



JOURNAL OF SCIENTIFIC EXPLORATION

A Publication of the Society for Scientific Exploration

(ISSN 0892-3310)

Editorial Office: *Journal of Scientific Exploration*, Society for Scientific Exploration, Kathleen E. Erickson, *JSE* Managing Editor, 151 Petaluma Blvd. So., #301, Petaluma, CA 94952 USA
EricksonEditorial@gmail.com, 1-415-435-1604, (fax 1-707-559-5030)

Manuscript Submission: Submit manuscripts online at
<http://journalofscientificexploration.org/index.php/jse/login>

Editor-in-Chief: Stephen E. Braude, University of Maryland Baltimore County

Managing Editor: Kathleen E. Erickson, Petaluma, CA

Assistant Managing Editor: Eve E. Blasband, Larkspur, CA

Assistant Managing Editor: Elissa Hoeger, Princeton, NJ

Associate Editors

Carlos S. Alvarado, Parapsychology Foundation, New York, NY

Daryl Bem, Ph.D., Cornell University, Ithaca, NY

Robert Bobrow, Stony Brook University, Stony Brook, NY

Courtney Brown, Emory University, Atlanta, GA

Etzel Cardeña, Lund University, Sweden

Jeremy Drake, Harvard-Smithsonian Center for Astrophysics, Cambridge, MA

Bernard Haisch, Digital Universe Foundation, USA

Michael Ibison, Institute for Advanced Studies, Austin, TX

Roger D. Nelson, Princeton University, Princeton, NJ

Mark Rodeghier, Center for UFO Studies, Chicago, IL

Daniel Sheehan, University of San Diego, San Diego, CA

Society for Scientific Exploration Website — <http://www.scientificexploration.org>

Editorial Board

Chair, Prof. Richard C. Henry, Johns Hopkins University, Baltimore, MD

Dr. Mikel Aickin, University of Arizona, Tucson, AZ

Dr. Steven J. Dick, U.S. Naval Observatory, Washington, DC

Dr. Peter Fenwick, Institute of Psychiatry, London, UK

Dr. Alan Gauld, University of Nottingham, UK

Prof. Robert G. Jahn, Princeton University, NJ

Prof. W. H. Jefferys, University of Texas, Austin, TX

Dr. Wayne B. Jonas, Samuelli Institute, Alexandria, VA

Dr. Michael Levin, Tufts University, Boston, MA

Dr. David C. Pieri, Jet Propulsion Laboratory, Pasadena, CA

Prof. Juan Roederer, University of Alaska-Fairbanks, AK

Prof. Peter A. Sturrock, Stanford University, CA

Prof. Yervant Terzian, Cornell University, Ithaca, NY

Prof. N. C. Wickramasinghe, Churchill College, UK

SUBSCRIPTIONS & PREVIOUS JOURNAL ISSUES: Order forms on back pages or at scientificexploration.org.

COPYRIGHT: Authors retain copyright to their writings. However, when an article has been submitted to the *Journal of Scientific Exploration*, the *Journal* holds first serial rights. Additionally, the Society has the right to post the published article on the Internet and make it available via electronic and print subscription. The material must not appear anywhere else (including on an Internet website) until it has been published by the *Journal* (or rejected). After publication, authors may use the material as they wish but should make appropriate reference to *JSE*: "Reprinted from [title of article]", *Journal of Scientific Exploration*, vol. [x], no. [xx], pp. [xx], published by the Society for Scientific Exploration, <http://www.scientificexploration.org>."

Journal of Scientific Exploration (ISSN 0892-3310) is published quarterly in March, June, September, and December by the Society for Scientific Exploration, 151 Petaluma Blvd. So., #301, Petaluma, CA 94952 USA. Society Members receive online *Journal* subscriptions with their membership. Online Library subscriptions are \$135.



JOURNAL OF SCIENTIFIC EXPLORATION

A Publication of the Society for Scientific Exploration

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



Editorial

169 Editorial STEPHEN E. BRAUDE

Research Articles

175 Sonic Analysis of the Redlands UFO Tape
Recording WILLIAM F. KRUPKE

199 The Rarity of Unambiguous Symbols in Dreams:
A Case Study ANDREW PAQUETTE

217 An Experiment on Precognition with
Planarian Worms FERNANDO ALVAREZ

Commentary

229 On Marc Thury's *Les Tables Tournantes* CARLOS S. ALVARADO

Historical Perspective

233 Revealing the Real Madame d'Esperance: An
Historical and Psychological Investigation ADRIAN PARKER
ELISABETH WARWOOD

Book Reviews

267 *Psychic Phenomena and the Brain: Exploring
the Neuropsychology of Psi* by Bryan J. Williams NEMO MÖRCK

275 *The Man Who Could Fly: St. Joseph of Copertino
and the Mystery of Levitation* by Michael Grosso STEPHEN E. BRAUDE

279 *Triangular UFOs: An Estimate of the Situation*
by Dave Marler JOHN ALEXANDER

282 *Against the Tide: A Critical Review by Scientists
of How Physics and Astronomy Get Done* edited
by Martin Lopez Corredoira and Carlos Castro
Perelman RON WESTRUM

SSE News

- 286 Bial Foundation Grants
- 287 Institute for Venture Science Grants
- 288 Aspiring Explorers Program
- 289 SSE Joint Euro-Meeting Announcement with
Swedish Society for Parapsychological Research
and Agora Centre for Biosystems
- 293 SSE Masthead
- 294 Index of Previous Articles in *JSE*
- 313 Order forms for *JSE* Issues, *JSE* Subscriptions, and Society
Membership
- 316 Instructions for *JSE* Authors

EDITORIAL

During a recent review of some issues concerning the reliability of eyewitness testimony in parapsychology, I was reminded of some fascinating episodes that I believe will interest many *JSE* readers. These episodes concern a familiar criticism of non-laboratory parapsychological data held not only by parapsychological skeptics and those only casually familiar with the field but also by many veteran psi researchers.

Challenges to the reliability of eyewitness accounts typically focus on cases of physical mediumship, poltergeists, and apparitions, in which (we're told) observers ordinarily base their reports on phenomena from darkened séance rooms, or under other poor psychological and physical conditions of observation (e.g., periods of distress or distraction, or objects moving too quickly to be observed and described reliably). Moreover, these are conditions in which observers are particularly liable to misperceive in accordance with their own biases or predispositions in favor of the paranormal. So (we're told), eyewitness accounts in these cases should be treated with great caution at the very least, because they're too liable to be contaminated by observer-bias in favor of the paranormal.

I've discussed this *Argument from Human Bias* elsewhere (e.g., Braude 1997, 2007), even in a previous Editorial (*JSE* 28(2)). I've noted, for example, that even if eyewitness reports are *fallible*, it doesn't follow that they're unreliable to a very high degree, or simply too unreliable to be trusted, *especially in the best cases—precisely those in which observational errors are highly unlikely*. It's important to remember, first of all, that observation reports are never absolutely (or categorically) acceptable. At best, they can only be conditionally acceptable. Granted, sometimes the conditions are clearly satisfied, and so some reports can be highly reliable. Nevertheless, several factors influence whether or not (or to what degree) we accept a particular observation claim. Probably the most important are: (a) the capabilities, condition, interests, and integrity of the observer, (b) the nature of the object(s) allegedly observed, and (c) the means of observation and the conditions under which the observation occurred. When we evaluate reports of paranormal phenomena, we weight these factors differently in different cases. But in general, it matters: (a) whether the observers are trained, sober, honest, alert, calm, prone to exaggeration, subject to flights of imagination, blessed with good eyesight, and whether they have strong prior interests in observing carefully and accurately; (b) whether the objects are too small to see easily, whether they're easily mistaken for other things,

or whether (like fairies, extraterrestrials, and unicorns) they're of a kind whose existence can't be taken for granted; and (c) whether the objects were observed at close range, with or without the aid of instruments, whether they were stationary or moving rapidly, whether the observation occurred under decent light, through a dirty window, amidst various distractions, etc.

I've also pointed out that even if witnesses were biased to experience paranormal physical phenomena, that wouldn't explain why independent reports agree on unexpected and peculiar details, such as the raining of stones or excrement in the homes of poltergeist victims. Moreover, an argument from bias could be used to undermine virtually every scientific report requiring instrument readings and ordinary human observation. After all, it's not just parapsychologists and "plain folk" who have strong beliefs, desires, and predispositions about how the universe works. Mainstream scientists have at least as much at stake and at least as many reasons for perceptual biases as do witnesses of the paranormal. They might even have more, considering how success in the lab can make or break their careers, especially when their research is novel and potentially groundbreaking.

Even more crucially, I noted that there's another respect in which the Argument from Human Bias is double-edged. Obviously, biases cut two ways, against reports by the credulous and the incredulous. So if a bias in favor of psi phenomena might lead people to misperceive, misremember, or to lie, so might biases against psi phenomena. And those negative biases are arguably at least as prevalent—and certainly sometimes as fanatical—as those in favor of the paranormal. So, we adopt an indefensible double standard if we distrust only testimony in favor of the paranormal.

For example, the philosopher C. J. Ducasse wrote,

. . . . allegations of detection of fraud, or of malobservation, or of misinterpretation of what was observed, or of hypnotically induced hallucinations, have to be scrutinized *as closely and as critically* as must the testimony for the reality of the phenomena. For there is likely to be just as much wishful thinking, prejudice, emotion, snap judgment, naiveté, and intellectual dishonesty on the side of orthodoxy, of skepticism, and of conservatism, as on the side of hunger for and of belief in the marvelous. The emotional motivation for irresponsible disbelief is, in fact, probably even stronger—especially in scientifically educated persons whose pride of knowledge is at stake—than is in other persons the motivation for irresponsible belief. (Ducasse 1958:22, italics in original)

In my earlier Editorial in *JSE* 28(2), I also noted, but didn't illustrate, how the history of parapsychology chronicles some remarkable examples of dishonest testimony and other reprehensible behavior on the part of skeptics. So, since the foibles and sins of the opponents of parapsychology

are rarely given the attention lavished on those of its supporters, a few words on the topic seem in order.

Consider, first, poet Robert Browning's somewhat famous change of heart regarding the medium D. D. Home. Browning had initially been impressed by Home. At the Ealing residence of London solicitor John Rymer, he had been given the opportunity to observe the medium levitate a table in good light, with Home's hands visible above the table. He had also been allowed to look under the table to determine that Home was not using his legs or feet. Browning also observed, among other things, the playing of an accordion that nobody was touching (one of Home's regular phenomena). At the time, Browning admitted that he was unable to explain what he had observed. A month later, however, he was arguing passionately (suspiciously so, in my opinion) that Home had been cheating—but not as the result of any further first-hand experiences with Home. In fact, although the poet never again attended a Home séance, he continued his emotional denunciations of the medium.

The reasons for Browning's sudden about-face are unclear and seem to be rather complicated. It's not simply that he *deliberated* after the fact and concluded that what he observed could only have been due to trickery. Of course, rational reflection may have played a part in the process; Browning may well have harbored philosophical or religious objections to psychokinesis, mediumship, or spiritualism generally. But it seems that his antipathy toward Home was fueled primarily by more down-to-earth matters. For one thing, according to Jenkins (1982:39), Browning "abhorred Home's gentle, effeminate bearing" and the "childishly caressing behaviour" he displayed toward the Rymers (who had assumed the role of Home's British "family"). Jenkins also suggests that Browning so strongly desired total spiritual union with his wife Elizabeth that he could not bear their differing sympathies toward spiritualistic phenomena in general and her endorsement of Home in particular. And no doubt Browning was rankled further by Home's fascination with and attention toward Elizabeth, and perhaps also by the Rymers' refusal to grant Browning a second séance. Others have suggested that Browning's ego was bruised by the fact that at the Rymer séance a garland was placed on Elizabeth's head rather than his own. But whatever the cause, it's clear enough that Browning circulated various falsehoods about events at the séance. Fortunately for historians, in a letter dated two days after that occasion, Browning wrote a detailed description of the events contrasting sharply with accounts he began spreading soon afterward. Moreover, the malice he displayed toward Home was so disproportionate to anything that occurred at or after the séance that one can't help but feel that the poet was moved by something far deeper

and more personal than detection of trickery (see Jenkins 1982:37–49 and Dingwall 1962:101–108).

Of course, Browning was neither a scientist nor a philosopher, and although he was a celebrity he certainly wasn't widely regarded as an authority on the empirically possible. So perhaps his behavior is less reprehensible than that of some of his prominent scientific contemporaries, who unquestionably abused not only their influence as public figures but also the power and prestige of their positions within the scientific community. Possibly the best documented case of this sort, and the episode that inspired this Editorial, concerns Scottish physicist Sir David Brewster.¹

In 1855, Brewster attended two of Home's séances, first (at the invitation of Lord Brougham) in the home of William Cox and then at the Rymers'. After the Cox séance, Home wrote to a friend in the United States, claiming that Brewster and the others had admitted their inability to explain his physical phenomena by any normal means. The letter was subsequently published in some newspapers, and before long the story of the Cox séance traveled back to London, where Home's letter was reprinted in the *Morning Advertiser*. Brewster then wrote to the *Advertiser*, denying that he had found the phenomena inexplicable and charging, "I saw enough to satisfy myself that they could all be produced by human hands and feet, and to prove that some of them, at least, had such an origin."²

Brewster's letter sparked an intense exchange in the *Advertiser*.³ Cox wrote and reminded Brewster that he had remarked at the time, "This upsets the philosophy of 50 years." Brewster also alleged that he hadn't been permitted to look under the table. Cox denied this, as did T. A. Trollope, who had attended the Rymer séance. Trollope pointed out that Home and Rymer had actually encouraged Brewster to look under the table, which Brewster did, and that while he looked under the table, the table moved apparently without Home's agency. Trollope also noted that Brewster admitted to having seen the movement. Nevertheless, Brewster refused to retract his claim and then added, somewhat revealingly,

Rather than believe that spirits made the noise, I *will conjecture* that the raps were produced by Mr. Home's toes . . . and rather than believe that spirits raised the table, I *will conjecture* that it was done by the agency of Mr. Home's feet.⁴

It wasn't until 1869, a year after Brewster's death, that the controversy was settled and Brewster's dishonesty revealed. Brewster's daughter published in that year *The Home Life of Sir David Brewster* (no pun intended), in which she unwittingly included an account by her father of the séances, written at the time. Of the Cox séance he writes,

[Lord Brougham] invited me to accompany him in order to assist in finding out the trick. We four sat down at a moderately-sized table, the structure of which we were invited to examine. In a short time the table shuddered, and a tremulous motion ran up all our arms; at our bidding these motions ceased, and returned. The most unaccountable rappings were produced in various parts of the table; and the table actually rose from the ground when no hand was upon it. A larger table was produced, and exhibited similar movements.

... a small hand-bell was then laid down with its mouth on the carpet, and, after lying for some time, it actually rang when nothing could have touched it. The bell was then placed on the other side, still upon the carpet, and it came over to me and placed itself in my hand. It did the same to Lord Brougham.

These were the principal experiments; we could give no explanation of them, and could not conjecture how they could be produced by any kind of mechanism.⁵

After these revelations, *The Spectator* remarked, rather lamely, “The hero of science does not acquit himself as we could wish or expect.” For additional examples of the irresponsible or dishonest behavior of prominent scientists in connection with the case of Home, see Braude (1997).

A different sort of contemporary example is a doubled-barreled offense: (a) magician James Randi’s duplicity and evasive dialectic concerning the psychic photography of Ted Serios, and (b) the support of Randi’s position by scientists and others who have made no direct study of the evidence. For instance, in a clear abuse of his position of influence, Martin Gardner claimed (*Nature*, 300 [Nov. 11, 1982]:119) that Randi “regularly” duplicates the Serios photographic phenomena, “and with more skill.” It may be that Gardner simply and unwisely took Randi’s word on this, but the claim, nevertheless, is patently false. Although Randi confidently and flamboyantly accepted a wager from investigator Jule Eisenbud on national television to duplicate the Serios photographic phenomena, in fact he has never even *attempted* to duplicate in public those phenomena under the most stringent—and most relevant—conditions in which Serios succeeded. For more details, see Braude (2007) and my Editorial in *JSE* 25(3).

Few (if any) of us are saints, and few (if any) of us are in complete command of our unconscious hankerings and motives—or even our conscious ones for that matter. And despite their occasional pretensions to the contrary, scientists have neither a monopoly on objectivity nor an immunity to emotional vulnerability. So whether we’re looking at the testimony in favor of, or opposed to, the reality of scientific anomalies, a good policy, in my opinion, is to heed the words of Patience Worth: “Have faith in men, but keep thine eyes slitted.”

Notes

- ¹ For more details, see Fodor (1966:37f), M. D. D. Home (1888/1976:36–43), Inglis (1977:227–229), Jenkins (1982:32–36), Podmore (1902/1963 Vol. 2:142–44), Zorab (1975), and especially D. D. Home (1863/1972 Appendix).
- ² D. D. Home (1863/1972:241).
- ³ A relatively accessible source for the correspondence is Home (1863/1972:237–261).
- ⁴ Home (1863/1972:247) (*italics in original*).
- ⁵ Gordon (1869:257–258).

—STEPHEN E. BRAUDE

References Cited

- Braude, S. E. (1997). *The Limits of Influence: Psychokinesis and the Philosophy of Science, Revised Edition*. Lanham, MD: University Press of America.
- Braude, S. E. (2007). *The Gold Leaf Lady and Other Parapsychological Investigations*. Chicago: University of Chicago Press.
- Dingwall, E. J. (1962). *Some Human Oddities: Studies in the Queer, the Uncanny and the Fanatical*. London: Rider.
- Ducasse, C. J. (1958). Physical phenomena in psychical research. *Journal of the American Society for Psychical Research*, 52:3–23.
- Fodor, N. (1966). *Encyclopaedia of Psychic Science*. New Hyde Park, NY: University Books.
- Gordon, M. (1869). *The Home Life of Sir David Brewster*. Edinburgh: Edmonston & Douglas.
- Home, D. D. (1863/1972). *Incidents in My Life*. Secaucus, N.J.: University Books.
- Home, M. D. D. (1888/1976). *D. D. Home, His Life and Mission*. London: Trübner & Co. (Reprinted. New York: Arno Press)
- Inglis, B. (1977). *Natural and Supernatural*. London: Hodder & Stoughton.
- Jenkins, E. (1982). *The Shadow and the Light: A Defence of Daniel Dunglas Home, the Medium*. London: Hamish Hamilton.
- Podmore, F. (1902/1963). *Modern Spiritualism: A History and a Criticism* (two volumes). London: Methuen. (Reprinted: New Hyde Park, NY: University Books)
- Zorab, G. (1975). D. D. Home the Medium: A Biography and a Vindication (unpublished in English; published in Italian as *D. D. Home, il Medium* [Milano: Armenia Editore, 1976]; revised and published in Dutch as *D. D. Home, het krachtigste medium aller tijden . . .* [Den Haag: Uitgeverij Leopold, 1980]).

RESEARCH ARTICLE

Sonic Analysis of the Redlands UFO Tape Recording

WILLIAM F. KRUPKE

Pleasanton, California, USA
bkrupke@comcast.net

Submitted December 8, 2015; Accepted March 1, 2016; Published June 15, 2016

Abstract—The February 4, 1968, UFO sighting at Redlands, California, was accompanied by an intense, distinctive sound that was recorded as a background sound on a magnetic tape recording being made by Reverend Julian Vigh at the Bethel Christian Church. A rescue Emergency Vehicle (EV), with its siren operating, happened to be deployed in Redlands at the time of the UFO sightings. An inquiry by several Redlands University professors attributed the background sound on the Vigh recording to the EV siren. Reported here for the first time is an independent, comprehensive, detailed sonic analysis of the tape background sound and the EV siren, originally prepared in 1969, and intended for inclusion as an independent technical appendix in a book on the Redlands UFO sightings then in preparation. That book was never completed or published. The result of detailed tape analysis concurred with Professor Seff's conclusion that the EV siren was the source of background sound on the Vigh tape; however, a number of sonic anomalies in the time dependence of sound intensity and Doppler shift were identified and quantified.

Description of the Redlands Case

The Redlands UFO Sighting

On February 4, 1968, just before 7:30 p.m., a disk-shaped UFO was suddenly visible over Redlands, California. The object moved erratically, at one point hovering low over the ground. It was witnessed by more than one hundred people as it traveled overhead. Although it was dark outside, the UFO was visible because it had seven lights on its base, like jets, and also a row of lights on the top, alternating in color between red and green (see artist's conception based on witness interviews, Figure 1). After about five minutes it moved rapidly to the northwest and vanished. The UFO was visible long enough, and had sufficient apparent size, for the witnesses to provide consistent descriptions of its appearance.

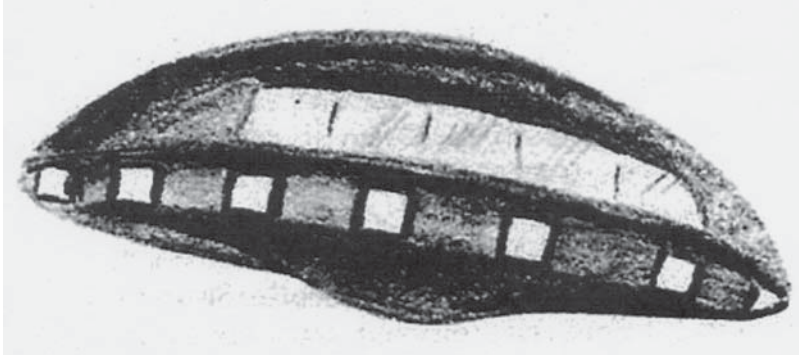


Figure 1. Artist's drawing based on witness interviews of the Redlands 1968 event. Credit: John Brownfield. Aerial Phenomena Research Organization.

During the sightings, animals were reportedly upset, and many witnesses also described a peculiar sound—characterized as high-pitched and modulated—coincident with the UFO. The odd sound was caught on tape by a minister who was recording his sermon during services in a church.

A group of four professors from the University of Redlands, who had agreed to assist the University of Colorado UFO study, then ongoing, immediately set about investigating the case, interviewing dozens of witnesses, gathering drawings, and looking into the recorded sound. They were Dr. Philip Seff (geology), Dr. Judson Sanderson (mathematics), Dr. Reinhold Krantz (chemistry), and John Brownfield (art). Altogether they devoted three months to their inquiry.

Witness descriptions were consistent enough to detail the object and its path. The team's calculations indicated that the object was about 50 feet in diameter, and at its closest approach was about 300 feet above the ground. They mapped the UFO's path across Redlands and its eventual departure to the northwest. They considered alternative explanations and searched for additional data, contacting the local Norton Air Force Base for any radar data. Nothing unusual was detected on radar, but they discovered that due to low altitude, neither a UFO nor a plane over Redlands would have been detectable at that distance from the radar site.

The team determined that the odd, recorded sound was from an emergency rescue vehicle that was driving in the same area of Redlands where the UFO was being observed. Regarding the UFO itself, their final conclusion was that the object could not be explained by any conventional, astronomical, or other natural source, and the case was categorized by them as "unidentified."

Sonic Analysis of the Redlands UFO Tape Recording

Introduction

This report deals with the sonic analysis of a number of sounds involved in the sighting of an unidentified flying object (UFO) in Redlands, California, at about 7:20 p.m., on February 4, 1968. Numerous witnesses reported that the UFO emitted an intense warbling sound with a quality unlike that of any sound within their previous personal experiences. At 7:17 p.m. on the same evening, an unusual warbling sound pervaded the main hall of the Bethel Christian Church of Redlands as Reverend Julian Vigh offered a prayer during his Sunday evening service: This warbling sound was recorded as a background sound on the magnetic tape used by Reverend Vigh to record his service. The voice of Reverend Vigh is the dominant sound source on the Vigh tape recording. The unidentified sound is a relatively weak background sound, which is prominent only during pauses in Reverend Vigh's prayer. This sound first becomes audible at the end of the phrase "... empowered by Thy spirit and together are led by Him . . .", and time from perception is measured from this instant. The sound is audible for about 80 seconds, vanishing at the end of the phrase "... we deserve nothing because we . . .". During these 80 seconds, there are about 15 pauses in the prayer of one or two seconds duration and it was during these pauses that the characteristics of the unidentified sound were studied. Qualitatively, this sound can be described as a warble of moderate pitch (corresponding to the musical note "E" above standard "A"). The sound conveys a pronounced discordant quality suggesting the presence of slightly differing frequency components as well as some higher-frequency overtones. The sound seems to be the product of an electronic device, and while not simple in structure, it is clearly less complex than human speech. The relative simplicity of the sound waveform was expected to permit meaningful quantification of the characteristics of the sound using techniques of sonic analysis.

At approximately the same time that the aforementioned event was occurring, an emergency rescue vehicle was being called from Redlands to the scene of an accident north of Redlands. It is known that a warble type of siren was used on the emergency vehicle (EV) and that the EV passed along a known course in the immediate vicinity of the Bethel Christian Church. This siren can be operated in three standard modes, each of which is selected by positioning a rotary switch. The modes are 1) wail, 2) whelp, and 3) wail burst. (These names are those of the owners of the siren). The wail mode is characterized by a pure sonorous tone with a slowly varying amplitude. The whelp mode is characterized by a rapid modulation of intensity and a complex pitch structure, qualitatively similar to the unidentified sound. The

pitch of the whelp mode is considerably lower than that of the wail mode, and the auditory responses to these two modes are completely different. The third mode, wail burst, is essentially the wail mode issuing from the siren for only a brief interval when the horn ring is depressed. Because of the known activity of this acoustic source during the time interval of interest, this study sought the answers to three major questions:

1. Was the EV siren the acoustic source that produced the sound recorded on the Vigh tape?
2. Are the variations in time of the intensity and spectral power density of the unidentified sound on the Vigh tape those expected for the radiating siren moving along the known path of the EV?
3. Was the EV siren the acoustic source responsible for the intense sounds reported by at least two specific witnesses of the February 4, 1968, event?

To aid in this quest, the EV was put through a rerun that simulated the EV run made on July 12, 1969; recordings were made and analyzed of the sounds produced at the Bethel Christian Church and at two other locations in Redlands where extremely intense sound effects were reported the night of the UFO sightings. The rerun was deemed essential to the complete analysis of the Vigh tape because the acoustic environment in which the Vigh tape was recorded was complex. The intensity and frequency distributions recorded were shaped by the motion of the source relative to the recording location and by acoustic properties of the terrain between source and receiver. The rerun recording would serve as source material for direct comparison with the Vigh recording. Recordings of the siren with the EV stationary were also made to act as a source reference that was not subject to Doppler shift.

An answer to the first question was provided by characterizing both the unidentified sound and the siren warble with respect to the following parameters: 1) Average Carrier Frequency; 2) Amplitude Modulation Rate; 3) Frequency Modulation Rate; 4) Frequency Modulation Bandwidth; 5) Overtone and Harmonic Content.

The experimental methods and results of these detailed sets of measurements can be accessed in the report written by the author in 1969, published here as supplemental material online. Both the sound of the EV siren operating in the whelp mode and the Vigh tape unidentified sound are characterized by carriers of nominally the same frequency (700 Hz), the same AM and FM modulation rates, the same FM bandwidth, and,

to the extent studied, a similar overtone structure. *On the basis of these correspondences, and on the relatively small variability of the EV siren signature, the acoustic source of the unidentified sound on the Vigh tape is determined to be the EV siren operating in the whelp mode, in agreement with Professor Seff's conclusion.*

The second question above was addressed by measuring sound intensity and average carrier frequency as a function of time for both the Vigh and EV rerun recordings. The rerun sound intensity distributions were used to verify the validity of a relatively simple model of sound propagation for a moving source; this model was then used to interpret the distributions obtained for the unidentified sound. The field recordings of the rerun made at sites occupied by two sets of witnesses permitted some quantitative comments on the answer to the third question above.

Unidentified Sound Recording

The upper panel of Figure 2 shows the average relative intensity of the unidentified sound on the Vigh tape as a function of time from perception. The lower panel of Figure 2 shows the average carrier frequency over the same time interval. The standard deviations of the measurements of intensity and average carrier frequency are included using error bars. The average carrier frequency is seen to decrease monotonically from about 714 Hz at perception to 590 Hz at extinction, a drop of more than 120 Hz. The carrier frequency is essentially constant for the first 18 seconds, and then decreases linearly for the next 11 seconds. The carrier remains nearly constant for an additional 9 seconds, and finally decreases rapidly for the remaining 30 seconds of audibility.

The intensity rises very rapidly to a peak 18 seconds after perception, drops rapidly for the next 7 seconds, and reaches a second lower peak at 32 seconds. The intensity drops only slightly during the next 20 seconds, finally passing through a third peak at 69 seconds. The sound is imperceptible 80 seconds after perception.

Rerun Simulation of the EV Rescue Run of February 4, 1968

At 9:20 p.m. on July 12, 1969, a rerun simulating the emergency rescue EV run of February 4, 1968, was made by the same operator using the same EV and siren. The prime purpose of the EV rerun was to make a tape recording in the Bethel Christian Church of the sound produced by the EV siren as it moved along the identical path driven on February 4, 1968. From this tape, quantitative studies of the sound intensity and average carrier frequency perceived at the Church could be made and compared

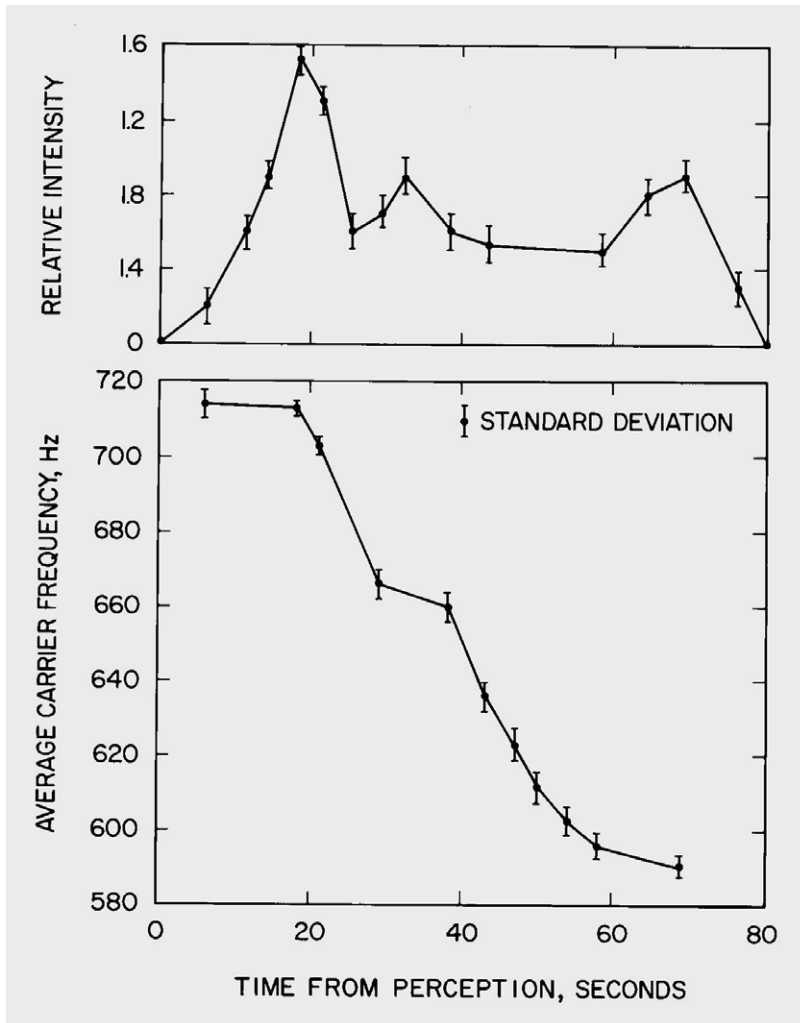


Figure 2. Intensity and average carrier frequency distributions of unidentified source.

with sound emitted from the EV siren. These recorded quantities depend on the geometry followed by the EV, the velocity and acceleration of the EV as a function of time, the acoustic properties of the terrain between the EV and the Church, and the acoustic properties of the Church hall itself. Since it was felt that the original run could be simulated to a high degree of approximation, it was fully expected that rerun distributions of intensity

and frequency would bear marked similarity to those recorded on the Vigh tape. In this way, many factors affecting the recorded distributions, such as scattering and reflecting surfaces in the terrain, which cannot be easily accounted for in simple propagation models, can be appraised. Additional analysis was also performed based on the Doppler effect that describes the shift in frequency of a moving source as perceived by a stationary receiver. The shift in frequency from that emitted depends only on the component of velocity of the moving source along a line joining the source and receiver (e.g., the radial velocity). If the source emits a constant known frequency and moves along a known path with respect to the receiver, then the received frequency distribution in time is a *unique* record of the motion of the source giving both the position and the speed at every instant.

In order to fully document the rerun, nine tape recorders were used. A professional portable tape recorder was carried in the EV during the entire rerun to record the siren output. This tape recording was not subject to Doppler shifting of the siren carrier due to the motion of the EV, and could be used to measure any variation of the siren properties during the rerun. The true ground speed of the EV was noted and written down in a log every five seconds in order to provide an independent record of the motion of the EV. These speeds could later be compared with the speeds deduced for the EV from the Doppler measurements. Six recorders were deployed in and around the Church. Reverend Vigh's tape recorder was adjusted to record at the same level (a fixed level he always uses for recording services) as on February 4, 1968. The microphone originally used by Reverend Vigh was stolen sometime between February 4, 1968, and July 12, 1969, and replaced with a similar microphone, which was used during the rerun. Reverend Vigh gave a voice level sample prior to the rerun for approximate calibration of the absolute sound level. Two tape recorders were adjusted for maximum gain with microphones placed close to the pulpit microphone used by Reverend Vigh. Yet another recorder was operated at normal sensitivity with a similar microphone location. Two additional recorders were used to record the sound outside the Church. In one case the microphone was located on the eastern end of the Church facing east, and in the other case the microphone was located on the northern side of the Church facing east. Finally, two recorders were placed in locations away from the Church where witnesses reported having had intense acoustic experiences on the evening of February 4, 1968. One such location was at 1140 Columbia Street, and the other was at the corner of Texas Street and Pioneer Avenue. To synchronize the EV recorder with those at the Church, two stopwatches were started simultaneously before the rerun; one was retained at the Church and the other was taken on board the EV. Start marks were placed on all of the tapes

at precisely 9:21 p.m., permitting temporal correlations among the tapes to about 0.5 seconds, the maximum transport speed error over 4 minutes.

Figure 3 shows the geometry of the EV motion path the evening of February 4, 1968, in relation to the Bethel Christian Church. The Bethel Christian Church is located on the southwest corner of Clay Street and W. Lugonia Avenue (Lugonia Avenue changes from W. Lugonia Avenue to E. Lugonia Avenue at Orange Street). The Church lies about 660 feet west of the major intersection of Orange Street and E. Lugonia Avenue. The EV proceeded due west along E. Lugonia Avenue, directly toward the Bethel Christian Church, slowed to make a right turn at Orange Street, and proceeded directly north for several miles on Orange Street. The four traffic lanes of W. and E. Lugonia Avenue provide an unobstructed channel along which the sound emitted from the siren coming along E. Lugonia Avenue can propagate without appreciable absorption or scattering. The terrain east of the Church and on the south side of E. Lugonia Avenue is open for the most part with a tennis court on the corner of Clay Street and E. Lugonia Avenue. Only one relatively large structure is situated between the Bethel Christian Church and Orange Street, a building on the south side of W. Lugonia Avenue between Washington and Orange Streets. On the north side of W. Lugonia Avenue between Clay and Washington Streets, there are four frame houses with tall trees in front of them on the tree belt. Between Washington and Orange Streets on the north side, there is a concrete building set back from W. Lugonia Avenue and extending 350 feet up Orange Street. The entire block from Clay to Orange Streets extending 1200 feet to the north is filled with frame structures, completely obscuring objects on Orange Street north of W. Lugonia Avenue from an observer at the Bethel Church.

The 1140 Columbia Street location (a witness location) is some 1800 feet from the intersection of Orange Street and E. Lugonia Avenue, and is acoustically shielded at ground level from this intersection by many homes.

Figure 4 shows the intensity and average carrier frequency of the EV siren recorded at the Church as a function of time from perception (note that the time scales used in Figures 2 and 4 are the same and may be directly compared). The error bars give the standard deviations of the measurements, and the solid curve joins the experimental points without smoothing. Contrary to expectations, *the rerun distributions of intensity and frequency are markedly different from those obtained from the Vigh tape*. In particular, the EV siren was audible at the Church for only 40 seconds during the rerun as compared with 80 seconds on the Vigh tape, despite the fact that both sounds had nominally the same maximum intensity, and that the rerun tape had a much better signal-to-noise ratio than the Vigh tape. There is also a

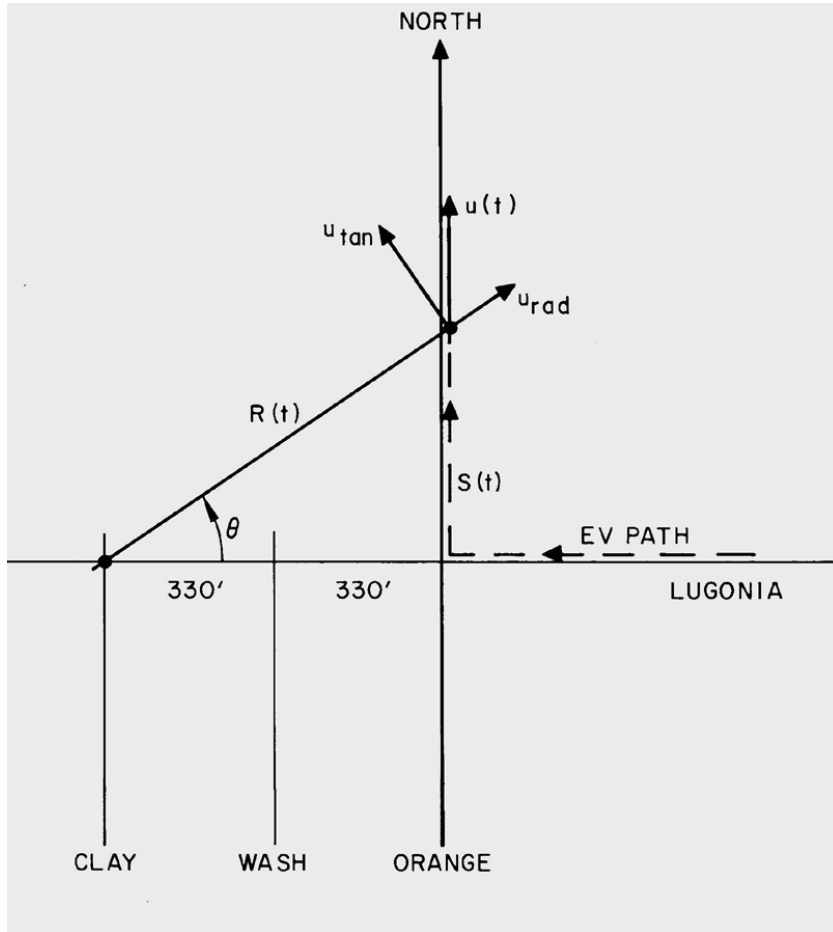


Figure 3. EV motion path in relation to the Bethel Christian Church the evening of February 4, 1968, and the geometry of intensity model parameters.

marked difference in the relationship of the carrier frequency distribution to the intensity distribution. In the EV rerun, the maximum intensity occurs near the lowest measured frequency, whereas in the Vigh distributions, the maximum intensity occurs near the *highest* measured frequency. In view of these anomalies, an analytic model was developed to describe the measured EV rerun distributions in terms of the known kinetic motion of the EV.

Consider first the qualitative features of the EV rerun distributions. The intensity rises to a maximum thirty seconds after perception and then drops

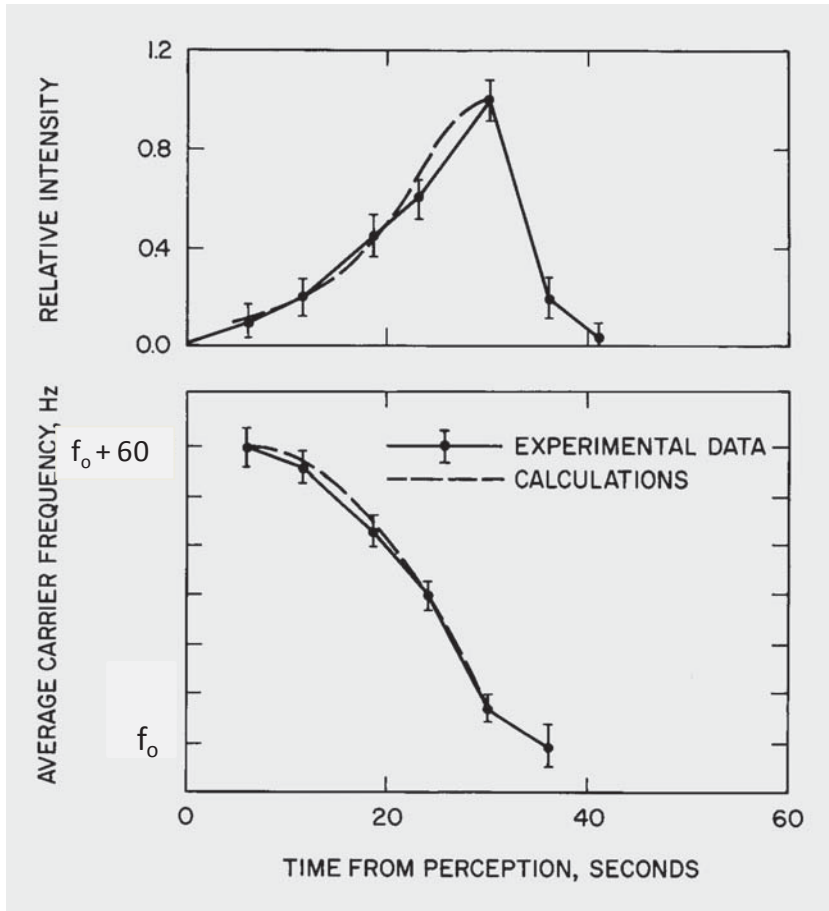


Figure 4. Measured intensity and average carrier frequency distributions of the EV siren during the rerun on July 12, 1969, and modeled intensity and Doppler carrier frequency distributions.

off much more rapidly than the rise during the next ten seconds. There are two main reasons for the more rapid fall than rise. First, the siren emits sound preferentially in the forward direction—it is mounted atop the EV facing toward. When the EV was approaching the Church along E. Lugonia Avenue, the sound emitted toward the Bethel Christian Church was constant in intensity, and the rate of increase in sound intensity at the Church was determined by the speed of the EV; as soon as the EV turned the corner at Orange Street, the actual intensity of sound emitted in the direction of the Church decreased due to the siren anisotropy, resulting in an immediate

reduction in perceived intensity at the Church. Second, while the EV was on E. Lugonia Avenue, the emitted sound propagated directly down the street; upon turning north on Orange Street, the sound level dropped sharply in the time it took the EV to move from the corner into the sound shadow provided by the building on the corner of E. Lugonia Avenue and Orange Street.

