsychology while, at the same time, corresponding with Rhine. Eberhard Bauer heard Bender for the first time as a 22-year-old medical student and later became associated with his Eichhalde-Institut which would become “the center of my professional life for decades” (p. 31). One of Walter von Lucadou’s instructors gave him a book by Hans Bender dealing with spontaneous paranormal experiences which he read with great interest. The latter would later become his teacher.

Lawrence LeShan was awarded a grant to determine whether the paranormal should be taken seriously. As he started reading the *Journal of the Society for Psychical Research* and other literature, he realized that the field was not only valid but that his work with Eileen Garrett convinced him that “she had access to information she couldn’t possibly have had through normal means” (p. 228). Fittingly, Richard Broughton read a precursor article to LeShan’s *The Medium, the Mystic, and the Physicist* which proved to be an “eye-opener” (p. 105) for him.

Several people mention that they became interested in the field because of a premonition experience. Larry Dossey had a number of them, some quite dramatic, as did Krippner whose premonition accurately identified that his uncle had died. Guy Lyon Playfair heard his parents discuss the premonitions of people and animals so often that he accepted it as quite normal.

William Roll had a number of OBE experiences which, along with his readings in parapsychology, inspired him to begin pondering the concept of a universal soul or as he called it, the “Big Mind” (p. 286).

Many people such as Serena Roney-Dougal read a seminal book such as Arthur Koestler’s *The Roots of Coincidence*, which motivated her to read other sources. Russell Targ spent a decade reading the research literature of ESP while frequently experiencing psi on the stage as a performing magician. In his 22nd year he traveled to Europe to look for psychics and visit ESP research labs.

Question two, which asks the contributors to identify the most significant contributions they feel they made to the field, elicited many responses that would be impossible to list fully so the following is a sample of some of them:

Dossey introduced the term “nonlocal mind” (p. 135) as well as the idea of “nonlocal medicine” which “acknowledges the intrapersonal effects of thoughts and emotions—but recognizes interpersonal or transpersonal effects as well” (p. 137). He also states that he is “dazzled by the emerging evidence from many areas of science, from physics to biology to medicine, of the interconnectedness of all there is.” (p. 141).

Haraldsson cites *Modern Miracles*, his book about Sai Baba, and *The Departed Among the Living* as some of his most notable contributions. He also included his article on Emil Jensen, Indridi Indridasson and the Copenhagen fire of 1905 that was published in the *Journal of the Society for Psychical Research* in 2011.

Nelson indicates that one of his most important contributions is a “patient and persistent search for more and deeper understanding” (p. 244). A part of that is his long-term experiment, the Global Consciousness Project.

Remote viewing and its related field work was listed by Schwartz as some of his most notable achievements. He also co-founded The International Society for the Study of Subtle Energies and Energy Medicine, creating and editing its journal *Subtle Energies*.

Similarly, Targ cites his decade of research at SRI dealing with remote viewing as his most significant contribution but has also written a number of books which he hopes will be found useful. Consistent with some other contributors, Serena Roney-Dougal has studied energy healing by enhancing the growth of lettuce leaves. Healing for von Lucadou involves helping people who are troubled by spontaneous paranormal experiences.

Charles Tart came up with the acronym OBE and feels “great satisfaction” (p. 399) that his book *Altered States of Consciousness* helped bring consciousness studies more into the mainstream. He also states that hosting SurvivalNet has been one of the most satisfying things he has done.

For question three, most respondents indicate that they would not have done anything differently nor have their beliefs changed.

Braud states that “what we call psi may be one of a number of ways in which we might acquire knowledge of what is not immediately evident to our familiar senses—some other ways being mystical experience, intuitive and creative insights, and the surfacing of formerly ‘unconscious material’” (p. 74).

In a similar vein, LeShan feels that it was a mistake to advocate that the “solution to the problem of psi lay in the findings and theories of quantum mechanics” (p. 232). Taking it one step further, Tart states that the “apparent properties of psi that make no sense to us now may never make sense in our ordinary state of consciousness, and understanding may await the development of appropriate state-specific sciences.” (p. 399).

