



# JOURNAL OF SCIENTIFIC EXPLORATION

A Publication of the Society for Scientific Exploration

Volume 21, Number 1

2007

Page

**Editorial**

1 Editorial

**Column**

3 Inference and Scientific Exploration

*Mikel Atckin*

**Research Article**

13 Linking String and Membrane Theory to Quantum Mechanics and Special Relativity Equations, Avoiding Any Special Relativity Assumptions

*M. G. Hocking*

27 Response of an REG-Driven Robot to Operator Intention

*R. G. Jahn  
B. J. Dunne  
D. J. Acunzo  
E. S. Hoeger*

47 Time-Series Power Spectrum Analysis of Performance in Free Response Anomalous Cognition Experiments

*Peter A. Sturrock  
S. James P. Spottiswoode  
Marko A. Rodriguez*

67 A Methodology for Studying Various Interpretations of the *N,N*-dimethyltryptamine-Induced Alternate Reality

85 Comment on "A Methodology for Studying Various Interpretations of the *N,N*-dimethyltryptamine-Induced Alternate Reality"

*Rick Strassman*

88 Comment on "A Methodology for Studying Various Interpretations of the *N,N*-dimethyltryptamine-Induced Alternate Reality"

*Anonymous*

89 An Experimental Test of Instrumental Transcommunication

*Imants Barušs  
Devin Blair Terhune  
Annalisa Ventola  
James Houran  
Anonymous*

99 An Analysis of Contextual Variables and the Incidence of Photographic Anomalies at an Alleged Haunt and a Control Site

121 Comment on "An Analysis of Contextual Variables and the Incidence of Photographic Anomalies at an Alleged Haunt and a Control Site"

**Essay**

123 The Function of Book Reviews in Anomalistics

*Gerd H. Hovelmann*

135 Ockham's Razor and Its Improper Use

*Dieter Gernert*

141 Science: Past, Present, and Future

*Henry H. Bauer*

**Letters to the Editor**

157 Swords's Caution to Coleman

*Michael D. Swords*

159 Coleman's Response to Swords

*Peter F. Coleman*

**Book Reviews**

163 *Psicologia Psicoanalisi Parapsicologia*, by G. Caratelli; *Del Hipnotismo a Freud*, by J.M. Lopez Pinero; *The Bifurcation of the Self*, by R.W. Rieber; *Premiers Ecrits Psychologiques*, by P. Janet; *L'Hypnose: Charcot Face a Bernheim*, by S. Nicolas; *Hypnotisme*, by E. E. Azam

*Carlos S. Alvarado*

174 *A Casebook of Otherworldly Music: Vol. 1 of Paranormal Analisa Ventola Music Experiences; and A Psychic Study of the Music of the Spheres: Vol. 2 of Paranormal Music Experiences*, by D. Scott Rogo

*Analisa Ventola*

176	Poltergeists: Examining Mysteries of the Paranormal, by Michael Clarkson	<i>Bryan J. Williams</i>
179	Ghost Hunters: William James and the Search for Scientific Proof of Life After Death, by Deborah Blum	<i>Michael Schmicker</i>
181	Leaps in the Dark, by John Waller	<i>Henry H. Bauer</i>
185	Quantum Enigma: Physics Encounters Consciousness, by Bruce Rosenblum and Fred Kuttner	<i>Richard Conn Henry</i>
191	The Cult of Personality, by Annie Murphy Paul	<i>Tana Dineen</i>
196	The Hundred Year Lie, by Randall Fitzgerald	<i>Joel M. Kauffman</i>
200	Sasquatch: Legend Meets Science, by Jeff Meldrum	<i>John Bindernagel</i>
202	Further Books of Note	
209	Articles of Interest	
215	DVD/CD Reviews	
224	Journal Reviews	
226	Letter to the Book Review Editor	

**SSE News**

227	26th Annual SSE Meeting Announcement	
228	Society for Scientific Exploration Officers and Council	

## An Experimental Test of Instrumental Transcommunication

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**Abstract**—As a result of a previous study in which electronic voice phenomenon failed to be found, the author introduced two new elements in an experiment seeking to produce instrumental transcommunication: the creation of text using random text generators and the presence of a medium. There were 26 experimental sessions carried out from April 28, 2003 to August 30, 2003 in the Psychology Laboratory at King's University College. The random text generators were engaged a total of 715 times producing 23,281 discrete units of textual data. Only a yes/no generator produced anomalous results. Of the 49 times the yes/no generator was used, 11 of them were in response to questions for which the answers could be verified. Of those 11 responses, 9 were correct with a probability of occurrence by chance of .042. Such a result could be due to chance, anomalous human-machine interaction between the participants and the computer, or some other influences such as those arising from possibly existent unseen dimensions of reality. The use of text generators and the presence of a medium in instrumental transcommunication (ITC) research are discussed, including the potential provision of information by the medium regarding strategies that could facilitate ITC.