The lower graph in Figure 4 shows average carrier frequency shift of the siren malfunction mode measured at the Bethel Church. The malfunction mode carrier was used for analysis here because its simple FM structure greatly facilitated the data reduction. Measurements on the tape recordings made in the EV showed that the siren emitted a constant average carrier frequency in this mode of 780 Hz. When first perceived at the Bethel Christian Church, the carrier frequency recorded at the Church was 840 Hz, a shift of 60 Hz above that emitted; it drops very smoothly to zero shift 29 seconds after perception, corresponding to the time when the EV turned north on Orange street. Thereafter, the received frequency shifted below that emitted, indicating that the source was then moving (radially) away from the Church. The intensity dropoff is so fast at this point that only two measurements of carrier frequency could be made for the EV directed northward on Orange Street. The EV was visually observed to reach the corner of E. Lugonia Avenue and Orange Street at 9:25:29 stopwatch time. The instant of zero Doppler shift on the Church recordings was determined to be 9:25:30, stopwatch time. Thus all of the measurements made during the rerun could be correlated to within one second.

Consider next the quantitative correlation of the intensity distribution with the carrier frequency distribution of the EV rerun. The Doppler shifted frequency, f , perceived by a stationary listener from a source emitting a frequency, f_0 , and moving with velocity, $u(t)$, is given by

$$f = f_0 [1 - (u_{\text{rad}}/c)]^{-1} \quad (1)$$

where c is the speed of sound (755 mph at 72 °F) and u_{rad} is the component of the source velocity, $u(t)$, in the direction of the listener, e.g., the radial velocity (u_{rad} is taken as positive when the source moves toward the receiver). Since the Doppler shift depends only on the radial component of velocity, it is useful to break up the analysis into two parts: first, when the EV is on E. Lugonia Avenue, and second, when the EV is on Orange Street. In the first case, the motion of the EV is always directly toward the Church, so that the radial component of velocity is just the ground speed of the EV. Each of the measured Doppler frequencies shown in Figure 4 was inserted in Equation (1) and the corresponding speed of the source determined. For example, six seconds after perception the perceived frequency was shifted

60 Hz above the emitted frequency (to 840 Hz from 780 Hz). This shift corresponds to a ground speed of 54 mph toward the Church. The speed of the EV logged during the rerun at this same instant (counting from the start marks) was recorded as 55 mph. Each of the EV speeds computed from the measured Doppler shifts agreed with the entries in the log within accuracy of measurement. This result, of course, is at it should be; and it demonstrates the important result that the siren was sufficiently stable during the rerun to permit the state of motion of the EV to be described by Doppler measurements. Simple numerical calculations showed that the speed of the EV while on E. Lugonia Avenue can be expressed as the following analytic function of time:

$$u(t) = 78 - 0.1412 (t)^2 \quad 0 \leq t \leq 24 \quad (2)$$

where $u(t)$ is the ground speed of the EV in feet/second at the instant t , and the variable t has the value of zero six seconds after perception. This equation is valid from the time of the first Doppler measurement in Figure 4 until the EV reached the corner of E. Lugonia Avenue and Orange Street. The instantaneous EV acceleration during this interval, $a(t)$, is found by differentiating $u(t)$ with respect to time:

$$a(t) = -0.2824 (t) \quad 0 \leq t \leq 24 \quad (3)$$

where $a(t)$ is in feet/(second)². Equation (3) shows that the EV *deceleration increased linearly with time* as it approached the corner. The instantaneous distance of the EV from the Church, $R(t)$, is the integral of $u(t)$ with respect to time, with the constant of integration fixed by the requirement that $R = 660$ feet when $u = 0$.

$$R(t) = 1882 - 78 (t) + 0.0471 (t)^3 \quad 0 \leq t \leq 24 \quad (4)$$

where $R(t)$ is in feet. Equation (4) shows that the EV was 1882 feet from the Church when the first Doppler frequency measurement was made six seconds after perception; assuming that the EV speed was a constant 54 mph during the first six seconds of perception, the EV is computed to have been 2300 feet from the Church when first perceived. To show that these equations are an accurate representation of the kinetic motion of the EV on E. Lugonia Avenue, $u(t)$ in Equation (2) was inserted into Equation (1) for $u_{\text{rad}}(t)$ and the Doppler profile $f(t)$ was computed. The calculated Doppler distribution, shown by the dotted curve in the lower half of Figure 4, is an accurate replication of the measured Doppler distribution. Having estab-

lished an analytic expression for the distance of the EV from the Church, the intensity distribution recorded at the Bethel Christian Church can now be computed. At a distance $R(t)$, the intensity of an acoustic wave of carrier frequency f , propagating in a medium with a specific absorption coefficient $\beta(f)$, at the frequency f , is

$$I(t) = k(\omega) I_0 [R(t)]^{-2} \exp [-\beta(f) R(t)] \quad (5)$$

where I_0 is the emitted intensity and $k(\omega)$ is a parameter which describes the angular dependence of the radiated power (ω is the angle between the direction of motion of the EV and the receiver). While the EV was on E. Lugonia Avenue, the angle ω is a constant and equal to zero, so that $k(0) = \text{constant}$ for $0 \leq t \leq 24$. The distance-dependent factors on the right side of Equation (5) were computed as a function of time, using $\beta(700 \text{ Hz}) = 0.045 \text{ db/100 feet}$, appropriate for the fundamental carrier wave propagating in air with 40% relative humidity and at a temperature of 72 °F (evening air conditions in Redlands on July 12, 1969). The results of the computation are shown in the upper panel of Figure 4 by the dotted curve. The distribution has been normalized to the maximum intensity perceived which occurs at the point of closest approach of the EV to the Church. Simple inspection of Figure 4 shows that the agreement between the measured distribution and the distribution computed using this simple model is excellent. It should be mentioned that the computed distribution is nearly independent of the exponential loss term (at $f = 780 \text{ Hz}$) over the distances involved, and that the inverse square factor dominates the distribution.

The relatively weak intensity perceived when the EV was directed north on Orange Street precludes a detailed analysis of the type above. But, since it required several seconds for the EV to become acoustically shielded from the Church after reaching the corner, an estimate of the siren anisotropy can be made from the data in Figure 4. From the immediate drop in intensity near the point of zero Doppler shift, it is estimated that $k(0) = 0.25 k(90)$, (i.e. a person listening to the siren from the side perceives about one fourth the intensity perceived by a listener head on).

Thus it has been shown that the frequency distribution recorded at the Church is an accurate record of the motion of the EV (since the geometric path of the EV is known) and that the propagation model expressed by Equation (5) correctly predicts the intensity distribution recorded at the Church when $R(t)$ is derived from the Doppler distribution. In the next section, this same model is applied to the distributions recorded on the Vigh tape.

Analysis of the Vigh Tape Background Sound

As in the case of the rerun analysis, the carrier frequency distribution on the Vigh tape will first be assumed to be a Doppler distribution arising from a source constrained to move along the E. Lugonia Avenue–Orange Street path. To convert this assumed Doppler distribution into a velocity distribution for the EV, it is necessary to specify the average carrier frequency emitted by the EV siren. Since it is impossible to retrodict this frequency for February 4, 1968, some value must be assumed. The most probable frequency can be inferred from the following considerations. The spread of frequencies measured is 120 Hz, corresponding to a net change in radial velocity of 140 mph. Since the maximum ground speed of the EV is reported by the EV operator to have been less than 70 mph, it is reasonable to conclude that the emitted frequency was midway in the range of perceived frequencies. The flat region in the frequency distribution extending from 29 to 38 seconds occurs at a frequency of 662 Hz, or approximately mid-range. The stationary character of the carrier frequency at this value could then naturally be interpreted as the interval when the EV turned north on Orange Street. Making the assignment of 662 Hz for the average EV carrier frequency emitted, analytic expressions for the acceleration, velocity, and distance from the Church as a function of time can be deduced from the Doppler profile. For the first 29 seconds, the source moved on E. Lugonia Avenue directly toward the Church. As in the rerun analysis, the EV ground speed and the radial velocity $u_{\text{rad}}(t)$ of Equation (1) were equated. The calculation of the radial velocity of the EV moving along Orange Street as seen from the Bethel Church is somewhat more complicated. Referring again to Figure 4, define $S(t)$ as the distance of the source north of E. Lugonia Avenue. Since the ground speed of the source at time t is $u(t)$, then the radial velocity of the EV, $u_{\text{rad}}(t)$, can be expressed by:

$$u_{\text{rad}}(t) = u(t) \sin(\theta) \quad (6)$$

$$S(t) = \int_0^t u(t) dt \quad (7)$$

$$\tan(\theta) = S(t) / 660 \quad (8)$$

The distance of the EV from the Church, $R(t)$, is given by

$$R(t) = S(t) / \sin(\theta) \quad (9)$$

Assuming that the observed frequencies of the unidentified sound are Doppler shifts from the assumed carrier frequency of 662 HZ, and using

TABLE 1
EV Motion Scenario Based on Model Fit of Observed Doppler Shift

Time Interval (seconds)	Kinetic Parameter
0 to 19	$u = \text{constant} = 54.5 \text{ mph} = 80 \text{ ft/sec}$
19 to 30	$a = \text{constant} = -7.0 \text{ ft/sec}^2$
30 to 56	$a = \text{constant} = +5.2 \text{ ft/sec}^2$
56 to 90	$u = \text{constant} = 92.2 \text{ mph} = 135 \text{ ft/sec}$

Equations (1), (6), (7), and (8), the observed carrier frequency distribution of the unidentified sound could be reproduced for an EV motion according to the following scenario listed in Table 1.

According to this scenario, the sound source approached the Church along E. Lugonia Avenue with a constant ground speed of 54.5 mph and maintained this speed 19 seconds after perception. At 19 seconds the source began slowing with a *constant* deceleration of -7.0 feet/sec^2 , or about 1/5 of the earth's gravitational pull. This magnitude deceleration is certainly reasonable for a motor vehicle. (In comparison, during the rerun the approach speed was 55 mph and the deceleration increased linearly with time reaching a maximum deceleration of -6.5 feet/sec^2). At 30 seconds, the source began to accelerate northward on Orange Street with constant acceleration of 5.2 feet/sec^2 , again a very reasonable value. Fifty-six seconds after perception, the ground speed of the source reached 92.2 mph and was maintained there for at least another 20 seconds.

Figure 5 is a replication of Figure 2 (without the measurement error bars) showing model results for the EV motion scenario of Table 1. The Doppler frequency distribution generated at the Church by a source emitting 662 Hz and moving with this scenario is shown by the dashed curve in the lower panel of Figure 5. The solid curve gives the measured frequency distribution and is well-fitted by Doppler frequency time distribution for the assumed EV motion scenario of Table 1. Using the kinetic parameters for this scenario, the distance of the source from the Church, $R(t)$, can be found. Insertion of $R(t)$ into Equation (5) then gives the intensity distribution predicted at the Church for this scenario, shown as dashed curves in the upper panel of Figure 5. The calculated maximum intensity was arbitrarily equated to the maximum-recorded intensity. Two calculated intensity distributions are shown in Figure 5 for the source moving north on Orange Street, differing only by assuming in one case that the source is isotropic, and assuming in

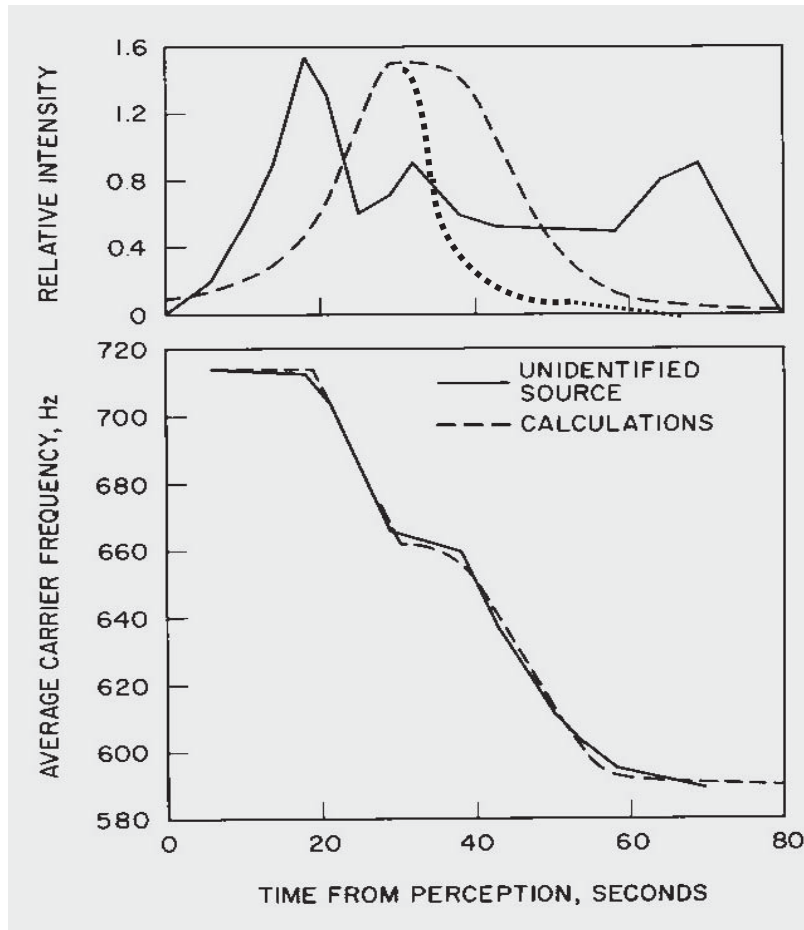


Figure 5. Measured intensity and average carrier frequency distributions of the unidentified source, and modeled intensity and Doppler carrier frequency distributions.

the second case that the source is anisotropic with $k(90) = 0.25 k(0)$. These dashed curves are to be compared with the measured distribution shown by the solid curve. The predicted distributions do not take into account any acoustic shielding of the siren from the Church while it traveled north on Orange Street.

*The gross dissimilarity of the measured and computed intensity distributions is striking, even during the time the EV was moving on E. Lugonia Avenue, for which the model expressed by **Equation (5)** is highly*

accurate, as verified by the EV rerun data analysis. The computed peak intensity occurs 30 seconds after perception, or 11 seconds after the measured peak intensity. The relatively strong intensity peak measured 69 seconds after perception is clearly anomalous; it is about 20 times too intense for an isotropic source and about 100 times too intense for an anisotropic source like the EV siren. The inclusion of acoustic shielding in the calculation would render the anomaly even worse. *These anomalies are well outside the limits of experimental error*, but before rejecting the propagation model, other kinetic scenarios should be examined. Because the siren carrier frequency for the evening of February 4, 1968, is not known a priori, the scenario discussed above is not unique. However, since it is known that the EV moved along the E. Lugonia Avenue–Orange Street geometric path, the possible number of scenarios is greatly limited. In particular, any successful scenario must predict the maximum intensity to occur at the instant of zero Doppler shift; this is because the radial velocity is zero at the point of closest approach for the E. Lugonia Avenue–Orange Street path. Inspection of Figure 5 shows that this requirement is met only if the emitted carrier frequency is assigned the value of 714 Hz. But this assignment implies that the EV approached the corner of E. Lugonia Avenue and Orange Street at virtually zero ground speed, and then accelerated rapidly to a ground speed of 140 mph. Even granting the unlikelihood of such a high ground speed (and disagreement with the EV operator’s recollection of an EV top ground speed of ~70 mph), detailed calculations show that this scenario fails to account for the measured intensities beyond the first peak with even larger discrepancies than noted for the scenario based on a carrier frequency of 662 Hz. And so it is with all assignments of emitted carrier frequency for the evening of February 4, 1968. In view of this result, the validity of the assumptions implicit in Equation (5) must be examined. In particular:

1. The assumptions of constant intensity and/or constant average carrier frequency for the siren on February 4, 1968, are invalid (while being valid for July 12, 1969).
2. The acoustic environment on February 4, 1968, was radically different from that of July 12, 1969.

To assess these possibilities, first assume that the average carrier frequency emitted by the siren was very unstable during the 80 seconds of interest, but that the siren emitted a constant intensity. Under these conditions the frequency distribution recorded at the Bethel Church cannot be interpreted as a pure Doppler distribution reflecting the kinetic motion of

the EV. Nonetheless, on the basis of the rerun recording, one would expect an intensity distribution with a single peak (with several plateaus possible) and lasting not longer than about 40 seconds. Thus, a pure frequency instability cannot account for the observed intensity anomaly. Next assume that the siren emitted a constant average carrier frequency but varied in emitted intensity. The frequency distribution can be interpreted as a pure Doppler distribution representing the kinetic motion of the EV. To compute the intensity distribution at the Church, one would have to know not only $R(t)$ from the Doppler distribution, but the function $I_o = I_o(t)$ representing the time variation of the emitted intensity. In principle, any intensity distribution could be generated at the Church by such a source. On the basis of the treatment of the constant intensity source, the range of emitted intensities from the source to account for the observed intensity distribution would have to be about 50:1. It is very doubtful that the siren was that unstable on the basis of the performance of the siren on July 12, 1969, and on the (subjective) recollection of a member of the rescue team. In the case of both frequency and intensity instability, any intensity distribution could be generated but the same range of emitted intensities is required (50:1) to account for the observed distribution. Thus, within the known limits of the variability of the properties of the EV siren, and with the same level of confidence supporting the conclusion that the EV siren generated the sound recorded on the Vigh tape, *the model expressed by Equation (5) is inadequate with respect to factors other than siren stability.*

Analysis of the Rerun Field Recordings

In the interest of fully documenting the rerun, tape recorders were placed at two sites in Redlands where witnesses of the February 4, 1968, event perceived intense warbling sounds. One of the recorders was placed in the home of a witness at 1140 Columbia Street. His house is located 1800 feet from the corner of E. Lugonia Avenue and Orange Street, one and a half blocks south of W. Lugonia Avenue and three blocks west of the Church (five blocks west of Orange Street).

The terrain between the witness house and all positions taken by the EV siren is filled with wood frame houses and with trees; there was no unobstructed ground path between the two. The tape recorded at this location during the rerun failed to register *any* sound from the passing siren, and the witness who was present during the rerun perceived no sound from the EV siren. From the analysis of the rerun recording made at the Bethel Church, it was established that the EV siren is heard under normal conditions only at distances of 2300 feet or less (when the siren is facing the receiver and in open terrain). A simple computation shows that the maximum intensity

expected at the Columbia Street location is about 0.2 of the maximum intensity at the Church (assuming open terrain). In actuality, the propagation of sound to the Columbia Street location is subject to substantial acoustic losses (houses and trees) not incurred by sound waves propagating to the Bethel Church, and the expected maximum intensity on Columbia Street is well below the threshold for perception.

The other field tape recorder was located at the intersection of Texas Street and Pioneer Avenue, 4200 feet northwest of the Bethel Church. Pioneer Avenue runs east/west and intersects Orange Street 3800 feet north of W. Lugonia Avenue. The corner of Texas Street and Pioneer Avenue lies 2500 feet west of Orange Street. The terrain between the recorder and the EV path is mixed, with some houses and trees and some open spaces. When the corresponding distances and siren orientations are examined for this location, it is concluded that the siren sound would be below the threshold for perception. And so it was, the tape recording of the rerun picking up no sound from the passing EV siren.

These unexpected null results are quite puzzling if the sounds heard by the witnesses on February 4, 1968, were indeed produced by the EV siren. One must conclude that some factor or factors associated with the EV siren and/or the acoustic environment were greatly different on February 4, 1968, and on July 12, 1969. Accepting that the EV siren was the source responsible for the reported sounds, the null results might be explained on the basis of some anomalous propagation effect, such as one arising from an atmospheric temperature inversion or a surface wind gradient.

Anomalous Atmospheric Propagation

The Redlands weather characteristics for February 4, 1968, were recorded at nearby Norton Air Force Base. Temperature/altitude data were not recorded at Norton AFB; the nearest source for such data is the U.S. Weather Bureau at Los Angeles International Airport, located some 70 miles west of Redlands. These data show that a moderate temperature inversion existed in the Los Angeles area on the morning of February 4, 1968, with a positive gradient of 2 °C per 100 feet, and with a temperature maximum at 380 feet. Such inversions are quite typical of the area just before sunrise and just after sunset, particularly on clear days like that of February 4, 1968. Thus, there is every possibility that just such an inversion was present in the environs of Redlands in the early evening of February 4, 1968. However, ascent balloon data taken the morning of July 12, 1969, also reveal a temperature inversion of 1 °C per 100 feet and a maximum temperature at 540 feet. As a general rule, temperature inversions tend to be less severe in summer than winter and this appears to be the case for the two days in question. If such an

inversion was present in Redlands on July 12, 1969, the propagation model expressed by Equation (5) still was adequate to account for its effect, and one can assume this propagation model is also adequate to account for its effect on February 4, 1968.

The speed of sound is also a function of the temperature of the propagating medium, so that various portions of a spherical wavefront travel at different speeds in a medium with a thermal gradient. If the wave is propagating in a medium with a *linear* thermal gradient, a ray normally follows the arc of a circle. The temperature inversion data recorded at Los Angeles Airport for February 4, 1968, showed a thermal gradient of 2.5 °C per 100 feet and a temperature maximum of 17.5 °C at 300 feet. The temperature gradient above 300 feet follows the normal adiabatic lapse rate of -0.2 C per 100 feet. This overall temperature profile should approximate those encountered in Redlands during the winter. Such a positive thermal gradient below 300 feet causes all surface emitted rays at an angle less than the critical angle of 9.3 degrees to bend back toward the surface. A ray emitted at the critical angle just grazes the level of maximum temperature and returns to the surface at the maximum range, R_{\max} . For the critical angle of 9.3 degrees, $R_{\max} = 7200$ feet. Rays emitted at angles greater than the critical angle are not trapped below the 300 foot level and curve away from the surface, creating a sound shadow.

Thus, such a temperature inversion limits the horizontal range for perception of a source, and also results in an increase in the intensity of the sound at any point not in the shadow region over the sound intensity, which would have been generated at that point in the absence of the temperature inversion. Simple calculation shows that the maximum distance for perception of the siren with such a temperature inversion present is increased by a factor of 1.4 over the maximum range in the absence of the inversion. Assuming the no-inversion maximum range of 2300 feet found from the rerun analysis, the new maximum range for perception becomes $R_{\max} = 3220$ feet. Even with this extended range, the estimated intensities produced at the two Redlands field locations are still well below the threshold for perception. It is interesting to note that the presence of a temperature inversion causes the sound to approach the receiver at ground level from slightly above, but never at an angle greater than the critical angle, here 9.3 degrees.

These simple computations show that while the temperature inversion that was most likely present on February 4, 1968, in Redlands could alter the intensities of perceived sound somewhat, its presence is essentially irrelevant in contributing to the cause(s) giving rise to the large intensity and frequency distribution anomalies discussed here. A detailed analysis

of the effects of wind gradients on sound propagation was also carried out; it showed that the existing wind gradients were too small to have resulted in any appreciable propagation anomaly. Thus, one must assume that *the acoustic environment on February 4, 1968, was radically different from that of July 12, 1969.*

Summary and Conclusions

The unidentified sound on the Vigh tape and the whelp sound produced by the EV siren have been analyzed in detail with respect to average carrier frequency, amplitude modulation rate, frequency modulation rate, frequency modulation bandwidth, and overtone content. It was determined that these characteristics of the siren are not strictly invariant but vary between fairly well-defined limits in both the long term and short term. It was also determined that the wave train of the unidentified sound could be characterized by the same qualities with values that fall within the limits of variability characteristic of the EV siren. *It is therefore concluded with virtual certainty that the EV siren operating in the whelp mode was the acoustic source generating the sound recorded on the Vigh tape.* Given this conclusion and the knowledge of the course followed by the EV, it was anticipated that the intensity and frequency distributions on the Vigh tape could be simply correlated with the kinetic motion of the EV. This expectation was *not* fulfilled; it was found that no scenario of EV motion along the Lugonia/Orange path would account for the recorded distributions. To investigate this anomaly and to check the validity of the acoustic propagation model being used, the EV was put through a rerun simulating the events of February 4, 1968. The intensity and frequency distributions recorded at the Bethel Christian Church during the rerun were readily accounted for using the same model, which failed to account for the distributions on the Vigh tape. To compound the anomaly, no sound from the siren was perceived or recorded during the rerun at the two locations where witnesses claimed intense acoustic experiences on February 4, 1968. An attempt was made to resolve the anomaly by appeal to atmospheric propagation phenomena. Using the best available data for specifying the temperature inversion and wind gradients most likely present in Redlands on February 4, 1968, it was shown that neither effect was sufficiently large to account for the observed anomalies. One is left with the conclusion that the acoustic environment present in Redlands on February 4, 1968, was greatly different from that present on July 12, 1969, and that its description requires the inclusion of one or more time-dependent factors in Equation (5). The physical origin of such factors cannot be inferred from the information extracted from the Vigh tape, but the available information implies that the sounds recorded

on the Vigh tape propagated from source to microphone by multiple paths, some of which were time varying independent of the motion of the EV.

There is as yet un-retrieved information contained on the Vigh tape, which might provide some additional support for this speculation; but the limited instrumentation available in 1969 precluded its study. Specifically, the overtone intensity as a function of time should be measured and compared with the time distribution of intensity in the fundamental carrier. The loss coefficient, β , of Equation (5) for the spectral overtone near 2000 Hz is computed to be 0.5 db/100 ft for the Redlands conditions on February 4, 1968, or an order of magnitude greater than the coefficient for the fundamental carrier. Because of this difference, the Vigh tape recorded intensity of the overtone will depend strongly on the exponential factor in Equation (5) for the ranges of concern here, whereas the intensity of the fundamental carrier will be essentially independent of this factor. If the total energy of the sound recorded at Bethel Christian Church is the sum of energies reaching the microphone by two or more paths, one of which is changing rapidly in time essentially independent of the EV motion, then the time-dependent partial contributions should show up in a comparison of fundamental and overtone intensity distributions.

Given the intensity and closeness of the multiple witness sightings at Redlands, and the existence of some physical evidence in the form of the Vigh tape recording, it is disappointing that a more intensive investigation into these sightings was not undertaken by and discussed in the UFO Condon Report of 1969, as pointed out by James E. McDonald (McDonald 1968) in his Redlands UFO testimony to the U.S. Congress in 1968. While the present investigation of the Vigh tape recording concurs with Professor Seff's conclusion "that the sound heard was that of the emergency rescue vehicle" (Story 1980), it also identifies significant sonic anomalies proving that the unidentified sound recorded on the Vigh tape cannot be attributed to the sound from the EV siren propagating directly along Lugonia Avenue to the Vigh tape recorder. According to the Story account of the Redlands UFO sightings,

the unidentified object apparently came down just west of Columbia Street and north of Colton Avenue, then proceeded slowly in a northwestern direction for about a mile or less, at an altitude of about 300 feet. Coming to a stop, it hovered briefly, jerked forward, hovered again, then shot straight up with a burst of speed. . . . The object seemed (if at 300 feet altitude) to be around 50 feet in diameter. (Story 1990)

Note that this close approach of the unidentified object is in the immediate neighborhood of the witness at 1140 Columbia Street and only

some 1800 feet from Bethel Christian Church. Though highly speculative, a large, solid, possibly metallic, disc 50 feet in diameter, situated some 300 feet above Columbia Street just south of W. Lugonia Avenue might have served as an effective sound reflector/scatterer in the acoustic environment on February 4, 1968, contributing to the frequency and intensity anomalies identified on the Vigh tape recording, and possibly causing some witnesses to report that the intense unusual sounds they heard were coming from the unidentified object.

The Redlands UFO sighting is, from one viewpoint, just one of many such reports that have been recorded by both official government projects and by civilian UFO groups. An unknown object was sighted low overhead by a large number of witnesses. It didn't land or cause any unusual effects on equipment or people, and it left after a short time in view.

Of course, there are differences from other such events. For one, it was investigated rapidly, competently, and thoroughly by a group of college professors, an exceedingly uncommon situation. As a result, this report was such a good exemplar of why UFOs are not so easily explained that James McDonald used it extensively in his testimony to the U.S. House of Representatives "Symposium on Unidentified Flying Objects." And, there was the recorded sound, now thoroughly studied in this article.

The case also importantly allows us to emphasize several key points about the UFO phenomenon and its investigation that are worth remembering. First, UFO reports can be investigated scientifically, with only witness testimony at hand. The University of Redlands team of professors did so with the witness reports and drawings, and even then had concluded that the intriguing sound came from the emergency vehicle. And when we are fortunate to have physical evidence, as in the Reverend Vigh recording, science can be methodically applied, as has been done here. UFO reports, even today, still elicit chuckles and derision, with UFO evidence often disparaged as "nothing but" witness testimony, as if this was some fatal flaw.

Second, witnesses to something substantial usually agree closely and are reasonably accurate in their testimony about the key details of an experience. Sure, they were confused about the sound and whether it was that unusual or connected to the UFO sighting, but even during an exciting, once-in-a-lifetime event of seeing a UFO, witnesses were consistent enough on the appearance of the UFO and the description of the sound that it was clear they were describing the same phenomenon.

Finally, and astounding to only those unfamiliar with the methods of the Air Force's Project Blue Book, the Redlands UFO was classified as "probable aircraft" by the project. This was based on the flimsiest of

evidence, the key piece being that a single-engine propeller aircraft had landed at 7:15 p.m. at the nearby Tri-City Airport. The fact that the plane had landed before the sighting began and that its path of approach never brought it closer than six miles to Redlands, or that a small plane doesn't have the complex set of lights reported, didn't trouble the Blue Book investigators. In late 1968, J. Allen Hynek wrote a long letter to Colonel Raymond S. Sleeper of the Air Force, reflecting on the Air Force's UFO investigation and where it had failed, and then what could be a way forward for the study of UFOs. The letter is included as Appendix 4 in Hynek's seminal book *The UFO Experience*. It should be read completely by all those who want to fully understand why UFOs were not investigated honestly and scientifically by the government. With regard to Redlands, Hynek lists all the errors of reasoning and analysis made by Project Blue Book, with this to say about the University of Redlands team:

Finally . . . [Blue Book] assumed that the professors involved had not the intelligence to recognize for themselves (having been over the ground and having 'reenacted the crime' so to speak), the possibility of the witnesses having misinterpreted a plane in a landing pattern, and have been individually wrong on the time, the place, the motion, the brightness, and the number of lights. And, over and above this is another tacit assumption, however politely hidden, that not only the witnesses but the professors were demented or incompetent, for only under such an assumption could one seriously advance the evaluation of "probable aircraft." (Hynek 1977)

That's straight talk from the leading scientist in the history of the field, and affirms the unidentified nature of the Redlands sighting.

References Cited

- Hynek, J. A. (1977). *The UFO Experience*. Ballantine Books.
- McDonald, J. E. (1968). Symposium on Unidentified Flying Objects, Hearings before the Committee on Science and Astronautics, U.S. House of Representatives, 19th Congress, 2nd Session, July 29, pp. 52–53.
- Story, R. D. (Editor) (1980). *Encyclopedia of UFOs*. New York: Doubleday, pp. 299–300.
<http://www.nicap.org/ar-680204story.htm>

RESEARCH ARTICLE

The Rarity of Unambiguous Symbols in Dreams: A Case Study

ANDREW PAQUETTE

Submitted August 7, 2015; Accepted March 20, 2016; Published June 15, 2016

Abstract—This paper is a response to articles in the literature regarding symbols in dreams. While some neurology-based dream studies reject dream symbols altogether, the preponderance of material available for review accepts that dreams are frequently populated by symbols that require interpretation to be understood. In this study of my own extensive dream journals, the presence of veridical psi dreams makes it possible to rule out symbolic content in some cases. The results of this study show that—at least from the 11,850 dream scenes reviewed here—unambiguous symbolic content is extremely rare. For this paper, it was assumed that no dreams contained any symbolically presented information unless the dreams contained unambiguous indications that symbols were present. Following this method, a distinction may be made between dream content that clearly contains symbols and dreams that are assumed to be symbolic by default. Symbols that met the criteria used here can be shown to be different from conventionally accepted symbols in that they clarify—rather than obfuscate—the communication of complex ideas.

Keywords: dream—symbol—psi—prophetic—precognitive

Introduction

This study proposes to use a single-source database of dream journal records—those of this author—in an attempt to determine the proportionate frequency of unambiguously symbolic dream content and to explore whether there are any traits characteristic of unambiguously symbolic dream content that set them apart from other types of content.

In the study of dreams, three principal views are found: dreams as spiritual revelation, dreams as subconscious communication, and dreams as an organic side effect of physical activity in the brain. Each of these views is largely exclusive. A fourth view of dreaming sometimes incorporates all three of these theoretical frameworks. In parapsychology, precognitive dreams retain elements of religious descriptions of prophetic dreaming, but

attempts are sometimes made to connect them with physical causes—such as geomagnetic activity (Krippner 2006) or as yet unknown faculties of the human brain (Braude 1978). Researchers in this branch of study do not neglect the professional descendants of Freud, and have endeavored to understand some ‘psi’ dreams in the context of personal symbols. Jung provides very early examples of this in his book *Man and His Symbols* (Jung, Franz, Henderson, Jacobi, & Jaffe 1968).

Ethnographers who have studied dreaming in non-Western cultures refrain from imposing a Western explanatory framework on the dreams they describe. Instead, they report on the beliefs of the people they are studying. Dreams reported in this way are similar to religious interpretations of dreams in the West. They assume the existence of invisible spirits, survival of physical death, God(s) and demons, precognition, omens, and other categories of experience classified as paranormal by parapsychologists but as superstition by others.

Of all the research that has been done on dreams, very few studies openly contest the idea of symbolic content, but some do:

I see no need and no justification for treating this dream as a disguised, symbolic expression of anxiety about other related themes . . . (Hobson 2002)

. . . there is no systematic empirical evidence that dreams contain symbols to any greater degree than our typical waking thoughts, let alone has there been any empirical support for a particular system to “decode” these symbols. (Wamsley 2013)

The conflict between brain-based dream research and psychology-based dream research is that meaning is arbitrary in one and ordered in the other. If dreams are the result of an automatic brain-based process, then meaning will be as arbitrary as the process responsible for it. A psychology-based interpretation of dreams allows deeper levels of understanding due to subconscious ordering of content that can be understood consciously if analyzed properly. The psychological interpretation is not much different from the religious-themed dream interpretation frameworks found among indigenous tribes of such places as New Guinea and Brazil, but without the legitimization of religious or supernatural beliefs (George-Joseph & Smith 2008, Gregor 1981).

Paranormal dream researchers provide some evidence to discredit purely brain-based theories designed to explain dream activity. For instance, in a seminal study of telepathy in dreams, Ullman and Krippner (1970:397) designated images as “targets” that would appear in the dreams of their

subject. Out of 8 targets used over 8 nights, the subject had no misses as measured in the study and a distribution of hit scores that was significant at the .004 level. This is only one study among many that have shown strong, real-world connections to dream imagery that could not reasonably be linked to the prior experience or knowledge of study participants (Alvarado & Zingrone 2008, Bem 2011, Graff 2007, Paquette 2012a). If this research is to be believed, brain-based explanations of dream activity cannot be fully accepted because they do not account for paranormal knowledge. For this reason, neurological explanations for dreams are treated as disproven in at least some examples and therefore are not accepted as a proper foundation for, or default position on, dream research.

This leaves other dream research, most or all of which accepts that information in dreams is sometimes conveyed via symbolic means to the dreamer. The agency of these symbols is disputed among psychologists, parapsychologists, and theologians. The divide between these camps is whether the information conveyed to the dreamer has an internal source—such as the subconscious mind—or an external one, such as divine revelation from God, evil spirits, or deceased loved ones. Parapsychologists occupy a middle ground in this debate by accepting the possibility that veridical psi information can be derived internally (from one's own psychic ability) or externally (from any of the other sources just described). However, both of these positions are antithetical to conventional psychology, which does not admit the possibility of genuine psi content. Despite the sometimes heated debate between these camps (Krippner & Friedman 2010), neither meaningfully contests that dream content is often symbolic and can be interpreted to improve one's understanding of a dream.

In the context of symbols and dreams, early Roman ideas about dreams and how they should be interpreted are remarkably similar to those of non-Western peoples in the modern age. For instance, the Mehinaku tribespeople of modern-day Brazil acknowledge that some dreams are no more than *day residue*, or the recycling of previous events from the day, but they also look at dreams as the memory of real events where their soul travels outside of their bodies. In this latter type of experience, they sometimes witness symbolic imagery as part of their direct experience, or it is given to them by a spirit entity within the dream. In either case, upon waking they endeavor to interpret the symbol to understand its meaning (Gregor 1981). This is similar to how dreams were regarded during the ancient Roman empire, where certain dreams were thought to have special importance due to the presence of recognized symbols—called omens—which demanded interpretation by a skilled diviner of such things (Gillen 1989).

The recognized—or fixed—symbols described by Gillen are expressly rejected by Wamsley, but are clearly embraced in cultures in which certain dream imagery has a specific meaning. For instance, among the Mehinaku “. . . a dream of collecting the edible flying ants which descend on the village each fall warns the dreamer that a close relative will die” (Gregor 1981). In this example, the reason given is that the lifespan of these flying ants is short. The Asabano tribe compares waking experiences with their dreams as a way to construct a library of symbols that can be used to interpret future dreams. Despite the existence of a well-developed symbology, they are also aware that dreams can be literal. As an example, when a researcher told an Asabano villager of a dream wherein his laptop computer fell into a fire, he was advised to be careful with his laptop rather than to ascribe symbolic meaning to the dream (Lohmann 2000).

Dream researchers have found examples of psi, day residue, and symbolic content in dreams, but how common are these types of dream content? Among scientists who reject the possibility of paranormal content, virtually all dreams are classified as either day residue or symbolically coded messages from one’s subconscious to their conscious mind. Among parapsychologists, symbol frequency has received less attention than psi content. Anthropologists have studied tribes that have ideas about the difference between symbolic and non-symbolic dream content, but they have not deeply explored this difference.

Methodology

The Dream Journals

The data used for this study derive from a series of personal dream journals in which I have made regular entries since September 15, 1989. The cutoff date for the study is February 22, 2015. The time period covered between and including these dates is 9,291 days, or 25.45 years. The number of daily records made during that time is 3,920. This means that 5,371 days (57.81%) of the total span were skipped or have no entry. The remainder comprise 42.19% of the total period, or approximately 2 entries every 5 days. As of the cutoff date, there were 34 journals. The digital transcription of the combined journals contained 801,078 words.

Each of the 3,920 records is broken into 11,850 scenes. Scenes were defined in previous studies (Paquette 2012a, 2012b) as content separated by waking. This has been changed for the present study because some thematically similar material bridged waking states and at other times thematically inconsistent material was contained between waking states.

For example, according to the previous classification method, on an evening when 2 scenes were recorded separately because I woke between making each record, each is recorded as a separate scene. However, there are multiple examples of scenes that have continued where the previous scene left off after returning to sleep. To distinguish these examples from scenes that are not continuous, scenes are now differentiated based on thematically consistent material from the same evening, or *record*. The term *scene* is used to differentiate thematically distinct dream content from the same night's record. Therefore, the word *scene* will be used in the context of records, but the word *dream* will be used when discussing content. The average number of scenes per record is 3.01. The average word count is 67.82 per scene, though many are much longer. The longest word count is 2,948 for 1 scene.

These quantitative details are supplied for the purpose of establishing that the journals used for this study cover a significant span of time, are regularly kept, and possess sufficient material for a study of this type. The number of individual records, scenes, and words in each entry are sufficient to support statistical analysis. The principal goal of a statistical analysis is to determine the actual rate of unambiguously symbolic content relative to content that cannot be reliably identified as symbolic.

Intentions

The purpose of making these journals was to prove to my wife that I was not having precognitive dreams—contrary to her assertion that I was. They were never intended to serve any therapeutic purpose, nor was my original intention to continue recording my dreams for so long a period. Very shortly after the journals were started, I found what appeared to be precognitive content. This occurred so often that I was eventually forced to reverse my position on precognitive dreams. This led to some curiosity about the dreams and a very brief period of experimentation during which I tried to consciously affect the content of my dreams. In total, attempts of this kind were made during 1 month in 1990, and then on perhaps 10 occasions over the next 25 years. In most cases, these attempts were unsuccessful. Another concern was that I found that the most interesting dreams were those that were the least expected. This is particularly true of lucid dreams, which tend to be uninteresting on those occasions when I have used the lucid state experienced in the dream to affect its content. Because of this, long ago I made a conscious decision to avoid any form of dream incubation. There are a few exceptions to this rule, but they are quite rare (less than once a year).

Selection Criteria

The definition of *symbolic* used here depends on the root *symbol*:

something that stands for or suggests something else by reason of relationship, association, convention, or accidental resemblance; especially: a visible sign of something invisible; the lion is a symbol of courage. (Merriam-Webster.com 2016)

This definition is expanded to include the following:

A shape or sign used to represent something such as an organization, e.g., a red cross or a Star of David: the Red Cross symbol; the Star of David, the Jewish symbol. (Oxforddictionaries.com 2016)

In this latter definition, the symbol is created for the specific purpose of communicating an idea to others with a graphic device. For the purpose of identifying unambiguous symbolic content, the following definition is not used: “an object or act representing something in the unconscious mind that has been repressed; <phallic symbols>” (Merriam-Webster.com 2016). Symbols share characteristics with metaphors, but the difference is that a metaphor is used for the purpose of comparison while a symbol is used in place of the thing or idea that the symbol represents. For this reason, although an argument can be made that some of the examples described in this article could be described as metaphors, they can equally be called symbols. Because it is common to describe both as symbols in the literature on this subject, the word *symbol* is preferred here.

To be identified as unambiguously symbolic content, the content must meet specific criteria. The criteria are:

- It is an efficient way to convey a specific message.
- It does not appear to be a regurgitation or reflection of the dreamer’s thoughts or concerns.
- Clarity of communication is improved by the use of symbolic rather than literal presentation.

The following criterion is not required to meet the definition of “symbolic” used here, but it is met by some dream content and strengthens identification of dream content as symbolic:

- There is a character in the dream who makes or draws attention to the symbol. This shows that the source of the symbol is—at least apparently—*independent*.

The criteria described here are designed to prevent the false

identification of symbolic content by ensuring that all symbolic content performs the normal function of *symbols*: to communicate original information efficiently from one or more parties to another. The theory of subconscious to conscious mind communication accounts for the seeming impossibility of an independent source of communication, but other research has demonstrated that psi communication can occur between individuals in dreams (Krippner & Ullman 1970). This removes the obstacle presented by the logical argument that all communication must begin and end with the dreamer. I am aware that some dreamers report that certain indicators recur in their dreams as a way to get their attention or to alert them that there is something special in the dream. However, in the dreams reviewed here, the primary alert mechanism found is a seemingly independent dream character who makes an effort to get my attention to give me a message.