Nelson rounds off the above by saying that “our world is so very complex that it demands respect for all the possibilities, including that, even with our very best efforts to find the truth, we may still be wrong” (p. 245).

As with question two, there were many citations of unusual experiences that exceeded the contributors’ “boggle” threshold. A few of the more notable ones include Playfair’s experience with a psychic surgeon in Mexico who performed amazing surgical feats, Schwartz’s very impressive remote viewing results near Alexandria, Egypt, Bauer’s “water” poltergeist, and Krippner’s Maimonides dream experiments as well as his description of the Brazilian psychic, Amyr Amiden, whose incredible exploits took eight and a half pages to explain.

Feather still remembers Leila, a first grader, who correctly identified 24 out of 25 Zener cards, a display of ESP she has never seen before or since. Finally, Tart recalls the incomparable remote viewer, Pat Price, correctly putting his finger on the face of Patty Hearst’s kidnapper while going through a police loose-leaf mug-book of hundreds of photos.

The last question deals with advice one would give to young people going into the field and the pitfalls of which they should be aware.

Mary Rose Barrington suggests that they start by reading a lot about the history of the paranormal. That advice was echoed by many others like Haraldsson and Stephen Braude, who, in addition, advises them to get a solid footing in a mainstream discipline and then “to quietly learn as much as possible about the history and issues of psi research” (p. 97). Many such as Broughton and Nelson indicate that it is difficult to earn a living as a full-time psi researcher because there are so few full-time jobs to be had.

Hastings and a few others recommend that individuals who wish to become parapsychologists study fields such as “psychology, psychiatry, physics, social studies, religion, health, physiology, and neuroscience among others” (p. 197).

“Mess up your mind” is Dossey’s advice which means doing something which periodically takes you out of your intellectual, rational, analytical self. That helps “reboot the psyche, restores sanity, and recharges one’s enthusiasm for our work in the world” (p. 142).

Von Lucadou reflects the J. B. S. Haldane statement that the universe is not only stranger than we imagine, it is stranger than we *can* imagine. Because of that, he urges young people not to be afraid of crazy ideas.

It is perhaps fitting to conclude with a piece of prose and then poetry, both reflecting the same, basic conviction. Larry Dossey states, “I’ve come to believe that the nonlocal model of consciousness will eventually prevail, that this change will be global, and that humankind’s future will be lifted into a dimension we can only partially glimpse currently” (p. 143).

Finally, William Braud ends with a quote from the writings of the 13th-century mystical poet, Jalaluddin Rumi. The latter wrote:

I’ve heard it said there’s a window that opens
From one mind to another,
But if there’s no wall, there’s no need
For fitting the window, or the latch. (p. 79)

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To the Editor,

A recent special issue of *Perspectives on Psychological Science* (Pashler & Wagenmakers, 2012, available online) makes a compelling case for the need to improve significantly the methodology in psychological research. Those articles should be required reading for all behavioral and social researchers, and are widely applicable for parapsychological research. In fact, the controversial nature of parapsychology makes those methodological points of special relevance. The key points and their applicability to parapsychological research are noted below.

Confirmatory experiments. The overall conclusion of the special issue is that well-designed confirmatory experiments are needed to provide convincing evidence and scientific progress. The 13 articles on methodology in the special issue discuss various aspects of this conclusion. The great majority of experiments in psychology and parapsychology have been conducted with the more informal methodological practices of exploratory research, rather than with the more systematic methodology of well-designed confirmatory research (Nosek, Spies, & Motyl, 2012; Open Science Collaboration, 2012; Kennedy, 2013a; Wagenmakers, Wetzels, Borsboom, van der Maas, & Kevit, 2012). The current scientific culture provides much greater incentives for novel exploratory research than for more convincing confirmatory research. However, available evidence indicates that the lack of well-designed confirmatory studies has produced a high level of false findings (Bakker, van Dijk, & Wicherts, 2012; Ioannidis, 2012; Nosek, Spies, & Motyl, 2012). The widely held assumption that science is self-correcting is true only if appropriate confirmatory studies are conducted and published. Exploratory research promotes scientific creativity, and confirmatory research provides scientific validity. Both are essential.