**Keywords:** instrumental transcommunication—electronic voice phenomenon—survival hypothesis—mediumship—random event generator—anomalous human-machine interaction—psychokinesis—PK—altered states of consciousness

### Introduction

I carried out an experiment in electronic voice phenomenon (EVP) from September 15, 1997 to January 22, 1998. The study consisted of having research assistants try to interact with unseen beings in the presence of two radios tuned between stations while all of the audio that was present was recorded. Subsequently the research assistants would listen to the recordings to identify any anomalous sounds. There were 81 sessions with a total recording time of approximately 60 hours. No anomalous sounds were heard (Barušs, 2001).

Upon completion of this study, I realized that seeking communication with beings in other dimensions through the generation of EVP was unlikely to yield convincing results simply because acoustic sensory data are too perceptually

malleable (Skinner, 1936; Warren, 1968). Thus, for a second study, I decided to introduce computerized pseudorandom text and to see whether anomalous meaningful phrases would occur in the printed text. Such use of a computer would make this a study of instrumental transcommunication (ITC).

A second decision that I made was to have a medium present during the ITC sessions. There is no consensus as to whether or not someone with such abilities would enhance the production of ITC (cf. Fontana, 2005). Actually, if anyone could be helpful, it seems to me that it would be a poltergeist, as in the case of William O'Neil (Fuller, 1985; Macy, 1996). However, if the medium were able to contact beings in the same realm as those trying to communicate through ITC, then we could be able to obtain advice about what to try to do in order to make the process more successful, as was done, for example, in the Scole experiment (Keen et al., 1999).

### Procedure

I carried out a study of ITC consisting of 26 sessions held from April 28, 2003 to August 30, 2003 in the Psychology Laboratory at King's University College. For the purposes of the study I wrote three computer programs in the word processor WordPerfect using its random number generator to create random text. One of those programs randomly chose a letter of the English alphabet, a digit between 0 and 9, or a space, and displayed it on the screen, and then repeated that process a specified number of times. In this way, character strings of 10 to 500 characters could be created. A second program chose a set number of words, ranging from 1 to 500, from a pool, and printed them as a block. An initial pool containing 144 words chosen in an unsystematic way was supplemented in the course of the experiment by words that were thought to be useful so that the pool contained 176 words at the termination of the experiment. Examples of these words can be seen in the results section of this paper. A third program randomly chose just the word "yes" or "no" and printed it on the screen. Each of these programs could be triggered by hitting a single key on a computer keyboard.

The random number generator in WordPerfect is almost certainly a pseudo-random number generator that creates numbers in a deterministic manner. There is no documentation concerning this random number generator and technical support personnel at Corel, the company that owns WordPerfect, told me that information about their random number generator is proprietary. It is likely a linear congruential random number generator that starts with a seed number, such as a number compiled from the date and time, and then puts it through an algorithm that uses remainders from division as new seeds. For practical purposes, these numbers can be regarded as random. And, on the face of it, the output from these programs certainly appeared to be random. These would be the primary means through which ITC would be expected to occur. After the termination of the experiment, a research assistant was hired to scrutinize the output in order to look for anomalies.

A medium with a reputation for obtaining correct anomalous information about the deceased was hired to participate in the study. She was given a battery of psychological tests to take before the start of the first session and again after the termination of the final session. In the end, I decided not to score these in order to protect the privacy of the medium. She also filled out Ronald Pekala's Phenomenology of Consciousness Inventory (PCI; Pekala, 1991) at the beginning and again at the end of each session, except for the first session, which was considered a practice session, when she filled it out partway through. The PCI was scored and the results are reported below.

Both myself and the medium were present for all sessions. These were held in Room PL2 of the Psychology Laboratory at King's University College. I sat at a Dell PC computer on which I had loaded the random text generators and on which I kept a "worksheet" for each session. The random text was generated directly onto the worksheets. In addition, I kept notes on the worksheets of events that transpired during the sessions including the substance of the conversations between myself and the medium.