Many dreams are thought to be “day residue,” or a recapitulation of the dreamers own thoughts and experiences from the same or earlier days. This cannot be applied to paranormal content of which the dreamer is unaware at the time of the dream. Additionally, in the dream journals used for this study, there are only 6 examples that might be described as day residue out of 11,850 dreams. There may be more examples, but without sufficient detail to identify them as such. This is mentioned because of the pronounced rarity of this type of dream content in the journals reviewed for this paper. For those who may find this surprising—particularly in the context of general acceptance that day residue is common, the following paragraph provides an explanation.

The first argument against day residue as an explanation for some dreams in the journals examined here is that veridical paranormal content references information I had no conscious access to at the time of the dream. Therefore, it cannot reflect my knowledge at the time. Second, I have been aware of the concept of ‘day residue’ from before the first entry was made in my journal. Indeed, I assumed at the time that every dream would be day residue. For this reason I was vigilant for its appearance. However, very few dreams had the potential to be day residue and even fewer had strong evidence to support classifying them that way. For instance, I have had several dreams wherein I find myself eating a variety of foods. Because I eat every day and the foods usually are not distinctive from my normal diet, it is not possible to classify one of these dreams as related to past knowledge of an event instead of future knowledge of a similar event. Third, significant real world content that one would expect to find in one’s dreams as day residue does not often appear in mine. I make entries in the journal when this happens. For instance, one of my cousins died unexpectedly on October

23, 2002, and I was notified within a day that it had happened. However, there are no indications in the journal that I dreamed of this, despite my expectation that I might. After being informed of his death when I woke, I noted the following in the journal “My cousin Jason Paquette died today, but not a hint of it in my dream journal.” An examination of dreams on following days similarly had no mention of my cousin, the circumstances of his death, or imagery that could plausibly be linked to his death in a symbolic way. A check of the full journal shows that this cousin appears in only three dreams, two several years before he died and one ten years after his death.

The criteria regarding clarity may seem nonsensical in the context of symbolic content found in dreams. Much of dream analysis and interpretation is based on the idea that dream content is highly subjective and thus cannot be ‘clear’ in the sense meant here. However, it is fairly easy to argue that the logo for McDonald’s—a symbol—is a clearer representation of the restaurant than a photograph of a McDonald’s restaurant interior. To give a more abstract example, a literal view of a large-diameter cylinder seen through a doorway, where either side is hidden from view, could be taken to be any one of a number of things: a pipe, a torpedo, an airplane fuselage, an industrial sheath, or a rocket. However, a toy rocket seen in its entirety in the context of damage done to a city is more readily identified as a symbol than a literal image of the thing itself. For this study, “clarity of communication” refers to content where a literal image or scene of the thing represented would be more complex or less clear than the representation in the dream.

It is possible—even likely—that some dreams not identified as symbolic in this study do contain symbolic content. However, the purpose is to study unambiguously symbolic dreams that meet objective criteria even if that means that some symbolic content is not classified as such. One example of how this may happen is provided by extremely brief journal entries. For instance, on October 16, 1989, I entered the following: ‘*Scenes with water; boats?*’ This is the entire entry. It may refer to my having seen boats the previous day, that I would see boats the following day, or any number of symbolic interpretations, but without context it is not possible to differentiate between these explanations. Out of 11,850 scenes, 2,267 (19.13%) had fewer than 10 words and were coded as ‘non-symbolic’ on the basis that they did not contain enough information to be unambiguously symbolic. In contrast, the average word count for scenes identified as symbolic according to the criteria presented earlier is 286.79.

ID	Validity	Type	Perception	Death	OBE	Pre cog	Spirit	Symbol
		Symbolic content: Genuine		Efficient message? Yes		Is meaning clear? Yes		
		Symbol type: Shown to me		Internal source? No		Explanation: Lion of Syria = ISIS		
		Symbol category: Prophetic		Symbol clarifies message? Yes				
		Symbol complete? Yes		Symbol source present? Yes				

A military operation at night. I see troops activated, possibly on bicycles. Someone says of Syria's leader, Bashar Assad, "If it had been him, we would have killed him like this". There is a reference to the movie *Star Wars*, the bombing run at the end of the movie where each pilot has a single shot at a vulnerable but difficult to reach target. My understanding is that those men have a similar mission. I hate to say it again because it seems wrong, but it looks like the critical part of the mission will be acted out by two men, each riding a bicycle, because the target's nature makes it more vulnerable (or more easily reached) this way. It looks like the plan calls for each bicycle (motorcycle?) to ride up a ramp into a vehicle that resembles the trailer portion of a tractor trailer. Once inside, the target is all the way in the front of the two trailers. Before the operation is carried out, I am asked to follow someone to a certain spot in the desert so that I can see a certain sight. It is a lion resting in the moonlight, his figure reflected beneath him as if he were resting in a shallow pool of water, but he is lying on sand. There is something symbolic about this but I'm not sure what it means. It is supposed to be "lion in the desert" and "lion by moonlight" or "lion of the desert by moonlight". The image is an arresting one. The lion is a giant specimen, not a normal size by any stretch of the imagination. His scale is more like that of the great sphinx in Egypt, and his pose is similar also.

Characters	Contact	Properties	Relationship
Full name		Ignores me	Cast type
Soldier Unknown		Yes	Secondary
Bashar Al-Assad		Yes	Mention
Lion Unknown		Yes	Primary
Man Unknown		No	Primary

Notes Date of Note 6/25/2014

I always referred to this dream as the one about "The Syrian Lion" and made an illustration of it dated April 2, 2011, at about the same time as I made several other dream illustrations. At the time of the dream and even as late as when I made the illustration, titled "Syrian lion" (in which I left out the reflection unintentionally), Syria was not in the news that much. That said, five years after the dream but only two weeks before the drawing (a more finished version of an illustration in the original 2006 journal entry), on March 15, 2011, protests against Bashar Al-Assad's government began.

In 2013, Hezbollah entered the war in support of the Syrian army [78][79] In the east, the Islamic State of Iraq and the Levant (ISIS), a jihadist militant group which was initially linked to Al-Qaeda in Iraq, made rapid military gains in both Syria and Iraq, eventually

Figure 1. Sample page from the dream database, with "symbol" tab open.

Search and Analysis

To code the dreams, every scene was read carefully for features that matched the selection criteria. To be clear on this point, 'each dream' refers explicitly to every dream contained in the database. All of these were read in their entirety at least once to identify symbolic content. For an appreciation of the size of this task, the book *Les Miserables* by Victor Hugo contains 655,478 words, or 145,600 fewer words than are contained in the journals.

To accommodate positive results, the database was modified by adding several coded fields relevant to symbols. When symbolic content was found, the scene was then marked and set aside for more detailed coding after the entire database had been read. At that point, the marked scenes were coded by symbol type (personal, warning, visualization, etc.), whether the symbol was complete, how the symbol was presented (seen, heard, shown, or described), and an explanation provided for each symbol (Figure 1).

In some cases, veridical psi content made it possible to determine that a dream was not symbolic. For instance, on October 20, 1989, I dreamed of a talking egg in a sock that is smashed into a wall. At first glance the content appears bizarre and potentially symbolic—such as a metaphor for anger or the fragile state of one's emotions. However, on the following night I

viewed an original episode of *Saturday Night Live* on television that featured a talking egg in a sock that is smashed into a wall. Because the imagery is so unusual and there are hundreds of similarly veridical examples in the journal, it is statistically unlikely that the dream had no psi component or that it was symbolic (Paquette 2012a). It is examples like this that drove me to adopt the assumption that dream content is not symbolic unless it meets unambiguous criteria that identifies it as such. As an aside, veridical dreams also had the effect of inhibiting my willingness to describe dream content as 'bizarre'. The smashed talking egg dream is certainly bizarre, but not in the sense that it is impossible or a break with objective reality. Talking eggs may not exist, but a fictitious representation of one did exist (on the TV show).

Quantitative analysis is sufficient to establish the proportion of unambiguous symbolic content, the distribution of symbol types within symbolic dreams, the relationship of symbolic to veridical content, and the type of content most often found in symbolic dreams. However, a qualitative analysis allows a richer view of the data. For that reason, dreams were coded by type, and then symbolic and non-symbolic dream content was compared to determine if there were any meaningful characteristics in either category. For instance, what kind of information is communicated in symbolic form? The talking egg dream was a literal representation of a scene I would see on the following day. Could it have been represented symbolically just as well? Or was a literal representation easier to understand and remember? In the dream itself I did not understand the content, but recognized the scene when I saw it on television later. Would symbolic communication be any clearer than non-symbolic imagery? To investigate this question, each dream had to be carefully read and analyzed.

Findings

Of the 11,850 scenes reviewed, 80 (0.68%) met the 3 criteria for unambiguous symbolic content. These 80 scenes were found in 78 of the nightly records (2.04%), 2 of which had 2 unambiguously symbolic scenes each. This is a very low proportion of the total number of dream scenes and records reviewed for this study if symbolic content is assumed to be common. Within dreams identified as containing unambiguous symbolic content, 11 were also veridical. This means that only 0.28% of all dreams were symbolic and veridical, in comparison with 10.82% of all dreams ($n = 424$) containing veridical content regardless of the presence of symbolic elements.

Together, these figures indicate that unambiguous symbolic content is extremely rare and that it is not commonly found in dreams that have

veridical paranormal content. This last finding undermines arguments that veridicality is manufactured on the basis of generous linkages between dream imagery and real world events. Since 99.72% of all veridical dreams in this sample did not contain unambiguously symbolic content but were instead literal representations of later events, veridicality cannot be ascribed to the mistaken interpretation of symbols. On this point it is important to note that it wasn't just the rarity of unambiguous symbolic content, but the presence of unambiguously literal content that argues against an interpretation that symbolic content is common in precognitive dreams.

The way unambiguous symbols were presented favored the form of an explicit message from a dream character (n = 49, 61.3%). As an example of the most extreme form of this, in a dream dated June 8, 1999, a dream character shows me a tree-like network structure as a metaphor for the many paths available to spirits in multiple lives. He then brings me to another character as a way to complete the message. This new character is aware that I am dreaming and explains that the first character was responsible for making the symbol I viewed but that she would explain it to me because her style of communication was more compatible with my abilities. In this dream, the following are explicitly clear: 1) my dream state, 2) that a specific dream object is a symbol, and 3) the meaning of the symbol. Not all dreams are as obvious, but can still be readily identified as communication from an independent source.

In a dream dated February 27, 2006, I first see, as if I am an independent witness, a group of men who wish to assassinate Syria's leader, Bashar Al-Assad. Before they enact their plan, a dream character comes to me and asks me to accompany him. He tells me there is a vision he wants me to see. He brings me to the Syrian desert outside the town we were in where he shows me a giant lion sleeping in the moonlight (Figure 2). This is a symbol of a great danger, not yet awakened, coming from Syria and (presumably) related to the men who wanted to assassinate Al-Assad seen earlier. In this example, I am not lucid nor does the dream character who shows me the symbol make me aware of my sleeping state. However, he addresses me directly—unlike the would-be assassins—and does so specifically for the purpose of showing me something identified as symbolic within the dream. Unlike the previous example, he does not explain the meaning of the symbol.

An image not identified as a symbol can be explicit or implicit, depending on how obvious it is. In an example from December 14, 2010, a dream character gets my attention and asks me to accompany her so that I may see something. She shows me a group of hundreds of people falling

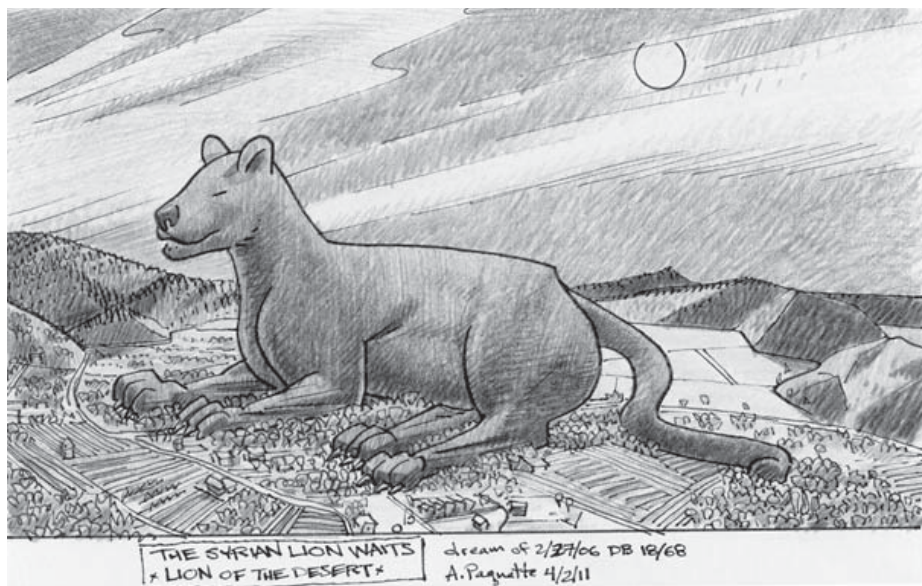


Figure 2. A drawing based on a sketch from the journal on the night of the Syrian lion dream.

from the sky, each of whom has a large wooden cross tied to their neck by a hangman's noose (Figure 3). The effect is very similar to watching a crashing airplane that has been reduced to bodies and debris. In the dream, however, each piece of debris has been supplanted with crosses and nooses. I took this to be a symbol for people who were murdered in a plane crash because of their religious affiliation, assumed to be Christian.

In a minority of symbolic dreams ($n = 30$, 37.5%), no communicator was present, but the dream content matched the other criteria used here to identify them as symbolic. In an example of this, a dream dated June 4, 1990, referenced an earlier dream from the previous month. In that dream, I saw the 'skyscrapers' in the area of the World Trade Center leveled to rubble, followed by what looked like a 20-story high tidal wave washing through the fallen buildings (this resembled closely the appearance of the dust cloud that followed the actual collapse of the World Trade Center on 9/11/2001). In the June 4 dream, a person asked me about the earlier dream, insisting that I give him as much detail as possible. After I finish talking to him, I see two billiard balls roll off a shelf: the "9" and "11" balls, in that order. This is one of 11 veridical symbolic dreams. It is identified as symbolic for two reasons: First, the reference to the earlier dream establishes the context

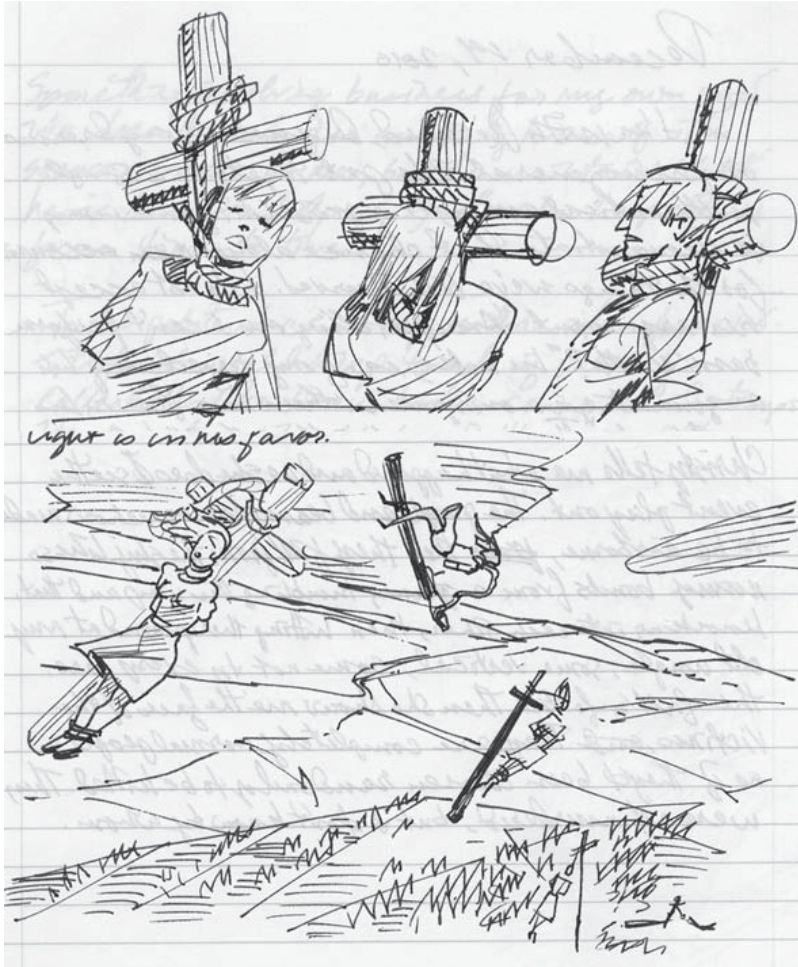


Figure 3. An illustration from the journal, made the night of the dream, December 14, 2010.

as related to the World Trade Center disaster, and second, the numbers on the billiard balls are presented in the context of an attempt to respond to insistent questioning about the other dream. Therefore, it may be inferred that the numbers represent information relevant to the question I was trying to answer, and they were relevant to the date of the disaster the previous dream appears to reference.

A non-veridical example of an obvious symbol comes from an entry

dated January 15, 1991. In this dream, a piano's keys have been replaced by the spines of a group of war and horror-themed comic books in bound volumes. When I played the piano, I could see visions of real war and carnage. This is not a particularly difficult symbol to master given the obvious relationship between war comics and images of war.

Lucid dreams ($n = 16$, 20%) were less common than non-lucid dreams ($n = 64$, 80%) among dreams with unambiguously symbolic content. This differs significantly from the overall lucid dream count for the journal ($n = 89$, 0.75%), where they are proportionately rarer. This is likely because there appears to be an effort on the part of dream characters who are communicating symbol-related information to inform me that I am dreaming. In one non-lucid example of this from January 3, 2008, a pair of dream characters seem to be making strenuous efforts to 'wake' me within the dream. They do not succeed, but the dream was very intense and rich with detail, making it easy to understand their goal after waking. In another example, from January 31, 2003, a dream character tries to wake me several times within the dream, and eventually succeeds by asking me to smell some herbs. At that point the dream becomes lucid and he is able to converse with me more easily. This type of thing has happened with other dreams, where a dream character induces me to ingest something—usually tea—and this has the effect of making me conscious of my dream state. Once this has been done, the character will impart a message to me, sometimes remarking on the fact that I am dreaming and should take care to remember the message.

Dream intensity was measured on a 6-point scale, from 0 to 5, where 0 denoted a dream that was not intense and 5 described a dream that was extraordinarily intense. Symbolic dreams did not settle on any one value, but were spread out fairly evenly across the middle 4 values (Table 1).

The findings presented here provide examples of dream content that is unambiguously symbolic. The content is described as symbolic within the dream, it is communicated to the dreamer by an independent dream character, the purpose of the communication is given, and the meaning of the symbol is (sometimes) explained. This is in contrast to assumptions made by other researchers that dream content may be symbolic even when there are no overt indicators that it is (Schredl 2010). These findings also explicitly present examples of dream characters who are aware of the dreamer's dream state, that they are independent of the dreamer, and that they have original content to provide the dreamer for the express purpose of remembering it upon waking.

Dreams that have not been assigned to a specific category of interest, such as day residue, veridical, symbolic, death-related, spiritual, etc., are

TABLE 1
Frequency of Dreams, Sorted by Intensity

Intensity	Frequency	Percent
0	6	7.5
1	20	25.0
2	20	25.0
3	22	27.5
4	11	13.8
5	1	1.3

“unassigned.” These dreams may belong in a category of interest, but lack sufficient justification to be so. They cannot be described as being homogenous as a group because they contain too much variety of subject matter and type of experience. For example, an unassigned dream entry from June 11, 2001, reads “A receipt for an unused plane ticket from Nice to LAX in the mail. It has the message ‘Failure to board’ and ‘Failure to exit’ printed on it.” It is plausible that I would fly out of LAX because I lived in LA at the time, but is unrelated to my activities at the time of the dream. I have also been to Nice, but not until 2007, when I flew there from Amsterdam. In a dream from a few days earlier, I watch a group of penguins as their beaks clack open and shut as if they are talking. Not an implausible scene, but difficult to classify because there is no known connection to anything in my life at the time. Other unassigned dreams are simple scenes of me travelling through various locations—local and exotic—observing whatever happens to be there. One thing that is true of many of these dreams—but not all—is that the scenarios they represent are normal and plausible.

Discussion

In a lucid dream dated February, 3, 2006, a dream character first informs me that I am asleep, and then explains that symbols in dreams are a form of communication employed to enhance the memorability and quality of messages given during sleep states. She says that communicators—implied to be spirits of some kind—have different communication styles and skill levels. This, she said, accounts for the sometimes variable quality of symbolic communication in dreams. She says this in the context of a

symbol she showed me earlier in the dream. She goes on to say that the origin of these dreams is not local to my own consciousness, but that they are deliberate productions created by others for my benefit. The explanation is logical, but is it credible?

The argument against accepting dream-derived paranormal knowledge—any knowledge from an external source—is the same as any argument against paranormal phenomena in general. However, those arguments suffer from a lack of accord with data produced by parapsychologists who have studied such diverse subjects as mediumship (Rock & Beischel 2008), telepathy (Braude 1978), reincarnation (Stevenson & Samaratne 1988), and paranormal dreams (Stevenson 1992). Data produced in parapsychology studies strongly indicate that paranormally derived information can be received from nonlocal sources, and that it is not as rare as critics claim (Tart 2009).

What the field of parapsychology has not yet produced is a reliable means to test the credibility of ancillary non-veridical content. In this study, there are 11 veridical dreams. The veridical content can be verified by comparison with the real world events they correspond to, such as in my dream of the Syrian lion. A little research reveals that the group of Islamic radicals currently known as ISIS started in Syria as a group of people described as the ‘Lions of Syria’ by their inspirational leaders. Their original goal was to assassinate Bashar Al-Assad and restore Islamic rule to Syria. These details correspond to the most obvious interpretation of my dream. However, the way that information is conveyed cannot be verified. There is no giant sleeping lion in Syria, and the dream character who showed this symbol to me cannot be proven to exist. And yet, the symbol and context of the dream appeared to describe something empirically real that I only found out about in 2014, 8 years after the dream, when I ran across a reference in the news to Ayman Al-Zawahiri who referred to ISIS members as the ‘Lions of Syria’ in a speech on August 20, 2011.

This study originated in a desire to compare the expectation among some that dreams are rife with symbolic content with the reality presented within my journals that symbolic content appears to be rare. More than that, I intended to analyze the dreams to see if any general themes could be established. I was aware of dreams that provided explanations for dream symbols, but until this research was conducted I was not aware of how consistent the content is. Not only is unambiguously symbolic content unusual, but when it appears it seems to follow rules established by dream characters. That is, the symbols are used for a specific purpose (to communicate messages to me) by nonlocal characters, with the specific goal

of allowing the message to make the transition from sleep consciousness to waking consciousness. It is not possible in the context of this research to establish the validity of the explanations provided by dream characters for symbolic content in dreams, but they do provide an indication of how unambiguously symbolic content can be identified, and that can be used as a first step toward further research on this question.

References Cited

- Alvarado, C. S., & Zingrone, N. L. (2008). Ian Stevenson and the modern study of spontaneous ESP experiences. *Journal of Scientific Exploration*, 22(1):44–53.
- Bem, D. J. (2011). Feeling the future: Experimental evidence for anomalous retroactive influences on cognition and affect. *Journal of Personality and Social Psychology*, 100(3):407–425.
- Braude, S. (1978). Telepathy. *Noûs*, 12(3):267–301. <http://www.jstor.org/stable/2214740>
- George-Joseph, G., & Smith, E. W. L. (2008). The dream world in Dominica. *Dreaming*, 18(3):167–174. doi:10.1037/a0013384
- Gillen, P. (1989). Myths of the unknown: Omens and oracular discourse. *Journal of Pragmatics*, 13(3):407–425. doi:[http://dx.doi.org/10.1016/0378-2166\(89\)90063-5](http://dx.doi.org/10.1016/0378-2166(89)90063-5)
- Graff, D. E. (2007). Explorations in precognitive dreaming. *Journal of Scientific Exploration*, 21(4):707–722.
- Gregor, T. (1981). "Far, Far Away My Shadow Wandered . . .": The dream symbolism and dream theories of the Mehinaku Indians of Brazil. *American Ethnologist*, 8(4):709–720.
- Hobson, J. A. (2002). *Dreaming: An Introduction to the Science of Sleep*. New York: Oxford University Press.
- Jung, C. J., Franz, M.-L. v., Henderson, J. L., Jacobi, J., & Jaffe, A. (1968). *Man and His Symbols* (60th paperback edition). New York: Dell.
- Krippner, S. (2006). Geomagnetic field effects in anomalous dreams and the Akashic field. *World Futures*, 62:103–113. doi:10.1080/02604020500412741
- Krippner, S., & Friedman, H. L. (2010). Debating Psychic Experience: Human Potential or Human Illusion? Praeger. p. 236.
- Krippner, S., & Ullman, M. (1970). Telepathy and dreams: A controlled experiment with electroencephalogram-electro-oculogram monitoring. *The Journal of Nervous and Mental Disease*, 151(6):394–403.
- Lohmann, R. I. (2000). The role of dreams in religious enculturation among the Asabano of Papua New Guinea. *Ethos*, 28(1):75–102.
- Merriam-Webster.com (2016). Symbol. <http://www.merriam-webster.com/dictionary/symbol>
- Oxforddictionaries.com (2016). Symbol. <http://www.oxforddictionaries.com/definition/english/symbol>
- Paquette, A. (2012a). A new approach to veridicality in dream psi studies. *Journal of Scientific Exploration*, 26(3):589–610.
- Paquette, A. (2012b). NDE implications from a group of spontaneous long-distance veridical OBEs. *Journal of Scientific Exploration*, 26(4):791–824.
- Rock, A. J., & Beischel, J. (2008). Quantitative analysis of research mediums' conscious experiences during a discarnate reading versus a control task: A pilot study. *Australian Journal of Parapsychology*, 8(2):157–179.
- Schredl, M. (2010). Dream content analysis: Basic principles. *International Journal of Dream Research*, 3(1):65–73.
- Stevenson, I. (1992). A series of possibly paranormal recurrent dreams. *Journal of Scientific Exploration*, 6(3):281–289.

- Stevenson, I., & Samaratne, G. (1988). Three new cases of the reincarnation type in Sri Lanka with written records made before verifications. *Journal of Scientific Exploration*, 2(2):217–238.
- Tart, C. T. (2009). *The End of Materialism*. Oakland: New Harbinger.
- Wamsley, E. J. (2013). Dreaming, waking conscious experience, and the resting brain: Report of subjective experience as a tool in the cognitive neurosciences. *Frontiers in Psychology*, 4:1–7. doi:10.3389/fpsyg.2013.00637

RESEARCH ARTICLE

An Experiment on Precognition with Planarian Worms

FERNANDO ALVAREZ

Calle del Molino 4, Tomares (Sevilla), Spain
alvar_gonzalez@hotmail.com

Submitted October 9, 2015; Accepted April 27, 2016; Published June 15, 2016

Abstract—The ability to predict a random noxious stimulus (a startle sound) was explored in the black planarian *Girardia dorocephala*. During the experiment, planarians were put individually and only once into a testing chamber and after 3 minutes either an audio startle stimuli or a control moment of silence was randomly presented (corresponding, respectively, to the 43 experimental and the 37 control subjects, all of them having the same time courses of observation). All worms were filmed during the experiment, and the frequency of their Head Movements (this behavior being indicative of distress and/or ambient exploration) was registered in the two 10-second segments immediately before and one minute before stimulus presentation for the experimental subjects and immediately before and one minute before the time point 3 minutes from start for the controls, which received no stimulus. Nonparametric comparisons of the frequencies of Head Movements showed that the values obtained during the two observation periods for the experimental planarians were significantly higher than those during the corresponding observation periods for the control planarians. Additionally, in both the experimental and control subjects no significant difference was observed between the values for the two observation periods within the same session. These results suggest that planarians are able to anticipate future events at least one minute before they occur.

Keywords: behavior—planarians—precognition

Introduction

The ability to perceive an event prior to its occurrence without any apparent clues has been demonstrated in humans by observational (Vassy 1978) and experimental studies dealing with changes in physiological variables such as heart rate, fingertip blood volume, electroencephalogram changes,

magnetic resonance imaging, electrodermal activity, and pupil dilation preceding the random presentation of emotional pictures (Radin 1997a,b, 2004, Bierman & Radin 1997, 1999, Bierman & Scholte 2002, McCraty, Atkinson, & Bradley 2004a,b, Sartori, Massaccesi, Martinelli, & Tressoldi 2004, Tressoldi, Martinelli, Massaccesi, & Sartori 2005), or audio startle stimuli (Spottiswoode & May 2003, May, Paulinyi, & Vassy 2005, Tressoldi, Martinelli, & Semenzato 2011, 2013).

The use of human physiology to predict the occurrence of future random events has been supported by a meta-analysis carried out by Mossbridge, Tressoldi, and Utts (2012). Since the phenomenon is based on unconscious physiological activity, the term Predictive Anticipatory Activity (PAA) is defined by Mossbridge, Tressoldi, Utts, Ives, Radin, and Jonas (2014) as “statistically reliable differences between physiological measures recorded seconds before an unpredictable emotional event occurs vs. seconds before an unpredictable neutral event occurs,” while the term precognition would apply more to a perception or a behavior (not a physiological measure).

Although research on non-humans would no doubt widen the opportunity for understanding the biological mechanisms involved in anomalous anticipatory activity, very few studies have been undertaken with them on this topic. The results obtained with birds (Alvarez 2010a,b) and mammals (Duval & Montredon 1968, Sheldrake & Smart 1998, 2000, Radin 2002) prove that the phenomenon also occurs in animals endowed with a highly developed nervous system. On the other hand, the nearly significant result obtained in an experiment performed with earthworms (Wildey 2001) suggests that it may also occur in animals endowed with a less complex nervous system.

When looking for a subject species furnished with a primitive nervous system and where PAA or precognition has been observed, we encounter the free-living freshwater planarians.

Within the phylum Platyhelminthes, the planarians are among the simplest living animals presenting bilateral symmetry and cephalization, the sense organs of vision (the ocelli or eyespots) and smell (the auricles) being located in the head. Consequently, planarians show quite active and directional locomotion.

Planarians are among the most primitive animals with a central nervous system (CNS), neurons representing up to 20% of the total number of cells in their body (Baguña & Romero 1984). Their CNS consists of a mass of bi-lobed cephalic ganglions in the head region, from which emerge the pair of laterally located nerve cords extending the length of the body and

connected by many transversal commissures. Their cerebral ganglion is the most primitive type of brain in animal evolution, although resembling that of the early developmental stages of the CNS of vertebrates, presenting a cortex of nerve cells and a core of nerve fibers, the neurons and synaptic organization resembling those of the vertebrate brain more than those of advanced invertebrates (Agata, Soejima, Kato, Kobayashi, Umezono, & Watanabe 1998). Accordingly, the planarian cerebral ganglion is not only the most primitive real brain, but may actually be the ancestor of the vertebrate brain (Sarnat & Netsky 1985, 2002).

In accordance with the complexity of its CNS, planarians rely on the sensory input of specialized receptors for detecting light, chemicals, vibrations, and water currents, and various types of pressures are integrated to provide motor responses of the entire body (Sarnat & Netsky 1985), planarians being also capable of learning and related skills (Thompson & McConnell 1955, McConnell, Jacobson, & Kimble 1959, Hicks, Sorocco, & Levin 2006).

Methods

A colony of black planarians *Girardia dorocephala* was maintained in $14 \times 22 \times 7$ cm polypropylene plastic containers filled up to 3 cm height with dechlorinated tap water at 21–23 °C, and fed raw beef liver once a week, followed by a water change. They were exposed to diffuse natural light during the day and kept dark at night.

The experiments were carried out between June 25 and August 3, 2015. The subjects were among the larger in the colony (10.5–15 mm long) and were used only one time for this experiment, being fed 3–6 days before the start of all trials (larger black planarians acclimated to 22 °C showed higher motility, remaining high and constant after 3–5 fasting days [Claussen, Grisak, & Brown 2003]). All trials were performed between 8:00 and 11:00 UT, since black planarians trained to perform a task in the morning appeared to learn the correct response significantly more often than those trained at night (Cohen 1965). To transfer the worms, 3 ml disposable plastic pipettes were used.

The concern for behavioral bias in relation to habituation and sensitization in planarians (McConnell 1966) and the fact that single-trial training can induce persistent sensitization in invertebrates (Hawkins, Kandel, & Bailey 2006, Acheampong, Kelly, Shields-Johnson, Hajovsky, Wainwright, & Mozzachiodi 2012) advise the use of single-trials in this experiment.

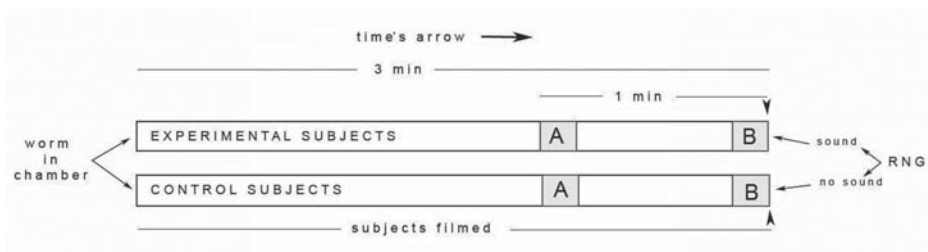


Figure 1. Order of events of the experimental sessions. Video-clips extracted for behavior analysis are represented in gray.

During each trial, one planarian was taken from its colony and placed in the experimental chamber. The latter was a $25 \times 45 \times 13$ mm plastic trough, filled up to 2–3 mm with water from the maintenance container of the trial subject, and kept at 21–23 °C during the trial. In order to provide sound stimuli to the subject, the chamber was placed on top of a plastic sheet, which was attached to a loudspeaker driver and the loudspeaker was connected to a computer.

During each experimental session and three minutes after the planarian was put into the chamber, a true random number generator (RNG) by Orion Electronics would determine whether a sound stimulus (gunshot.wav of 44100 Hz and 0.03 sec duration, downloaded from the Internet) was or was not presented. The first and second situations corresponded, respectively, to the experimental and control subjects (Figure 1). All subjects responded to the stimulus with a strong longitudinal contraction.

Beginning at the start of each trial, each subject was filmed with a 25 frames per sec video camera located 17 cm directly above the experimental chamber (a Sony DCR-SR72E provided with a polarizing filter in order to suppress glare from the water surface). In consonance with the species, minimum evoked ocellar potential in the red (mainly at 600 nm and above [Brown, Ito, & Ogden 1968]), diffuse illumination was provided by a led lamp emitting red 620–630 nm light.

Video analysis concentrated on quantifying the frequency of Head Movements during slow-motion film analysis (accuracy of 0.04 sec) in two 10-sec observation periods immediately before (–10 sec to 0 sec) and one min before (–60 sec to –50 sec), the presentation of the startle sound stimulus for the experimental subjects, and the corresponding two observation periods (–10 sec to 0 sec and –60 sec to –50 sec) for the control

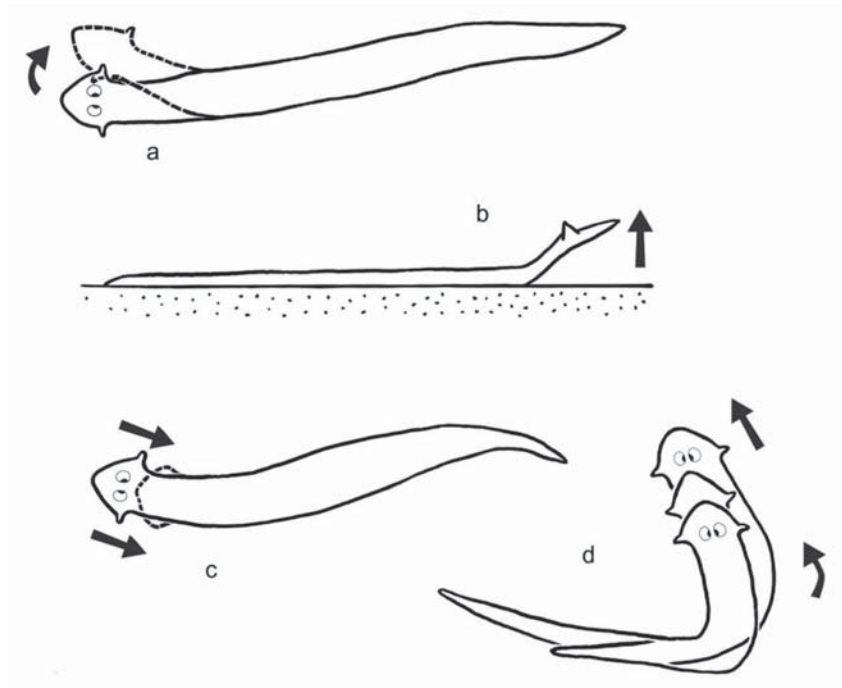


Figure 2. Forms of Head Movement behavior: a) lateral head turning, b) head lifting (seen from the side), c) head contraction, d) lateral head turning followed by change in direction of locomotion.

subjects, using VLC Media Player and Prism computer program by NCH Software.

I chose to quantify this behavior since it is the most common deviation shown by the worms during the usual smooth gliding motion, this behavior being also indicative of distress and/or ambient exploration (Pearl 1903, Brown, Dustman, & Beck 1966, Raffa & Dessai 2005). The sudden Head Movements shown by planarians during the normal straight gliding motion may consist of brief lifting of the head or lateral head turning (at least 45° with respect to the body axis, not to be mistaken with the smooth, slight swaying from side to side during locomotion), as well as longitudinal head contraction. Lateral head turning often results in a change in the direction of locomotion (Figure 2).

TABLE 1
Frequency of Head Movements Behavior for Each of the 10-sec Blocks
(A) 1 min before and (B) immediately before, Stimulation for
Experimental Subjects and Corresponding Periods for Control Subjects

	Mean \pm SE	N
Experimental A	0.86 \pm 0.13	43
Experimental B	1.14 \pm 0.17	43
Control A	0.38 \pm 0.11	37
Control B	0.41 \pm 0.10	37

In order to prevent experimenter subjective bias, after extracting from the film records the 10 sec blocks both immediately and one min before the presentation of the experimental and control stimuli (by the use of the VideoPad application by NCH Software), a third person provided them to the author (who analyzed the video clips), not indicating whether each preceded a sound stimulus or a control and then revealing it when the information for each subject was completed.

Statistical Analysis

Since the populations of behavior frequency values are not normally distributed (Experimental: N = 43, P < 0.05; Control: N = 37, P < 0.01, Kolmogorov-Smirnov test), a non-parametric technique was applied. The non-parametric Wilcoxon matched-pairs signed-ranks test was used to compare behavior frequencies of the two pre-stimulation observation periods for the experimental planarians and the corresponding observation periods for the control planarians. To compare behavior frequencies between experimental and control groups, the non-parametric Mann-Whitney U test for independent samples was used (Siegel & Castellan 1988). Data analysis was done using the STATISTICA 6.0 computer program. All reported p are two-tailed.

TABLE 2
Results of Comparison between Frequencies of Head Movement Behavior
during 10-sec Blocks (A) 1 min Before and (B) Immediately Before
Stimulation for 43 Experimental Subjects and Corresponding Periods for 37
Control Subjects

Experimental		Control	
A	B	A	B
Experimental A	T = 286.5, p = 0.223*	U = 549, p = 0.017**	U = 559.5, p = 0.022**
Experimental B		U = 464.5, p = 0.001**	U = 487, p = 0.003**
Control A			T = 49, p = 0.826*
Control B			

* Wilcoxon matched-pairs signed-ranks
 ** Mann-Whitney U test

Results

Frequencies of Head Movements behavior during the two observation periods (one min before and immediately before stimulation) for the experimental planarians more than doubled that of values during the corresponding observation periods for the control subjects (Table 1).

Comparison between the two pre-stimulus observation periods (immediately before and one min before stimulation) for the experimental planarians showed the value distributions of the two periods to be statistically equivalent, and the same situation was found in the case of the control planarians (Table 2).

When the comparisons were done among the frequencies of the two observation periods for the experimental subjects with those of the two observation periods for the control planarians, they appeared to be significantly different in all cases (Table 2 and Figure 3).

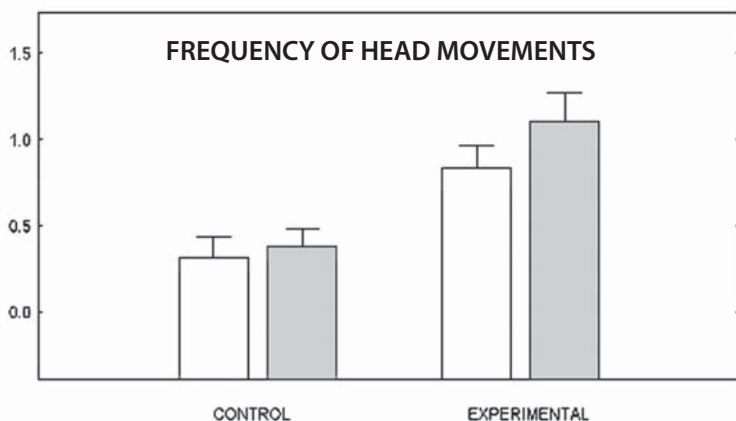


Figure 3. Mean and SEM frequency of Head Movements behavior of experimental planarians during the 10-sec observation periods one min before (empty bar) and immediately before (gray bar) stimulation.

In Figure 3, empty and gray bars for the control subjects refer to the corresponding observation periods (respectively, one min before and immediately before the silent time point of sham stimulation). In Figure 1, the end of the graph shows the trial time for the experimental and control subjects, and the small vertical arrows point to the moment when the RNG selected the stimulus (either a sound or a moment of silence).

Discussion

The significantly higher frequency of Head Movements before stimulation, as compared with that during the controls, supports the idea that planarians are able to anticipate future events, and that the effect is not limited to the few seconds before stimulation, but extends to at least one minute before.

Apart from head contraction and head turning being common responses to stress, the latter behavior also offers opportunities for ambient exploration, since the auricles (organs for olfaction) and eyespots (visual organs), both located on the head of planarians. Head turning often results in a change in the direction of locomotion, which would be the most obvious way to flee from impending danger.

For the present study, the pre-stimulus activity consisted of movements

indicative of distress and/or ambient exploration (Pearl 1903, Brown, Dustman, & Beck 1966, Raffa & Desai 2005), while the immediate post-stimulus activity is always a strong longitudinal contraction, sometimes followed by immobility (subsequent behavior was not recorded). Therefore, my results cannot be directly interpreted in consonance with those of Mossbridge, Tressoldi, and Utts' (2012) meta-analysis, where the aim was to test the hypothesis that the direction of pre-stimulus activity would predict the direction of post-stimulus activity.

On the other hand, these results are in accord with most studies dealing with prediction of random future events (and made clearer in Mossbridge, Tressoldi, & Utts' 2012 meta-analysis) in that the effect is small but highly statistically significant, the mechanism remaining unclear.