Power analysis. The need for power analysis to develop appropriate sample sizes for confirmatory experiments is a recurring theme in the special issue (Bakker, van Dijk, & Wicherts, 2012; Ioannidis, 2012; Open Science Collaboration, 2012; Pashler & Harris, 2012) and has also been discussed for parapsychological research (Kennedy, 2013a). Underpowered experiments are a biased research strategy because significant results are interpreted as evidence in favor of an effect, but nonsignificant results are inconclusive. Nonsignificant results could be due to the lack of power or to the experimental hypothesis being false. However, for studies with adequate power, nonsignificant results are evidence that the experimental hypothesis is false.

Study registration. Pre-registration of the planned hypotheses and statistical methods for confirmatory experiments eliminates many difficult-to-detect biases that are pervasive in experimental research (Nosek, Spies, & Motyl, 2012; Wagenmakers, Wetzels, Borsboom, van der Maas, & Kievit, 2012). One of the most widely discussed biases is failure to report experimental results that did not turn out as the experimenter hoped. This can occur for the entire experiment or for certain hypotheses when multiple hypotheses are investigated. Another source of bias is planning vague hypotheses for an experiment and developing the specific hypotheses and statistical tests as the data are being explored during analysis. Similarly, post hoc or exploratory analyses can be reported in a way this is mistaken for planned analyses. Publicly accessible, prospective study registration is standard practice in clinical trials in medical research and is increasingly required for publication in medical journals (De Angelis, et al., 2004; U.S. National Institutes of Health; 2012). The value of study registration has been noted many times in parapsychology (see Kennedy, 2013b).

The Koestler Parapsychology Unit (2012) at the University of Edinburgh now provides a simple, public registry for parapsychological experiments. Other registries for scientific research are being developed, but not all are publicly accessible. The field of parapsychology will have much greater credibility if confirmatory studies are prospectively registered at a public registry.

Multiple-experimenter designs. Experimenter fraud has occurred in all areas of science (Strobe,

Postmes, & Spears, 2012). However, the controversial nature of parapsychological research combined with the prominent experimenter differences in producing effects make experimenter misconduct particularly salient in parapsychology. Experimenter fraud has occurred many times in parapsychology and is a constant threat (Kennedy, 2013b).

Contrary to what many scientists assume, Strobe, Postmes, and Spears (2012) reported that independent replication and peer review are generally not effective at detecting or deterring scientific fraud. Their analysis found that most frauds have been detected by co-worker whistleblowers. They noted that “whistleblowers are likely to remain the single most effective instrument against scientific cheating” (p. 682). These conclusions are consistent with the experience with experimenter fraud in parapsychology (Kennedy, 2013b). The lack of implementation of effective practices to detect and deter experimenter fraud makes undetected cases likely.

Several parapsychological researchers have noted the need for multiple-experimenter procedures that make intentional or unintentional data alterations by one experimenter difficult (see Kennedy, 2013b). Multiple experimenter study designs recognize the importance of co-workers in preventing misconduct and should be an accepted experimental practice for confirmatory parapsychological experiments. The procedures should include independent verification or validation of software used for data collection or analyses. Procedures that make intentional or unintentional data alterations difficult, including software validation, are expected in pivotal pharmaceutical research (Kennedy, 2013b).

Data Sharing. Sharing of raw data for independent analysis is another strategy that is effective for detecting and deterring experimenter fraud—as well as for catching other types of methodological errors and promoting optimal use of data (Nosek, Spies, & Motyl, 2012; Strobe, Postmes, & Spears, 2012). As discussed in Kennedy (2013b), confirmatory data should be collected, managed, and analyzed with the expectation that the data will be provided to others for critical scrutiny. The raw data could be made openly available. However, when post hoc data fishing is likely, an original investigator may reasonably require that a recipient register the planned analyses publicly, including corrections for multiple analyses, prior to receiving copies of the data. An optimal strategy might be to make part of the data openly available for exploration and part of the data available only for registered confirmatory analyses.

Final thoughts. These practices can significantly increase the credibility of a study, particularly the credibility with those who find methodological bias and experimenter misconduct to be more plausible than psi. It would be appropriate for parapsychological researchers to be leaders in this coming wave of methodological advances.

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