In addition to generating randomized text, a Sony Cassette-Corder TCM-500DV was used for recording EVP onto audio cassettes. For the practice session and first 14 formal sessions, the recorder was placed either in Room PL5 of the Psychology Laboratory or in a fire escape stairwell leading out of the Laboratory. In either case, no noise sources were used. For sessions 15 to 25, the cassette recorder was set to record in PL2, the room in which the experimenter and medium were located. This time Stefan Bion's EVPmaker running on an IBM NetVista A40i computer was used as an explicit noise source for brief intervals during those sessions. EVPmaker works by taking a sound file, chopping it into bits, and then "randomly" reassembling them and playing them back (Bion, 2006). During session 17, I recorded a politically correct version of Alice Bailey's "Great Invocation" (Bailey, 1934|1951) as a WAV file which was subsequently, as needed, normally chopped into 70 millisecond bits and "randomly" reassembled, usually, as a 7 second sound file. A question would often be typed onto the worksheet and then EVPmaker would be turned on approximately at the same time as a random text generator. Beyond some general constraints discussed below, there was no planning involved in the questions that were asked; they just seemed like reasonable questions at the time. The medium listened to all of the recordings made with EVPmaker through Sony MDR-V700 headphones. Subsequently, a research assistant independently listened to all of the cassette tapes, using the same headphones, to identify any anomalous sounds.

## Results

There was one practice session and 25 formal sessions, each session lasting an average of 1 hour and 44 minutes ( $\sigma = 28$  minutes) for a total time of about 45 hours. The random string generator was engaged 341 times for a total of

19,500 characters. The word generator was engaged 325 times for a total of 3,732 words. The yes/no word generator was used 49 times with "yes" occurring 28 times and "no" coming up 21 times. There were about 36 hours and 19 minutes of cassette recording including 34 minutes and 46 seconds of recordings from 235 instances of using EVPmaker.

### *Psychological Measures*

The medium experienced changes to her consciousness from the beginning to the end of any given session as measured by the PCI with overall  $F(12,37) = 3.19$ ,  $p = 0.003$ . These changes occurred along four dimensions: amount and vividness of imagery ( $\mu = 6.08$ ,  $\sigma = 4.87$  to  $\mu = 12.08$ ,  $\sigma = 5.54$ ), inwardly directed attention ( $\mu = 14.96$ ,  $\sigma = 5.51$  to  $\mu = 19.04$ ,  $\sigma = 4.51$ ), awareness of self ( $\mu = 14.56$ ,  $\sigma = 2.69$  to  $\mu = 12.88$ ,  $\sigma = 2.39$ ), and volitional control ( $\mu = 11.60$ ,  $\sigma = 4.45$  to  $\mu = 5.60$ ,  $\sigma = 3.64$ ). All of these changes are consistent with increased absorption in inner experience. These scores are above the sitting quietly with eyes open norms as determined by analysis of variance against the constant values of the norms. For example, even though volitional control on the part of the medium decreased from the beginning to the end of sessions, her average score ( $\mu = 8.60$ ,  $\sigma = 5.04$ ) was still statistically significantly higher than the norm ( $\mu = 3.95$ ,  $\sigma = 1.36$ ;  $t = 6.53$ ,  $df = 49$ ;  $p < 0.0005$ ).

The medium also experienced changes to her consciousness within the experimental context from the beginning to the end of the sequence of sessions as judged by scores on the PCI completed at the ends of the sessions. In particular, there was a decrease in alteration of consciousness as evidenced by a correlation of  $r = -.67$  ( $df = 23$ ;  $p < 0.0005$ ) for altered states, and an increase in some aspects of ordinary cognitive functioning as evidenced by a correlation of  $r = .41$  ( $df = 23$ ;  $p = 0.044$ ) for memory.

### *Random Text Generators*

The random character generator did not produce any identifiable anomalous text. For example, when, according to the medium, a deceased relative tried to influence the random character generator, the result was: "ydaqzns kgue oi fqbkiixv dyeltoccfvgattvzultmt ...". In other words, there was no reason to believe that there was any departure from random behaviour.