The phenomenon is anomalous in the sense of lacking an explanation in today's scientific paradigms. Nevertheless, as noted by Mossbridge, Tressoldi, Utts, Ives, Radin, and Jonas (2014), recent findings in quantum physics (weak measurements, delayed-choice entanglement, and quantum effects shown in biological systems) lend support to the existence of retrocausal quantum effects such as precognition or PAA in biological systems.

It appears of interest that in the case of planarians, the phenomenon extends at least one minute before stimulation (in that respect it differs from previous work on humans). Although the difference in the values obtained immediately before and one minute before stimulation (Figure 3) did not reach the level of statistical significance, the amount of the difference between the means for both populations represents one fourth of the frequency value for the time period immediately before stimulation, suggesting that nearness in time with respect to the moment of stimulation may offer a higher opportunity for prediction.

The proposed relationship of the planarian nervous system with that of vertebrates (Sarnat & Netsky 1985, 2002) may account for the occurrence of precognition in this primitive animal and in the human autonomous nervous system (McCraty, Atkinson, & Bradley 2004a,b, Sartori, Massaccesi, Martinelli, & Tressoldi 2004, Tressoldi, Martinelli, Massaccesi, & Sartori 2005, Tressoldi, Martinelli & Semenzato 2011, 2013), with the central nervous system (Bierman & Scholte 2002, Radin & Lobach 2007) apparently playing a role in the process. In any case, the finding that birds, mammals, planarians, and perhaps also earthworms can physiologically or behaviorally predict the future, point to this ability perhaps being an attribute of all or most animals.

References Cited

- Acheampong, A., Kelly, K., Shields-Johnson, M., Hajovsky, J., Wainwright, M., & Mozzachiodi, R. (2012). Rapid and persistent suppression of feeding behaviour induced by sensitization training in *Aplysia*. *Learning & Memory*, *19*:159–163.
- Agata, K., Soejima, Y., Kato, K., Kobayashi, C., Umezono, Y., & Watanabe, K. (1998). Structure of the planarian central nervous system (CNS) revealed by neuronal cell markers. *Zoological Science*, *15*:433–440.
- Alvarez, F. (2010a). Anticipatory alarm behavior in Bengalese finches. *Journal of Scientific Exploration*, *24*:599–610.
- Alvarez, F. (2010b). Higher anticipatory response at 13.5 ± 1 h Local Sidereal Time in zebra finches. *Journal of Parapsychology*, *74*:323–333.
- Baguña, J., & Romero, R. (1984). Quantitative analysis of cell types during growth, degrowth and regeneration in the planarians *Dugesia mediaterranea* and *Dugesia tigrina*. *Hydrobiologia*, *84*:181–194.
- Bierman, D. J., & Radin, D. I. (1997). Anomalous anticipatory response on randomized future conditions. *Perceptual and Motor Skills*, *84*:689–690.
- Bierman, D. J., & Radin, D. I. (1999). Anomalous unconscious emotional responses: Evidence for a reversal of the arrow of time. In *Toward a Science of Consciousness III* edited by S. R. Hameroff, A. W. Kaszniak, & D. Chalmers, Cambridge, MA: The MIT Press, pp. 367–386.
- Bierman, D. J., & Scholte, H. S. (2002). Anomalous anticipatory brain activation preceding exposure of emotional and neutral pictures. *Proceedings of the 45th Annual Convention of the Parapsychological Association*, 5–8.
- Brown, H. M., Dustman, R. E., & Beck, E. C. (1966). Experimental procedures that modify light response frequency of regenerated planaria. *Physiology and Behavior*, *1*:245–249.
- Brown, H. M., Ito, H., & Ogden, T. E. (1968). Spectral sensitivity of the planarian ocellus. *The Journal of General Physiology*, *51*:255–260.
- Claussen, D. L., Grisak, A. G., & Brown, P. F. (2003). The thermal relations of the freshwater triclad flatworm, *Dugesia dorotocephala* (Turbellaria: Tricladida). *Journal of Thermal Biology*, *28*:457–464.
- Cohen, J. E. (1965). Diurnal cycles & maze learning in planarians. *The Worm Runner's Digest*, *7*:20–24.
- Duval, P., & Montredon, E. (1968). ESP experiments with mice. *Journal of Parapsychology*, *32*:153–166.
- Hawkins, R. D., Kandel, E. R., & Bailey, C. H. (2006). Molecular Mechanisms of Memory Storage in *Aplysia*. *Biological Bulletin*, *210*:174–191.
- Hicks, C., Sorocco, D., & Levin, M. (2006). Automated analysis of behavior: A computer-controlled system for drug screening and the investigation of learning. *Journal of Neurobiology*, *977*–*990*. doi:10.1002/neu
- May, E. C., Paulinyi, T., & Vassy, Z. (2005). Anomalous anticipatory skin conductance response to acoustic stimuli: Experimental results and speculations about a mechanism. *The Journal of Alternative and Complementary Medicine*, *11*:695–702.
- McConnell, J. V. (1966). Comparative physiology: Learning in invertebrates. *Annual Review of Physiology*, *28*:107–136.
- McConnell, J. V., Jacobson, A. L., & Kimble, D. P. (1959). The effects of regeneration upon retention of a conditioned response in the planarian. *Journal of Comparative Physiological Psychology*, *52*:1–5.

- McCraty, R., Atkinson, M., & Bradley, R. T. (2004a). Electrophysiological evidence of intuition: Part 1. The surprising role of the heart. *The Journal of Alternative and Complementary Medicine, 10*:133–143.
- McCraty, R., Atkinson, M., & Bradley, R. T. (2004b). Electrophysiological evidence of intuition: Part 2. A system-wide process? *The Journal of Alternative and Complementary Medicine, 10*:325–336.
- Mossbridge, J., Tressoldi, P., & Utts, J. (2012). Predictive physiological anticipation preceding seemingly unpredictable stimuli: A meta-analysis. *Frontiers in Psychology, 3*:390.
- Mossbridge, J., Tressoldi, P., Utts, J., Ives, J. A., Radin, D., & Jonas, W. B. (2014). Predicting the unpredictable: Critical analysis and practical implications of predictive anticipatory activity. *Frontiers in Human Neuroscience, 8*:146. doi:10.3389/fnhum.2014.00146
- Pearl, R. (1903). The movements and reactions of fresh-water Planarians: A study in animal behaviour. *Quarterly Journal of Microscopical Science, 46*:509–714.
- Radin, D. I. (1997a). Unconscious perception of future emotions: An experiment in presentiment. *Journal of Scientific Exploration, 11*:163–180.
- Radin, D. I. (1997b). *The Conscious Universe*. San Francisco: HarperEdge.
- Radin, D. I. (2002). A dog that seems to know when his owner is coming home: Effect of environmental variables. *Journal of Scientific Exploration, 16*:579–592.
- Radin, D. I. (2004). Electrodermal presentiments of future emotions. *Journal of Scientific Exploration, 18*:253–273.
- Radin, D., & Lobach, E. (2007). Toward understanding the placebo effect: Investigating a possible retrocausal factor. *The Journal of Alternative and Complementary Medicine, 13*:733–740.
- Raffa, R. B., & Desai, P. (2005). Description and quantification of cocaine withdrawal signs in *Planaria*. *Brain Research, 1032*:200–202.
- Sarnat, H. B., & Netsky, M. G. (1985). The brain of the planarian as the ancestor of the human brain. *Canadian Journal of Neurological Sciences, 12*:296–302.
- Sarnat, H. B., & Netsky, M. G. (2002). When does a ganglion become a brain? Evolutionary origin of the central nervous system. *Seminars in Pediatric Neurology, 9*:240–253.
- Sartori, L., Massaccesi, S., Martinelli, M., & Tressoldi, P. (2004). Physiological correlates of ESP: Heart rate differences between targets and non targets. *Journal of Parapsychology, 68*:351–360.
- Sheldrake, R., & Smart, P. (1998). A dog that seems to know when its owner is returning: Preliminary investigations. *Journal of the Society for Psychical Research, 62*:220–232.
- Sheldrake, R., & Smart, P. (2000). A dog that seems to know when its owner is returning: Videotaped experiments and observations. *Journal of Scientific Exploration, 14*:233–255.
- Siegel, S., & Castellan, N. J. (1988). *Nonparametric Statistics for the Behavioral Sciences*. Madrid: McGraw-Hill.
- Spottiswoode, S. J. P., & May, E. C. (2003). Skin conductance prestimulus response: Analyses, artifacts and a pilot study. *Journal of Scientific Exploration, 17*:617–641.
- Thompson, R., & McConnell, J. V. (1955). Classical conditioning in the planarian *Dugesia dorotocephala*. *Journal of Comparative and Physiological Psychology, 48*:65–68.
- Tressoldi, P. E., Martinelli, M., & Semenzato, L. (2011). Let your eyes predict: Prediction accuracy of pupillary responses to random alerting and neutral sounds. *Sage Open, 1*:1–17.
- Tressoldi, P. E., Martinelli, M., & Semenzato, L. (2013). Pupil dilation prediction of random events F1000Research, 2:262. doi:10.12688/f1000research.2-262.v1
- Tressoldi, P. E., Martinelli, M., Massaccesi, S., & Sartori, L. (2005). Heart rate differences between targets and nontargets in intuitive tasks. *Human Physiology, 31*:646–650.

- Vassy, Z. (1978). Method of measuring the probability of 1-bit extrasensory information transfer between living organisms. *Journal of Parapsychology*, 43:158–160.
- Willey, C. R. (2001). *Biological Response to Stimulus*. M.S. Thesis, University of Texas, Arlington.

COMMENTARY

On Marc Thury's *Les Tables Tournantes*

CARLOS S. ALVARADO

carlos@theazire.org

Submitted February 17, 2016; Accepted April 26, 2016; Published June 15, 2016

I was glad to see a discussion of table turning in a recent issue of the *JSE* (29:4, Winter 2015) in which the author mentioned the work of various pioneer investigators, among them Marc Thury (Gimeno 2015). Because Gimeno only mentioned this work briefly, and due to the few discussions of Thury's work in the contemporary literature (such as Evrard 2016:82–84), I will summarize selected aspects of the work in these brief comments. According to Yung (1906), Marc Thury (1822–1905), born in Switzerland,

was a quasi-universal savant, at times an engineer, a mechanic, an astronomer, a physicist and metaphysician, a botanist, a physiologist and sociologist . . . His curiosity was immense and his aptitudes incredibly varied. (Yung 1906:3)

In *Les Tables Tournantes Considérés au Point de Vue de la Question de Physique Générale qui s'y Rattache*, Thury (1855) discussed his observations of table turning, as well as some theoretical concepts. He wrote in his Introduction that regarding table phenomena there was, for scientists, but one alternative. One could reject the claims “in the name of common sense and the results achieved by science . . . as puerile games” not deserving serious attention (Thury 1855:5). Or, one could study the facts in detail to evaluate the “causes of illusion with which the public is deceived; separate the truth from the false, and shed full light on all sides of the phenomenon, physical, physiological, or psychological . . .” (Thury 1855:5).

One of the main purposes of his book is to present the results of Thury's table turning studies, with and without contact with the hands of the sitters. He was convinced that movements took place in the latter condition. On one occasion:

Five people sitting around a light table, holding their hands three quarters of an inch above the top: The table turned. The test was repeated several times with the same success. We ensured with the light that no finger rested on the top, and also watched the feet. (Thury 1855:16)

There were other attempts to ascertain that the sitter's fingers were not touching the table. Sometimes, Thury wrote, "we saw the table was set in motion, without us being able to catch the slightest touch of the fingers" (Thury 1855:16).

Thury also used instruments to measure the force necessary to move the table. This, and other results, are summarized by Flammarion (1907: Chapter 7). Thury (1855) wrote:

Rubbing of 5 fingers 150 grams of traction. Insufficient, since it must reach the number of 2,000 to 3,000 grams.
 Pressure of 5 fingers 150 grams of traction. Insufficient.
 Pressure of 10 fingers. 1,000 grams of traction. Insufficient.
 The unperceived rubbing of at least 70 to 100 fingers, or the involuntary pressure of at least 20 to 30 fingers, must be supposed, inadmissible suppositions. (Thury 1855:55)

A later section covered topics such as aspects relating to the hypothetical force causing the table movements. Forming a chain by using the hands of the sitters produced good results. As stated by Thury, this worked for de Gasparin (1854), but it was not clear if it was essential. Also, several operators seemed to be necessary. Nonetheless, this did not seem indispensable, "but only a way to increase the force" (Thury 1855:26).

There were also discussions about explanatory concepts. Fraud and electricity, as well as other bodily emanations, were considered and rejected. Unconscious movements, the author was clear, could not explain movements without contact.

The issue of contact was also assessed by putting a layer of flour on the top of the table while movements were produced with hands placed at a distance from the table. But the flour was not affected (Thury 1855:17).

Thury did not accept spirit agency. Referring to communications obtained via the tables, he wrote that "the intervention of spirits could be concluded from the content of the revelations, in case that their content would be such that it could not come from the human soul" (Thury 1855:46). Thury stated, however, that his concern was with physical manifestations.

Emphasis on human agency was clear in Thury's accounts of the experiences of a man referred to as N., who had table seances in his home in which children participated and communications were received. A child

who had been present in some successful seances experienced strange phenomena while receiving a piano lesson. A strange sound came from the piano, which also moved, causing the child and the piano instructor to leave the room. Later, N. was present during a lesson and he also heard the sound (musical and metallic) and saw that the two front legs of the piano were lifted, phenomena that were repeated for 15 days when the child was sitting by the piano. It was stated that the child did not want the phenomena. However, in Thury's view, the issue was not one of lack of a conscious will or intention. He wrote that "sometimes our being splits, talks to itself (dreams), desires unconsciously what it does not want . . ." (Thury 1855:24).

Although Thury separated his own ideas from those of animal magnetism and the like, his explanatory principles were still part of the tradition of unorthodox concepts of force used by many to account for physical phenomena (e.g., Alvarado 2006). Various versions of such ideas were common in writings about table turning, among them those of de Gasparin (1854). The latter speculated that the movements of the table were caused by a fluid coming out from the sitters. He wrote that it seemed that "the table identifies with us in some way, becomes one of our members, and operates movements conceived by us in the same way that our arms do" (de Gasparin 1854:Vol. 1:96).

Thury speculated about a substance on which the soul could act directly, which he called "psychode." In his view this substance was "susceptible to very simple changes under the influence of the soul" (Thury 1855:44, italics deleted). Thury argued that the psychode was a universal substance particular to the organism that was not likely to come out, except in specific circumstances. "The will acts on the psychode" (Thury 1855:44), and through it on what this substance surrounds.

The concept of the psychode was similar to other ideas about an intermediary principle between a spiritual component and the physical body conceived to explain their interaction (e.g., Kardec 1863). In addition, Thury also argued that the psychode was "a particular state of matter, a state that usually occurs within the sphere of the organism," but which may exteriorize under some states, acting similar to diamagnetism in magnets (Thury 1855:45). He added in a footnote about this state: "We propose to name *ectenice* (. . . extension) state this particular state of the organism . . . in which the soul can somehow extend the usual limits of its action; and *ectenice force* that which develops in this state" (Thury 1855:45).

This is but a short summary of Thury's book, and one that does not cover all its content. But I hope that it will motivate those who read French to study the book itself, which is available online at <http://docnum.u-strasbg.fr/cdm/ref/collection/coll12/id/83677>.

References Cited

- Alvarado, C. S. (2006). Human radiations: Concepts of force in mesmerism, spiritualism and psychical research. *Journal of the Society for Psychical Research*, 70:138–162.
- de Gasparin, C^e A. (1854). *Des Tables Tournantes: Du Surnaturel en Général et des Esprits* (two volumes). Paris: E. Dentu.
- Evrard, R. (2016). *Enquête sur 150 Ans de Parapsychologie: La Légende de l'Esprit*. Escalquens, France: Trajectoire.
- Flammarion, C. (1907). *Mysterious Psychic Forces*. Boston: Small, Maynard.
- Gimeno, J. (2015). Shortage of rabbits or insufficient traps? Table-turning and the discovery of a presumably PK-gifted person in Argentina. *Journal of Scientific Exploration*, 29:585–600.
- Kardec, A. (1863). *Spiritisme Expérimental: Le Livre des Médiums* (sixth edition). Paris: Didier.
- Thury, M. (1855). *Les Tables Tournantes Considérés au Point de Vue de la Question de Physique Générale qui s'y Rattache, le Livre de M. le Comte A. de Gasparin et les Expériences de Valleyres*. Geneva: J. Kessman.
- Yung, E. (1906). *Marc Thury: Le Savant et Son Oeuvre*. Geneve: Imprimerie Central.

HISTORICAL PERSPECTIVE

Revealing the Real Madame d’Esperance: An Historical and Psychological Investigation

ADRIAN PARKER

Department of Psychology, University of Gothenburg, Gothenburg, Sweden
Adrian.Parker@psy.gu.se

ELISABETH WARWOOD

Submitted February 27, 2016; Accepted May 4, 2016; Published June 15, 2016

Abstract—Madame d’Esperance was a physical medium, well-known for her materialized forms, which bereaved sitters often recognized as their dead relatives. A critical evaluation is made of her acclaimed autobiographical account, *Shadow Land*, with a particular focus on her activities, first in Newcastle, England, and then in Gothenburg, Sweden. In this process, we had access to recently discovered archives and rare publications. A presentation is made of some of the fraudulent methods used by physical mediums and the possible psychological processes behind the remarkable experiences of the sitters attending séances.

Keywords: mediumship—dissociation—perception—history of psychical research—altered states

Arguably, the most bizarre and psychologically challenging cases in the history of psychical research concern the claims by physical mediums to produce materializations of human forms. The case presented here, that of Madame d’Esperance, is particularly challenging because bereaved sitters claimed to recognize and greet the materialized forms as their dead loved ones (Armstrong 1880, Aksakov 1897a, Barkas 1876, Bates 1880, Orthwaite 1879c, Oxley 1880, Resurgam 1880). The historical and psychological study of this case aims to provide some clarity concerning what took place and the psychological mechanisms behind such extraordinary experiences. This perspective may be considered as having current relevance for explaining the claims of some contemporary mediums

such as the controversial Kai Mügge (Braude 2014, 2016, Nahm 2014, 2016). Furthermore, the d'Esperance case has some notoriety because with one exception (Haraldsson & Gissurason 2015) it appears to be unique in claiming evidence for a partial dematerialization of the medium's body to have occurred.

In seeking an explanation for the various facets of this case, we have had access to the autobiography of the medium, written accounts from the period, some recently discovered archival records at the College of Psychic Studies in London, and finally a series of virtually unknown archived photographic and other documentation at the University of Gothenburg. It has been argued that the availability of photographic records is a prerequisite for determining the precise nature of the phenomena under scrutiny (Parker 2016).

This case is known in the literature as “Madame d'Esperance” or “Elizabeth Hope Reed,” with various permutations occurring in the spelling of d'Esperance (and Reed is sometimes given as Reid). Madame d'Esperance became something of a “nom de célébrité in spiritualistic circles in the early 1900s”: She is included as one of the “great mediums” in Doyle's historical review (1927/2011), and Inglis (1979:448) calls her “the most respected medium in Europe.” The claims surrounding her case are still regarded by some writers as enigmatic. For instance, Melton (1996) writes about the fraud issue: “that her case must remain open, though there is every reason to believe that she simply was never caught.” That she was *not* caught is, as we shall document, not actually true, but such statements illustrate some of the fundamental disinformation that characterizes the case.

Major difficulties arose in investigating this case, not least the disinformation that pervades much of the autobiography *Shadow Land or Light From the Other Side* (d'Esperance 1897) but also that most independent accounts of the events and séances are to be found only in rare spiritualistic publications. Many of these rare accounts exist only in Swedish, Norwegian, Danish, or German. When these difficulties are surmounted and accounts are collated, some claims can be shown to be fiction.

The Correction of Disinformation about This Case

There is no definitive or reliable biography of Madame d'Esperance, and the present account is not intended to be a complete or detailed biography but aims primarily to provide a corrective overview with a focus on the 20 years the medium was resident in Sweden, mainly in Gothenburg.

Many biographical accounts suggest that the real name of the medium known as Madame d'Esperance is Elizabeth Hope, and some record it as

Elizabeth Hope Reed, Reed being given as her married name (e.g., https://en.wikipedia.org/wiki/Mme._d%27Esperance). The surname of Hope may have been attributed to her because the French word *esperance* translates into the English *hope*, or because in her own biographical account she describes her mission in life as giving hope, hence the use of the nom de plume 'Esperance' to convey her purpose as a Spiritualist medium. The spelling of *Esperance* is usually given without the French accent aigu. Her birth date is usually given as 1855, and her death as occurring in 1919, but as we will reveal all of this (with the exception of the death date) can be shown to be incorrect.

In July 2013, a small collection of her personal papers was discovered in the archives of the College of Psychic Studies in London (formerly the London Spiritualist Alliance) where the medium had been held in high regard and where a painting of her is still prominently displayed. The papers had been deposited there in 1920, after the medium's death, by a Copenhagen Spiritualist friend, Mr. Jensen. Along with the papers was a covering letter, from Mr. Jensen to a Danish consulate with the following information: "Maiden name—Puttock d'Esperance, born 20/11/1855 (this date was given to me by herself). She had been married to Thomas J. Reed d'Esperance born at Durham City" (Price 2014).

Despite this information having been provided by the medium herself, it is flawed. It did, however, provide a starting point for an investigation by Warwood (2014) into her family history.

So, who was Madame d'Esperance? Using English public birth and death records, the only individual who could be identified with this background was Elizabeth Jane Puttock born in 1848, and baptized on December 10th of that year at St. James Church, Shoreditch, the daughter of George Puttock and his wife Elizabeth Jane Tovey. The birth certificate for Elizabeth Jane Puttock confirmed that she was born November 20, 1848, at 2 Browns Buildings, Clifton Street, Shoreditch. The employment of her father was given as mariner, which fitted somewhat with claims that the father was a sea captain. Also congruent with the d'Esperance account was that Elizabeth Jane Puttock had married Thomas Jackson Reed, on August 13, 1870, in Newcastle-on-Tyne.

The above data establish that 1855 as the year of birth is wrong, while confirming her marriage and the surname of her husband. The names "Hope" and "d'Esperance" are thus clearly inventions. The identification of d'Esperance as Elizabeth Jane Puttock has been independently confirmed through contact with present-day descendants of the Puttock family. In 2001, film producer Zoe Beloff gave a lecture, based on her dramatization

of d'Esperance's *Shadow Land or Light from the Other Side*, that attracted the attention of the Puttock family who made contact with Beloff, advising her that Madame d'Esperance was Elizabeth Puttock (Beloff 2001). More recently, the confirmation of her identity as Elizabeth Puttock has been provided by a descendant who inherited correspondence from d'Esperance to her sister Amy Puttock along with various handwritten and dated records of the medium's life in Sweden and Germany (Warwood 2015).

Hereafter, we think it is most appropriate to refer to the medium as Puttock–d'Esperance rather than any other variation of Puttock, Reed, Hope, or d'Esperance.

With this knowledge of true identity in mind, the claims made by Elizabeth Puttock–d'Esperance can be evaluated using census records and other historical records. There appear to be significant discrepancies between her version of her life and that shown in these records. The *Shadow Land* autobiography gives a vivid account of a lonely child living in a large house in Victorian London with access to a servant and nurse. She sees herself as a child gifted with the ability to see and contact ghosts in that house. Her preoccupation with these "shadow people" and the "shadow land" was considered unhealthy and led to contact with a physician who warned her of giving attention to these for fear she would be diagnosed "mad." The outcome was a convalescent voyage with her sea captain father.

How much truth is there in this autobiography? Table 1 shows the discrepancies.

According to the 1871 census, Thomas J. Reed, age 27, and Elizabeth J. Reed, age 22, were residing at 25 Sarah Street in Newcastle-on-Tyne. They appear to have separated by 1879, since her husband was then living with another woman to whom he was later recorded as being married, with children. In spite of this, no record of a divorce from Elizabeth has been found (Warwood 2014). Some secondary accounts (McCabe 1920) report incorrectly that she was a widow. The book *Shadow Land* makes no mention of the separation or widowhood but continues with a detailed account of her later life as a medium beginning with the 10-year period in Newcastle and then a long period of nearly 20 years in Gothenburg, which she used as a base to visit other parts of Scandinavia, Germany, and France.

Many of Puttock–d'Esperance's contemporaries appear to have been charmed by the apparent authentic ring to her story in the book *Shadow Land*. The book receives even today some acclaim for its experiential description of what it means to be a medium (Tromp 2006). Moreover, those who came in direct contact with her commented on her personal charisma (e.g., Aksakov 1897a, 1897b, Bjerre 1958, Seiling 1907). Poul Bjerre, one of the foremost Scandinavian physician–psychoanalysts of the period, published

TABLE 1
Discrepancies between the Autobiographical Account and Historical Records

Claims	Discrepancies from Historical Records
<p>Servant and Nurse: There was a "servant, who considered my liking for the haunted rooms as "uncanny" and unnatural" "I could never quite understand nurse's remarks about the loneliness of the rooms, though her threats about the ghosts frightened me." (p. 7)</p>	<p>The Puttock family had no servants and there is no evidence of a nurse being present.</p>
<p>Lonely childhood: ". . . my mother was an invalid and for a long time confined to her bed, I suppose there was sufficient occupation for our servant. There were no other children to keep me company; the little brother and sister who had been born only lived a few weeks, so that my earliest years were lonely ones, . . ." (p. 12) "Sometimes in my pleasure and wonderment I felt that I must talk with someone about these strange people whom no one but myself seemed to see. My confidants were usually an old servant and my grandmother who came sometimes for a few weeks to stay with us (p. 18). [At this point she is talking about being 14 years old.]</p>	<p>Her youngest brother George was born in 1850 and died in 1852, not "after having lived only a few weeks." By age 4, she had a younger brother and by 9, a sister. In 1861 the family resided at 2 Johnston Street, St. George in the East, a multiple occupation property in a then relatively poor area of London. There were no servants listed in the Puttock household. By then 12 years old, she was living with her mother and siblings Arthur, 8, Amy, 3, and George William 1. Another family also occupied rooms in the building.</p>
<p>Her age at Marriage: She relates meeting with the fortune teller who told her she would "be married in 2 years or less" and that this prediction came true (pp. 45–48).</p>	<p>At the time in 1868 she would be 18 or 19 which means she was 21, and almost 22, when she married Thomas Jackson Reed two years later in 1870, and not 19 as so many articles claim.</p>
<p>The return of the Shadow People: "It was during the first days of my married life that my dream people began again to haunt me. Transplanted from the midst of my small, noisy brothers and sister, from the busy life of elder sister, nurse, and governess to four obstreperous, mischievous young ones, to the solitude of my new home, alone for the greater part of the day with very little to occupy my time, I was horrified to find that the old fancies of seeing people about me returned in full force."</p>	<p>At this time, that is August 1870, her eldest brother was 17 and an apprentice engineer. Her sister Amy was 12, brother George 10 and Percy 6 which seems inconsistent with "small noisy brothers and sister."</p>
<p>Her father was a sea captain: In <i>Shadow Land</i> between p. 48 and p. 49 is a drawing by her of a ghost ship: She writes "The 'shadow ship' as I saw it in the Mediterranean in 1867 from the <i>SS Sardinian</i>."</p>	<p>George Puttock was a mariner who received his Masters Certificate in June 1863 after serving as Mate and then Master of the <i>Sardinian</i> between October 1859 and 1864. In 1867 when she claimed she was on the ship, he wasn't Master of the <i>Sardinian</i>, and in 1867 Puttock-d'Esperance, if she went on this voyage, would have been 19 years old and not 13 or 14 as she claimed.</p>

a detailed record that he had made of the 9 séances during 1894, which he in his student days attended in Gothenburg. Even writing 60 years later, his conclusions are still colored by the indelible impression of innocence and integrity that Puttock–d’Esperance had made upon him. Bjerre was well aware that there was evidence that she enacted the role of spirit forms. Perhaps in order to reconcile the apparent duplicity of the medium with her air of innocence together with his own positive experiences of her séances, he proposed a rather contrived theory of emanations being emitted from the medium’s body that temporarily transformed her face and body into the spirit form and vice versa (Bjerre 1958).

One of Puttock–d’Esperance’s most enthusiastic supporters was Alexandr Aksakov (occasionally written as Aksakof), a state councilor to the Russian Czar, with an active interest in psychical research. Akaskov took part in several of the Puttock–d’Esperance séances in Sweden and wrote an introduction to her book in which he praised her honesty and her psychic gifts yet vaguely hinted that the materializations in her séances were an enigma. He speculated that there was a dematerialization of the medium’s body and a re-materialization of it into the form of a dead person.

Some of these Scandinavian séances are described in detail in the autobiography and in other publications: Typically, those present sat for several hours in near darkness with the medium sitting in a cabinet while the sitters sang in chorus until eventually a wide range of spiritualistic phenomena would occur: Puttock–d’Esperance’s repertoire was more versatile than those of many physical mediums, ranging from table tilting, coded table raps, automatic writing, the drawing of spirit faces, the appearance of tall exotic flowers as apports, and most dramatic of all, the materializations of full-formed human figures that were recognized and sometimes embraced by sitters. Commenting on his written records and her autobiography some 60 years later, Bjerre held to his previous conviction that while fraud might have occurred, some phenomena were genuinely paranormal.

The autobiography in the light of the above discrepancies can indeed be considered as revealing at least some of the gifts the medium possessed, although perhaps not those she wished to be credited for. Undoubtedly, part of her success as a medium was due to her ability as a writer to describe events in a manner that gave a vivid impression of sincerity and a richness of inner life, especially in describing her apparent dissociated states. In addition to *Shadow Land*, she authored a second, although much lesser-known, book, *Northern Lights*, which concerns occult practices such as blood-stopping, healing, and psychic phenomena that she encountered on her travels.

Although any psychological profile carried out at distance, especially

120 years later, is a risky venture, the autobiography and life story is consistent with that of a “fantasy-prone personality” (Wilson & Barber 1983). However, just how fantasy proneness, as a psychological test measure, relates to mediumistic-type experiences, is largely unexplored. It is known that fantasy proneness has a series of rich and complex networks of relationships with paranormal experiences, suggestibility, a form of “normal dissociation” (such as absorption in inner experiences), creativity, and weak psychological boundaries with the world. A small percentage of such fantasy-prone individuals lack the ability to distinguish their fantasy from real events (see Parker [2015a, 2015b] for a review of current research on this topic).

Descriptions of the medium’s background from her time in Newcastle emphasize her unexpected intellectual gifts with respect to her limited educational background. For instance, Robertson writes that

she had, like so many spiritual exponents, no educational advantages. Ill health kept her from scholastic duties . . . When Mr. Barkas met her she was a young woman of twenty-six, the wife of an outdoor foreman. She was but a workingwoman, who, in her small house, did all the work thereof. (Robertson 1908:127)

Another historian of spiritualism describes her in a similar manner: “She seemed refined, though poorly educated” (McCabe 1920:167).

At that time, a common employment for women belonging to a working class background was to “go into service,” which meant working as a maid for the wealthy. Several writers have commented on how mediumship from the 1870s until 1930s fulfilled an important alternative role for gifted women from a working class background to assert themselves in a male-dominated society (Oppenheim 1985, Tromp 2006, Owen 1989, Herr & Wolfram 2009). The outlets for women who had creativity and strong emotional needs were extremely limited, and the emotional suppression of women may well be the explanation for the prevalence of the disturbance then labeled as hysteria. Two possible career choices that allowed for emotional expression were acting and mediumship. Choosing acting might provide a form of emotional fulfillment, but at that time the profession had a low status. Choosing to become a professional, fee-charging medium, especially for those with spiritual experiences, might be an alternative, but even that profession carried a somewhat dubious social status. A few mediums could attain the high status of a “society medium,” who officially did not charge fees but for whom donations from wealthy sponsors provided a comfortable means of support, which might have provided expression for their psychological and in some cases spiritual needs (Owen 1989).

The Newcastle Séances

Despite her working class background and her lack of formal education, the medium Puttock–d’Esperance seems to have rapidly risen in status in Newcastle and came to be regarded among spiritualists as “a pretty and refined young widow” (McCabe 1920:167). Yet the widow status does not tally with the records of her husband’s life. Thomas Jackson Reed and Emily Louise King had 8 children between 1880 and 1891, and he died at age 84 in 1927 (Price 2013:234 footnotes).

Newcastle seems to have been during the 1870s a thriving hotspot for Spiritualism and its mediums. The Spiritualist community in Newcastle was a relatively small and close-knit one, especially in the early to middle 1870s. People who considered themselves Spiritualists, and those who were the mediums of the movement, not only attended the lectures and séances but all the social activities as well—the social and musical evenings, annual picnics, bazaars, etc. What was initially called the ‘Newcastle Psychological Society,’ was formed in 1872 and became 7 years later The Newcastle Spiritual Evidence Society, which still exists to the present day. One of the driving forces in investigating physical mediumship during this early period was the bookseller and amateur naturalist (and later in life alderman) Thomas Pallister Barkas (Warwood 2014).

Two of Puttock–d’Esperance’s contemporaries rapidly became the main focus of attention by this Society and later by Fredrick Myers, Edmund Gurney, and Henry and Eleanor Sidgwick. These were the physical mediums Catharine Elizabeth Wood (1852–1884) and Annie Fairlamb (1856–1939). Catharine Wood went into service at the age of 14, but Fairlamb’s family situation was different. While her father died in 1871, when Fairlamb was 14, she had three older brothers who were fully employed in skilled work and still living at home, and this presumably helped her avoid the necessity of domestic service (Warwood 2014). The popularity of both these mediums led them by the mid-1870s to receive some moderate remuneration for their services by the above-mentioned Newcastle Psychological Society.

Some personal records of Puttock–d’Esperance were very recently (2015) found in the archives of the College of Psychic Studies, London. Concerning Wood’s and Fairlamb’s séances, she wrote that “according to report the manifestations produced through their mediumship were of a most extraordinary and convincing character.” It also appears clear from other records that she was willing herself to endorse Wood’s mediumship. Orthwaite (1879d:746) writes:

Mrs. Esperance wishes me to report that she and a friend attended Miss Wood's séance on the 20th inst., when the same forms as described above appeared under similar stringent conditions as those which I have related—in fact under such conditions, she says, as could not leave a shadow of a doubt in the minds of the sitters as to the genuineness of the phenomena.

If it is accepted that Wood and Fairlamb were fraudulently producing their phenomena, and there is considerable evidence for this, then Puttock–d'Esperance's involvement with them could have given her intimate knowledge of the methods used by both mediums to produce their materializations.

The Investigations of the Newcastle Mediums by the Cambridge Trinity College Group

A series of investigations over a 2-year period (1875 to 1877) of the mediums Catherine Wood and Annie Fairlamb has some historical significance. This is because the principal investigators were the Trinity College academics Frederic Myers, Henry Sidgwick, and Edmund Gurney, joined later by Walter Leaf and Eleanor Sidgwick. It was the first major investigation of physical mediumship by this group, and all of these investigators would go on to become founding or active members of the Society for Psychical Research. Trevor Hamilton in writing of Myers, notes that in this investigation that “he [Myers] and his colleagues began to hone the skills that would serve them well during the 1880s. The investigation of Wood and Fairlamb was extensive and thorough” (Hamilton 2009:95). Undoubtedly, it was these skills that enabled them to take the step from sheltered academia to the real world of mediums such as Eusapia Palladino.

News of the Newcastle mediums had reached the Trinity group by another of the future SPR's founding members, Hensleigh Wedgewood, who knew Barkas. The group, Myers, Sidgwick, and Gurney, took part, in various combinations, in sittings with the two mediums at the Newcastle home of Barkas between January and March 1875 (Gauld 1968). The séances took place in low light with the mediums sitting in a wooden-framed cabinet with the sitters singing hymns for some hours while they awaited the appearance of the materialized forms. Various human forms who were known from previous séances would then appear and interact with the sitters before finally returning to the cabinet. Subsequently, both Wood and Fairlamb were invited to London and paid to carry out a series of séances held at Myer's lodgings in

Mayfair commencing in April 1875, and a further series of sittings was carried out at Arthur Balfour's house.

To the credit of these investigators, a better method was then used to secure with padlocked belts the mediums, rather than the mere cords and seals in Newcastle. When the belts were considered securely tight, then no materializations occurred (Gauld 1968, Sidgwick 1886). Further tests with Eleanor Sidgwick present were carried out in Cambridge that summer. She wrote:

the form came out of the cabinet three times, and it was found by trial afterwards that the medium could each time have come just so far without breaking loose from the fastenings. This coincidence was suggestive. (Sidgwick 1886:52)

The investigators persevered during January 1877 with yet further tests, this time in Newcastle. Some years later, Eleanor Sidgwick revealed:

At any rate the indications of deception were palpable and sufficient, and we were not surprised to hear a few months later that a more aggressive investigator had violated the rules of the séance, and captured Miss Wood personating the 'spirit'. (Sidgwick 1886:53)

Details of the Catherine Wood exposure are given in the journal *The Medium and Daybreak* (Editorial 1877/2011). Annie Fairlamb, after marrying and giving birth to 3 children, moved with the family in 1891 to Australia where an intensive debate took place concerning her alleged exposure during a séance there (Psyche 1895).

At the stage when the Trinity College group carried out their investigations of the Newcastle mediums, Puttock-d'Esperance had not begun performing as a materialization medium but was claiming to have an extraordinary ability to receive "spirit guidance." Barkas (1876) gave a lecture concerning Puttock-d'Esperance's abilities entitled: "Recent Experiments in Psychology. Extraordinary replies to questions on scientific subjects by a young lady of very limited education." With the encouragement of Barkas, on a return visit to Newcastle in October 1875 Myers had sittings during three days with Puttock-d'Esperance but concluded that, although it was indeed a curious case, the knowledge she demonstrated failed to show any real understanding of the subjects she talked about (Myers 1885). This conclusion was elaborated on years later by Myer's colleague, Frank Podmore, who wrote:

I imagine a fairly intelligent schoolboy, if he had known beforehand the subject of his *viva voce* examination, and had been able, as Madame Esperance apparently was, to suggest or modify the questions, or when hard pressed to refuse an answer, above all, if his answers had been selected and touched up by a sympathetic examiner—such a schoolboy, I imagine, if he could have been induced to cram at all, would have had better results to show for his cramming. (Podmore 1902:130)

If Puttock–d'Esperance was not a materialization medium in 1875, then how did she become involved in physical mediumship and was it merely through learning the skills or tricks used by Wood and Fairlamb?

The Association of Puttock–d'Esperance with Fairlamb and Wood

In her supposed autobiography, *Shadow Land*, Puttock–d'Esperance records what is her first association with Fairlamb as occurring in the period 1873–1880 and “whose séances for materialization I had more than once attended” (Puttock–d'Esperance 1890:223). If the account is reliable, then Puttock–d'Esperance took part in a spiritualist circle as early as 1873 through her friends Matthews and Grace Fidler (d'Esperance 1897:216). This timeframe approximately fits with the first known reference to Puttock–d'Esperance (although her name was not given as such) by Barkas (1876) in his report entitled “Marvellous Psychological Phenomena.” Barkas states he had been investigating her mediumship for 8 months, the first séance he attended being held in July 1875. According to her book, she began giving her own private séances around 1879 and they were arranged by Matthews Fidler and William Armstrong.

During the 1870s, both Wood and Fairlamb were operating out of the Newcastle Spiritual Evidence Society's (NSES) premises at Old Freemasons Hall, Weir Court, Newgate Street, Newcastle. In March 1876, Wood had ceased involvement with the NSES while Fairlamb remained as the Society's medium until March 1877, at which time she resigned but still held séances there through Armstrong, her manager and one of the founders of the NSES. After her marriage in July 1878, she then as Annie Mellon held séances at her home in Byker Street, Heaton, Newcastle, before seeking new premises, which were eventually located at 28 New Bridge Street, Newcastle (Warwood 2013). This coincided with an announcement in February 1879 referring to Puttock–d'Esperance's coming performances at the same address. Fairlamb–Mellon commenced holding séances at these new premises on March 9, 1879. Then on May 1, 1879, Armstrong, writes:

about twenty ladies and gentlemen met to spend an hour in the séance rooms, . . . During the evening, Madame Esperance read a paper, giving a short but interesting account of her own personal experience, the reading of which gave great pleasure and was highly appreciated by those present. . . . Madame d'Esperance is at present holding clairvoyant séances on the Monday evenings in her séance rooms, 28 New Bridge Street, Newcastle-on-Tyne. (Armstrong 1879)

The point of giving this detail is that these records indicate that during a short period from May until August 1879 both Fairlamb–Mellon and Puttock–d'Esperance were operating out of the same premises. Puttock–d'Esperance held séances for clairvoyance, spirit portraits, and healing diagnosis while Fairlamb–Mellon held her materialization séances on Sunday mornings. This lasted until August 1879 when Fairlamb gave birth to her first child, and for the first time *The Medium and Daybreak* refers to “Mrs. Esperance as holding séances for ‘materialization’ in the absence of Fairlamb–Mellon” (Armstrong 1879, Announcement 1879). From this it is clear that Fairlamb and Puttock–d'Esperance had some level of interaction, and appeared to, on occasion, attend each other's séances, a conclusion that is also supported by Orthwaite's news reports on “Mrs. d'Esperance's seances” (Orthwaite 1879a, 1879b, 1879d). It seems clear then that when Fairlamb–Mellon was no longer able to perform due to childbirth, Puttock–d'Esperance stepped in to become a materialization medium to replace Fairlamb and her career as a ‘medium extraordinaire’ was born. These events are certainly suggestive of complicity, assuming that Wood and Fairlamb–Mellon practiced deliberate and continuous fraud.

By contrast, an extraordinary account is by given by Orthwaite (1879c) of how Puttock–d'Esperance's ability at materialization developed, but here it is attributed to the association of Puttock–d'Esperance with another medium, the medium's good friend, “Mrs. G.” To the modern-day reader, the account of their joint séances appears to read something like a pantomime. There were three adjoined but apparently sealed cabinets, one for each medium and one for the phantom. A performance took place involving numerous phantoms each appearing in succession and then retreating to their assigned cabinet. The author of this account is “F. Orthwaite,” who during this period wrote several accounts of the Puttock–d'Esperance séances, and whose true identity is almost certainly Matthews Fidler, since we know Fidler grew up in the hamlet Orthwaite, Cumberland. That said, the duplicity may have been for a good reason. During the 1870s Fidler was at that time employed as the shorthand clerk and bookkeeper for a solicitor, so the use of a pseudonym may have simply been to protect his employment. The medium identified above only as Mrs. G. would then be his wife Grace.

Matthews Fidler lived at this time very close to Puttock–d'Esperance's residence at 11 Denmark St. in the Newcastle-Gateshead district, one of the poorer areas, and both offered free consultations. Fidler would later under his own name continue to actively publicize Puttock–d'Esperance's ability to create materialized forms, which sitters recognized as relatives or friends (Fidler 1880).

The reader might easily be led to conclude that the phantoms originated entirely in the mind of the Fidlers, but there exist several accounts of the extraordinary experiences of those attending the Puttock–d'Esperance séances in Newcastle. Such an account, for instance, was written by the spiritualist William Oxley (1880:105):

Soon after the meeting commenced, and Mrs. Esperance had taken her seat in her part of the cabinet, a fine stalwart young man pushed the curtains aside, and stood in the opening thus made; he was dressed in a sailor's garb, with loose light-colored overshirt, dark-colored pants, and a blue cloth cap, with a gold lace band round it; he spread out his hands (which were large and well-developed), and, following the maternal instinct which recognized the form as that of her son, the lady rose from her seat, and, in two bounds, the two were clasped in each other's embrace. The effect upon my mind while witnessing this meeting between mother and son was one of deep sympathy and awe; standing, as we were, in the presence of a fact which, in a moment, dispersed to the four winds all the cavils, doubts, and skepticisms.

As with the Fairlamb and Wood cases, materialization séances always entailed the risk that an eager skeptic would grab the spirit and its ectoplasm and reveal this form to be the medium. This happened rather early on in the mediumship career of Puttock–d'Esperance when on August 25, 1880, during a séance in Newcastle, a sitter identified as a Mr. Warnes seized the supposedly materialized spirit of an Arab girl, with the unlikely name "Yolande" (a Germanic rather than an Arabic name). The sitter held on to Yolande, despite being "throttled" by an angry woman sitter, at least until the form was shown to be the medium, lightly clothed because she had left dress and boots behind in the cabinet (Resurgam 1880).

Despite the embarrassing exposure, Spiritualists rallied to the medium's support (Editorial 1880a, Editorial 1880b). For instance, a detailed evidential account (Bates 1880) was immediately published of a séance in North Shields at premises not known to Puttock–d'Esperance and involving the search of the medium by a woman sitter. Despite these precautions, a 3-year old child was seen to appear in the presence of the medium. To counter the imposture accusation, it was emphasized that in this case the

so-called spirit Yolande and the medium even responded to the request to be seen together. There is no evidence that Puttock–d’Esperance ever used accomplices, so clearly there is some enigma surrounding her performances that requires explanation, to which we will return to later.

In her book *Shadow Land*, Puttock–d’Esperance expresses her indignation over, as she sees it, the grabbing of her spirit form as a violation of her integrity: She writes: “All I knew was a horrible excruciating sensation of being doubled up and squeezed together, as I can imagine a hollow gutta percha doll would feel, if it had sensation, when violently embraced by its baby owner” (d’Esperance 1897:298). Appealing to the reader’s sympathy, she then tells how she developed a prolonged illness, which delayed her plans to depart with the Fidler family to Gothenburg.

Critics naturally suspected that the move to Gothenburg provided a means of fleeing from the public scandal in Newcastle (McCabe 1920), but this is contradicted by the account of the above exposure which is said to have taken place at the “final weekday séance before leaving England” (Resurgam 1880:580). In *Shadow Land* (pp. 296–297), it was also recorded that the departure had already been planned in order to accompany Grace [Fidler].

The Gothenburg Séances

Whether planned or not, this relocation to Sweden was enabled by the unfaltering support of the English merchant Matthews Fidler, whose business was now based in Sweden. At least part of the 1880s were spent at the rural Alster Hall near Karlstad in the Swedish county of Warmland where Fidler’s business enterprise was initially located. In Chapter 22 of her book, Puttock–d’Esperance states that following the Newcastle exposure, she was for some years at least publically inactive as a medium. It would seem now from her biographical account that she had attained the life of a society medium giving occasional private séances and spending her time idyllically “roaming the forests, riding, and sailing on the lakes” in a country that, much in contrast to today’s secular and technological Sweden, was populated by “God fearing folk with hard and poor lives.” It was in Warmland during 1883 that Puttock–d’Esperance met and gave séances for Sweden’s foremost poet, Gustav Fröding (Lindström 1957). In a lecture given in London in 1905 she even claimed that during this time she and her benefactor Matthews Fidler had a continual dialogue with the ghost of Fröding’s grandfather. This was Jan Fröding who had owned the Alster estate, and Fidler consulted with this ghost when introducing modern dairy farming techniques from his own agricultural background in Northern England (d’Esperance 1905).

Eventually her benefactor, Matthews Fidler, progressed from managing the Alster estate to owning his own firm exporting dairy goods from Gothenburg to England, and by the late 1880s Puttock–d'Esperance was at least nominally employed as a cashier in his firm, and was part of the Fidler family living in Gothenburg (Bjerre 1958).

By the late 1880s and early 1890s, Puttock–d'Esperance began a new life now in Gothenburg as a “society medium” among the richer families there. Among others, she attracted the industrialist Alexander Keiller, who originated from a Scottish family and was a successful entrepreneur with a deep interest in hypnosis and occult phenomena. Just how much Keiller regarded these séances as theatrical plays and how much belief he placed in the performances remains unclear (Bjerre 1958). Whatever the case, her reputation was now growing again, so much that she became known as “The Gothenburg medium” (McCabe 1920:212).

Progressing now from these occasional private séances, which involved the apparent clairvoyant reading of the content of envelopes and sketching of spirit forms, Puttock–d'Esperance returned in the late 1880s to give more regular materialization séances with larger groups of sitters (Bjerre 1958). She had also developed an interest in photography, and she describes in her autobiography that after “experimenting” for many hours she was able to produce “ghost photos” of the spirits that she could visualize. Like other contemporary spirit photos of that era, those she reproduced in her book simply appear to be no more than double exposures. Some of the fascination that she had with photographic images and the belief that this could reveal the spirit world became the theme of a contemporary drama–documentary on her early life (Beloff 2001).

The introduction of photography into the séance room not only produced “spirit photographs,” but it inevitably put mediums at risk for a different type of exposure. Rather than simply grabbing the medium in the dark, photography could now more subtly and with less disruption disclose what was happening. It was in Gothenburg in 1890 that a series of photographs from the Puttock–d'Esperance séances was published that revealed just that.

The Puttock–d'Esperance version of this event is described in Chapter 22 of her autobiography, and this can be compared with newspaper articles based on notes and with the original glass photo plates from the séance, which took place on March 13, 1890. All this material is to be found in the Torsten Hedlund Archive of the University of Gothenburg Library, and it is this material that we now summarize.

Several detailed articles appeared in major newspapers in March and April of 1890 based on the primary one, which was the account of five

séances given in *Göteborgs Handels and Sjöfarts Tidning* (Gothenburg's Trading and Shipping News) written by Torsten Hedlund. Hedlund was the son of the Editor of that newspaper, and had attended the séances along with a photographer. The article was not just intended as an exposure of the Puttock–d'Esperance mediumship, but was also a direct attack on the newly founded Gothenburg Society for Psychical Research, which seems to have been founded on the initiative of Matthews Fidler. The complaint was that rather than carrying out proper research as the Society's title professed, this Society had allowed Puttock–d'Esperance to trick the sitters by materializations that consisted merely of dolls and masks (Hedlund 1890).

These séances took place in Fidler's home, located at Drottninggatan 3 in the center of the city, in early March 1890, during which Hedlund made detailed notes. These notes, with reference to the photographs, formed the basis for the newspaper report. Hedlund described materialized forms known to the medium and the sitters as "Walter" and "Yolande," and finally what was described as an unknown "young, beautiful woman." All of these forms appeared from out of the medium's cabinet. What Hedlund called in his article "magic tricks" were, in making plants appear, a distinctive part of the medium's repertoire. At one point, the séance escalated to an apparently unprepared-for drama when what seemed to be a decapitated form came out of the cabinet whereupon the medium screamed, causing one of the sitters to enter the cabinet and discover a miniature head (presumably belonging to the decapitated body) among drapery lying beside the medium.

Using the magnesium flash photography of the day to illuminate the scene, 5 pictures were taken (these photos were taken directly from the glass plates in the Archive). Figure 1 reveals the medium dressed up enacting the role of Yolande (the supposedly Arab girl). In Figure 2, the medium is wearing a mask of a woman with the edge of it clearly seen tied to the medium's forehead (as enlarged in Figure 6b compared with Figure 6a). In Figure 3, the medium is seen together with a pile of drapery enclosing what appears to be a mask in it, whereas Figure 4 shows the medium sitting alongside what may be the same mask as in Figure 3. Finally, in Figure 5, the medium can be identified by her body length and hands, enacting the spirit Walter by means of wearing a moustache or mask (as enlarged in Figure 6c and compared with Figure 6a). Hedlund (1890) comments that some of the masks were well-constructed and that the medium's movements were carried out in a convincing manner. Sometimes the voice of the medium even appeared to come from the cabinet, which led Hedlund to speculate that some form of ventriloquism was involved (although how this would work without a doll is not known).

The Hedlund Archive includes clippings from several other Gothenburg



Figure 1. Madame d'Esperance.



Figure 2. Madame d'Esperance wearing the mask of a woman with the edge of it tied to the forehead (see enlargement in Figure 6b).



Figure 3. Madame d'Esperance with a pile of drapery enclosing the mask.



Figure 4. Madame d'Esperance sitting alongside the mask in Figure 3.



Figure 5. Madame d'Esperance as Walter with a moustache and/or mask (see enlargement in Figure 6c, as compared with Figure 6a).

newspapers as well as an angry letter from Fidler maintaining the medium's unquestionable integrity and innocence. The Archive shows how this exposure caught the public's interest for the next two weeks with numerous letters being sent to the Editors, both those denouncing the séances as pure *humbug* (the same word is used in Swedish) and those declaring the medium to be an innocent victim of the Editor's betrayal of the medium's trust. Bjerre in his account (written in 1894) recalls how the debate culminated in a photo (Figure 4) showing the medium and what appears to be a mask attached to drapery being exhibited in the Gothenburg bookshop.

The Puttock–d'Esperance version of these events is similar to that in Newcastle: She expresses indignation over the mistrust and deceit, but the

account is again devoid of any real substance or explanation for what occurred. Reference is made to an account said to be deposited in the Gothenburg Dickson Library, but a later attempt by Poul Bjerre (1958) to locate this document proved unsuccessful. With some apparent audacity, Puttock–d'Esperance published in her book edited versions of photos 1 and 3 from the Hedlund series (Figure 1 and Figure 3) and two new photographs



Figure 6. Madame d'Esperance (6a), enlargements of Fig. 1 (6b) and Fig. 5 (6c).

taken in June 1890 during the visit of Aksakov to Gothenburg (d'Esperance 1897). The latter ones are similar to the Hedlund photo (Figure 4) with the medium and an alleged spirit form, and the effect is to make them appear less incriminating than those in the Archive.

The visit of Aksakov in June 1890 was also marked by the sudden appearance of the exotic flower Golden Lily in a flowerpot prepared jointly by her spirit form Yolande and Aksakov. Remarkably, this plant was said to have grown to close to 2 meters in Fidler's and Aksakov's presence (d'Esperance 1897: Chapter XXIII) (see Figure 7).

These photographic incidents reported in the newspapers do not end entirely there in 1890, because the Archives contain a curious postscript

to these séances, dated 1922, 42 years later. In this account, Hedlund still maintained that the medium used tricks, but he now wishes to document there were aspects to the séances he witnessed (that he apparently had not made public at the time) that led him to believe that Puttock–d'Esperance could after all produce genuine phenomena. These said phenomena included 'emanations' from her that which were "shiny and fluttering," and which reached him and his wife's hands and took the appearance of a face, which gradually became diminished in size and disappeared.

We shall return to some of these aspects later, but it is clear that this exposure did not deter the further activities of Puttock–d'Esperance as a medium in Scandinavia. She continued to give séances in the early 1890s, not only in Gothenburg but also in Stockholm, Oslo, and Helsinki. Some of the accounts of these séances are summarized here because they can give further insight into the processes that lay behind the extraordinary experiences of the sitters.

In Stockholm, the rather well-known Swedish army major and theosophy author Oscar Busch attended a séance in January 1893 in which a sitter embraced her dead son; however, the careful inquiry afterward by Busch revealed that during the embrace the mother felt that the face was



Figure 7. Madame d'Esperance and the 7-foot Golden Lily.

embedded in a thin, damp veil, of which she could feel the tissue and small folds (Busch 1893).

Among the series of documented séances in Olso (then called Kristiania) in March and June 1892, there was one that followed the earlier content from Newcastle involving the materialization of a “small child,” which might have been an illusion created by the medium crawling (allegedly used at times by the Newcastle mediums Wood and Fairlamb) or by the use of a doll. However, for some of the Oslo séances, the medium would purposely sit outside the cabinet, which she had vowed to do since the Newcastle exposure, in order to reassure the sitters that she was not impersonating the “spirit” form. Many sitters became thus convinced by the appearance of various light forms while the medium was apparently seen still sitting in her place (Halversen 1893). There was one occasion when the séance apparently did not go according to plan, and this might give insight into what had actually been taking place. On this occasion, the materialized form became caught on a fixture on the cabinet, as a result of which a small part of the spirit’s cloth tore off. Later a corresponding hole was found in the medium’s black dress (Editorial 1892:147). Even so, Spiritualists still maintained that this occurred as part of the process of dematerialization of the spirit form back into the medium.

A further séance was carried out in Oslo the following year, April 1893, during which wax-casts were created from the spirit forms, with claims that the narrowness of the cast at the wrist for the hand to exit was evidence of dematerialization. Carrington (1920) would later reveal there was a technique that mediums used to produce this deception. Moreover, two participants were allowed to take a small sample of the material belonging to the spirit form. Examination by a textile shop showed it to be very thin silk (Garborg 1899).

The Helsinki Séance: A Case of Partial Dematerialization

Aksakov had attended materialization séances in June 1890 in Gothenburg, and he would later write the Introduction to Puttock–d’Esperance’s *Shadow Land*. It may well have been the case that he needed here to reconcile his absolute trust in the medium’s authenticity with the obvious resemblance of the materializations forms to the medium or to cardboard cut-outs. He also knew of the Newcastle exposure, which revealed the medium to have been enacting the role of a spirit form. A common counter-fraud explanation that was current at the time and still occurs (Inglis 1979) is that the medium’s body emanated the psychic material that was used to build the form and thus half-formed entities appeared to resemble cut-out faces. If the spirit was seized, the medium and spirit would simultaneously become one entity again. In

spite of the implausibility and logical incoherency in this argument, this way of thinking formed the background to Aksakov's often-quoted report "A Case of Partial Dematerialization of a Medium" (Aksakov 1898).

The séance took place at Senior Lecturer Max Seiling's home in Helsinki on December 11, 1893. Although Aksakov was not present, he collected testimony from the 15 sitters, some of whom saw various luminous forms appear while Puttock-d'Esperance was apparently under close observation. What made this occasion even more remarkable was that while she was sitting on her chair, 5 of the witnesses were allowed to examine her body and they found the lower part to be missing or, as Aksakov interprets it, "dematerialized."

This report by Aksakov became subject to a systematic and critical analysis of witness reports by the psychological researcher and magician Hereward Carrington (1907). Carrington points out that the observations were made in a darkened room and that the witnesses were far from being in agreement with each other about what they experienced. Only one witness, professor Max Seiling, made an "emphatic positive statement," and only one other could give a detailed collaborative account of the appearance of a luminous figure from the cabinet. Carrington further points out that there were two major weaknesses: No examination of the medium was made prior to the séance, and the accounts were written 5 weeks after the event in response to requests from Aksakov. Moreover, one of the witnesses, although not placed as close to the medium as many sitters, suspected that "the whole thing was done with 'dolls and gutta-pecha hands', adroitly handled by the medium, but at the same time he was unable to show how she did it" (Carrington 1907:136 footnote).

For Carrington, the *modus operandi* was not difficult to imagine. Given that the medium sat in front of and very close to the curtain of the cabinet (Figure 8), Carrington reasons that she could have extended an arm behind the curtain and manipulated some of her props in order to represent a spirit. The use of telescopic arms (common among fraudulent mediums of this



Figure 8. Re-enactment of the Helsinki Seiling séance, with the role of the medium taken by Vera Hjelt (wealthy businesswoman at the time and later one of the first female members in the Finnish parliament).



Figure 9. William Marriot's collection from the *Ghosts with Ghosts* catalog circulated among mediums in 1901.



Figure 10. Fairlamb-Mellon with her "Cissie" materialization.

period) would have increased this possibility. In addition, the use of dolls and masks as fake spirits by fraudulent mediums of that era was well-documented by the magician William Marriot (Figure 9). A case in point concerns the "spirit child" Cissie, who appears in photos taken with the medium Fairlamb-Mellon. Elisabeth Warwood sent these to an expert on dolls of the period who was emphatic that the images of "Cissie" in the photos (e.g., Figure 10) were *not* of any known doll or automaton of the period. Nevertheless, it is possible that Cissie was merely a mask made from papier-mâché. As the photos here reveal, Puttock-d'Esperance sometimes used masks.

The remaining enigma concerns the claimed dematerialization of the medium's lower body. According to Carrington, raising the body and repositioning the legs so that they extended backward to the ground through the back supports of the chair could achieve an illusion of dematerialization. Seiling, at whose house the séance took place, objected to this by maintaining that the space $11\frac{1}{2}$ by $7\frac{1}{2}$ inches would not have allowed this, but Carrington

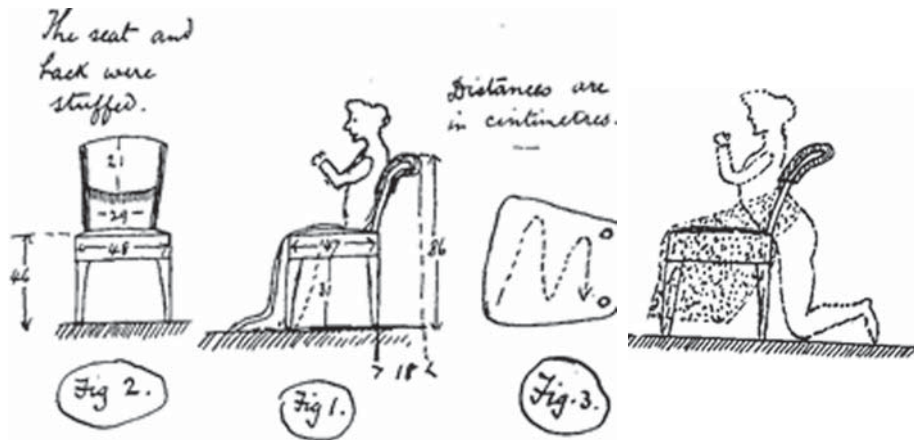


Figure 11. Illustrations by Carrington to show how the “dematerialization” could be duplicated.

was able to demonstrate how it was possible to do even in an unobtrusive manner (Seiling 1907) (see Figure 11).

Puttock–d’Esperance (d’Esperance 1897:409) would later in her book *Shadow Land* describe how this experience at the Helsinki séance proved greatly traumatic, so much so that her hair temporarily turned white and she was forced to take two years of rest from her practice of mediumship. It appeared that the next reported séance was in November 1895 and took place in Gothenburg at the home of Fidler. Once again, Aksakov (1897b) does not seem to have personally attended but collected and collated testimonies from the witnesses. Several of the witnesses testified that Madame d’Esperance sat outside the cabinet while various spirit forms manifested, and one of the sitters recognized her dead husband. Since in most cases the forms were described as lacking the lower body and having a diffuse facial form, in explanatory terms these aspects fit with the more natural explanations discussed here later.

It would seem that from this time onward Puttock–d’Esperance left the employment of Fidler and traveled in France and Germany. One text (Carleson 2008) claims she married Mathews Fidler, but this seems to have been a mis-translation of Bjerre’s account from Swedish to German and then via Danish back into Swedish. In her short dismissive reply in 1907 to Hyslop concerning Carrington’s suppositions, Puttock–d’Esperance gives her current address as Schloss Luga in Saxony, Germany. Her palatial residence suggests that Madame d’Esperance had by this time succeeded in

transforming herself in Germany into a high society medium. Who her new sponsor was is unclear.

The Psychology of the Puttock–d’Esperance Mediumship

In 1887 the Society for Psychical Research published a series of demonstrations by the amateur conjuror S. J. Davey of how false perception and false memory can determine what is reported during a séance. With the help of an accomplice who used a cardboard mask coated in luminous paint, perceptual experiences were induced in witnesses that were typical for the Puttock–d’Esperance séances. Phantom spirits were seen and false memories given (Hodgson & Davey 1887). There is also a more contemporary series of studies of fake séances carried out by Wiseman and his colleagues. After being asked to bring about movement of objects in a darkened room, 27% of the participants reported believing that this had occurred. Suggestions from an actor performing in the role of the medium influenced about 31% of the participants to believe the table had moved, with significantly more believers reported in these events (Wiseman 2010).

Perhaps the most relevant study is another classical one by Theodore Besterman (1932), who carried out a fake séance in which the sitters were told their observational powers were being tested. Despite this challenge, one-quarter of the 42 sitters failed to report a disturbance that had been pre-arranged to occur at a certain point in time and three-quarters of them failed to notice that Besterman had briefly left the room. Thirteen sitters experienced illusions or hallucinations during the séance, most often concerning the movement of objects such as the table and in one case the appearance of a light.

A more general conclusion from this kind of work has been given to us by the contemporary psychologist and Nobel Prize winner Daniel Kahneman (2012), who cautions that before giving credibility to an observer’s judgment, we need to first assess how competent the observer is in dealing with the environment in which he makes the judgment. Most observations of materializations have been made by naïve, unskilled observers in unusual and less than optimal conditions.

Human perception can be inaccurate even under normal conditions as regards details of events and is definitely not equipped to make judgments about unusual events in darkened rooms. Lowered gas-lighting with its shadows can presumably create its own illusory effects.

All this indicates that skepticism as to the reality of what was observed and reported at the Puttock–d’Esperance séances, is entirely justified. However, one question remains. Since there is no evidence that the medium made any use of accomplices, what caused so many sitters to become

convinced they had met and interacted with their dead relatives?

Two concepts in modern cognitive psychology are relevant here. The first is *inattention blindness* (illustrated by the well-known film clip: “Did you see the gorilla?”), which demonstrates that humans constantly miss unexpected intrusions into their perceptual field. The second is *change blindness*, which concerns our inability to notice unexpected alterations in what we are observing. That human perception is prone to such misidentifications is illustrated in Sweden every year during the moose-hunting season, when, despite strict precautions concerning target identification, fatal shootings of fellow hunters occur.

Both these concepts are part of a broader notion that much of the world we experience on an everyday basis is actively created by memory and expectations. These concepts are part of so-called *top down processes*, which refer to how higher brain processes steer perception (Rose 2006). This explains how under conditions of minimum stimulation (such as a darkened séance room) when a person is presented with ambiguous stimuli (such as a diffuse mask or even a piece of linen or gauze fabric), the brain will interpret this in a manner that is consistent with emotional expectancy (such as the need for a reunion with a loved one). Co-author Elisabeth Warwood noticed an example of such ambiguity present in the Hedlund photo (Figure 1). She draws attention to the shape on the right-hand side (shoulder, etc.) in Figure 1 and that of the medium in Figure 3.

The tendency of observers to attribute meaning when confronted with ambiguous and incomplete stimuli, or so-called *pareidolia*, is particularly well-researched in the auditory area (Nees and Philips 2014). To his credit, Bjerre, when commenting on the face he saw appear at one of the Puttock–d'Esperance séances, which gradually diminished in size, wrote that this may have been a perceptual illusion, especially given that other sitters did not report it (Bjerre 1958).

The above account can easily give the impression that significant advances have been made in cognitive psychology since the 1880s that explain how mediums can perceptually deceive sitters. However, this progress seems doubtful when we read Eleanor Sidgwick's report from 1886 on physical mediumship, a report which received even the accolade of the journal *Science* (Editorial 1886). Sidgwick writes:

Our conclusions as to what we see or hear are always founded on a combination of observation and inference; but in daily life it is seldom necessary to distinguish between the two elements, since, when the object and its mode of presentation are familiar, our inferences are generally correct. But it is different when, owing to circumstances, such as a bad light, we have to infer more in proportion to what we perceive than usual; or when someone,

e.g., a conjurer or a ventriloquist, is trying to deceive us by presenting one object under the familiar aspect of another and suggesting false inferences. It is not uncommon to find people at séances encouraging each other in the belief that they see, say, a living human figure, when all that they actually see is something moving which is about the size of a human being; the rest is inference. (Sidgwick 1886:63)

What seems clear from these considerations is that some of the above-mentioned accounts of the séances (e.g., by Busch 1893, Garborg 1899) suggest that Sidgwick's principles were at work during Puttock–d'Esperance's Scandinavian séances.

The question still remains, is there then any evidence that the Puttock–d'Esperance mediumship demonstrated any paranormal aspects? One case, which is often claimed to be evidential, concerns the identification of Sven Strömberg presented in the book *Shadow Land*. It was claimed that Puttock–d'Esperance, through automatic writing, supposedly under the direction of her spirit form “Walter,” gave a notification of Strömberg's death in a settlement in “New Stockholm, America.” New Stockholm was after a search found to be in Manitoba, Canada, where eventually a recent death of a “Sven Stromberg” was said to be confirmed (d'Esperance 1905). “Sven Strömberg,” however, is not an uncommon name in Sweden and when the mass immigration from Sweden to Canada in the late 1880s is taken into account, it is not so unlikely to find someone fitting this description. Other details of the Strömberg family were given and even a “spirit photograph” was said to be validated by those who knew Strömberg. Unfortunately, the whole case seems to rest on the words of Puttock–d'Esperance and Fidler.

There is also one other case, documented by the physician and psychotherapist Poul Bjerre (1958), which is worthy of some consideration. During one of the séances that Bjerre attended, messages were rapped from “William Edwards,” who had died within the last few days in Frederiksberg, Denmark. This was verified the next day from the death announcements in a Danish newspaper. The newspaper was, however, from 4 days before the séance. Moreover, the crucial aspect in such cases was missing: information that the mediums could not have obtained in advance by normal means.

The only remaining enigma concerns the medium's ability to materialize a seemingly endless number of flowers. Bjerre went so far as to visit all the flower shops in Gothenburg without resolving the mystery. Victorian skirts could have provide a convenient repository for many of the props needed for séances—perhaps even for smaller roses and other flowers, but the nearly 7-foot-tall Golden Lily remains a mystery.

Was Puttock–d'Esperance then simply an unscrupulous, underprivileged, but gifted woman who attained her position as a society medium by the use

of trickery and exploitation of the bereaved?

As with many cases of mediumship from this period, this naturally raises the question of conscious versus unconscious deception, or perhaps more specifically, the issue of whether fraud of this elaborate and planned kind can occur in dissociated or trance states.

Despite the fact that Carrington was convinced that Puttock–d'Esperance should not be considered a trance medium (in the sense of how the word was at that time understood) in that she often remained in verbal contact with the sitters, he nevertheless believed in the possibility that the fraud was performed entirely unconsciously. In support of the presence of dissociation in the case of Puttock–d'Esperance, there is a commonly quoted description given in her autobiography of how it felt to be both the medium herself and the “materialized form.” In this case, the form is called “Anna”:

Certainly they are my lips that are being kissed. It is my face that is wet with the tears which these good women are shedding so plentifully. Yet how can it be? It is a horrible feeling, thus losing hold of one's identity. I long to put one of these hands that are lying so helplessly, and touch someone just to know if I am myself or only a dream—if Anna be I, and I am lost as it were, in her identity. (d'Esperance 1897:346)

The above description can naturally be seen as consistent with the contemporary diagnosis of “dissociative identity disorder” (DID), which is a reformulation of the classical concept of multiple personality in terms of profound disturbances in memory and identity. Yet, some authorities consider dissociation including DID to be no more than an extreme form of roleplaying (see Lilienfeld, Lynn, & Lohr [2004] for a critical review). Indeed, flexibility in roles can be healthy if there is awareness and control. There are many examples in the normal population where individuals such as actors or rock stars have several identities as, for example, shown by Iron Maiden's front man, Bruce Dickinson, who is both a successful rock singer and a pilot. Obviously, some dual identities can be incompatibly pathological. A recent dramatic example of this is the case of Göran Lindberg, retired Chief of Police in Uppsala and former head of the Swedish National Police Academy. Lindberg was well-known in Sweden for his extreme support of feminism and morality issues in the police force, yet he was discovered to be a frequent visitor to prostitutes, and was finally convicted of pimping, procuring, and multiple rape charges (Anthony 2010).

Clearly, this illustrates that complex conscious planning and actions can be carried out that are not congruent and far from fully integrated with the usual social identity of the person.

Braude (1995), however, notes that what distinguishes role playing

and normal dissociative phenomena from dissociative identities (multiple personalities) is that in the latter, there are particularly profound disparities with regard to the way the different identities experience or believe mental and physical states to be their own. Although this gives the different identities their own life beyond mere role playing, Braude nevertheless argues that they share an even deeper underlying unity.

From this point of view, it would seem that in the case of Puttock–d’Esperance, at one level the medium perceived her mission in life was to promote hope of an afterlife, while at another level, her enactments were the means of gaining affection and recognition for doing so. The use of “props” and enactments enabled the fulfilling of both these goals. The latter side may well have had its own identity. Although the evidence is circumstantial, it is entirely possible that it was this side of Puttock–d’Esperance that received tutoring in trickery from the Newcastle mediums Wood and Fairlamb. But were Grace and Matthews Fidler also part of that deception?

To imagine that the Fidlers wouldn’t know the medium was cheating, when they lived in close proximity to her for so many years, is hard to conceive. Yet, both of them remained committed Spiritualists for the rest of their lives. Matthews Fidler was throughout the years a vocal supporter, not just of Puttock–d’Esperance but of the Spiritualist movement in general. In his personal and business life he appears to have been regarded in Sweden as a much-respected man of great integrity according to an obituary (Anonymous 1901). The Fidlers gained no apparent financial advantage from Puttock–d’Esperance’s activities, nor did they seem to gain in terms of fame by association. The same seems true of William Armstrong, both in his relationship with Wood and Fairlamb and with Puttock–d’Esperance at New Bridge Street. If they were fraudulent throughout this period, how could he not have known, given his close involvement? He remained a committed Spiritualist until his death in 1893. While Armstrong acted as Fairlamb’s ‘manager,’ it seems it was a role he took on to protect her rather than as a means of making money from her mediumship. Furthermore, both Fidler and Armstrong had down-to-earth jobs: Fidler as a merchant and Armstrong as a master block and mast maker. Was it a form of folie à trois or even folie à quatre that enabled the deception to survive?

Perhaps if we extend this folie à quatre further, then we can understand some of extraordinary experiences in the context of the reality that was created by the Spiritualism of that time. In this respect, modern cognitive psychology still has not fully come to terms with the extent to which “consensus reality” is created by so-called “concept-driven perception.” Research on hypnosis is regrettably far from integrated into psychology, but it has shown that, without formal hypnotic induction, simply by

manipulating expectancies and motivations of sensitive individuals, major changes in perceived realities can be created (see Parker 2015a, 2015b for reviews).

The reactions of the Spiritualist editorial and other contributions to the reports on the Newcastle seizing of “Madame d’Esperance” reveal something of this altered reality. Even a sitter who was closely involved in the seizing of the medium believed fully in an innocent explanation: He was convinced that spirits had a role in causing her impersonation since the real Yolande looked more beautiful and taller than the medium as the imposter (Resurgam 1880)! For his part, Armstrong, who was also present at the seizing, found an explanation in his belief in de-materialization and re-materialization taking place between the spirit and medium. He asserts in her defense:

Husbands have met their wives, wives met their husbands; parents have met and acknowledged their long lost children; children have recognized and embraced their parents; forms have grown up in their presences, passed before them, and again dematerialized; forms have been seen without heads, and heads have been seen rolling on the floor, laughing without a body; flowers and plants and fruits have been produced under exceptional circumstances; sitters have seen the medium brought out of the cabinet by the forms; they have seen these forms dematerialize along side her and again built up; all these things and much more through the mediumship of Mrs. D’Esperance. . . . (Armstrong 1880:581)

There is a remarkable aspect of the recognition of deceased loved ones that is rarely if ever commented on: Despite recognizing and even embracing their loved ones, the bereaved never appear to attempt to prolong their brief reunited contact with the deceased. It may be that at some level they realize it is a transient perception that they are at least part of and which cannot be indefinitely maintained and perhaps they even do not wish to confront its basis.

Finally, a possible “elephant in the room” must be mentioned. Trickery and dark séance rooms may be conducive to not only skepticism about the claims of mediums but also to the occurrence of genuine paranormal phenomena among the fake ones (Batcheldor 1984, Hansen 2001). Alan Gauld notes that the Trinity College investigators “felt (no doubt justly) that even though there might be a residuum of phenomena difficult to explain, further investigations would probably prove a waste of time, trouble, and money” (Gauld 1968:128). If so, and it is a big if, it does mean that it becomes an *almost* intractable problem to solve where objective reality lies—assuming one exists at all (see Parker 2010 for further discussion).

The social–cultural context of gender roles in this reality is also a factor deserving mention. The feminist writer Marlene Tromp uses Madame d’Esperance as one of the main illustrative examples in her book *Altered States: Sex, Nation, Drugs and Self-Transformation in Victorian Spiritualism*. The book focuses on the theme of how the mediumship of this period allowed women to achieve

. . . a blurring of identities, and storytelling that followed them were all means of assessing altered states, sites of intellectual, emotional, physical, spiritual, refiguration. This refiguration made paradigm shifts possible, opened doors to other ways of perceiving the world. (Tromp 2006:4)

Rather than focusing on questions concerning the authenticity of the phenomena, Tromp, like some writers (Oppenheim 1985, Owen 1989, 2006, Herr & Wolfram 2009) regards the role of the medium in the Victorian period as being a liberating one (Tromp 2006:5).

Co-author Elisabeth Warwood, who is a historian of Spiritualism, adds: I have spent almost six years researching Annie Fairlamb–Mellon and, perhaps, having gathered every reference to her in Spiritualist and other publications worldwide, I find it hard to just call her a simple, fraudulent medium. There was more to her, and perhaps also to d’Esperance, but only further research would make that clear. The motivations of those who became mediums, then, and today for that matter, are far more complex than people seem to understand or appreciate.

It is beyond the scope of this Perspective to further follow the later “self re-inventions” and “self-transformations” of Madame d’Esperance. . . . However, the account given by Puttock–d’Esperance found in the archives of the College of Psychic Studies tells us that her later years were spent in Germany where, if she is to be believed (the persistent question), she was during World War I arrested as an English spy and at one point threatened with execution. It is known that she finally resided in Copenhagen, where her urn is now preserved at the Bispebjerg Graveyard.

One aspect of Madame d’Esperance has attained something of longevity, if not immortality. The library of the Danish Society for Psychical Research still keeps some of the flowers, now pressed, that she claimed to have materialized (Claudewitz 2011, 2012).

Acknowledgments

Adrian Parker expresses thanks to Leslie Price, archivist at the College of Psychic Studies, London, for his persistence in getting him to initiate what was thought was to be a two-week project (but which seemed to be an endless project!), and to thank his former illustrious and industrious student, Nemo Mörck, for additional literature suggestions concerning the little-known Scandinavian literature.

Thanks also to Jani Lassila of the Finnish Institute of Parapsychology for information about the Helsinki séance and to Eberhard Bauer for providing further sources of information concerning Madame d'Esperance in Germany, which also provide a basis for someone with funding to carry out a future Part 2 of the story.

References Cited

- Aksakov, A. (1897a). Introduction. In *Shadow Land or Light from the Other Side* by E. d'Esperance, London: George Redway.
- Aksakov, A. (1897b). Eine erkannte materialisirte Erscheinung, Vom Herausgeber. *Psychische Studien*, XXIV(May):209–220.
- Aksakov, A. (1898). *A Case of Partial Dematerialization of the Body of a Medium, Investigation and Discussion* (translated from the French by Tracy Gould). Boston: Banner of Light.
<http://catalog.hathitrust.org/Record/100837379>
- Announcement (1879). Form manifestations or materialisations. *The Medium and Daybreak*, 10(Sept. 5):492, 557.
- Anonymous (1901). The transition of Mr. Matthews Fidler. *Light*, XXI(1067):295.
- Anthony, A. (2010). Göran Lindberg and Sweden's dark side. *Guardian*, August 1,
<http://www.theguardian.com/world/2010/aug/01/goran-lindberg-sweden-crime-palme>
- Armstrong, W. (1879). Spiritual soirees at Newcastle. *The Medium and Daybreak*, 475(May 9, 10):285.
- Armstrong, W. (1880). Mr. Armstrong's report. *The Medium and Daybreak*, 545(Sept. 10, 11):581.
- Batchelder, K. J. (1984). Contributions to the Theory of PK induction from sitter-group work. *Journal of the American Society for Psychical Research*, 78:105–122.
- Barkas, T. P. (1876). Marvellous psychological phenomena. *The Medium and Daybreak*, 317(VII) (April 28): 258.
- Bates, J. P. (1880). Mrs. d'Esperance's last (for the present) sitting in England, *The Medium and Daybreak*, 11(Sept. 24):547, 613.
- Beloff, Z. (2001). *Shadow Land or Light from the other Side*.
<http://www.zoebeloff.com/pages/shadowland.html>
- Besterman, T. (1932). The psychology of testimony in relation to parapsychical phenomena: Report of an experiment. *Proceedings of the Society for Psychical Research*, 40:363–387.
- Bjerre, P. (1958). Erinnerungen and Mrs. d'Espérance. *Neue Wissenschaft*, 7:145–158.
- Braude, S. E. (1995). *First Person Plural: Multiple Personality and the Philosophy of Mind*. Lanham: Rowan and Littlefield.

- Braude, S. E. (2014). Investigations of the Felix Experimental Group. *Journal of Scientific Exploration*, 28:229–283.
- Braude, S. E. (2016). Follow-Up Investigation of the Felix Circle. *Journal of Scientific Exploration*, 30(1):27–55.
- Busch, O. (1893). En materialisationsséance i Stockholm, *Efteråt? Tidskrift för Spiritism och Beskräktade Ämnen*, 22(March):1–4.
- Carleson, R. (2008). Madame d'Esperance. *Lyztran*, 4:28–32.
- Carrington, H. (1907). An examination and analysis of the evidence for “dematerialization” as demonstrated in Monsieur Aksakof's book *A Case of Partial Dematerialization of a Medium*. *Proceedings of the American Society for Psychical Research*, (March):131–168.
- Carrington, H. (1920). *The Physical Phenomena of Mediumship: Fraudulent and Genuine*. New York: Dodd, Mead, & Co.
- Claudewitz, K. (2011). Personal communication.
- Claudewitz, K. (2012). Translation into Danish: Bjerre's Erindringer om Elisabeth d'Esperance. *Dansk Tidsskrift for Psykisk Forskning*, 2(November):30–34.
- d'Esperance, E. (1897). *Shadow Land or Light from the Other Side*. London: George Redway.
- d'Esperance, E. (1905). Madam d'Esperance's personal experiences. *Light*, XXV:254, 31.
- Doyle, A. C. (1927/2011). *The History of Spiritualism*. Volume 2. Cambridge: Cambridge University Press.
- Editorial (1877/2011). Miss Wood Caught Personating a Spirit. *The Medium and Daybreak*, August 17, 8, (385)(Aug. 17):523–524. [Republished in 2011 in *Psypioneer*, 8(2):69–74]
- Editorial (1880a). The seizure in Mrs. d'Esperance's circle. *The Medium and Daybreak*, 11(545)(Sept. 10):580.
- Editorial (1880b). The mysteries of materialisation. *The Medium and Daybreak*, 546(10)(Sept. 17):593–594.
- Editorial (1886). Mrs. Sidgwick and the mediums. *Science*, 7(176):554–555.
- Editorial (1892). Materialisationsséancer i Kristiania. *Efteråt? Tidskrift för Spiritism och Besläktade ämnen* [Afterwards? Journal of Spiritualism and Related Subjects], 18:169–173.
- Fidler, M. (1880). Mrs. Esperance's seances. *The Medium and Daybreak*, 526(14)(May):305–308.
- Fidler, M. (1890). Spiritualism in Sweden. *Progressive Thinker*, (May 3):23.
- Garborg, A. (1899). Materialisationsséancer i Kristiania vaaren 1893, Hver 8de Dag, 21 og 22. [Reproduced in edited form by R. Moy, 2013, in *Parapsykologiska Notiser*, 76:34–35]
- Gauld, A. (1968). *The Founders of Psychical Research*. London: Routledge, Kegan, & Paul.
- Hamilton, T. (2009). *Immortal Longings. F. W. H. Myers and the Victorian Search for Life After Death*. Exeter: Imprint.
- Hansen, G. P. (2001). *The Trickster and the Paranormal*. Xlibris.
- Haraldsson, E., & Gissurarson, L. R. (2015). *Indridi Indridason. The Icelandic Physical Medium*. Hove, England: White Crow Books.
- Hedlund, T. (1890). Editorial: Spiritiska trollkonster. *Göteborgs Handels and Sjöfarts Tidning* (Mar. 22), 68.
- Herr, J. L., & Wolfram, C. (2009). “Opt-out” Rates at Motherhood across High-Education Career Path Selection Versus Work Environment. National Bureau of Economic Research (NBER) Working Paper #14717, February. Cambridge, MA: NBER.
- Hodgson, R., & Davey, S. J. (1887). The possibilities of mal-observation and lapse of memory from a practical point of view. *Proceedings of the Society for Psychical Research*, 4:381–495.
- Inglis, B. (1979). *Natural and Supernatural—A History of the Paranormal from Earliest Times to 1914*. London: Sphere Books.
- Kahneman, D. (2012). *Thinking Fast and Slow*. London: Penguin Books, Chapter 22.
- Lilienfeld, S. O., Lynn, J. S., & Lohr, J. M. (2004). *Science and Pseudoscience in Clinical Psychology*. New York: Guildford Press.