The strings of words produced by the random word generator were open to interpretation. For example, in session 21, in response to our question "What would you have us do to make this work better?" we received the answer "we ITC dimension fortunate when irreparable continue." We wondered if the word "continue" at the end meant that the answer was supposed to continue and so, upon engaging the random word generator again, got the phrase "feel acquire light figure logical people continue." Again, "continue" suggested continuation of the use of the word generator, which resulted in "equipment are underlie add for coming giant." Putting all three strings together as a "sentence" gave us: "We ITC

TABLE 1  
Questions with Verifiable Responses

Session	Question number	Question	Correct answer	ITC answer
12	3	Are we outside the building playing in the sun?	no	no
25	15	Is the new building nearly finished?	yes	yes
25	16	Is [the medium] in the room here?	yes	yes
25	17	Is Imants in the room here?	yes	yes
25	18	Is two and two equal to four?	yes	yes
25	19	Do we live in London?	yes	no
25	20	Do we live in London, Ontario?	yes	yes
25	21	Does [the medium] have five kids?	no	yes
25	22	Are they all boys?	yes	yes
25	24	Will a provincial election be called next Wednesday?	no	no
25	25	Will the provincial Tories win the next election?	no	no

dimension fortunate when irreparable feel acquire light figure logical people equipment are underlie add for coming giant." The problem is that such a "sentence" does not have a single obvious meaning nor is there any evidence that such a "sentence" is any less random than the apparently random character strings.

Of the 49 times that the yes/no generator was used, 30 were in the last session. Using exact binomial probability calculations, the probability of getting a yes, as we did, at least 28 times by chance is about .196. Thirty-eight of the yes/no questions did not lend themselves to verifiable answers, such as the questions "Are any of the sounds on the cassette tape the result of ITC?" and "Did you guys have fun doing this ITC stuff with us?" The answers to those questions, incidentally, were "yes" and "no" respectively. Eleven of the times the yes/no generator was used were in response to questions that were reasonably unambiguous and whose answers could be verified. All but one of those questions were asked during the twenty-fifth and final session for reasons given in the discussion section. All of the questions with verifiable responses are listed in Table 1.

With the answer to Question 19 in session 25, the medium and I realized that the "London" to which we were referring could be ambiguous given that there are more famous Londons around. Hence the reason for asking Question 20. In retrospect, in the same vein, the expression "kids" could be considered to be ambiguous, particularly given that the medium has three children and two large dogs. However, we considered correct answers to be answers to our intended questions. It is also noteworthy that, at the time of this session, October 30, 2003, it was widely expected that a provincial election would be called four days hence on Wednesday, September 3, 2003. An election was actually called on Tuesday, September 2, 2003. The Tories were the ruling party at the time of the session but lost the election that was held on October 2, 2003. The probability of getting at least 9 of 11 correct answers is about .033 based on exact calculations of the relevant binomial probability distributions.

It is possible, even though it was not a statistically rare event, that the greater than expected occurrence of "yes" responses of the yes/no generator was due to biased behaviour on the part of the pseudorandom number generator on the computer. Assuming that the random number generator was, in fact, biased, giving an expected probability for a "yes" response of 28/49, the probability of getting at least 9 of the 11 answers correct is still only about .042. This value is obtained by considering all six possible combinations of yes and no responses to give at least 9 of 11 correct overall, partitioning the yes and no responses, and applying the appropriate bias when calculating the probabilities of each partition using the binomial probability distribution. The net result is that even when the possibility of a biased random number generator is taken into account, the occurrence of 9 of 11 correct answers is still a statistically rare event.

### *Audio Recordings*

The results of analysing the audio recordings were inconclusive at best, as they had been in the previous study. There was almost no agreement between the medium and the research assistant as to what was heard on the tapes, and the instances in which there was agreement could be explained by the probable action of common psychophysiological mechanisms used when structuring ambiguous acoustic sensory impressions. Without EVPmaker there were scratching sounds, clicks, distant noises, and so on. With EVPmaker words and short phrases could be heard, such as "six," "optical," "subject matter," and "it's possible," but usually only by one listener.

Perhaps the most notable EVP occurred in session 17. I will give two examples. The first example occurred 102 minutes into the session. In response to the question "What do we need to know that we don't understand about this?" the medium immediately said that she heard the word "opportunity" produced by EVPmaker. The simultaneously activated word generator had produced the phrase "on sharp opportunity are was yes name" so that the word "opportunity" was both heard by the medium and produced by the text generator as one of seven words. The research assistant spontaneously heard the words "business" and "Austin" for the same passage but not "opportunity" until she went back to listen for it. I could not hear "opportunity" but could imagine it at one point in the output after having listened for it numerous times. The second example occurred 12 minutes later at the end of the session. I typed into the worksheet "If you have any last words, this is your chance," and the medium turned on EVPmaker while I activated the word generator. Upon completion of the acoustic sound generation, I immediately said that I had heard the phrase "This isn't leaving." Subsequently, the medium was able to hear the same phrase as was the research assistant upon listening for it. This time there was no correspondence with the pseudorandom text output which read "near on hot angel alive woman to."