- Lindström, H. (1957). Gustaf Fröding och mediet [Gustaf Fröding and the medium]. *Spiritualisten*, 17:5.
- McCabe, J. (1920). *Spiritualism: A Popular History from 1847*. London: Dodd, Mead, & Co.
- Melton, J. G. (1996). Editorial. *Encyclopedia of Occultism and Parapsychology*, Volume One. Farmington Hills, MI: Thomson Gale.
- Myers, F. W. H. (1885). On the method research pursued by the Society. *Journal of the Society for Psychical Research*, 2:29–32.
- Nahm, M. (2014). The development and the phenomena of a circle for physical mediumship. *Journal of Scientific Exploration*, 28:229–283.
- Nahm, M. (2016). Further Comments about Kai Mügge's Alleged Mediumship and Recent Developments. *Journal of Scientific Exploration*, 30(1):56–62.
- Nees, M. A., & Philips, C. (2015). Auditory pareidola: Effects of contextual priming in perceptions of purportedly paranormal and ambiguous auditory stimuli. *Applied Cognitive Psychology*, 29:129–134.
- Oppenheim, J. (1985). *The Other World: Spiritualism and Psychical Research in England, 1850–1914*. Cambridge: Cambridge University Press.
- Orthwaite, F. (1879a). Mrs. Esperance's séances. *The Medium and Daybreak*, 483(July 4):411.
- Orthwaite, F. (1879b). Features of the week. *The Medium and Daybreak*, 10(488)(Aug. 8):492.
- Orthwaite, F. (1879c). Mrs. Esperance as a medium for materialisation. *The Medium and Daybreak*, 495(Sept. 5):601.
- Orthwaite, F. (1879d). Materialisation at Miss Wood's circle. *The Medium and Daybreak*, 10(504)(Nov. 28):746.
- Owen, A. (1989). *The Darkened Room. Women, Power, and Spiritualism in Late Nineteenth Century England*. London: Virago.
- Oxley, W. (1880). [No title]. *Herald of Progress*, 8(1):105–107.
- Parker, A. (2010). The Mind Body Problem and the issue of psychokinesis. Chapter 4 in *Mysterious Minds: The Neurobiology of Psychics, Mediums, and Other Extraordinary People* edited by S. Krippner and H. Friedman, Santa Barbara, CA: Praeger, pp. 65–84.
- Parker, A. (2015a). The jungle of hypnotic psi: Part 1: Research on hypnosis relevant to psi. *Journal of Parapsychology*, 79(1):20–36.
- Parker, A. (2015b). The jungle of hypnotic psi: Part 2: Research on relationships between psi and hypnosis. *Journal of Parapsychology*, 79(1):37–52.
- Parker, A. (2016). Letter to the Editor concerning the Mügge séances. *Paranormal Review* (in press).
- Podmore, F. (1902). *Modern Spiritualism, A History and Criticism*. Volume 2. London: Methuen.
- Price, L. (2013). Madame d'Esperance was probably a Puttock. *Psypioneer*, 9(8):233–234.
- Psyche [pseudonym] (1895). Counterblast to Spookland; or Glimpses of the Marvellous. Sydney: Maclardy & Co. <http://www.nla.gov.au/apps/cdview/?pi=nla.aus-vn5757625-s6-e>
- Resurgam [pseudonym] (1880). The seizure seance. *The Medium and Daybreak*, 11(Sept. 10):545,580–581.
- Robertson, J. (1908). *Spiritualism: The Open Door to the Unseen Universe*. London: L. N. Fowler.
- Rose, D. (2006). *Consciousness—Philosophical, Psychological, and Neural Theories*. Oxford: Oxford University Press.
- Seiling, M. (1907). Reply to Mr. Carrington's paper. *Journal of the American Society for Psychical Research*, 1:606–613.
- Sidgwick, E. (1886). Results of a personal investigation into the physical phenomena of spiritualism. With some critical remarks on the evidence for the genuineness of such phenomena. *Proceedings of the Society for Psychical Research*, 4:45–74.
- Tromp, M. (2006). *Altered States: Sex, Nation, Drugs, and Self-Transformation in Victorian Spiritualism*. Albany, NY: SUNY Press.

- Warwood, E. (2013). Doubt about Madame d'Esperance's early life. *Psypioneer*, 9(9/10):298–301.
- Warwood, E. (2014). Catherine Elizabeth Wood and Annie Fairlamb. Correcting the record. *Psypioneer*, 10(11):302–308.
- Warwood, E. (2015). From correspondence with Leslie Price, Librarian, College of Psychic Studies.
- Wilson, S. C., & Barber, T. X. (1983). The Fantasy-Prone Personality: Implications for Understanding Imagery, Hypnosis, and Parapsychological Phenomena. In *Imagery: Current Theory, Research, and Application* edited by Anees A. Sheikh, New York: John Wiley and Sons, pp. 340–387.
- Wiseman, R. (2010). Observing the impossible: Eyewitness testimony for darkroom séances. Chapter 11 in *Anomalous Experiences* edited by M. D. Smith, Jefferson, NC.: McFarland.

BOOK REVIEW

Psychic Phenomena and the Brain: Exploring the Neuropsychology of Psi by Bryan J. Williams. Gladesville, NSW: Australian Institute of Parapsychological Research, 2015. xii + 135 pp. \$35. ISBN 978–0987077226.

Although few of us worry about whether our brain is too moist, most agree with the physician Hippocrates who remarked that all experiences are intimately associated with the state of our brain. Whether this is because they all do, in fact, derive directly from the brain is however an unresolved question. Modern neuroscience assumes that all experiences derive from brain activity. Some phenomena are however not easily explained by contemporary neuroscience, and the brain might function as a kind of filter to consciousness (Kelly et al. 2007). Regardless of which perspective eventually turns out to be right, parapsychologists need to consider the brain in their theories.

Is extrasensory perception (ESP) more likely to occur in a specific brain state? Do psychics' brains differ from others' brains? Such questions are addressed in Bryan Williams' ambitious, interesting, and concise monograph. Those who have read Williams' articles cannot help but be impressed by his knowledge of the literature. Like his mentor, the late William Roll, he seems to be familiar with old literature concerning psychical research, modern neuroscience, and everything in between. About 19 of the monograph's 135 pages (including an useful index) consist of references. Roll and Williams have previously reviewed the literature (e.g., Roll & Williams 2010, Williams 2011, 2012, 2015, Williams & Roll 2008), and the monograph seems to derive primarily from their articles. Given the limited space, there are naturally some omissions, but the monograph is readable and wide-ranging.

Since the monograph is meant to make research accessible to curious laymen, Williams initially explains the meaning of all terms, and provides a brief historical review of parapsychological research. In addition, he highlights the results of meta-analyses that suggest psi exists. However, his review includes little about the criticism that the research has attracted, but Williams' focus is on psychic phenomena and the brain. In addition, his intention is only to give an overview of key findings.

Williams points out that skeptical neuroscientists such as Donald Hebb, Barry Beyerstein, and Kyle Kirkland seem to have assumed that telepathy

functions as a kind of mental radio in which a signal goes from a sender to a receiver. Williams thinks that this is an antiquated notion that appears to be inconsistent with research findings. He highlights some results that suggest that: “When ESP appears in consciousness, it comes in borrowed garb. The brain has a storehouse of used apparel . . .” (Roll 2006:13). In addition, he provides a brief, but adequate, overview of the brain, EEG, and fMRI, which laymen may like to return to. For this review, it seems sufficient to mention that alpha waves: “. . . typically occur during moments of relaxed awareness, when a person is not deeply engaged in cognitive thought and is only passively attentive to the surrounding environment” (p. 29).

Hans Berger developed the EEG in the 1920s, but it was only rarely used in parapsychological research until the 1960s. At that time, Joe Kamiya and others popularized biofeedback: Their articles were read by parapsychologists who realized that if they found a brain state associated with ESP scoring, then biofeedback could be used to teach percipients to induce and maintain that state. According to Kamiya, to achieve a high alpha state: “One must maintain a kind of calm alertness, accompanied by a quiet state of mind. It is a kind of serene, receptive, open state of mind” (Cavanna 1970:98). This reminded parapsychologists of the claims made by many psychics (White 1964). The initial research thus focused on the possible relationship between alpha waves and ESP scoring.

Williams does not provide a detailed review of the many attempts to determine whether alpha waves were associated with ESP scoring in forced-choice studies, but he concludes: “. . . although there was a slight tendency . . . it was not a very robust finding” (p. 32). He thinks that the results from other studies seem more promising. For example, Rex Stanford and John Palmer found that the high scorers had higher alpha density (37.5%) than the low scorers (12.1%). Williams highlights this, but fails to note that they also concluded that a division of the percipients

. . . around the alpha density median failed to predict ESP performance significantly. Results, like those of certain earlier work, suggest that an abundance of alpha rhythms indicates a psi-favorable state which is nonetheless insufficient, of itself, for ESP performance. (Stanford & Palmer 1975:235)

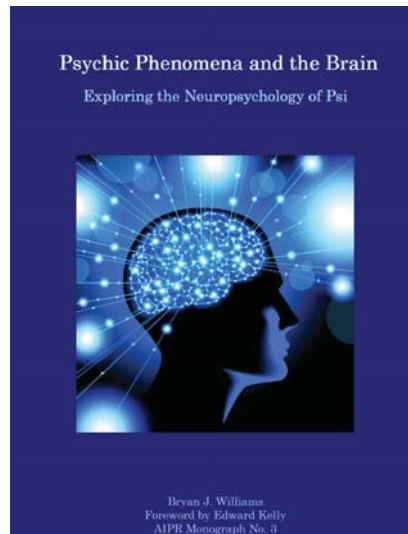
Some parapsychologists gave their percipients biofeedback training during which they were supposed to learn to produce alpha waves and maintain a high alpha state. For example, K. Ramakrishna Rao and José Feola (1973) conducted a clairvoyance test with a man who had been given biofeedback training: The results indicated that ESP scoring was associated with high alpha density. Prior to this study, Feola had however carried out two similar studies with four percipients and then the results were insig-

nificant for all percipients (Cavanna 1970:99).

The results of the biofeedback studies were inconsistent, and Williams suggests that the amount of training may have been insufficient. He does not however state how much training would be appropriate: According to Kamiya, for most people three or four sessions of 45 minutes is sufficient (Cavanna 1970:97). Williams devotes a paragraph to one of the better-known studies involving biofeedback (i.e. Honorton, Davidson, & Bindler 1971) and writes that the percipients received 20 minutes of training, though in fact they had 40–50 minutes. Nonetheless, the ESP scores were insignificantly higher during alpha generation than during alpha suppression. Reviews reveal that inconsistent and insignificant results in this line of research were common (Palmer 1978, Stanford 1975/1976).

Inconsistencies also become apparent when Williams reviews research involving the psychic Sean (Lalsingh) Harribance, who has participated in much research since the late 1960s. In two studies in the 1970s, Harribance had higher alpha density during high-scoring runs than during low-scoring runs (Morris, Roll, Klein, & Wheeler 1972). However, results from later studies suggested that below-chance scoring for Harribance was associated with alpha waves (Kelly & Lenz 1976, Kelly, Hartwell, & Artley 1978). Williams concludes that the research findings “. . . seem to suggest that alpha activity has a considerable role in the functioning of Harribance’s reported ESP ability” (p. 42). He has previously reviewed much of the research with Harribance (Williams 2015), and then made it clear that Harribance was often able to score significantly above chance in a number of forced-choice studies. In the current monograph, Williams devotes some space to the old studies and some to more recent studies (e.g., Roll et al. 2002). In addition, he covers research with other psychics: Malcolm Besant, Ingo Swann, and a woman known only as B.S.J.

The monograph also briefly covers some of the research concerning correlations in brain activity between individuals. The basic idea in this kind of study is that two individuals are separated: One of them is then exposed to some stimulus and the researcher expects that this will influence



the brain activity of the other. (Williams points out that percipients' brain activity in some studies seems to have been associated with the randomly occurring flash patterns of a strobe light despite the fact that no one looked at the light—thus a sender may not be necessary). Williams outlines a few of the studies, starting with one published in *Science* (Duane & Behrendt 1965), and correctly notes that the brief report contained few details and was rightly criticized. Later studies were better-controlled, but Williams thinks that the results from this line of research “. . . should perhaps be taken as tentative until further clarifying data are gathered . . . ” (p. 51).

Some of the studies with the psychic Malcolm Bessent are covered in a chapter about precognition, in particular the more recent research. This indicated that even when Bessent's ESP scoring was insignificant, his brain activity was different when he looked at the target images compared with when he looked at decoy images. The researchers also found this difference when they studied how ordinary volunteers' brains reacted (these studies are reviewed in Don 2010). This is consistent with other research reviewed by Williams, which suggests that people unconsciously react to future stimuli.

The monograph also contains sections about two flawed studies: An fMRI study (i.e. Moulton & Kosslyn 2008) that received much attention in the media and was rightly heavily criticized by parapsychologists (e.g., Palmer 2009). The other study (i.e. Venkatasubramanian et al. 2008) is less well-known. Williams devotes space to these studies because he wants the reader to learn from the mistakes of others.

Williams mentions some research concerning the association between temporal lobe lability and paranormal experiences, but laymen will need to consult other sources (e.g., Jinks 2012) to really appreciate the evidence. Space is also devoted to the hypothesis that the right hemisphere is more involved in the processing of information that derives from psi. Williams has previously written a detailed review of the literature about this (Williams 2012). The hypothesis can be traced back to writings of Frederic Myers (1885) and Jan Ehrenwald (1975). In addition, observations in the 1970s were consistent with the hypothesis (Targ & Puthoff 1977). Williams nevertheless notes that the research “. . . findings have not been very robust . . . ” (p. 78).

Williams highlights the results of one study which indicated that six of the seventeen psychics who were assessed had right temporal lobe impairment, but he fails to note that five of the individuals in the control group also appeared to have this kind of impairment (Fenwick et al. 1985). He also points out that a psychic, B.S.J., scored high on a measure of temporal lobe lability (Alexander 2000). However, Harribance also scored somewhat high on the same measure, but he did “. . . not show evidence of the subjective

experiences, electrical lability, or elevated electrical anomalies that typically define complex partial seizures” (Roll et al. 2002:219). The questionnaire that was used was not designed with psychics in mind, who due to their anomalous experiences may score above average.

Harribance has stated that he often sees images in his left field of vision: This suggests the involvement of the right hemisphere. That said, Harribance has also said that he often hears a voice in his right ear, which suggests the involvement of the left hemisphere! Unfortunately, it seems difficult to briefly review all the thought-provoking results of the neurological assessments Harribance underwent that revealed anomalies (Alexander, Persinger, Roll, & Webster 1998, Roll et al. 2002). Williams seems to believe that the research with Harribance has shown that for his ESP ability the right hemisphere is of more importance than the left.

Almost in passing, Williams mentions a study with the psychic Ingo Swann, who had an unusual brainwave pattern when he was engaged in remote viewing (Persinger et al. 2002). A researcher has however pointed out (among other things) that there are at least two relatively uncommon patterns that are similar to the one displayed by Swann (O’Bannon 2003). One of the patterns has been associated with aging individuals in a low state of arousal. When Swann undertook the tests, he was 64 years old. Although the research with psychics is certainly fascinating, it still leaves the reader with more questions than answers.

Given his apparent interest in research with psychics, it seems somewhat surprising that the psychic Matthew Manning (Whitton 1974) never appears in the chapter about psychokinesis. Williams reviews some of the micro-psychokinesis studies with ordinary volunteers. In addition, he briefly outlines William Roll’s and Elson de A. Montagno’s observations concerning the similarities between complex partial epilepsy and recurrent spontaneous psychokinesis (RSPK), also known as poltergeist phenomena (Montagno & Roll 1983, Roll & Montagno 1983). Although EEGs have occasionally revealed anomalies in some RSPK agents’ brain activity, the meaning of these findings is still not clear.

The most in-depth neurological study of a RSPK agent was the one that focused on a woman known in the literature as Tina Resch (Roll & Storey 2004). She eventually developed complex partial epilepsy, but long after the investigations in the 1980s. Williams highlights some of the results of the research: Although the findings are interesting, the reader is once again left with more questions than answers.

In conclusion, Williams has clearly read a significant portion of the parapsychology literature, and his monograph provides laymen curious about neuroscience and parapsychology with a good starting point for more

in-depth investigations. Undergraduate students in particular will likely appreciate it. The monograph is however not primarily intended for parapsychologists, and they may prefer to read his more detailed articles instead (e.g., Williams 2011, 2012, 2015). Much of the research that the monograph treats is frankly difficult to cover in brief: Williams has nevertheless made an admirable attempt to do so and has clearly outlined what he believes are some key findings from several lines of research. The monograph ends with his conclusions, which in each case is that more research is needed. Williams concludes:

Parapsychologists are still very much in the early stages of exploring what goes on in the brain during the experience of psi, so it is quite difficult to tell at the moment where the path of discovery might lead. (p. 108)

Edward Kelly, who is a veteran parapsychologist, has written a Foreword to the monograph in which he repeats Williams' call for more research with psychics. He also believes that researchers have so far “. . . barely scratched the surface in terms of studying psi and the brain using modern neuroimaging techniques” (p. xi), but nevertheless thinks that Williams makes it evident that substantial successes have already been achieved, “. . . and the prospects for further success . . . look excellent” (p. xi).

NEMO C. MÖRCK

nemomorck@hotmail.com

References Cited

- Alexander, C. H. (2000). Neurophysiological and psychological assessment of an individual experiencing anomalous mental phenomena: A second case study. Paper presented at the 43rd Annual Convention of the Parapsychological Association.
- Alexander, C. H., Persinger, M. A., Roll, W. G., & Webster, D. L. (1998). EEG and SPECT data of a selected subject during psi tasks: The discovery of a neurophysiological correlate of psi. Paper presented at the 41st Annual Convention of the Parapsychological Association.
- Cavanna, R. (Editor) (1970). *Psi Favorable States of Consciousness*. New York, NY: Parapsychology Foundation.
- Don, N. S. (2010). Electrical activity in the brain and the extraordinary mind. In *Mysterious Minds* edited by S. Krippner & H. L. Friedman, Santa Barbara, CA: Praeger, pp. 113–127.
- Duane, T. D., & Behrendt, T. (1965). Extrasensory electroencephalographic induction between identical twins. *Science*, 150:367.
- Ehrenwald, J. (1975). Cerebral localization and the psi syndrome. *Journal of Nervous & Mental Disease*, 161:393–398.
- Fenwick, P., Galliano, S., Coate, M. A., Rippere, V., & Brown, D. (1985). 'Psychic sensitivity', mystical experience, head injury and brain pathology. *British Journal of Medical Psychology*, 58:35–44.
- Honorton, C., Davidson, R., & Bindler, P. (1971). Feedback-augmented EEG alpha, shifts in subjective state, and ESP card-guessing performance. *Journal of the American Society for Psychical Research*, 65:308–323.

- Jinks, T. (2012). *An Introduction to the Psychology of Paranormal Belief and Experience*. Jefferson, NC: McFarland.
- Kelly, E. F., & Lenz, J. (1976). EEG correlates of trial-by-trial performance in a two-choice clairvoyance task: A preliminary study. In *Research in Parapsychology 1975* edited by J. D. Morris, W. G. Roll, & R. L. Morris, Metuchen, NJ: Scarecrow Press, pp. 22–25.
- Kelly, E. F., Hartwell, J. W., & Artley, J. L. (1978). A second two-choice clairvoyance EEG study with Lalsinght Harribance [Abstract]. *Journal of Parapsychology*, 42:54–55.
- Kelly, E. F., Kelly, E. W., Crabtree, A., Gauld, A., Grosso, M., & Greyson, B. (Editors) (2007). *Irreducible Mind*. Lanham, MD: Rowman & Littlefield.
- Montagno, E. de A., & Roll, W. G. (1983). A neurobiological model for psychokinesis. In *Research in Parapsychology 1982* edited by W. G. Roll, J. Beloff, & R. A. White, Metuchen, NJ: Scarecrow, pp. 272–273.
- Morris, R. L., Roll, W. G., Klein, J., & Wheeler, G. (1972). EEG patterns and ESP results in forced-choice experiments with Lalsingh Harribance. *Journal of the American Society for Psychical Research*, 66:253–268.
- Moulton, S. T., & Kosslyn, S. M. (2008). Using neuroimaging to resolve the psi debate. *Journal of Cognitive Neuroscience*, 20:182–192.
- Myers, F. W. H. (1885). Automatic writing. II. *Proceedings of the Society for Psychical Research*, 3:1–63.
- O'Bannon, R. M. (2003). [Letter to the Editor]. *Aperture*, 2(2):9.
- Palmer, J. (1978). Extrasensory perception: Research findings. In *Advances in Parapsychological Research 2* edited by S. Krippner, New York, NY: Plenum Press, pp. 59–243.
- Palmer, J. (2009). Winning over the scientific mainstream. *Journal of Parapsychology*, 73:3–8.
- Persinger, M. A., Roll, W. G., Tiller, S. G., Koren, S. A., & Cook, C. M. (2002). Remote viewing with the artist Ingo Swann: Neuropsychological profile, electroencephalographic correlates, magnetic resonance imaging (MRI), and possible mechanisms. *Perceptual & Motor Skills*, 94:927–949.
- Rao, K. R., & Feola, J. (1973). Alpha rhythm and ESP in a free response situation. In *Research in Parapsychology 1972* edited by W. G. Roll, R. L. Morris., & J. D. Morris, Metuchen, NJ: Scarecrow Press, pp. 141–144.
- Roll, W. G. (2006). A discussion of the evidence that personal consciousness persists after death with special reference to poltergeist phenomena. *Australian Journal of Parapsychology*, 6:5–20.
- Roll, W. G., & Montagno, E. de A. (1983). Similarities between RSPK and psychomotor epilepsy. In *Research in Parapsychology 1982* edited by W. G. Roll, J. Beloff, & R. A. White, Metuchen, NJ: Scarecrow, pp. 270–271.
- Roll, W. G., & Storey, V. (2004). *Unleashed. Of Poltergeists and Murder*. New York, NY: Paraview Pocket Books.
- Roll, W. G., & Williams, B. J. (2010). Quantum theory, neurobiology, and parapsychology. In *Mysterious Minds* edited by S. Krippner & H. L. Friedman, Santa Barbara, CA: Praeger, pp. 1–33.
- Roll, W. G., Persinger, M. A., Webster, D. L., Tiller, S. G., & Cook, C. M. (2002). Neurobehavioral and neurometabolic (SPECT) correlates of paranormal information: Involvement of the right hemisphere and its sensitivity to weak complex magnetic fields. *International Journal of Neuroscience*, 112:197–224.
- Stanford, R. G. (1976). Scientific, ethical, and clinical problems in the “training” of psi ability. In *Surveys in Parapsychology* edited by R. A. White, Metuchen, NJ: Scarecrow Press, pp. 288–304. [Original work published 1975]
- Stanford, R. G., & Palmer, J. (1975). Free-response ESP performance and occipital alpha rhythms. *Journal of the American Society for Psychical Research*, 69:235–243.
- Targ, R., & Puthoff, H. E. (1977). *Mind-Reach*. New York, NY: Delacorte.

- Venkatasubramanian, G., Jayakumar, P. N., Nagendra, H. R., Nagaraja, D., Deeptha, R., & Gangadhar, B. N. (2008). Investigating paranormal phenomena: Functional brain imaging of telepathy. *International Journal of Yoga, 1*:66–71.
- White, R. A. (1964). A comparison of old and new methods of response to targets in ESP experiments. *Journal of the American Society for Psychical Research, 58*:21–56.
- Whitton, J. L. (1974). "Ramp functions" in EEG power spectra during actual or attempted paranormal events. *New Horizons, 1*:174–183.
- Williams, B. J. (2011). Exploring the psychic brain: On neuroscience and psi phenomena. *Australian Journal of Parapsychology, 11*:154–192.
- Williams, B. J. (2012). Extrasensory perception and the brain hemispheres: Where does the issue stand now? *NeuroQuantology, 10*:350–373.
- Williams, B. J. (2015). Empirical examinations of the reported abilities of a psychic claimant: A review of experiments and explorations with Sean Harribance. In *Evidence for Psi* edited by D. Broderick & B. Goertzel, Jefferson, NC: McFarland, pp. 102–137.
- Williams, B. J., & Roll, W. G. (2008). Neuropsychological correlates of psi phenomena. Paper presented at the 51st Annual Convention of the Parapsychological Association.

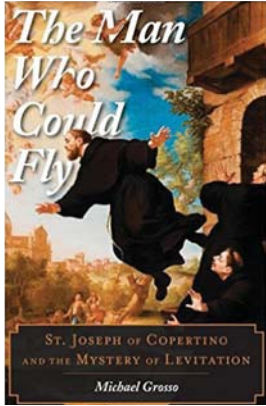
BOOK REVIEW

The Man Who Could Fly: St. Joseph of Copertino and the Mystery of Levitation by Michael Grosso. Lanham, MD: Rowman & Littlefield, 2016. \$38 (hardcover). ISBN 978-1442256729.

The case of St. Joseph, the Flying Friar, is one of the most fascinating in the entire history of parapsychology. But until now, there was very little written in English about Joseph. Grosso's new book fills that void handily, and goes well beyond that by speculating in detail and great subtlety on a variety of surrounding issues, including the efficacy of prayer, the history of religion and religious miracles in general, and the psychology of the period in relation to the development of religious thought. Grosso's broad range of scholarly competence allows him to weave together these various threads into something much more than a mere recounting of astounding anecdotes about Joseph's phenomena. Indeed, there's more in this book than can be covered adequately in a review. So I'll focus primarily on what I imagine will be news anyway to most *JSE* readers—namely, the astounding phenomena and the reasons for taking this case seriously.

The case of St. Joseph provides the earliest outstanding evidence for human levitation and quite possibly the best from any era. But from a certain conventional viewpoint, the case has several strikes against it from the start. In many people it triggers deep-seated prejudices, about either historical evidence generally or the evidence for alleged religious miracles in particular. Even those willing to be open-minded about nineteenth-century evidence for paranormality may balk at taking seventeenth-century evidence equally seriously. And even those willing to be open-minded about seventeenth-century evidence may draw the line at evidence for religious miracles. Here, they would urge, the problem of biased observation and reporting are especially acute.

But the reason the case of Joseph is important is that it tends to be strong just where one would expect it to be weak. There is an abundance of impressive testimony; independent accounts tend to converge on striking and unexpected details; depositions were often provided by laypersons with no motive for lending support to the Church; and perhaps most important, the Church itself subjected the evidence to detailed scrutiny, partly as a general procedure to avoid subsequent embarrassment over endorsing hoaxes, but also because there were good reasons for thinking that the canonization of



Joseph might have been contrary to its interests.

The testimony in Joseph's case has many of the virtues characteristic of the best spontaneous cases in parapsychology. For example, depositions tend to display unexpected patterns of detail, witnesses were often apparently unbiased or at least had nothing to gain (and perhaps something to lose) from offering testimony, and the observations frequently occurred outdoors in daylight or under other favorable conditions. I should also emphasize that Joseph was regularly observed *in flight* or sometimes just suspended in air. He was not simply observed *at* the locations to which he had been ostensibly transported. Furthermore, on those occasions when he was merely hovering above the ground, witnesses frequently confirmed the fact by passing their hands beneath him.

In one particularly interesting case, during Joseph's final illness, the surgeon Francesco Pierpaoli was cauterizing Joseph's right leg when he noticed that Joseph was entranced and senseless. When the cauterization began, Joseph was seated with his right leg lying across the doctor's knees. His arms were spread wide, his eyes and mouth were open, and his face was turned heavenward. Then Pierpaoli noted that Joseph was hovering in that position several inches above his chair. He tried to lower Joseph's leg but was unable to do so. He also observed that a fly had settled on the pupil of one of Joseph's eyes and remained there despite his efforts to drive it away. Then Pierpaoli and a second physician knelt down to confirm that Joseph was indeed raised above his chair. Joseph remained in that state for about fifteen minutes, and when he returned to his senses he had no awareness that the cauterization had been performed.

Joseph's levitations would often be preceded by a cry, sob, or shriek, and when levitating inside a church he would not disturb the objects crowded around him on the altar. In fact, many reported, from many different occasions, that Joseph would not extinguish candles as he flew among them. Moreover, during some of Joseph's flights outdoors, he reportedly soared as much as thirty yards over the heads of onlookers to the branches of trees. Witnesses frequently commented that the branches would not ordinarily have been able to sustain his weight and that Joseph accordingly seemed to weigh no more than a bird. One curious and recurring observation is that during his flights outdoors, Joseph's clothing would not be disturbed by wind or by his movement through the air. His robes were also reported to have remained dry in the rain. These accounts would appear to connect with

reports that Joseph's flights indoors failed to extinguish nearby candles.

Evidently, all that was needed to provoke one of Joseph's levitations was something to arouse his religious awe, such as an image of the Virgin or an inspiring remark. On one occasion, while walking in the garden, another priest said to him, "What a beautiful heaven God has made!", in response to which Joseph shrieked and flew to the top of an olive tree where he remained in a kneeling position for thirty minutes. When he regained his senses, he had to be helped out of the tree with a ladder.

Grosso explains in detail how the testimony in Joseph's case was subjected to serious scrutiny by Church officials, and he offers a penetrating analysis of the nature of Joseph's ecstatic states. Indeed (as I noted earlier), Grosso's book is a great deal more than an account of the astonishing phenomena exhibited by the friar. It's also a detailed and sensitive exploration of Joseph the man, and Grosso devotes much of his text to exploring the details and peculiarities of Joseph's inner life and the connections between his internal dynamics and his externally expressed "miracles." For example, as part of his larger discussion of the varieties of mysticism and ecstatic states and their relationship to eroticism, Grosso has a very interesting discussion of the psychodynamics of Joseph's levitations, and the more general relation between tension and ecstasies. He notes how Joseph struggled to cut himself off from all earthly attachments, and that he once remarked "God wishes that I be detached from every affection other than his divine will." Grosso notes, "For Joseph, levitation meant escape from the unbearable tension of just being in the world" (p. 137). In particular, he suggests that "Joseph deployed his sexual energies to propel his ecstatic flights" (*ibid.*). Summing up, he writes,

Joseph, I conjecture, drew upon repressed, powerful sexual energies to accelerate his extraordinary flights, though consciously he associated sexuality with diabolic temptation. This conflicted, hyperintense state seems to have served as a potent driver of the force that made the levitations possible. (p. 137)

Joseph's phenomena were not limited to instances of levitation. For example, many people reported miraculous healings attributed to Joseph. Here, I wish Grosso had considered more fully the connections with hypnotic phenomena. He does spend a paragraph early on mentioning hypnotic healing, but it could easily have been introduced again in Chapter 4. Grosso correctly notes that one's belief in the powers of the healer (or, say, healing water at Lourdes) may be causally efficacious, and he has another, and excellent, discussion late in the book about how various cognitive states can be either psi conducive or psi repressive. But hypnotic interventions suggest

that cases indicating the efficacy of belief may in fact form a subset of the broader class of dissociative phenomena. So I regret that Grosso didn't include a few words about (say) the relevance of hypnotically induced anesthesia, or of surgeries on hemophiliac patients without bleeding. But this is a very minor quibble.

I'm a bit more concerned about Grosso's discussions of the failing of some physical theories in connection with Joseph's levitations. For example, I'd challenge the story Grosso tells about how classical physics failed to do justice to the existence of consciousness. It's true, I'd say, that physicists' reliance on vertical or analytic explanation is a fatal error when applied to the domain of the mental.¹ But it's not quite true, or to the point, that a problem with classical physics (unlike current physics) is that it fails to provide "openings through which mind may influence, penetrate, and transform nature" (p. 175). I'd argue instead that mental phenomena have always been *outside* the domain of physics, and that the more serious problem instead is with the grand pretensions of physicists who naively think they must be able to account for everything (or at least everything that matters). I found Grosso's discussion of these topics much less sophisticated and subtle than his detailed reflections on the history of ideas and the history and psychology of religion.

However, these concerns are minor. The primary value of Grosso's book is its rich and careful account of Joseph's life and phenomena, and its accompanying and penetrating analysis of religious thought and miracles more generally. Make no mistake. This book is a major contribution both to parapsychology and the philosophy of religion.

Note

¹ See, for example, Braude 1997 and Braude 2014.

STEPHEN E. BRAUDE

References Cited

- Braude, S. E. (1997). *The Limits of Influence: Psychokinesis and the Philosophy of Science Revised Edition*. Lanham, MD: University Press of America.
- Braude, S. E. (2014). *Crimes of Reason: On Mind, Nature, and the Paranormal*. Lanham, MD: Rowman & Littlefield.

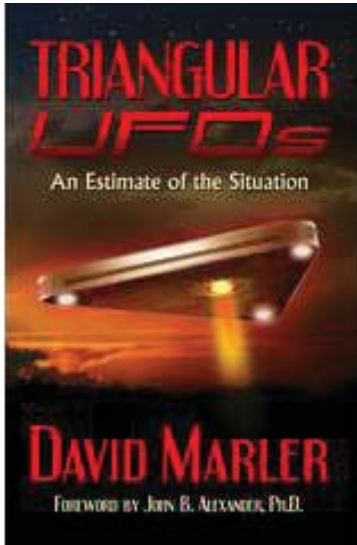
BOOK REVIEW

Triangular UFOs: An Estimate of the Situation by Dave Marler. Richard Dolan Press, 2013. 288 pp. \$15.90 (paperback). ISBN: 978-1490465814.

For truth in advertising, the reader should know that I wrote the Foreword to this book a few years ago. It should be obvious, therefore, that I was positively disposed toward the content. There is, however, a good reason for my support of his work. Dave Marler is a superb researcher with a methodic and conscientious approach to the UFO topic. Most important, he is careful not to say more than he can back up with hard data. His research efforts are supported by one of the most meticulously kept UFO archives anywhere, which he maintains at his home near Albuquerque. It is replete with rare documents and rightfully would make most other UFO researchers envious. In truth, the pristine condition of his archives is indicative of the care he puts into all his activities.

For this book, Marler's approach entails comprehensive research into an important subset of the UFO phenomena; something that no one else has attempted previously. While several people have written short papers about triangular UFOs, his efforts are in-depth and compelling. I was particularly impressed that this work circumvented one of my main concerns, i.e. "What constitutes a UFO?" Unfortunately, it is a term used broadly and without clear definition. Reports of UFOs range from little balls of light, often high in the sky, to large physical objects, possibly more than a mile across. In addition to objects small and far away, there are other observations by credible witnesses at very close proximity to the craft. There should be real concern about the enormous variability in observations when considering this global issue. There are just too many varieties of craft to accommodate any single simple solution. Positing little grey guys from Zeta Reticula, who have come to collect sperm, or more perversely, conduct anal probes, just won't do it. To his credit, Marler avoids pronouncing the craft as extraterrestrial. For him the provenance is just unknown.

As with any good research project, the first step is to establish parameters delimiting the topic and making it manageable; and Marler has done that. While most people think of UFOs as being round or saucer-shaped, they actually come in many varieties. The most frequently reported sightings are strange lights in the sky. Triangular-shaped ones, however, are second-



highest when all reports are categorized by shape, even more than disks.

This book provides the first extensive examination devoted exclusively to those reports of large triangular-shaped UFOs. Employing exacting data analysis, the author conclusively eliminates the most popular conspiracy theory about their origin—that they are products of secret research of the U.S. government. Of course not all sightings are denounced. However, since the observations of triangular-shaped UFOs began before the Wright Brothers' famous venture at Kitty Hawk, North Carolina, government development of those craft can be categorically eliminated. Specifically,

he puts the nail in the coffin with the discovery that large triangular UFO reports occurred as early as 1882. That was more than two decades before the first powered flight in 1903. Obviously, those observations put triangular UFOs far beyond the technological grasp of any human source.

Regarding more recent sightings of triangular UFOs, conspiracy theorists still repeatedly take the position of secret government research. It matters not that such a conclusion defies both facts and logic. While the government does develop advanced aircraft in secret, it does not conduct test flights of well-illuminated prototypes near major metropolitan areas. Yet, that is where many of the large triangular UFOs have been observed. Marler explores many of these easily observed sightings in great detail.

As an example, Marler cites a notorious incident that took place in the early morning hours of January 5, 2000. The case is important as there are multiple highly credible witnesses, including law enforcement officers from four different police departments. They described a brightly illuminated object, at relatively low altitude, moving at slow speeds. Such an open display hardly sounds like a secret project. The flight characteristics are important to note. After quietly traversing many miles across the rural areas of southern Illinois, the unidentified craft turned to the northeast, and then rapidly accelerating shot off at speeds estimated to be more than 12,000 mph. Interestingly, no sonic boom was heard, despite the fact that the UFO obviously broke the sound barrier. Noteworthy is that this UFO came within a few miles of Scott Air Force Base, home of the Air Mobility Command, yet did not cause alarm at the field.

In the Illinois case, as with others, Marler is a first-hand investigator. On his own dime he travels to areas of reported sightings and personally interviews the witnesses. He has demonstrated the ability to find previously unknown witnesses and talk with them. In the Illinois case cited, he found such a witness and uniquely determined that there may have been two triangular UFOs traveling in parallel that night. Marler prefers old cases that have stood the test of time. Then he is able to tease out new details, even decades after the original reports. In this book he devotes four chapters to exploration of historical data and reveals numerous cases that most UFO investigators have never heard of before.

The bottom line to this book is that large triangular UFOs have been seen in many areas of the world. Most important, they have been around for a long, long time. They have been reported by numerous credible witnesses and offer an important subset of the UFO phenomena, one worthy of serious scientific study. Like Dave, I sincerely hope scientists will be able to get past the debunkers, hoaxers, and the credulous true believers. At some point in time, maybe that will happen. Given the history of large, triangular UFO sightings, it is most probable that they will continue to perplex us for a long time to come.

JOHN ALEXANDER

BOOK REVIEW

Against the Tide: A Critical Review by Scientists of How Physics and Astronomy Get Done edited by Martin Lopez Corredoira and Carlos Castro Perelman. Boca Raton, FL: Universal Publishers, 2008. 268 pp. \$25.95 (paperback). ISBN 978-1599429939.

When, many years ago, I frequented the Physics Library of the University of Michigan, there was a cabinet that held a number of books that were characterized as “Weird Physics,” or some similar title. As I recall, the books were kept under glass and locked up. I can only wonder if it is still there, or whether other Physics Departments have some similar arrangement. (And not only Physics Departments!) But what happens to the humans who write such books? No longer are they burned at the stake (like Giordano Bruno), held under house arrest (like Galileo), or consigned to prison (Cf. USSR). But they have their punishments, nonetheless.

All members of the Society for Scientific Exploration (SSE), I am sure, know the high price to be paid for the research of taboo topics. Many have experienced the subtle, and sometimes not so subtle, hints to forget a subject altogether. Others have experienced the early derailment or termination of otherwise promising careers, the snickering dismissal by the toadies of dominant paradigms, and the worse consignment of taboo researchers by the powerful to various academic limbos for looking into forbidden subjects. The temptation to present my own trials is strong, but I will resist it. For we all have our own stories to tell. And we all hope for historical vindication.

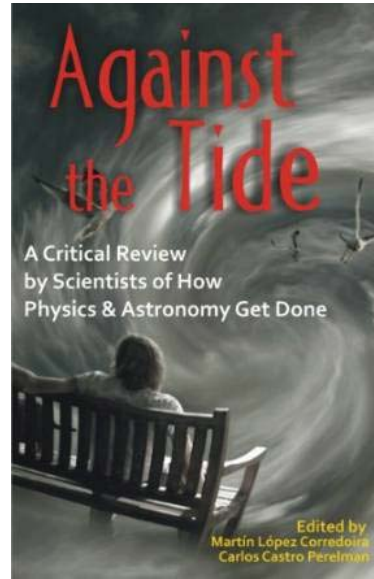
But in the meantime the realities are unpleasant. Here we have a volume, mostly by physicists and astronomers, that describes some of these realities. The book leads off with a brief but valuable review of previous literature on “resistance by scientists to scientific discovery” to use Bernard Barber’s phrase. This review, written by J. M. Companario and B. Martin, covers a great deal of key literature, and shows how dominant paradigms suppress potentially revolutionary data. For anyone interested in the general issues here, this chapter is an excellent place to start. Then we descend into the maelstrom, lovingly depicted on the book’s cover.

Scientists behave badly. Even a passing acquaintance with the history or sociology of science will present one with numerous case studies of arrogance, bribery, abuse of power, plagiarism, and data fudging. On the latter point, there is Stephen Brush’s essay “Should the history of science

be rated ‘X,’” where Brush answers in the affirmative (Brush 1974). But the present book is not a catalog of unprofessional behavior so much as one that catalogs the resistance to novel observation and theory, often carried out with “extreme prejudice” to the researcher.

In some cases the anomalous data cannot be published in mainstream journals, because the gatekeepers of whatever orthodoxy hold the gate against them, as Halton Arp writes here about his anomalous red-shift data. Or they are willfully misinterpreted as supporting orthodox claims, often in violation of common sense and manifest appearances. One thinks, for instance, of Michel Gauquelin and the “Mars Effect,” whose many replications seemed only to further enrage the guardians of canonical truth, and elicited from them further instances of unscientific behavior, for instance in the notorious “Starbaby” episode. Or consider the long delay in mounting what certainly appeared to be the correct head atop the numerous Brontosaurus (now Apatosaurus) skeletons in museums, due to the authority of Henry Fairfield Osborn (Gould 1997). In other cases, we have what is apparently a highly corrupt political system (e.g., Apostol’s essay in this volume regarding Romania), of which science is simply one part. Then the dark side of peer review, certainly a potential mechanism for protecting dogma and creating mediocrity, here scathingly explored by J. Marvin Herndon.

This is an angry book, and one can hardly blame its authors for their anger. Cynicism comes easily when big wheels in science have entourages and publicity machines worthy of rock stars. Corredoira asks “What do Astrophysics and the World’s Oldest Profession Have in Common?” and then proceeds to show the reader just what. It is difficult to disagree with Corredoira’s caricatures of peer review, conferences, and funding policies. Sometimes there are genuine scoundrels, as John Crewdson’s book *Science Fictions* (2002) alleges Robert Gallo to be. But real scoundrels, I believe, are rare. Yet, again and again, the mere fact of unequal power itself leads to minor figures being squashed beneath the wheels of the Juggernaut of the superstar. And power also generates the toady phenomenon in all its glory. One wonders whether, in earlier centuries, when science had to struggle



for funding, these phenomena were so common. But today budgets can be very big. Build a supercollider and hierarchies will assert themselves immediately. It makes one want to go off to an island or a mountain retreat (Corredoira lives in the Canary Islands) and escape. Yet the question of causation and the comparison of differences in scientists' behavior in different countries is important. The last essay, by Carlos Castro Perelman, fairly bubbles with outrage.

But what is the alternative? Do some societies still have savants who don't have giant budgets, publicity machines, toadies, and outsized egos? And does anything important happen in such societies? And if these savants discover anything really important, how long will they resist all the charms of Big Science? Where there is success, I believe, this success is usually translated into power.

We might recognize that very similar suppression to that which attends anomalies research is the fate of intellectual dissidents in science who simply are simply guilty of holding a minority view. Often the "science monopolies" that Henry Bauer describes in his book on the subject have henchmen (or women) who are all too ready to carve up the heretics (Bauer 2012). In many respects this recalls the Catholic Church's pursuit of the Albigensians, many of whom resided in the city of Toulouse, which the Church proposed to wipe out during a crusade starting in 1207 AD. When one of the Papal Legate's retainers wondered if they would kill a lot of innocents as a side effect, he was told: "Kill them all. The Lord will recognize his own" [and presumably the innocents would thus be admitted to heaven]. They certainly killed a lot of them. One wonders if Donald Menzel, an astronomer whose "skepticism" about UFOs went rather far, was not engaged in an intellectual crusade of a similar type through his three books on UFOs.