## Discussion

### *Randomly Generated Text*

Two changes were made in this study from the previous one: the use of randomly generated text and the introduction of a medium. With regard to the first of these, the use of randomly generated text removed some of the ambiguity associated with acoustic data. The utilization of the character generator removed much of the ambiguity about what was actually present, but there was no indication of anomalous effects in the character strings. The word generator provided murkier data given that words are meaningful and strings of words are open to numerous interpretations. Hence, again, there was nothing clearly anomalous. The yes/no generator is certainly discrete, although questions need to be phrased in an unambiguous manner if their validity is to be assessed. In the case of the yes/no generator, it is possible that there is evidence for the presence of anomalous effects.

However, now we encounter another problem, namely, that those of us who were involved in the study could have produced whatever unusual effects were present through anomalous human-machine interactions such as those that have been demonstrated in other contexts (Jahn et al., 1997; Radin, 2006). For example, the medium and I both knew that we were indoors, rather than outdoors, so we could have influenced the pseudorandom number generator to give a "no" response to a question about whether we were outdoors. This complication applies also to questions to which we did not have answers at the time, such as the questions about the Ontario elections. The medium or myself could have precognized the timing of the election announcement and the outcome of the election. Such possibilities have been discussed in detail, for example, by Stephen Braude (2003), in the context of the survival hypothesis.

The use of pseudorandom text rather than acoustic recordings in ITC experiments makes it easier to determine whether or not anomalous effects have occurred and I would encourage such use in future research. Whether such processes are more difficult than others to manipulate by beings from other dimensions is unknown, if, indeed, there are any beings in other dimensions to do such manipulation. In the event that anomalous output does occur, the problem then becomes one of determining the source of the influence.

The significance of the degree to which the devices used in ITC behave in a random manner is not known. There may be none. However, if it were to turn out that the living are less able to influence pseudorandom number generators based on fixed computer algorithms than "truly random" number generators based on quantum processes, then it could be argued that that difference lends weight to the survival hypothesis in the event of statistically significant results with pseudorandom number generators such as occurred in this study. However, given that it is not even known if there is any difference in the ability of the living to influence pseudorandom versus random devices (Jahn & Dunne, 2005),

I see no point at this time in trying to advance any arguments on the basis of the randomness of the devices used.

### *The Presence of a Medium*

It is not clear to what extent the presence of a medium made a difference to the results of the experiment. However, one of the reasons for the participation of a medium was to have her try to communicate with beings in dimensions of reality from which ITC originates—if there are such dimensions or beings—in order to facilitate ITC. This led to a number of different ideas about the production of ITC. The problem was, of course, that there was no way of evaluating the validity of these ideas except for trying out those with practical implications. Let me mention some of the ideas that we had and the strategies that we tried.

In the first formal session, the medium had the impression that it is an arduous task for beings in other dimensions to try to affect electronic equipment. Their experience of trying to do so is similar to our experience of going into a bad neighbourhood where there is the threat of personal injury. They get shaken and rattled. Therefore few are willing to take the risks. Those who could safely navigate these neighbourhoods are too far removed from them. The medium had the impression that the beings with whom she could communicate could do so because they could stay where they were without the need for approaching the material aspects of existence as they would need to do in order to affect material devices.

As a result of such insights, the medium and I considered different possible mechanisms through which physical effects could be produced. In the second session, the medium ostensibly contacted one of my deceased colleagues who discoursed about quantum theoretic mind/matter interactions in what appeared to be much the same style as when he had been alive. In the third and fourth sessions we had a discussion of the manner whereby manifestation is said to occur according to Alice Bailey (1934/1951). Subsequently, in session 7, the medium had the impression of having contacted Bailey, who recommended a daily meditation whose purpose was to make the electronic equipment that we were using more susceptible to anomalous influence. Although we were unable to determine its value, we decided to try the meditation, and engaged in it fairly regularly until the end of the study.

As we experimented with such speculative strategies, the medium and I felt that we entered a zone of uncertainty that was contrary to the clarity required of scientific research. However, we thought that such uncertainty may be necessary, at least for a while, if these phenomena were to be given a chance to develop so as to be able to manifest in a measurable form (cf. Dunne & Jahn, 2003). For instance, during the eleventh session, we decided not to test the yes/no generator since that would take us outside the realm of ambiguity. It was not until the twenty-fifth and last session that we deliberately evaluated the output from the yes/no generator with a series of questions to which we could know

the answers. Surprisingly, as discussed previously, 9 of the 11 answers to those types of questions turned out to be correct. Whether such a statistically rare event would have occurred already in the eleventh session or whether any of what we did actually affected the result is unknown.

The presence of a medium in this study added a potential source of information about the dynamics of attempting to produce ITC even if her potential influence on the production of anomalous output itself remained unknown. I would recommend the use of such a person in other studies along with an effort to determine the psychological parameters that lead to anomalous results. However, both the medium and myself were concerned that due caution be observed with ITC research, in that it could not only be dangerous for beings in other dimensions to try to influence electronic equipment, but also for any living participants engaged in such studies. I have addressed this issue in more detail elsewhere (Barušs, 1996). Furthermore, any obvious establishment of electronic access to the deceased, should such access become possible, could upset various individuals who have a vested interest in the retention of particular materialist or religious ideologies. It is certainly the case, for example, that there is little tolerance for ITC research among mainstream scientists. This could also be a reason why stronger results are not possible at this time.

### Acknowledgments

I want to thank the medium for her participation in this study. I also want to thank my research assistant Shannon Foskett for many hours of work; the mathematician, Sauro Camiletti, for checking the statistical calculations of the yes/no generator; and the engineer, Mike Turner, for his detailed explanation of the manner in which pseudorandom number generators work. I appreciate the thoughtful comments of the three referees who reviewed this paper. And finally, I am grateful for research funding that was provided for this project by the New Science Fund of the Community Foundation of Silicon Valley, San Jose, California, USA, and also by King's University College.

### References

- Bailey, A. (1951). *A Treatise on White Magic*. New York: Lucis. (Original work published 1934)
- Barušs, I. (1996). *Authentic Knowing: The Convergence of Science and Spiritual Aspiration*. Purdue University Press.
- Barušs, I. (2001). Failure to replicate electronic voice phenomenon. *Journal of Scientific Exploration*, 15, 355–367.
- Bion, S. (2006). *Manual for EVPmaker*. [http://www.stefanbion.de/evpmaker/evpmkr\\_e.htm#abschn21](http://www.stefanbion.de/evpmaker/evpmkr_e.htm#abschn21). Accessed October 26, 2006.
- Braude, S. E. (2003). *Immortal Remains: The Evidence for Life after Death*. Lanham, MD: Rowman & Littlefield.
- Dunne, B. J. & Jahn, R. G. (2003). Information and uncertainty in remote perception research. *Journal of Scientific Exploration*, 17, 207–241.
- Fontana, D. (2005). ITC: What kind of technology? *ITC Journal*, 23, 22–28.
- Fuller, J. G. (1985). *The Ghost of 29 Megacycles: A New Breakthrough in Life after Death?* London: Souvenir Press.

- Jahn, R. G. & Dunne, B. J. (2005). The PEAR proposition. *Journal of Scientific Exploration*, 19, 195–245.
- Jahn, R. G., Dunne, B. J., Nelson, R. D., Dobyns, Y. H., & Bradish, G. J. (1997). Correlations of random binary sequences with pre-stated operator intention: A review of a 12-year program. *Journal of Scientific Exploration*, 11, 345–367.
- Keen, M., Ellison, A., & Fontana, D. (1999). The Scole report: An account of an investigation into the genuineness of a range of physical phenomena associated with a mediumistic group in Norfolk, England. *Proceedings of the Society for Psychical Research*, 58 (Pt. 220), 149–392.
- Macy, M. (1996). *The Miracle of ITC: Electronic Communication across Dimensions* [Audio cassette]. Boulder, CO: Continuing Life Research.
- Pekala, R. J. (1991). *Quantifying Consciousness: An Empirical Approach*. Plenum.
- Radin, D. (2006). *Entangled Minds: Extrasensory Experiences in a Quantum Reality*. New York: Paraview.
- Skinner, B. F. (1936). The verbal summator and a method for the study of latent speech. *The Journal of Psychology*, 2, 71–107.
- Warren, R. M. (1968). Verbal transformation effect and auditory perceptual mechanisms. *Psychological Bulletin*, 70, 261–270.