I might note, in passing, a number of ways in which anomalistics researchers manage to go about their important business. The first model is to wait until enough academic power is attained, so that they cannot easily be dislodged (think J. Allen Hynek, Robert Jahn, and John Mack). This is why the SSE, rather than being filled by the young and rebellious, is largely peopled by full and emeritus professors. I would even counsel the young to keep their mouths shut until at least they have tenure. However, tenured professors who speak up, such as David Jacobs (UFOs) and Roy Mackal (Loch Ness), often advance no further once they do. Another model is the one I chose, which is to pick a less-demanding university and so largely be left in peace. This involves greatly revising one's ambitions regarding cushy positions, but still allows a considerable climb reputationally, both in academia per se and in one's chosen field of anomalistics. Model III is

the submarine approach, where one stays out of sight and works as a secret agent. But this usually means no anomalies publications, except under a pseudonym, and almost never any money for anomalies research. I have a colleague who chooses to work in this manner. He is known to a small number of UFO researchers, but his own colleagues do not suspect his deviant activity.

As I indicated earlier, this book has quite a number of horror stories of the variety to which many of us (unhappily) have become accustomed. But it is short on analysis about why this happens, how “normal” it is, and what can be done about it. D. Rabounski’s set of principles of scientific freedom is good, but needs more discussion. Henry Bauer’s essay on science ethics views science as a filtering system, so that by the time science hits the textbooks it is much more likely to be true. I mostly agree, but textbooks also create their own distortions. Dr. Bauer’s view is certainly a common view among scientists, but to my mind rather glib about the process by which a hypothesis becomes a fact.

In summing up, I would say that *Against the Tide* is helpful in allowing us to see the glaring problem of unfettered conflict in science regarding heretical views and anomalistics. Frankly, much of the book is absolutely on target. But then science is a complicated business. Conflict is often endemic. Political, commercial, and reputational issues are unlikely to go away. Success leads to power, and power leads to abuse. We can and must fight abuse when it involves science we care about. But as for making it go away generally, I am not hopeful.

An index would have been helpful.

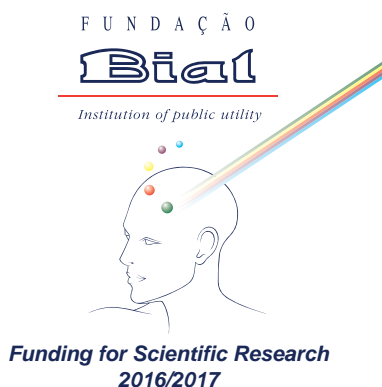
Finally, I would like to apologize for the late review of this book. Life often gets in the way of one’s academic responsibilities.

RON WESTRUM

Emeritus Professor of Sociology
Eastern Michigan University

References Cited

- Bauer, H. H. (2012). *Dogmatism in Science and Medicine*. Jefferson, VA: McFarland.
Brush, S. (1974). Should the history of science be rated ‘X’? *Science*, 183:1165–1172.
Gould, S. J. (1997). *Bull for Brontosaurus*. New York, NY: W. W. Norton.



BIAL FOUNDATION GRANTS

Through its Grants Programme for Scientific Research, the Bial Foundation is accepting applications of research projects in the areas of Psychophysiology and Parapsychology—projects from Clinical or Experimental Models of Human Disease and Therapy shall not be accepted.

Applications should be submitted in English by the 31st of August 2016, in accordance with the applicable regulation and through the Bial Foundation Grants Management System (BF-GMS) available at:

https://www.bial.com/en/bial_foundation.11/grants.18/grants_management_system.154/grants_management_system.a385.html

At the following link you will find information about the application process:

https://www.bial.com/en/bial_foundation.11/grants_2016_2017.239/grants_2016_2017.a570.html



The Institute for Venture Science
Seattle, Washington
www.ivsci.org

**THE INSTITUTE FOR VENTURE SCIENCE ANNOUNCES
SOLICITATION FOR PRE-PROPOSALS FOR SCIENTIFIC COMPETITION**

FOR IMMEDIATE RELEASE

Contact: Dr. Gerald Pollack, Executive Director
Email: admin@ivsci.org
Phone: 856.473.4870

Seattle, WA – 26 April 2016

[The Institute for Venture Science](http://www.theinstituteforventurescience.net) (IVS), a Seattle based non-profit, today announced the opening of its first round of pre-proposal competition for scientific grants.

The IVS funds promising ideas that challenge conventional scientific thinking. The organization seeks to identify ideas with the highest potential to replace paradigms that have outlived their usefulness. All areas of natural science are considered. Dr. Gerald Pollack, the Executive Director of the Institute commented, “We do not fund technology development, but only fundamental science — the more fundamental, the better. We are seeking proposals with the highest capacity to shake the earth.”

A key aspect of the IVS plan is to fund multiple laboratories worldwide that follow the same theme. That approach helps build a critical mass, assuring that promising new paradigms cannot be easily ignored. Challengers will have a fighting chance to gain traction. This approach is expected to facilitate major breakthroughs, possibly even scientific revolutions.

Pre-proposal instructions are available at
<http://www.theinstituteforventurescience.net/#!preproposal/cifs>.

Chairman of the Board of Directors, Dr. James Ryder stated, “As the number of submissions we can review during this initial round will be limited to 200, early submissions are encouraged.”

Further information on the Institute can be obtained by visiting www.IVSCI.org or by email to admin@ivsci.org.

SSE ASPIRING EXPLORERS PROGRAM

The SSE has established an Aspiring Explorers Prize for meritorious student research projects judged to be the most original and well-executed submission in subject areas of interest to the SSE. A committee is in place to review all entries and determine the winner, who will receive an award of \$500 and have the opportunity to present a talk describing the project at the annual meeting, for which the Society will cover her/his registration fee. Submissions must be made per the guidelines and deadline as stated on the SSE website "Call for Papers" for the conference you are considering attending in order to be eligible for that year's prize.

If your paper is selected for the Aspiring Explorer Award, you will be either invited to present your talk at the meeting or able to submit your paper as a poster session. We are very excited about doing poster sessions now, so please let your fellow student colleagues and professors know about this.
<http://www.scientificexploration.org/2016-conference>

In addition, the SSE is also offering a 50% discount on future meeting registrations for any student member who brings one student friend to our conferences (one discount per student). We are eager to see student clubs or SSE discussion groups established at various academic institutions or in local communities. Contact us at sseaspiringexplorers@gmail.com to start your own group!

C. M. Chantal Toporow, Ph.D., SSE Education Officer
sseaspiringexplorers@gmail.com

Life and Mind — Scientific Challenges

10th Biennial European Conference of the Society for Scientific Exploration

Sigtuna, Sweden, October 13–15, 2016

<http://www.scientificexploration.org/sweden-2016>

The 10th Biennial European Conference of the Society for Scientific Exploration is being organized in collaboration with the Swedish Society for Psychical Research (SSPR) and the research center Agora for Biosystems at the **Sigtuna Foundation** October 13–15, 2016 (Thursday morning through Saturday noon). The Sigtuna foundation (website: sigtunastiftelsen.se/) is a private cultural foundation, whose principle aim is to inspire human thought and reflection, and to stimulate and facilitate dialogue, encounters, and bridge building. Founded in 1917, it grew out of a student movement that sought to revitalize both the Church of Sweden and society at large by fostering a creative and fruitful exchange between people of faith and secularists, between religion and science, culture, and the arts.

Sigtuna is the oldest town in Sweden (980 AD), has the most runic stones, and is close to Uppsala, which has the oldest university in Scandinavia (Uppsala University was founded in 1477 and has a track record of numerous Noble Prizes). Sigtuna has played an important role in Swedish history. Sigtuna is also close to the capital city, Stockholm, and its major airport Arlanda. Local Hosts are SSE European Representative Anders Rydberg

anders.rydberg@angstrom.uu.se or
anders.rydberg@sse-europe-2016.eu
and the Program Chair, and President
for the SSPR, Göran Brusewitz
goran.brusewitz@bredband.net or
goran.brusewitz@sse-europe-2016.eu



KEYNOTE SPEAKERS

Stuart Hameroff, anesthesiologist, director of the Center for Consciousness Studies and professor at the University of Arizona, Tucson, USA. Professor Hameroff is best known for his studies and theories on a quantum basis of consciousness.

Johnjoe McFadden, professor of Molecular Genetics at the University of Surrey, United Kingdom. Professor McFadden is best known for his studies on the electromagnetic basis of consciousness.

Rupert Sheldrake, a British biologist and author, best known for his hypothesis of morphic fields and resonances, which leads to a vision of a living, developing universe with its own inherent memory.

A Panel discussion on Parapsychology and Consciousness will be held with tentative panelists Professor Dick J. Bierman, Professor Etzel Cardeña, Professor Adrian Parker, Professor William Bengston, Assistant Professor Jan Dalkvist, and Dr. Rupert Sheldrake.

A Panel discussion on Quantum Biology and Consciousness will be held with tentative panelists Professor Johnjoe McFadden, Professor Stuart Hameroff, Dr. Rupert Sheldrake, and Professor Hans Liljenström.

CALL FOR PAPERS

Papers in the areas of Quantum Biology, Brain and Mind, and Consciousness, and related areas are welcome. Abstracts (non-student abstracts) for contributed papers should be sent to the Program Chairman: Göran Brusewitz goran.brusewitz@bredband.net or goran.brusewitz@sse-europe-2016.eu

Student abstracts should be sent to the SSE Education Chair, Dr. Chantal Toporow, at sseaspiringexplorers@gmail.com. Electronic submission is required. The Title should be short and informative. Please include Author name and Affiliation and contact information. Abstracts should be 300 to 500 words (one page of single-spaced text), and should summarize the main points of the paper. Plain text as the body of the e-mail is preferred. If special formatting is required for intelligibility, please submit a Word document. The cutoff date for submissions is June 15, 2016. Please note in the submission if you prefer oral or poster presentation.



RECEPTION & OUTINGS

Welcome Reception: Wednesday, October 12, starting at 7 p.m.

Field Trip: SSE's traditional recreational excursion will be to Uppsala, home of botanist Carl von Linné and Uppsala University. Uppsala Cathedral (see photo) houses the grave of scientist/mystic Emanuel Swedenborg. Old Uppsala is rich in archaeological remains and has 3 royal mounds.

Banquet: Friday night, October 14.

IMPORTANT DATES for EURO-MEETING

Paper submission due: June 15, 2016

Notification of paper acceptances: July 1, 2016

Early fee deadline for registration: July 15, 2016

Last day for hotel registration at the Sigtuna Foundation: July 15, 2016

Last day for hotel registration at the Sigtuna Hostel: Sept. 15, 2016

Conference: October 13–15 (Thurs. morning through Saturday noon)

ACCOMMODATIONS & TRANSPORTATION

The conference/hotel venue is the **Sigtuna Foundation** (Sigtuna-stiftelsen) in Sigtuna. +46-859258900; info@sigtunastiftelsen.se sigtunastiftelsen.se.

A large block of rooms has been reserved (arrival Oct. 12 and departure Oct. 15) at a special rate of 1203 Skr (\$144) (single room) and 1642 Skr (double room) incl. breakfast. Reservation should be made 3 months in advance (by July 15) to receive this rate. Please call or email the hotel.

In addition, 20 rooms have been reserved at the Sigtuna Hostel and Folk High School, Sigtuna. +46-859258300. Email: vandrarhem@sigtunafolkhogskola.se. The price is 755 Skr (single room) (\$90) and 1070 Skr (double room) incl. breakfast. Reservations should be made 1 month in advance (by Sept. 15). Please call or email the hotel to reserve your rooms. The hostel is close to Lake Mälaren and to the Sigtuna Foundation (walking distance).

If you are looking for even cheaper accommodations, check out destinationsigtuna.se/en/. If you are looking for alternative accommodation, please e-mail Anders Rydberg or Göran Brusewitz. We can supply more suggestions.

The venue is close to Stockholm/Arlanda airport (15 min. by taxi). There is a special taxi price from Arlanda to the Sigtuna Foundation of 310 Skr (\$37): call Taxi 020, at +46-20-202020, www.taxi020.se

There are buses from Arlanda to the Sigtuna Foundation. Bus Number 579 takes you directly to Sigtuna (+ walk circa 850 m). sl.se/in-english/. Contact the Sigtuna Foundation for more info. sigtunastiftelsen.se. +46-8592589.

Society for Scientific Exploration

Executive Committee

Dr. Bill Bengston
SSE President
St. Joseph's College
Patchogue, New York

Professor Garret Moddel
SSE Vice-President
Dept. of Electrical & Computer Engineering
University of Colorado Boulder, Colorado

Dr. York Dobyns
SSE Treasurer
Lexington, Kentucky

Dr. Mark Urban-Lurain
SSE Secretary
CREATE for STEM Institute
620 Farm Lane, 115 Erickson Hall
Michigan State University
East Lansing, Michigan 48824
scientificexplorationsecretary@gmail.com

Dr. Chantal Toporow
SSE Education Officer
Northrup Grumman
Redondo Beach, California

Council

Dr. Marsha Adams
International Earthlights Alliance
Sedona, Arizona

Dr. Julie Beischel
The Windbridge Institute
Tucson, Arizona

Dr. Neal Grossman
Department of Philosophy
University of Illinois Chicago
Evanston, Illinois

Dr. Dominique Surel
Energy Medicine University
Evergreen, Colorado

Appointed Officers

Professor Anders Rydberg
SSE European Representative
Uppsala University, Uppsala, Sweden

Carl Medwedeff
SSE Associate Members' Representative
Livonia, Michigan

Professor Peter A. Sturrock
SSE President Emeritus and Founder
Stanford University, Stanford, California

Professor Robert G. Jahn
SSE Vice-President Emeritus and Founder
Princeton University, Princeton, New Jersey

Professor Charles Tolbert
SSE President Emeritus
University of Virginia, Charlottesville, Virginia

Dr. John Reed
SSE Treasurer Emeritus
World Institute for Scientific Exploration
Baltimore, Maryland

Professor Lawrence Fredrick
SSE Secretary Emeritus
University of Virginia, Charlottesville, Virginia

Professor Henry Bauer, *JSE* Editor Emeritus
Dean Emeritus, Virginia Tech
Blacksburg, Virginia

Index of Previous Articles in the *Journal of Scientific Exploration*

Vol: No.	Article	Author(s)
1:1	A Brief History of the Society for Scientific Exploration	P. Sturrock
	Aterations in Recollection of Unusual and Unexpected Events	D. Hall et al.
	Toward a Quantitative Theory of Intellectual Discovery (Esp. in Phys.)	R. Fowler
	Engineering Anomalies Research	R. Jahn et al.
	Common Knowledge about the Loch Ness Monster	H. Bauer
	An Analysis of the Condon Report on the Colorado UFO Project	P. Sturrock
1:2	The Strange Properties of Psychokinesis	H. Schmidt
	What Do We Mean by "Scientific?"	H. Bauer
	Analysis of a UFO Photograph	R. Haines
	Periodically Flashing Lights Filmed off the Coast of New Zealand	B. Maccabee
2:1	Commonalities in Arguments over Anomalies	H. Bauer
	Remote Viewing and Computer Communications—An Experiment	J. Vallee
	Is There a Mars Effect?	M. Gauquelin
	Raising the Hurdle for the Athletes' Mars Effect	S. Ertel
2:2	UFOs and NASA	R. Henry
	The Nature of Time	Y. Terzian
	Operator-Related Anomalies in a Random Mechanical Cascade	B. Dunne et al.
	Evidence for a Short-Period Internal Clock in Humans	T. Slanger
	Three New Cases of Reincarnation Types in Sri Lanka with Written Records	I. Stevenson et al.
3:1	Arguments Over Anomalies: H. ?Polemics	H. Bauer
	Anomalies: Analysis and Aesthetics	R. Jahn
	Trends in the Study of Out-of-Body Experiences	C. Alvarado
	A Methodology for the Objective Study of Transpersonal Imagery	W. Braud/ M. Schlitz
	The Influence of Intention on Random and Pseudorandom Events	D. Radin/J. Utts
	Case of Possession Type in India with Evidence of Paranormal Knowledge	I. Stevenson et al.
3:2	New Ideas in Science	T. Gold
	Photo Analysis of an Aerial Disc Over Costa Rica	R. Haines/J. Vallee
	Three Cases of Children in Northern India Who Remember a Previous Life	A. Mills
	"Signatures" in Anomalous Human–Machine Interaction Data	D. Radin
	A Case of Severe Birth Defects Possibly Due to Cursing	I. Stevenson
4:1	Biochemical Traumatology/Plant Metabolic Disorders in a UFO Landing	M. Bounias
	Return to Trans-en-Provence	J. Vallee
	Analysis of Anomalous Physical Traces: 1981 Trans-en-Provence UFO Case	J. Velasco
	Physical Interpretation of Very Small Concentrations	H. Bauer
	Luminous Phenomena and Seismic Energy in the Central United States	J. Derr/ M. Persinger
	Photo Analysis of an Aerial Disc Over Costa Rica: New Evidence	R. Haines/J. Vallee
	A Scientific Inquiry into the Validity of Astrology	J. McGrew/ R. McFall
	Planetary Influences on Human Behavior: Absurd for a Scientific Explanation?	A. Müller
	Five Arguments against Extraterrestrial Origin of Unidentified Flying Objects	J. Vallee
4:2	Using the Study of Anomalies To Enhance Critical Thinking in the Classroom	M. Swords
	Observations of Electromagnetic Signals Prior to California Earthquakes	M. Adams
	Bayesian Analysis of Random Event Generator Data	W. Jefferys
	Moslem Case of Reincarnation Type in Northern India: Analysis of 26 Cases	A. Mills

- | | |
|---|------------------------|
| Electromagnetic Disturbances Associated with Earthquakes | M. Parrot |
| Extrasensory Interactions between Homo Sapiens and Microbes | C. Pleass/N. Dey |
| Correlation between Mental Processes and External Random Events | H. Schmidt |
| Phobias in Children Who Claim To Remember Previous Lives | I. Stevenson |
| A Gas Discharge Device for Investigating Focused Human Attention | W. Tiller |
| Radio Emissions from an Earthquake | J. Warwick |
| 5:1 The Cydonian Hypothesis | J. Brandenburg et al. |
| Cases in Burma, Thailand, and Turkey: Aspects of I. Stevenson's Research | J. Keil |
| Effects of Consciousness on the Fall of Dice: A Meta-Analysis | D. Radin/D. Ferrari |
| The Wasgo or Sisiutl: A Cryptozoological Sea-Animal | M. Swords |
| The Extraterrestrial Hypothesis Is Not That Bad | R. Wood |
| Toward a Second-Degree Extraterrestrial Theory of UFOs | J. Vallee |
| Low-Frequency Emissions: Earthquakes and Volcanic Eruptions in Japan | T. Yoshino |
| 5:2 Eccles's Model of Mind-Brain Interaction and Psychokinesis | W. Giroladini |
| Ball Lightning and St. Elmo's Fire as Forms of Thunderstorm Activity | A. Grigor'ev et al. |
| Social Scientific Paradigms for Investigating Anomalous Experience | J. McClenon |
| Count Population Profiles in Engineering Anomalies Experiments | R. Jahn et al. |
| Children Claiming Past-Life Memories: Four Cases in Sri Lanka | E. Haraldsson |
| 6:1 Can the UFO Extraterrestrial Hypothesis and Vallee Hypotheses Be Reconciled? | W. Bramley |
| Learning for Discovery: Establishing the Foundations | R. Domaingue |
| On the Bayesian Analysis of REG Data (Response from W. Jefferys) | Y. Dobyns |
| Electrodynamic Activities and Their Role in the Organization of Body Pattern | M. W. Ho et al. |
| 6:2 Review of Approaches to the Study of Spontaneous Psi Experiences | R. White |
| Survival or Super-Psi?: Interchange Responses | I. Stevenson/S. Braude |
| The Psychokinesis Effect: Geomagnetic Influence, Age and Sex Differences | L. Gissurason |
| Are Reincarnation Type Cases Shaped by Parental Guidance? | S. Pasricha |
| 6:3 Heim's Theory of Elementary Particle Structures | T. Auerbach |
| Better Blood through Chemistry: A Laboratory Replication of a Miracle | M. Epstein |
| The Gauquelin Effect Explained? Comments on Müller's Planetary Correlations | S. Ertel |
| The Gauquelin Effect Explained? A Rejoinder to Ertel's Critique | A. Müller |
| Ball Lightning Penetration into Closed Rooms: 43 Eyewitness Accounts | A. Grivor'ev et al. |
| A Series of Possibly Paranormal Recurrent Dreams | I. Stevenson |
| 6:4 Experiments in Remote Human/Machine Interaction | B. Dunne et al. |
| A Low Light Level Diffraction Experiment for Anomalies Research | S. Jeffers et al. |
| A New Look at Maternal Impressions: An Analysis of 50 Published Cases | I. Stevenson |
| Alternative Healing Therapy on Regeneration Rate of Salamander Forelimbs | D. Wirth et al. |
| 7:1 Accultured Topographical Effects of Shamanic Trance Consciousness | P. Devereux |
| Mainstream Sciences vs. Parasciences: Toward an Old Dualism? | G. L. Eberlein |
| Existence of Life and Homeostasis in an Atmospheric Environment | S. Moriyama |
| A Guide to UFO Research | M. D. Swords |
| 7:2 Non-Causality as the Earmark of Psi | H. Schmidt |
| Adequate Epistemology for Scientific Exploration of Consciousness | W. W. Harman |
| Puzzling Eminence Effects Might Make Good Sense | S. Ertel |
| Comments on Puzzling Eminence Effects | J. W. Nienhuys |
| A Systematic Survey of Near-Death Experiences in South India | S. Pasricha |
| The Willamette Pass Oregon UFO Photo Revisited: An Explanation | I. Wieder |

- 7:3 Near Death Experiences: Evidence for Life After Death? M. Schröter-Kunhardt
 Analysis of the May 18, 1992, UFO Sighting in Gulf Breeze, Florida B. Maccabee
 Selection Versus Influence in Remote REG Anomalies Y. Dobyns
 Dutch Investigation of the Gauquelin Mars Effect J. Nienhuys
 Comments on Dutch Investigations of the Gauquelin Mars Effect S. Ertel
 What Are Subtle Energies? W. Tiller
- 7:4 Explaining the Mysterious Sounds Produced by Very Large Meteor Fireballs C. S. L. Keay
 Neural Network Analyses of Consciousness-Related Patterns D. I. Radin
 Applied Parapsychology: Studies of Psychics and Healers S. A. Schouten
 Birthmarks and Birth Defects Corresponding to Wounds on Deceased Persons I. Stevenson
 The "Enemies" of Parapsychology R. McConnell
- 8:1 Survey of the American Astronomical Society Concerning UFOs: Part 1 P. Sturrock
 Anatomy of a Hoax: The Philadelphia Experiment Fifty Years Later J. Vallee
 Healing and the Mind: Is There a Dark Side? L. Dossey
 Alleged Experiences Inside UFOs: An Analysis of Abduction Reports V. Ballester Olmos
 What I See When I Close My Eyes R. Targ
- 8:2 Survey of the American Astronomical Society Concerning UFOs: Part 2 P. Sturrock
 Series Position Effects in Random Event Generator Experiments B. Dunne et al.
 Re-Examination of the Law of Conservation of Mass in Chemical Reactions K. Volkamer et al.
 The 'Genius Hypothesis': Exploratory Concepts for Creativity E. Laszlo
- 8:3 Survey of the American Astronomical Society Concerning UFOs: Part 3 P. Sturrock
 Strong Magnetic Field Detected Following a Sighting of an UFO B. Maccabee
 Complementary Healing Therapy for Patients with Type I Diabetes Mellitus D. P. Wirth
 Report of an Indian Swami Claiming to Materialize Objects E. Haraldsson
- 8:4 Scientific Analysis of Four Photos of a Flying Disk Near Lac Chauvet, France Pierre Guérin
 A Linear Pendulum Experiment: Operator Intention on Damping Rate R. D. Nelson
 Applied Scientific Inference P. A. Sturrock
 The Mind-Brain Problem J. Beloff
- 9:1 Unconventional Water Detection: Field Test of Dowsing in Dry Zones: Part 1 H. Betz
 Digital Video Analysis of Anomalous Space Objects M. Carlotto
 The Critical Role of Analytical Science in the Study of Anomalies M. Epstein
 Near-Death Experiences in South India: A Systematic Survey S. Pasricha
 Human Consciousness Influence on Water Structure L. Pyatnitsky/
 V. Fonkin
- 9:2 Unconventional Water Detection: Field Test of Dowsing in Dry Zones: Part 2 H. Betz
 Semi-molten Meteoric Iron Associated with a Crop Formation W. Levensgood/MJ.
 Burke
 Experiments on a Possible g-Ray Emission Caused by a Chemical Process V. Noninski et al.
 The Effect of Paranormal Healing on Tumor Growth F. Snel/
 P. van der Sijde
 Psychokinetic Action of Young Chicks on the Path of an Illuminated Source R. Peoc'h
 Eddington's Thinking on the Relation between Science and Religion A. Batten
 Two Kinds of Knowledge: Maps and Stories H. Bauer
- 9:3 Experiments on Claimed Beta Particle Emission Decay V. Noninski et al.
 Assessing Commonalities in Randomly Paired Individuals T. Rowe et al.
 Anomalously Large Body Voltage Surges on Exceptional Subjects W. Tiller et al.
 Six Modern Apparitional Experiences I. Stevenson
 Viewing the Future: A Pilot Study with an Error-Detecting Protocol R. Targ et al.
 Could Extraterrestrial Intelligences Be Expected to Breathe Our Air? M. Swords

- 9:4 Decision Augmentation Theory: Applications to Random Number Generators E. May
 Extrasensory Perception of Subatomic Particles & Referee Interchange (Dobyns) S. Phillips
 North American Indian Effigy Mounds A. Apostol
 A Holistic Aesthetic for Science B. Kirchoff
- 10:1 An Assessment of the Evidence for Psychic Functioning J. Utts
 Evaluation of a Program on Anomalous Mental Phenomena R. Hyman
 CIA-Initiated Remote Viewing Program at Stanford Research Institute H. Puthoff
 Remote Viewing at Stanford Research Institute in the 1970s: A Memoir R. Targ
 American Institutes for Research Review of the STAR GATE Program E. May
 FieldREG Anomalies in Group Situations R. Nelson et al.
 Anomalous Organization of Random Events by Group Consciousness D. Radin et al.
- 10:2 Critical Review of the “Cold Fusion” Effect E. Storms
 Do Nuclear Reactions Take Place Under Chemical Stimulation? J. Bockris et al.
 Claimed Transmutation of Elements Caused by a Chemical Process V. Noninski et al.
 Selection versus Influence Revisited: New Methods and Conclusions Y. Dobyns
 Illegitimate Science? A Personal Story B. Maccabee
 Anomalous Phenomena Observed in the Presence of a Brazilian “Sensitive” S. Krippner et al.
- 10:3 Mass Modification Experiment Definition Study R. Forward
 Atmospheric Mass Loss on Mars and the Consequences H. Lammer
 Exploring Correlations between Local Emotional and Global Emotional Events D. Bierman
 Archetypes, Neurognosis and the Quantum Sea C. Laughlin
- 10:4 Distance Healing of Patients with Major Depression B. Greyson
 Cases of the Reincarnation Type: Evaluation of Some Indirect Evidence J. Keil
 Enhanced Congruence between Dreams and Distant Target Material S. Krippner et al.
 Recent Responses to Survival Research (Responses by Braude & Wheatley) R. Almeder
 Toward a Philosophy of Science in Women’s Health Research A. Lettieri
- 11:1 Biased Data Selection in Mars Effect Research S. Ertel/K. Irving
 Is the “Mars Effect” Genuine? P. Kurtz et al.
 Fortean Phenomena on Film: Evidence or Artifact? R. Lange/J. Houran
 Wishing for Good Weather: A Natural Experiment in Group Consciousness R. Nelson
 Empirical Evidence for a Non-Classical Experimenter Effect H. Walach/
 S. Schmidt
 D. Pratt
 Consciousness, Causality, and Quantum Physics
- 11:2 Anomalous Cognition Experiments and Local Sidereal Time S. J. P. Spottiswoode
 Evidence that Objects on Mars are Artificial in Origin M. Carlotto
 The Astrology of Time Twins: A Re-Analysis & Referee Interchange (Roberts) C. French et al.
 Unconscious Perception of Future Emotions: An Experiment in Presentiment D. Radin
 A Bayesian Maximum-Entropy Approach to Hypothesis Testing P. Sturrock
 Planetary Diameters in the Surya-Siddhanta R. Thompson
 Science of the Subjective R. Jahn/B. Dunne
- 11:3 Accessing Anomalous States of Consciousness with Binaural Beat Technology F. Holmes Atwater
 The “Mars Effect” As Seen by the Committee PARA J. Dommanget
 Astrology and Sociability: A Comparative Psychological Analysis S. Fuzeau-Braesch
 Comparison between Children with and without Previous-Life Memories E. Haraldsson
 Did Life Originate in Space? Discussion of Implications of Recent Research A. Mugan
 Correlations of Random Binary Sequences with Pre-Stated Operator Intention R. Jahn et al.
 The Hidden Side of Wolfgang Pauli: An Encounter with Depth Psychology Atmanspacher/
 Primas

- 11:4 Topographic Brain Mapping of UFO Experiencers
 Toward a Model Relating Empathy, Charisma, and Telepathy
 The Zero-Point Field and the NASA Challenge of Create the Space Drive
 Motivation and Meaningful Coincidence: Further Examination of Synchronicity
 A Critique of Arguments Offered against Reincarnation
 The Archaeology of Consciousness
 N. Don/G. Moura
 J. Donovan
 B. Haisch/A. Rueda
 T. Rowe et al.
 R. Almeder
 P. Devereux
- 12:1 Gender Differences in Human/Machine Anomalies
 Statement Validity Analysis of “Jim Ragsdale Story”: Roswell Implications
 Experiment Effects in Scientific Research: How Widely Are They Neglected?
 Roswell—Anatomy of a Myth
 A Different View of “Roswell—Anatomy of a Myth”
 Critique of “Roswell—Anatomy of a Myth”
 B. Dunne
 J. Houran/S. Porter
 R. Sheldrake
 K. Jeffery
 M. Swords
 R. Woods
- 12:2 Physical Evidence Related to UFO Reports
 Empirical Evidence Against Decision Augmentation Theory
 Cases of Reincarnation in Northern India with Birthmarks and Birth Defects
 Can the Vacuum Be Engineered for Spaceflight Applications? Overview.
 Four Paradoxes Involving the Second Law of Thermodynamics
 The Paranormal Is Not Excluded from Physics
 P. A. Sturrock et al.
 Y. Dobyns/R. Nelson
 S. Pasricha
 H. E. Puthoff
 D. Sheehan
 O. Costa de
 Beauregard
- 12:3 Estimates of Optical Power Output in Six Cases of Unexplained Aerial Objects
 Analyses in Ten Cases of Unexplained Aerial Objects with Material Samples
 Do Near-Death Experiences Provide Evidence for Survival of Human Personality
 Anomalous Statistical Influence Depends on Details of Random Process
 FieldREG II: Consciousness Field Effects: Replications and Explorations
 Biological Effects of Very Low Frequency (VLF) Atmospherics in Humans
 J. Vallee
 J. Vallee
 E. Cook et al.
 M. Ibson
 R. D. Nelson et al.
 A. Schienle et al.
- 12:4 The Timing of Conscious Experience: Causality-Violating
 Double-Slit Diffraction Experiment of Investigate Consciousness Anomalies
 Techno-Dowsing: A Physiological Response System to Improve Psi Training
 Physical Measurement of Episodes of Focused Group Energy
 Experimental Studies of Telepathic Group Communication of Emotions
 Strategies for Dissenting Scientists
 F. A. Wolf
 M. Ibson/S. Jeffers
 P. Stevens
 W. Rowe
 J. Dalkvist/
 Westerlund
 B. Martin
- 13:1 Significance Levels for the Assessment of Anomalous Phenomena
 Retrotransposons as Engines of Human Bodily Transformation
 A Rescaled Range Analysis of Random Events
 Subtle Domain Connections to the Physical Domain Aspect of Reality
 Parapsychology in Intelligence: A Personal Review and Conclusions
 Dreaming Consciousness: More Than a Bit Player in the Mind/Body Problem
 R. A. J. Matthews
 C. A. Kelleher
 F. Pallikari/E. Boller
 W. A. Tiller
 K. A. Kress
 M. Ullman
- 13:2 The Effect of “Healing with Intent” on Pepsin Enzyme Activity
 Electronic Device-Mediated pH Changes in Water
 Variations on the Foundations of Dirac’s Quantum Physics
 Do Cases of the Reincarnation Type Show Similar Features over Many Years?
 Optical Power Output of an Unidentified High Altitude Light Source
 Registration of Actual and Intended Eye Gaze: Correlation with Spiritual Beliefs
 Real Communication? Report on a SORRAT Letter-Writing Experiment
 What are the Irreducible Components of the Scientific Enterprise?
 Anomalies in the History of Relativity
 Magic of Signs: A Nonlocal Interpretation of Homeopathy
 T. Bunnell
 W. Dibble/W. Tiller
 J. Edmonds
 J. Keil/I. Stevenson
 B. Maccabee
 G. Schwartz/
 L. Russek
 I. Grattan-Guinness
 I. Stevenson
 I. McCausland
 H. Walach

- 13:3 Second Sight and Family History: Pedigree and Segregation Analyses
Mound Configurations on the Martian Cydonia Plain
Geomorphology of Selected Massifs on the Plains of Cydonia, Mars
Atmosphere or UFO? A Response to the 1997 SSE Review Panel Report
An Unusual Case of Stigmatization
Methuselah: Oldest Myth. or Oldest Man?
Analysis of Technically Inventive Dream-Like Mental Imagery
Exploring the Limits of Direct Mental Influence: Two Studies
- 13:4 Experimental Systems in Mind–Matter Research
Basic Elements and Problems of Probability Theory
The Significance of Statistics in Mind–Matter Research
Introductory Remarks on Large Deviations Statistics
p-adic Information Spaces. Small Probabilities and Anomalous Phenomena
Towards an Understanding of the Nature of Racial Prejudice
Clyde Tombaugh, Mars and UFOs
- 14:1 Investigating Deviations from Dynamical Randomness with Scaling Indices
Valentich Disappearance: New Evidence and New Conclusion
Protection of Mice from Tularemia with Ultra-Low Agitated Dilutions
The Correlation of the Gradient of Shannon Entropy and Anomalous Cognition
Contributions to Variance in REG Experiments: ANOVA Models
Publication Bias: The “File-Drawer” Problem in Scientific Inference
Remote Viewing in a Group Setting
- 14:2 Overview of Several Theoretical Models on PEAR Data
The Ordering of Random Events by Emotional Expression
Energy, Fitness and Information-Augmented EMFs in *Drosophila melanogaster*
A Dog That Seems To Know When His Owner Is Coming Home
What Can Elementary Particles Tell Us about the World in Which We Live?
Modern Physics and Subtle Realms: Not Mutually Exclusive
- 14:3 Plate Tectonics: A Paradigm Under Threat
The Effect of the “Laying On of Hands” on Transplanted Breast Cancer in Mice
Stability of Assessments of Paranormal Connections in Reincarnation Type Cases
ArtREG: A Random Event Experiment Utilizing Picture-Preference Feedback
Can Population Growth Rule Out Reincarnation?
The Mars Effect Is Genuine
Bulky Mars Effect Hard To Hide
What Has Science Come to?
- 14:4 Mind/Machine Interaction Consortium: PortREG Replication Experiments
Unusual Play in Young Children Who Claim to Remember Previous Lives
A Scale to Measure the Strength of Children’s Claims of Previous Lives
Reanalysis of the 1965 Hefl in UFO Photos
Should You Take Aspirin To Prevent Heart Attack?
- S. Cohn
H. Crater/
S. McDaniel
D. Pieri
B. Maccabee
M. Margnelli
L. McKague
B. Towe/
Randall-May
C. Watt et al.
R. Morris
H. Primas
R. Utts
Amann/
Atmanspacher
A. Khrennikov
Hoyle/
Wickramasinghe
M. Swords
Atmanspacher et al.
R. Haines/P.
Norman
W. Jonas/D. Dillner
Spottiswoode/Faith
R. Nelson et al.
J. Scargle
R. Targ/J. Katra
Y. Dobyns
R. Blasband
M. Kohane/
W. Tiller
R. Sheldrake/
P. Smart
R. Bryan
R. Klauber
D. Pratt
Bengston/Krinsley
I. Stevenson/J. Keil
R. G. Jahn et al.
D. Bishai
S. Ertel/K. Irving
S. Ertel
H. Arp
Jahn/Mischo/
Vaitl et al.
I. Stevenson
J. B. Tucker
Druffel/Wood/
Kelson
J. M. Kauffman

- 15:1 The Biomedical Significance of Homocysteine
 20th and 21st Century Science: Reflections and Projections
 To Be Or Not To Be! A 'Paraphysics' for the New Millennium
 Science of the Future in Light of Alterations of Consciousness
 Composition Analysis of the Brazil Magnesium
 Does Recurrent ISP Involve More Than Cognitive Neuroscience?
 K. McCully
 R. G. Jahn
 J. E. Beichler
 I. Barušs
 P. A. Sturrock
 J.-C. Terrillon/
 S. Marques
 Bonham
- 15:2 The Scole Investigation: Critical Analysis of Paranormal Physical Phenomena
 Bio-photons and Bio-communication
 Scalar Waves: Theory and Experiments
 Commentary: On Existence of K. Meyl's Scalar Waves
 Cases of the Reincarnation Type in South India: Why So Few Reports?
 Mind, Matter, and Diversity of Stable Isotopes
 M. Keen
 R. VanWijk
 K. Meyl
 G. W. Bruhn
 S. K. Pasricha
 J. P. Pui/A. A.
 Berezin
 J. P. Pandarakalam
 H. Evans
 D. Stillings
- Are the Apparitions of Medjugorje Real?
 Where Do We File 'Flying Saucers'? Archivist and Uncertainty Principle
 The Bakken: A Library and Museum of Electricity in Life
- 15:3 A Modular Model of Mind/Matter Manifestations (M5)
 The Speed of Thought: Complex Space-Time Metric and Psychic Phenomenon
 Failure to Replicate Electronic Voice Phenomenon
 Experimental Study on Precognition
 Unexplained Temporal Coincidence of Crystallization
 R. G. Jahn/B. J.
 Dunne
 E. A. Rauscher/
 R. Targ
 I. Barušs
 Vasilescu/Vasilescu
 Constain/Davies
- 15:4 The Challenge of Consciousness
 Anomalies and Surprises
 Earth Geodynamic Hypotheses Updated
 Unexplained Weight Gain Transients at the Moment of Death
 Physico-Chemical Properties of Water Following Exposure to Resonant Circuits
 R. G. Jahn
 H. H. Bauer
 N. C. Smoot
 L. E. Hollander, Jr.
 C. Cardella et al.
- 16:1 Can Physics Accommodate Clairvoyance, Precognition, and Psychokinesis?
 The Pineal Gland and the Ancient Art of Iatromathematica
 Confounds in Deciphering the Ramey Memo from the Roswell UFO Case
 The Pathology of Organized Skepticism
 Aspects of the Wave Mechanics of Two Particles in a Many Body Quantum System
 Microscopic Theory of a System of Interacting Bosons: A Unifying New Approach
 Unification of the Physics of Interacting Bosons and Fermions
 The Pathology of Organized Skepticism
 R. Shoup
 F. McGillion
 J. Houran/
 K. D. Randle
 L. D. Leiter
 Y. S. Jain
 Y. S. Jain
 Y. S. Jain
 L. D. Leiter
- 16:2 Arguing for an Observational Theory of Paranormal Phenomena
 Differential Event-Related Potentials to Targets and Decoys in Guessing Task
 Stigmatic Phenomena: An Alleged Case in Brazil
 The Case for the Loch Ness "Monster": The Scientific Evidence
 What's an Editor To Do?
 J. M. Houtkooper
 McDonough/Don/
 Warren
 S. Krippner
 H. H. Bauer
 H. H. Bauer
- 16:3 M*: Vector Representation of the Subliminal Seed Regime of M5
 Can Longitudinal Electromagnetic Waves Exist?
 Development of Certainty about the Deceased in Reincarnation Case in Lebanon
 R. G. Jahn
 G. W. Bruhn
 Haraldsson/
 Izzeddin

- Manifestation and Effects of External Qi of Yan Xin Life Science Technology Yan et al.
 Face-Like Feature at West Candor Chasma, Mars MGS Image AB 108403 Crater/Levasseur
 A Search for Anomalies W. R. Corliss
 Common Knowledge about the Loch Ness Monster: Television, Videos, and Film H. H. Bauer
- 16:4 Relationships Between Random Physical Events and Mass Human Attention D. Radin
 Coherent Consciousness and Reduced Randomness: Correlations on 9/11/2001 R. D. Nelson
 Was There Evidence of Global Consciousness on September 11, 2001? J. Scargle
 A Dog That Seems To Know When His Owner Is Coming Home D. Radin
 An Investigation on the Activity Pattern of Alchemical Transmutations J. Pérez-Pariente
 Anomalies in Relativistic Rotation R. D. Klauber
 The Vardøgr, Perhaps Another Indicator of the Non-Locality of Consciousness L. D. Leiter
 Review of the Perrott-Warrick Conference Held at Cambridge 3–5 April 2000 B. Carr
 Wavelike Coherence and CPT Invariance: Sesames of the Paranormal O. Costa de
 Beauregard
 Why Only 4 Dimensions Will Not Explain Relationships in Precognition Rauscher/Targ
- 17:1 Problems Reporting Anomalous Observations in Anthropology C. Richards
 The Fringe of American Archaeology A. B. Kehoe
 Rocks That Crackle and Sparkle and Glow: Strange Pre-Earthquake Phenomena F. T. Freund
 Poltergeists, Electromagnetism and Consciousness W. G. Roll
 AIDS: Scientific or Viral Catastrophe? N. Hodgkinson
- 17:2 Information and Uncertainty in Remote Perception Research B. J. Dunne/R. G.
 Jahn
 Problems of Reproducibility in Complex Mind–Matter Systems H. Atmanspacher
 Parapsychology: Science or Pseudo-Science? M.-C. Mousseau
 The Similarity of Features of Reincarnation Type Cases Over Many Years: I. Stevenson/
 A Third Study E. Haraldsson
 Communicating with the Dead: The Evidence Ignored. Why Paul Kurtz is Wrong M. Keen
 Purported Anomalous Perception in a Highly Skilled Individual: G. E. Schwartz/
 Observations, Interpretations, Compassion L. A. Nelson/L. G.
 Russek
 Proof Positive—Loch Ness Was an Ancient Arm of the Sea F. M. Dougherty
- 17:3 Radiation Hormesis: Demonstrated, Deconstructed, Denied, J. M. Kauffman
 Dismissed, and Some Implications for Public Policy
 Video Analysis of an Anomalous Image Filmed during Apollo 16 H. Nakamura
 The Missing Science of Ball Lightning D. J. Turner
 Pattern Count Statistics for the Analysis of Time Series in Mind–Matter Studies W. Ehm
 Replication Attempt: No Development of pH or Temperature Oscillations L. I. Mason/
 in Water Using Intention Imprinted Electronic Devices R. P. Patterson
 Three Cases of the Reincarnation Type in the Netherlands T. Rivas
- 17:4 Testing a Language-Using Parrot for Telepathy R. Sheldrake/A.
 Morgana
 Skin Conductance Prestimulus Response: Analyses, Artifacts and a S. J. P. Spottiswode
 Pilot Study /E. C. May
 Effects of Frontal Lobe Lesions on Intentionality and Random M. Freedman/S.
 Physical Phenomena Jeffers/K. Saeger/
 Physical Phenomena /M. Binns/S. Black
 The Use of Music Therapy as a Clinical Intervention for Physiologist D. S. Berger/
 Functional Adaptation Media Coverage of Parapsychology D. J. Schneck/
 and the Prevalence of Irrational Beliefs M.-C. Mousseau
 The Einstein Mystique I. McCausland

- 18:1 A Retrospective on the *Journal of Scientific Exploration*
 Anomalous Experience of a Family Physician
 Historical Overview & Basic Facts Involved in the Sasquatch or
 Bigfoot Phenomenon
 The Sasquatch: An Unwelcome and Premature Zoological Discovery?
 Midfoot Flexibility, Fossil Footprints, and Sasquatch Steps:
 New Perspectives on the Evolution of Bipedalism
 Low-Carbohydrate Diets
 B. Haisch/M. Sims
 J. H. Armstrong, Sr.
 J. Green
 J. A. Bindernagel
 D. J. Meldrum
 J. M. Kauffman
- 18:2 Analysis of the Columbia Shuttle Disaster—
 Anatomy of a Flawed Investigation in a Pathological Organization
 Long-Term Scientific Survey of the Hessdalen Phenomenon
 Electrodermal Presentiments of Future Emotions
 Intelligent Design: Ready for Prime Time?
 On Events Possibly Related to the “Brazil Magnesium”
 Entropy and Subtle Interactions
 “Can a Single Bubble Sink a Ship?”
 J. P. MacLean/
 G. Campbell/
 S. Seals
 M. Teodorani
 D. I. Radin
 A. D. Gishlick
 P. Kaufmann/
 P. A. Sturrock
 G. Moddel
 D. Deming
- 18:3 The MegaREG Experiment
 Replication and Interpretation Time-Series Analysis of a Catalog of UFO
 Events: Evidence of a Local-Sidereal-Time Modulation
 Challenging Dominant Physics Paradigms
 Ball Lightning and Atmospheric Light Phenomena: A Common Origin?
 Y. H. Dobyns et al.
 P. A. Sturrock
 J. M. Campanario/
 B. Martin
 T. Wessel-Berg
- 18:4 Sensors, Filters, and the Source of Reality
 The Hum: An Anomalous Sound Heard Around the World
 Experimental Test of Possible Psychological Benefits of Past-Life Regression
 Inferences from the Case of Ajendra Singh Chauhan: The Effect of Parental
 Questioning, of Meeting the “Previous Life” Family, an Attempt To
 Quantify Probabilities, and the Impact on His Life as a Young Adult
 Science in the 21st Century: Knowledge Monopolies and Research Cartels
 Organized Skepticism Revisited
 R. G. Jahn/
 B. J. Dunne
 D. Deming
 K. Woods/I. Baruš
 A. Mills
 H. H. Bauer
 L. D. Leiter
- 19:1 The Effect of a Change in Pro Attitude on Paranormal Performance:
 A Pilot Study Using Naive and Sophisticated Skeptics
 The Paradox of Planetary Metals
 An Integrated Alternative Conceptual Framework to Heat
 Engine Earth, Plate Tectonics, and Elastic Rebound
 Children Who Claim to Remember Previous Lives: Cases with
 Written Records Made before the Previous Personality Was Identified
 L. Storm/
 M. A. Thalbourne
 Y. Almirantis
 S. T. Tassos/
 D. J. Ford
 H. H. Jürgen Keil/
 J. B. Tucker
- 19:2 Balls of Light: The Questionable Science of Crop Circles
 Children of Myanmar Who Behave like Japanese Soldiers: A Possible Third
 Element in Personality
 Challenging the Paradigm
 The PEAR Proposition
 Global Warming, the Politicization of Science, and Michael Crichton’s
 State of Fear
 F. Grassi/C. Cocheo/
 P. Russo
 I. Stevenson/J. Keil
 B. Maccabee
 R. G. Jahn/B. J.
 Dunne
 D. Deming

- 19:3 A State of Belief Is a State of Being
Anomalous Orbic "Spirit" Photographs? A Conventional Optical Explanation Charles Eisenstein
G. E. Schwartz/
K. Creath
Some Bodily Malformations Attributed to Previous Lives S. K. Pasricha et al.
A State of Belief Is a State of Being C. Eisenstein
HIV, As Told by Its Discoverers H. H. Bauer
Kicking the Sacred Cow: Questioning the Unquestionable
and Thinking the Impermissible H. H. Bauer
- 19:4 Among the Anomalies J. Clark
What Biophoton Images of Plants Can Tell Us about Biofields and Healing K. Creath/
G. E. Schwartz
Demographic Characteristics of HIV: I. How Did HIV Spread? H. H. Bauer
- 20:1 Half a Career with the Paranormal I. Stevenson
Pure Inference with Credibility Functions M. Aickin
Questioning Answers on the Hessdalen Phenomenon M. Leone
Hessdalen Research: A Few Non-Questioning Answers M. Teodorani
Demographic Characteristics of HIV: II. How Did HIV Spread H. H. Bauer
Organized Opposition to Plate Tectonics:
The New Concepts in Global Tectonics Group D. Pratt
- 20:2 Time-Normalized Yield: A Natural Unit for Effect Size in R. D. Nelson
Anomalies Experiments
The Relative Motion of the Earth and the Ether Detected S. J. G. Gift
A Unified Theory of Ball Lightning and Unexplained Atmospheric Lights P. F. Coleman
Experimenter Effects in Laboratory Tests of ESP and PK Using a
Common Protocol C. A. Roe/
R. Davey/P. Stevens
Demographic Characteristics of HIV: III. Why Does HIV Discriminate by Race H. H. Bauer
- 20:3 Assessing the Evidence for Mind-Matter Interaction Effects D. Radin et al.
Experiments Testing Models of Mind-Matter Interaction D. Radin
A Critique of the Parapsychological Random Number Generator M. H. Schub
Meta-Analyses of Radin and Nelson
Comment on: "A Critique of the Parapsychological Random Number
Generator Meta-Analyses of Radin and Nelson" J. D. Scargle
The Two-Edged Sword of Skepticism: Occam's Razor and Occam's Lobotomy H. H. Bauer
- 20:4 Consciousness and the Anomalous Organization of Random Events: L. A. Nelson/
The Role of Absorption G. E. Schwartz
Ufology: What Have We Learned? M. D. Swords
- 21:1 Linking String and Membrane Theory to Quantum Mechanics & Special M. G. Hocking
Relativity Equations, Avoiding Any Special Relativity Assumptions
Response of an REG-Driven Robot to Operator Intention R. G. Jahn et al.
Time-Series Power Spectrum Analysis of Performance in Free Response P. A. Sturrock/
Anomalous Cognition Experiments S. J. Spottiswoode
A Methodology for Studying Various Interpretations of the
N,N-dimethyltryptamine-Induced Alternate Reality M. A. Rodriguez
An Experimental Test of Instrumental Transcommunication I. Baruš
An Analysis of Contextual Variables and the Incidence of Photographic
Anomalies at an Alleged Haunt and a Control Site D. B. Terhune et al.
The Function of Book Reviews in Anomalistics G. H. Hövelmann
Ockham's Razor and Its Improper Use D. Gernert
Science: Past, Present, and Future H. H. Bauer

- 21:2 The Role of Anomalies in Scientific Exploration P. A. Sturrock
 The Yantra Experiment Y. H. Dobyns et al.
 An Empirical Study of Some Astrological Factors in Relation to Dog Behaviour S. Fuzeau-Braesch/
 Differences by Statistical Analysis & Compared with Human Characteristics J.-B. Denis
 Exploratory Study: The Random Number Generator and Group Meditation L. I. Mason et al.
 Statistical Consequences of Data Selection Y. H. Dobyns
- 21:3 Dependence of Anomalous REG Performance on Run length R. G. Jahn/
 Y. H. Dobyns
 Dependence of Anomalous REG Performance on Elemental Binary Probability R. G. Jahn/
 J. C. Valentino
 Effect of Belief on Psi Performance in a Card Guessing Task K. Walsh/
 G. Moddel
 An Automated Online Telepathy Test R. Sheldrake/
 M. Lambert
 Three Logical Proofs: The Five-Dimensional Reality of Space–Time J. E. Beichler
 Children Who Claim to Remember Previous Lives: Past, Present, & Future Research J. B. Tucker
 Memory and Precognition J. Taylor
 AIDS, Cancer and Arthritis: A New Perspective N. Hodgkinson
 Online Historical Materials about Psychic Phenomena C. S. Alvarado
- 21:4 Synthesis of Biologically Important Precursors on Titan Sam H. Abbas/
 Is the Psychokinetic Effect as Found with Binary Random Number D. Schulze-
 Generators Suitable to Account for Mind–Brain Interaction? Makuch/
 Wolfgang Helfrich
 Explorations in Precognitive Dreaming Dale E. Graff
 Climate Change Reexamined Joel M. Kauffman
 Franklin Wolff's Mathematical Resolution of Existential Issues Imants Barušs
 From Healing to Religiosity Kevin W. Chen
- 22:1 Theme and Variations: The Life and Work of Ian Stevenson Emily Williams
 Kelly/
 Carlos S. Alvarado
 Ian Stevenson: Recollections Kerr L. White
 Reflections on the Life and Work of Ian Stevenson Alan Gauld
 Ian Stevenson and Cases of the Reincarnation Type Jim B. Tucker
 Ian Stevenson and the Modern Study of Spontaneous ESP Experiences Carlos S. Alvarado/
 Nancy L. Zingrone
 Ian Stevenson's Contributions to Near-Death Studies Bruce Greyson
 Ian Stevenson's Contributions to the Study of Mediumship Erlendur
 Haraldsson
 Where Science and Religion Intersect: The Work of Ian Stevenson Edward F. Kelly/
 Emily Williams
 Kelly
 The Gentle American Doctor M.M. Abu-Izzeddin
 Professor Ian Stevenson—Some Personal Reminiscences Mary Rose
 Barrington
 Ian Stevenson: A Recollection and Tribute Stephen E. Braude
 Ian Stevenson and His Impact on Foreign Shores Bernard Carr
 Ian Stevenson: Gentleman and Scholar Lisette Coly
 The Quest for Acceptance Stuart J. Edelstein
 Ian Stevenson: Founder of the Scientific Investigation of Human Reincarnation Doris Kuhlmann-
 Wilsdorf
 Remembering My Teacher L. David Leiter

- Comments on Ian Stevenson, M.D., Director of the Division of Personality Studies and Pioneer of Reincarnation Research Antonia Mills
- Ian Stevenson: Reminiscences and Observations John Palmer
- Dr. Ian Stevenson: A Multifaceted Personality Satwant K. Pasricha
- A Good Question Tom Shroder
- The Fight for the Truth John Smythies
- Ian Stevenson: A Man from Whom We Should Learn Rex Stanford
- Ian Stevenson and the Society for Scientific Exploration Peter A. Sturrock
- Ian Stevenson's Early Years in Charlottesville Ruth B. Weeks
- Tribute to a Remarkable Scholar Donald J. West
- An Ian Stevenson Remembrance Ray Westphal
- 22:2 Meditation on Consciousness I. Ivztan
- An Exploration of Degree of Meditation Attainment in Relation to Psychic Awareness with Tibetan Buddhists S. M. Roney-Dougal/
J. Solfvin/J. Fox
- Thematic Analysis of Research Mediums' Experiences of Discarnate Communication A. J. Rock/J
Beischel/
G. E. Schwartz
- Change the Rules! R. G. Jahn/
B. J. Dunne
- Proposed Criteria for the Necessary Conditions for Shamanic Journeying Imagery A. J. Rock/S.
Krippner
- "Scalar Wave Effects according to Tesla" & "Far Range Transponder" by K. Meyl D. Kühlke
- How to Reject Any Scientific Manuscript D. Gernert
- 22:3 Unusual Atmospheric Phenomena Observed Near the Channel Islands, United Kingdom, 23 April 2007 J.-F. Baure/
D. Clarke/
P. Fuller/M. Shough
P. Bancel/R. Nelson
- The GCP Event Experiment: Design, Analytical Methods, Results Adrian Ryan
- New Insights into the Links between ESP and Geomagnetic Activity C. Cott/A. Rock
- Phenomenology of N,N-Dimethyltryptamine Use: A Thematic Analysis A. Rock/G. Abbott/
N. Kambouropoulos
- Altered Experience Mediates the Relationship between Schizotypy and Mood Disturbance during Shamanic-Like Journeying E. Haraldsson
- Persistence of Past-Life Memories: Study of Adults Who Claimed in Their Childhood To Remember a Past Life
- 22:4 Energy, Entropy, and the Environment (How to Increase the First by Decreasing the Second to Save the Third) D. P. Sheehan
- Effects of Distant Intention on Water Crystal Formation: A Triple-Blind Replication D. Radin/N. Lund/
M. Emoto/T. Kizu
- Changes in Physical Strength During Nutritional Testing C. F. Buhler/
P. R. Burgess/
E. VanWagoner
- Investigating Scopesesthesia: Attentional Transitions, Controls and Error Rates in Repeated Tests Rupert Sheldrake/
Pamela Smart
- Shakespeare: The Authorship Question, A Bayesian Approach P. A. Sturrock
- An Anomalous Legal Decision Richard Blasband
- 23:1 A New Experimental Approach to Weight Change Experiments at the Moment of Death with a Review of Lewis E. Hollander's Experiments on Sheep Masayoshi Ishida
- An Automated Test for Telepathy in Connection with Emails R. Sheldrake/
L. Avraamides
- Brain and Consciousness: The Ghost in the Machines John Smythies

- | | |
|--|---|
| In Defense of Intuition: Exploring the Physical Foundations of Spontaneous Apprehension | Ervin Laszlo |
| 23:2 Appraisal of Shawn Carlson's Renowned Astrology Tests
A Field-Theoretic View of Consciousness: Reply to Critics | Suibert Ertel
D.W. Orne-Johnson/
Robert M. Oates |
| Super-Psi and the Survivalist Interpretation of Mediumship
Perspectival Awareness and Postmortem Survival | Michael Sudduth
Stephen E. Braude |
| 23:3 Exploratory Evidence for Correlations between Entrained
Mental Coherence and Random Physical Systems
Scientific Research between Orthodoxy and Anomaly | Dean Radin/
F. Holmes Atwater
Harald Atmanspacher |
| 23:4 Cold Fusion: Fact or Fantasy?

"Extraordinary Evidence" Replication Effort | M. E. Little/S. R.
Little
M. E. Little/S. R.
Little |
| Survey of the Observed Excess Energy and Emissions in Lattice-Assisted Nuclear Reactions | Mitchell R. Swartz |
| 24:1 Rebuttal to Claimed Refutations of Duncan MacDougall's Experiment
on Human Weight Change at the Moment of Death
Unexpected Behavior of Matter in Conjunction with Human Consciousness
Randomized Expectancy-Enhanced Placebo-Controlled Trial of the Impact
of Quantum BioEnergetics and Mental Boundaries on Affect
A Case of the Reincarnation Type in Turkey Suggesting Strong
Paranormal Information Involvements | Masayoshi Ishida

Dong Shen
Adam J. Rock/
Fiona E. Permezel/
Jürgen Keil |
| Questions of the Reincarnation Type
How To Improve the Study and Documentation of Cases of the
Reincarnation Type? A Reappraisal of the Case of Kemal Atasoy | Jürgen Keil
Vitor Moura Visoni |
| 24:2 Importance of a Psychosocial Approach for a Comprehensive
Understanding of Mediumship
Investigating Mental Mediums: Research Suggestions from the
Historical Literature
Advantages of Being Multiplex
Some Directions for Mediumship Research
Parapsychology in France after May 1968: A History of GERP
Remy Chauvin (1913–2009) | E. Maraldi/F. Machado/W. Zangari

Carlos S. Alvarado
Michael Grosso
Emily W. Kelly
Renaud Evrard
Renaud Evrard |
| 24:3 Anomalous Magnetic Field Activity During a Bioenergy Healing
Experiment
Further Evidence of the Possibility of Exploiting Anticipatory Physiological
Signals To Assist Implicit Intuition of Random Events | Margaret M. Moga/
William F. Bengston
Patrizio E. Tressoldi/
M. Martinelli/
Laura Scartezzini/
Stefano Massaccesi |
| Fire in Copenhagen and Stockholm. Indridason's and Swedenborg's
"Remote Viewing" Experiences
Soal's Target Digits: Statistical Links Back to the Source
He Reported After All
Common Paranormal Belief Dimensions | E. Haraldsson/
Johan L. F. Gerding

Roderick Garton
Neil Dagnall/
Andrew Parker/
Gary Munley/
K. Drinkwater/
Antonio Giuditta |
| The 1907 Psychokinetic Experiments of Professor Filippo Bottazzi | |

- 24:4 Psi in a Sceptic's Lab: A Successful Replication of Ertel's Ball Selection Test
Anticipatory Alarm Behavior in Bengalese Finches
The Daniel Experiment: Sitter Group Contributions
with Field RNG and MESA Recordings
- Field RNG Data Analysis, Based on Viewing the Japanese
Movie *Departures (Okuribito)*
- The Healing Connection: EEG Harmonics, Entrainment,
and Schumann's Resonances
- Laboratory Psi Effects May Be Put to Practical Use
- 25:1 Are There Stable Mean Values, and Relationships
between Them, in Statistical Parapsychology?
Exploring the Relationship between Tibetan
Meditation Attainment and Precognition
A Faulty PK Meta-Analysis
Karhunen-Loève Transform for Detecting Ionospheric
Total Electron Content (TEC) Anomalies
Prior to the 1999 Chi-Chi Earthquake, Taiwan
Eusapia Palladino: An Autobiographical Essay
Mental Health of Mediums and Differential Diagnosis between
Mediumship and Mental Disorders
- 25:2 Objective Analyses of Real-Time and Audio Instrumental
Transcommunication and Matched Control Sessions:
A Pilot Study
Measurement Controls in Anomalies Research
Hessdalen Lights and Piezoelectricity from Rock Strain
Retroactive Event Determination and the Interpretation
of Macroscopic Quantum Superposition States in
Consistent Histories and Relational Quantum Mechanics
Thoughts about Thought Bundles: A Commentary on Jürgen Keil's
Paper "Questions of the Reincarnation Type"
Reply to the Nahm and Hassler Commentary on Jürgen Keil's
Paper "Questions of the Reincarnation Type"
The Desire for the Development of Flight: A Recurrent Theme
for Advanced Civilizations?
- 25:3 Reflections on the Context of Near-Death Experiences
An Important Subject at the Institut Métapsychique International:
Jeanne LaPlace
A Baby Sea-Serpent No More: Reinterpreting Hagelund's
Juvenile "Cadborosaur" Report
Avian Formation on a South-Facing Slope Along the Northwest
Rim of the Argyre Basin
- Suitbert Ertel
Fernando Alvarez
Mike Wilson/
Bryan J. Williams/
Timothy M. Harte/
William J. Roll
Takeshi Shimizu/
Masato Ishikawa
Luke Hendricks/
William F. Bengston/
Jay Gunkelman
James Carpenter
- Wolfgang Helfrich
Serena Roney-
Dougal/Jerry Solfvín
Wilfried Kugel
- Jyh-Woei Lin
Carlos S. Alvarado
Adair Menezes Jr./
Alexander Moreira-Almeida
- Mark Boccuzzi/
Julie Beischel
- Walter E. Dibble Jr.
William A. Tiller
Gerson S. Paiva
C. A. Taft
Sky Nelson
- Michael Nahm
Dieter Hassler
Jürgen Keil
- B. Reiswig
D. Schulze-Makuch
- Michael Nahm
Guilio Caratelli
Maria Luisa Felici
M. A. Woodley
D. Naish
C. A. McCormick
Michael A. Dale
George J. Haas
James S. Miller
William R. Saunders
A. J. Cole
Susan Orosz
Joseph M. Friedlander

- Guest Editorial: On Wolverines and Epistemological Totalitarianism Etzel Cardeña
- 25:4 Revisiting the Ganzfeld Debate: A Basic Review and Assessment Bryan J. Williams/
The Global Consciousness Project: Identifying the Source of Psi Edwin C. May/S.
James P. Spottiswoode
- Reply to May and Spottiswoode's on Experimenter Effect as the Roger Nelson
Explanation for GCP Results
- Reply to May and Spottiswoode's "The Global Consciousness Project: Peter Bancel
Identifying the Source of Psi" Edwin C. May/S.
James P. Spottiswoode
- The Global Consciousness Project, Identifying the Source of Psi: Neil Dagnell/
A Response to Nelson and Bancel Kenneth Drinkwater/
Andrew Parker
- Alien Visitation, Extra-Terrestrial Life, and Paranormal Beliefs
- Anomalous Switching of the Bi-Stable Percept of a Necker Cube: Dick J. Bierman
A Preliminary Study Gerson S. Paiva/
Carlton A. Taft
- Color Distribution of Light Balls in the Hessdalen Lights Phenomenon
- On Elephants and Matters Epistemological: Reply to Etzel Cardeña's Neal Grossman
Guest Editorial "On Wolverines and Epistemological Totalitarianism"
- Response to Neal Grossman's Reply "On Elephants and Matters Epistemological" Etzel Cardeña
- Ernesto Bozzano: An Italian Spiritualist and Psychical Researcher Luca Gasperini
Obituary: In Memory of William Corliss Patrick Huyghe
Letter: Pipefish or Pipe dream? Ed L. Bousfield/
Paul H. LeBlond
- 26:1 A Review of Sir William Crooke's Papers on Psychic Force with Masayoshi Ishida
Some Additional Remarks on Psychic Phenomena
- The Implications of Near-Death Experiences for Research into David Rousseau
the Survival of Consciousness Courtney Brown
- Remote Viewing the Future with a Tasking Temporal Outbounder Graeme D. Montgomery
Relativistic Variations in the Permittivity and Permeability of Carlos S. Alvarado/
Free Space = Gravitation Renaud Evrard
- Historical Perspective: The Psychic Sciences in France: Historical Thomas E. Bullard
Notes on the *Annales des Science Psychiques* Michael Woodley/
Obituary: Dr. Stuart Appelle: 1946–2011 Cameron McCormick/
Letter: Response to Bousfield and LeBlond: Shooting Pipefish Darren Naish
in a Barrel; or, Sauropterygian Mega-Serpents and
Occam's Razor
- 26:2 A PK Experiment with Zebra Finches and a Virtual Predator Fernando Alvarez
Revisiting the Alexander UFO Religious Crisis Survey (AUFORCS): Jeff Levin
Is There Really a Crisis? Grzegorz Juszcak
- Hallucinatory Telepathic Experiences Induced by *Salvia divinorum* Adam Crabtree
- Hypnosis Reconsidered, Resituated, and Redefined Etzel Cardeña/
Commentary: A Proposal That Does Not Advance Our Understanding Devin P. Terhune
of Hypnosis
- Commentary: Comments on Crabtree's "Hypnosis Reconsidered, Charles T. Tart
Resituated, and Redefined"
- Commentary: Regarding "Hypnosis Reconsidered, Resituated, and Don Beere
Redefined": A Commentary on Crabtree
- Reply to Three Commenters on "Hypnosis Reconsidered, Resituated, Adam Crabtree
and Redefined"

- Historical Perspective: The Sorcerer of Cobenzl and His Legacy: The Life
of Baron Karl Ludwig von Reichenbach, His Work and Its Aftermath Michael Nahm
Obituary: William Roll Loyd Auerbach
Letter to the Editor: Erroneous Expert Judgments Henry H. Bauer
- 26:3 Earthquake Triggering: Verification of Insights Obtained by Intuitive
Consensus William H. Kautz
Audience Size Effects in Field RNG Experiments: The Case of
Japanese Professional Baseball Games Takeshi Shimizu/
Masato Ishikawa
Panic Healing: Documenting Use, Expectations, and Perceived
Benefits of a Little-Known Therapy in the United States Maritza Jauregui/
Tonya L. Schuster/
Mary D. Clark/
Joie P. Jones
Andrew Paquette
Carlos S. Alvarado
J. Alexander de Ru/
John C.M.J. de Groot/
Jan-Willem M. Elshof
- A New Approach to Veridicality in Dream Psi Studies Andrew Paquette
Historical Perspective: Distortions of the Past Carlos S. Alvarado
Essay: The Review Reviewed: Stop Publication Bias J. Alexander de Ru/
John C.M.J. de Groot/
Jan-Willem M. Elshof
- 26:4 The Bell Inequality and Nonlocal Causality Charles W. Lear
Magnetic Anomalies and the Paranormal John Ralphs
NDE Implications from a Group of Spontaneous Long-Distance
Veridical OBEs Andrew Paquette
Gerhard Mayer/
Martin Garms
Resonance between Birth Charts of Friends: The Development of a
New Astrological Tool on the Basis of an Investigation into
Astrological Synastry Carlos S. Alvarado
Historical Perspective: Notes on Early Mediumship Carlos S. Alvarado
Essay: Seeking Immortality? Challenging the Drug-Based Medical
Paradigm. SSE Dinsdale Award Address Henry H. Bauer
Letter to the Editor: Identity of Shakespeare James S. Ferris
- 27:1 Longitudinal Electromagnetic Waves? The Monstein-Wesley
Experiment Reconstructed Edward Butterworth/
Charles B. Allison/
Daniel Cavazos/
Frank M. Mullen
Ted Davis/
Don C. Donderi/
Budd Hopkins
The UFO Abduction Syndrome Francis Beauvais
Description of Benveniste's Experiments Using Quantum-Like Probabilities Serge Kernbach
Replication Attempt: Measuring Water Conductivity with Polarized Electrodes Carlos S. Alvarado
Commentary: The Influence of Reichenbach's Concept of Od Tricia Robertson
Obituary: Archie E. Roy Dies at 88 Caroline Watt
Letter to the Editor: Registering Parapsychological Experimentss Adrian Ryan
Letter to the Editor: Magnetic Anomalies and the Paranormal John D. Ralphs
Letter to the Editor: Response to Adrian Ryan
- 27:2 Use of a Torsion Pendulum Balance to Detect and Characterize What
May Become a Human Energy Field J. Norman Hansen/
Joshua A. Lieberman
Geometry of an Intense Auroral Column as Recorded in Rock Art M. A. van der Sluijs/
Robert J. Johnson
David Deming
Did Modern Humans Originate in the Americas? A Retrospective on
the Holloman Gravel Pit in Oklahoma Jim B. Tucker/
Experimental Birthmarks: New Cases of an Asian Practice H. H. Jürgen Keil

- Commentary: A Critical Response to David Lund's Argument for Postmortem Survival Michael Sudduth
- Obituary: Jack Houck (1939–2013) John Alexander
- Obituary: Ted Rockwell (1922–2013) John Alexander
- 27:3 Psi Effects or Sensory Leakage: Scrutinizing the Bell Selection Test Suitbert Ertel
The Sheep–Goat Effect as a Matter of Compliance vs. Noncompliance: Lance Storm/
The Effect of Reactance in a Forced-Choice Ball Selection Test S. Ertel/Adam Rock
Unidentified Aerial Phenomena (UAP): A New Hypothesis Toward Daniel M. Gross
The Explanation
- Building Alien Worlds—The Neuropsychology and Evolutionary Implications of the Astonishing Psychoactive Effects of Andrew R. Gallimore
N,N-Dimethyltryptamine (DMT)
- Historical Perspective: Three Stages of Modern Science Henry H. Bauer
- 27:4 Hum and Otoacoustic Emissions May Arise Out of the Same Mechanisms Franz G. Frosch
A Case of a Japanese Child with Past-Life Memories Masayuki Ohkado
Unidentified Aerial Phenomena: The VASP-169 Flight Brazilian Episode Luiz Augusto daSilva
Revisited
- Historical Perspective: Nineteenth Century Psychical Research in Mainstream Journals: *The Revue Philosophique de la France et de l'Étranger* Carlos s. Alvarado/
Renaud Evrard
- 28:1 Stock Market Prediction Using Associative Remote Viewing by Christopher Carson Smith/
Inexperienced Remote Viewers Darrell Laham/
Garret Moddel
- An Experimental Study for Reproduction of Biological Anomalies Reported in the Hoeven 1999 Crop Circle Eltjo H. Haselhoff/
Robert J. Boerman/
Jan-Willem Bobbink
Stephen C. Jett
- Pre-Columbian Transoceanic Influences: Far-Out Fantasy, Unproven Possibility, or Undeniable Reality? Stephen C. Jett
- G. Stanley Hall on "Mystic or Borderline Phenomena" Carlos S. Alvarado
Anomalistics, Pseudo-Science, Junk Science, Denialism: Henry H. Bauer
Corollaries of the Role of Science in Society
- Letter to the Editor: Exaggerated Emphasis Peter A. McCue
- 28:2 The Development and Phenomena of a Circle for Physical Mediumship Michael Nahm
Investigations of the Felix Experimental Group: 2011–2013 Stephen E. Braude
Commentary: On the Essay Review "William Jackson Crawford on the Goligher Circle" by Michael Tymn Michael Nahm
Commentary: On W. J. Crawford's Studies of Physical Mediumship Carlos S. Alvarado
Obituary: Halton Christian "Chip" Arp, 1927–2013 Peter A. Sturrock
- 28:3 Anomalous 'Retrosausal' Effects on Performances in a Go/NoGo Task Dick J. Bierman
& Aron Bijl
- An Investigation of Solar Features, Test Environment, and Gender Related to Consciousness-Related Deviations in a Random Physical System Joey M. Caswell/
Lyndon M. Juden-Kelly/
David A. E. Vares/
Michael A. Persinger
Ohkado Masayuki
& Ikegawa Akira
- Children with Life-between-Life Memories Henry H. Bauer
- Essay: Shasmans of Scientism: Conjuring Certainty Where There Is None Carlos S. Alvarado
Obituary: Eileen Coly (1916-2013) & Nancy Zingrone

- 28:4 Psychological Evaluation of American Children Who Report Memories of Previous Lives Jim B. Tucker & F. Don Nidiffer
- Facial Features of Burmese with Past-Life Memories as Japanese Soldiers Ohkado Masayuki
- Parapsychological Phenomena as Examples of Generalized Nonlocal Correlations—A Theoretical Framework Harald Walach/Walter von Lucadou/Hartmann Römer
- Aberrant Salience and Motivation as Factors in the Formation of Beliefs in Scientifically Unacceptable Phenomena Harvey J. Irwin
- Historical Perspective: Does a Cosmic Ether Exist? Evidence from Dayton Miller and Others James DeMeo
- Obituary: John O'M. Bockris, 1923–2013
- Edmund Storms
- Review: *Crimes of Reason* by Stephen Braude Stan McDaniel
- Review: *Las Alas de Psique* [The Wings of Psyche] by Alejandro Parra Carlos A. Alvarado
- Review: *The Spiritualist Movement* edited by Christopher Moreman Alan Gauld
- Review: *One Mind* by Larry Dossey Roger Nelson
- Review: *Bava's Gift* by Michael Urheber Bob Ginsberg
- 29:1 Twitter Followers Biased to Astrological Charts of Celebrities Renay Oshop & Andrew Foss
- The Human Bioenergy Field Detected by a Torson Pendulum? The Effect of Shielding and a Possible Conventional Explanation Willem H. van den Berg/William G. van der Sluys
- Commentary: Reply to van den Berg and van der Sluys: Effects Resembling a Biofield on a Torsion Pendulum Cannot Be Caused by the Subject John Norman Hansen/Joshua A. Lieberman
- Commentary: Response to Hansen and Lieberman Willem H. van den Berg/William G. van der Sluys
- Introduction to Honorton Article and Pilkington Interview with Parise Stephen E. Braude
- Commentary: A Moving Experience [reprinted from JASPR] Charles Honorton
- Commentary: Interview with Felicia Parise, August 6, 2013 Rosemarie Pilkington
- Historical Perspective: Note on an Early Physiological Index of ESP John Purdon's Observations of Synchronous Pulse Rates Carlos S. Alvarado
- 29:2 Modeling the Law of Times Julio Plaza del Olmo
- Can Solar Activity Influence the Occurrence of Economic Recessions? Mikhail Gorbanev
- A Correlation Study between Human Intention and the Output of a Binary Random Event Generator H. Grote
- Commentary on "Does a Cosmic Ether Exist? Evidence from Dayton Miller and Others" Robert D. Klauber
- Commentary: The Ether and Psychic Phenomena: Some Old Speculations Carlos S. Alvarado
- Commentary: The Importance of Retractions and the Need to Correct the Downstream Literature Jaime A. Teixeira da Silva
- Essay: Essay Review of *The Survival Hypothesis* Alan Gauld
- 29:3 Can Death-Related Dreams Predict Future Deaths? Evidence from a Dream Journal Comprising Nearly 12,000 Dreams Andrew Paquette
- A Review on the Relation between Population Density and UFO Sightings Julio Plaza del Olmo
- Multivariate Entropy Analysis of Oxidative Stress Biomarkers Following Mobile Phone Exposure of Human Volunteers: A Pilot Study Anthony Marconi
- Albert Tasteyre
- René de Sèze, Paul Fogel
- Guy Simoneau, Marc Conti
- Christian Sarbach
- S. Stanley Young
- Jean-Emmanuel Gilbert
- Yolène Thomas
- Historical Perspective: Telepathic Emissions: Edwin J. Houston on "Cerebral Radiation" Carlos S. Alvarado
- Letter to the Editor: Quality in Parapsychological Meta-Analyses Dick J. Bierman

- 29:4 Testing Telepathy in the Medium/Proxy-Sitter Dyad: A Protocol Focusing on the Source-of-Psi Problem Adam J. Rock & Lance Storm
- Shortage of Rabbits or Insufficient Traps? Table-Turning and the Discovery of a Presumably PK-Gifted person in Argentina Juan Gimeno
- Essay: The Unbearable Fear of Psi: On Scientific Suppression in the 21st Century Etzel Cardeña
Appendix 1: Introduction to *Non-Ordinary Mental Expressions* Etzel Cardeña & Enrico Facco
- Essay Review: Climate Change Science or Climate-Change Propaganda? *Climate Change: Evidence & Causes—An Overview from the Royal Society and the U.S. National Academy of Sciences* Henry H. Bauer
Commentary: Professor Bauer Has It Backwards Peter A. Bancel
Commentary: Notes on the Essay Review of *Climate Change: Evidence and Causes*, by Henry Bauer Andrew Foss
Commentary: Response to Commentaries by Peter Bancel and Andrew Foss Henry H. Bauer
Letter to the Editor: Is Consensus in Science Good? Ron Westrum
- 30:1 Prospective Statistical Power: Sample Size Recommendations for the Investigation of the Main Parapsychological Phenomena Patrizio Tressoldi
- Consistency in Eyewitness Reports of Aquatic “Monsters” Charles G. M. Paxton & A. J. Shine
Follow-Up Investigations of the Felix Circle Stephen E. Braude
- Commentary: Further Comments about Kai Mügge’s Alleged Mediumship and Recent Developments Michael Nahm
- Historical Perspective: On Psychic Forces and Doubles: The Case of Albert de Rochas Carlos S. Alvarado
Zofia Weaver
- Letter to the Editor: Physical Mediumship: Trying to Move On
Letter to the Editor: A Recent Instance of Psi Censorship in *Psychological Science?* Gary E. Schwartz
Obituary: Edgar D. Mitchell, 1930–2016 John Alexander
Obituary: Richard (Dick) G. Shoup, 1943–2015 James Spottiswoode



JOURNAL OF SCIENTIFIC EXPLORATION

ORDER FORM FOR 2008 – current PRINT ISSUES

JSE Volumes 1:1 – 29:1 are available FREE at scientificexploration.org
(JSE Vol. 29-30 are free to SSE members at <http://journalofscientificexploration.org/index.php/jse/login>)
JSE Print Volumes 22–30 (2008–current) are available for \$20/issue; use form below.

Year	Volume	Issue	Price ×	Quantity	= Amount
			\$20		

Postage is included in the fee.

ENCLOSED

Name	Send to: SSE 230 Sandford Avenue North Plainfield NJ 07060-4329 ssemembership@gmail.com Phone (1) (609) 349-8059
Address	
Phone/Fax	

I am enclosing a check or money order

Please charge my credit card as follows: VISA MASTERCARD

Card Number Expiration

Signature

Send me information on the Society for Scientific Exploration



GIFT JSE ISSUES AND GIFT SSE MEMBERSHIPS

Single Issue: A single copy of this issue can be purchased.
For back issues, see order form on previous page and Index.

Price: \$20.00

Subscription: To send a gift subscription, fill out the form below.

Price: \$85 (online)/\$145(print & online) for an individual
\$165/\$225 (online only/print) for library/institution/business

Gift Recipient Name _____

Gift Recipient Address _____

Email Address of Recipient for publications _____

- I wish to purchase a single copy of the current JSE issue.
- I wish to remain anonymous to the gift recipient.
- I wish to give a gift subscription to a library chosen by SSE.
- I wish to give myself a subscription.
- I wish to join SSE as an Associate Member for \$85/yr or \$145/yr (print), and receive this quarterly journal (plus the EdgeScience magazine and The Explorer newsletter).

Your Name _____

Your Address _____

Send this form to: *Journal of Scientific Exploration*
Society for Scientific Exploration
230 Sandford Avenue
North Plainfield NJ 07060-4329

ssemembership@gmail.com
Phone (1) (609) 349-8059

For more information about the Journal and the Society, go to
<http://www.scientificexploration.org>



JOIN THE SOCIETY AS A MEMBER

The Society for Scientific Exploration has four member types:

Associate Member (\$85/year with online Journal; \$145 includes print Journal): Anyone who supports the goals of the Society is welcome. No application material is required.

Student Member (\$40/year includes online Journal; \$100/year includes print Journal): Send proof of enrollment in an accredited educational institution.

Full Member (\$125/year for online Journal; \$185/year includes Print Journal): Full Members may vote in SSE elections, hold office in SSE, and present papers at annual conferences. Full Members are scientists or other scholars who have an established reputation in their field of study. Most Full Members have: a) doctoral degree or equivalent; b) appointment at a university, college, or other research institution; and c) a record of publication in the traditional scholarly literature. Application material required: 1) Your curriculum vitae; 2) Bibliography of your publications; 2) Supporting statement by a Full SSE member; or the name of Full SSE member we may contact for support of your application. Send application materials to SSE Secretary Mark Urban-Lurain, scientificexplorationsecretary@gmail.com

Emeritus Member (\$85/year with online Journal; \$145/year includes print Journal): Full Members who are now retired persons may apply for Emeritus Status. Please send birth year, retirement year, and institution/company retired from.

All SSE members receive: online quarterly Journal of Scientific Exploration (JSE), EdgeScience online magazine, The Explorer online newsletter, notices of conferences, access to SSE online services, searchable recent Journal articles from 2008-current on the JSE site by member password, and for all 25 years of previous articles on the SSE site. For additional new benefits, see World Institute for Scientific Exploration, instituteforscientificexploration.org

Your Name _____

Email _____

Phone _____ Fax _____

Payment of _____ enclosed, or

Charge My VISA Mastercard

Card Number _____ Expiration _____

Send this form to:

Society for Scientific Exploration
230 Sandford Avenue
North Plainfield NJ 07060-4329 USA
ssemembership@gmail.com
Phone (1) (609) 349-8059

For more information about the Journal and the Society, go to
http://www.scientificexploration.org



Instructions to Authors (Revised February 2013)

Please submit all manuscripts at <http://journalofscientificexploration.org/index.php/jse/login> (please note that “www” is NOT used in this address). This website provides directions for author registration and online submission of manuscripts. Full Author Instructions are posted on the Society for Scientific Exploration’s website at http://www.scientificexploration.org/documents/instructions_for_authors.pdf for submission of items for publication in the *Journal of Scientific Exploration* (including “Writing the Empirical Journal Article.” Before you submit a paper, please familiarize yourself with the *Journal* by reading JSE articles. (Back issues can be browsed in electronic form with SSE membership login at <http://journalofscientificexploration.org>, click on Archive link; issues before 2008 are freely accessible at <http://www.scientificexploration.org/journal/articles.html>) Electronic files of text, tables, and figures at resolution of a minimum of 300 dpi (TIF or PDF preferred) will be required for online submission. You will also need to attest to a statement online that the article has not been previously published and is not submitted elsewhere. *JSE* Managing Editor, EricksonEditorial@gmail.com.

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

REFEREEING: Manuscripts will be sent to one or more referees at the discretion of the Editor-in-Chief. Reviewers are given the option of providing an anonymous report or a signed report.

In established disciplines, concordance with accepted disciplinary paradigms is the chief guide in evaluating material for scholarly publication. On many of the matters of interest to the Society for Scientific Exploration, however, consensus does not prevail. Therefore the *Journal of Scientific Exploration* necessarily publishes claimed observations and proffered explanations that will seem more speculative or less plausible than those appearing in some mainstream disciplinary journals. Nevertheless, those observations and explanations must conform to rigorous standards of observational techniques and logical argument.

If publication is deemed warranted but there remain points of disagreement between authors and referee(s), the reviewer(s) may be given the option of having their opinion(s) published along with the article, subject to the Editor-in-Chief’s judgment as to length, wording, and the like. The publication of such critical reviews is intended to encourage debate and discussion of controversial issues, since such debate and discussion offer the only path toward eventual resolution and consensus.

LETTERS TO THE EDITOR intended for publication should be clearly identified as such. They should be directed strictly to the point at issue, as concisely as possible, and will be published, possibly in edited form, at the discretion of the Editor-in-Chief.

PROOFS AND AUTHOR COPIES: Authors will receipt copyedited, typeset page proofs for review. Print copies of the published *Journal* will be sent to all named authors.

COPYRIGHT: Authors retain copyright to their writings. However, when an article has been submitted to the *Journal of Scientific Exploration* for consideration, the *Journal* holds first serial (periodical) publication rights. Additionally, after acceptance and publication, the Society has the right to post the article on the Internet and to make it available via electronic as well as print subscription. The material must not appear anywhere else (including on an Internet website) until it has been published by the *Journal* (or rejected for publication). After publication in the *Journal*, authors may use the material as they wish but should make appropriate reference to the prior publication in the *Journal*. For example: “Reprinted from [or From] “[title of article]”, *Journal of Scientific Exploration*, vol. [xx], no. [xx], pp. [xx], published by the Society for Scientific Exploration, <http://www.scientificexploration.org>.”

DISCLAIMER: While every effort is made by the Publisher, Editors, and Editorial Board to see that no inaccurate or misleading data, opinion, or statement appears in this *Journal*, they wish to point out that the data and opinions appearing in the articles and announcements herein are the sole responsibility of the contributor concerned. The Publisher, Editors, Editorial Board, and their respective employees, officers, and agents accept no responsibility or liability for the consequences of any such inaccurate or misleading data, opinion, or statement.