

SPIRIT CONTROLS AND THE BRAIN

Bryan J. Williams¹ & William G. Roll²

¹Department of Psychology

University of New Mexico &

Quest Nine, Inc.

Lovelace Medical Center – Gibson

Albuquerque, NM, USA

²Department of Psychology

University of West Georgia

Carrollton, GA, USA

ABSTRACT

The mediumistic phenomenon of spirit control or trance personality has been present since the early days of psychical research, and remains an aspect of mediumship that is not well understood. Roll (2006a) has argued that humans possess a dual mind, the mind of the left brain hemisphere and the mind of the right brain hemisphere. The left hemisphere uses the sensory-motor system of the body to interact with local objects. It is the principal seat of language and thereby gives rise to the idea of an individual self that is associated with the body. The right hemisphere uses an extrasensory-psychokinetic system to interact with nonlocal objects and gives rise to a transpersonal or long body self. In this paper, we propose that spirit controls may be conceptualized as mental constructs that are created and personified by the medium, and that they represent identities consistent with the medium's left hemispheric sense of self. The emergence of spirit controls is predicted by Persinger's (1993) model of vectorial hemisphericity. A comparison of spirit controls with the alternate personalities of dissociative identity disorder (DID) shows that the two are similar in several respects and suggests that they may result from the same neurological processes. Ways in which the proposal may be tested further are suggested.

INTRODUCTION

We make a distinction between psychics and mediums. A psychic is an individual who displays an above average ability in extrasensory perception and uses this ability to acquire information about nonlocal objects without extraneous help. A medium is either a mental medium or a physical medium. A mental medium is a psychic who attributes the exercise of ESP to one or more spirit controls that are believed to act as intermediaries in the medium's attempt to acquire information from the departed or other sources. Similarly, physical mediums attribute displays of strong expressive psi (PK) in their presence to spirit controls, even though the medium could actually be the PK agent. Physical mediums, at least the genuine sort, are much more rare than mental mediums. In either case, a spirit control usually emerges when the medium is in trance, causing it to be regarded as the medium's trance personality. A spirit control, so to say, is the medium's medium.

A session or experiment with a medium is known as a sitting and researchers and others present are known as sitters. Mediumistic sittings have been going on for well over a century (Gauld, 1977, 1982; Gregory, 1985; Roll, 1960; Roll, 1982a, Section 3; Schouten, 1994), but large gaps remain in our knowledge about the neuropsychology of trance and spirit controls. Our discussion will focus primarily on this issue.

To understand spirit controls, caution must be taken in how the problem is approached. One reason that so little is known about spirit controls may be that the wrong questions have been asked. The distinction suggested by Lawrence LeShan (1975, 1995) between a structural entity and a functional entity is helpful in this context. A structural entity is a material object with measurable physical dimensions that is subject

to physical laws, while a functional has no material properties by which it can be identified or measured. Thus, a functional entity only exists as a concept. As an example of a functional entity, LeShan mentions the square root of -1 . Although this number does not refer to anything that actually exists or can exist, it has provided a solution to problems in mathematics, physics, and engineering. In view of the fact that spirit controls lack physical characteristics, LeShan argues that they should be regarded as functional entities.

Since functional entities are concepts, LeShan (1975, 1995) points out that questions regarding their “what” and “where” are meaningless. On the other hand, questions about their conceptual ramifications, such as their “when” and “why,” can be meaningful. Taking Mrs. Eileen J. Garrett’s spirit control “Uvani” as an example, LeShan says that one should not ask what Uvani is, but rather, “*When* is Uvani?” And we might add, “*Why* is Uvani?” These are psychological questions that are best addressed by psychology.

SPIRIT CONTROLS AND THE PERSONALITY OF MEDIUMS

The reports of psychical researchers who have worked with trance mediums suggest that spirit controls are more psychological than parapsychological. One of Mrs. Leonore Piper’s earliest controls, a supposed deceased French physician named “Dr. Phinuit,” may have been inspired by her visit to the medium J. R. Cocke in June 1884, whose trance personality was named “Finny.” Finny said that he was French and that his real name was Finnett (Tyrrell, 1961, p. 167). In addition to readings, Piper’s Dr. Phinuit sometimes gave medical diagnoses and advice to sitters, but he knew little about the medical practices and standards in France. Some of Mrs. Piper’s other controls presented themselves as the spirits of deceased psychical researchers. While a few of these “spirit-researcher controls” seemed authentic to the researchers, most of them appeared fragmentary or false, in that they did not provide enough information to be identified as the persons they claimed to have been, and rarely showed signs of recognizing individuals who were intimately known to them in life. With respect to Mrs. Piper’s spirit-researcher controls of Gurney, Myers, and Hodgson, Oliver Lodge (1909) stated:

...I feel bound to say that in the old days when conversing with the Gurney control through Mrs. Piper...I felt very much as if I were conversing under difficulties with Edmund Gurney. And he appeared to be in real “control” for the time—so that lapses and uncertainties and occasional confusions, in his case, were rather rare. But when the Myers and Hodgson controls now send messages through Mrs. Piper...I have very little feeling of that kind. They seemed in my case rather shadowy and, so to speak, uninteresting communicators (p. 282 – 283).

In a report on the sittings with Mrs. Piper, Eleanor Sidgwick (in Tyrrell, 1961) states:

Since 1901 a control calling itself Henry Sidgwick has put in occasional appearances in Mrs. Piper’s trance. The personation has been, however, of the feeblest description; a fact all the more strange because Mrs. Piper was personally acquainted with Dr. Sidgwick (p. 172).

In a report regarding Mrs. Piper’s Gurney control, Sidgwick (1915) writes:

Gurney died in the summer of 1888, and a Gurney control made its appearance through Mrs. Piper in America on several occasions in March 1889, when Professor William James was present. He gives some account of it in *Proceedings [of the SPR]*, vol VI, pp. 655 – 6, which was published in 1890, calling the control “E” [Gurney’s first name was Edmund], and says “neither then, nor at any other time, was there to my mind the slightest verisimilitude in the personation” (p. 300).

Also in the opinion of Hodgson (1892), the Gurney control did not resemble the living Gurney:

If we assume that this control was the “make-up” of Mrs. Piper’s secondary personality, it apparently involved some very subtle use of information drawn telepathically from at least the minds of the sitters, and at the same time the most extravagant ignorance and confusion concerning other facts, some which were known to the sitters, and which we should expect to be vivid in the remembrance of “E” (Tyrrell, 1961, pp. 175 – 176).

Further support for this position comes from Sidgwick's (1900, 1915) observation that the personality of Mrs. Piper seemed to show through the controls in ways that were not consistent with these individuals in life. For example, the controls showed a complete ignorance of science, philosophy, or any other academic field in which the individuals had excelled when they were alive (Sidgwick, 1915, p. 315 – 317). In addition, there were displays of shared associations and phrases across controls, and many showed an uncharacteristic interest in trivial matters (Gauld, 1977, p. 581). In other words, they seemed to be limited to the knowledge, personality, interests, and speech of Mrs. Piper. Although it is arguable that the lack of clarity in the personalities of the researcher spirit controls may be due to the inherently weak and subtle nature of ESP, it seems more likely that the personalities of these entities were derived from Mrs. Piper's personality and imagination combined with what she knew about the researchers from having met them when they were alive, and sometimes also combined with information she obtained about them through ESP with the sitters.

Mrs. Eileen J. Garrett sometimes expressed doubt about the independence of her spirit controls and at other times accepted them at face value (Angoff, 1974; McMahan, 1994). In response to a question from Lawrence LeShan (1995) concerning her controls, Mrs. Garrett wrote:

Larry, I have to answer you in what seems to be a light and humorous way, but it's the best I can do! It is as if on Monday, Wednesday and Friday I think that they are spirits as they claim, and on Tuesday, Thursday, and Saturday I think that they are multiple personality split-offs I have invented in order to make my work easier. And as if on Sunday I try not to think about the problem (p. 166).

Mrs. Garrett's mixed opinion about her controls may have been due in part to the consistency in their personalities and viewpoints over the years (which was true especially for Uvani, her main control), and in part to skepticism about the controls expressed by LeShan and others who studied her. Two incidents cited by LeShan (1995) illustrate this. In one, the psychic Rosalind Heywood attempted to use her ESP in order to perceive the physical appearance of Abdul Latif, another of Mrs. Garrett's controls, while Heywood was engaged in conversation with him. According to LeShan, she said, "I put out my antennae and it seemed to me that he only existed for the subject under discussion" (p. 170).

In the second incident (p. 170), psychologist Ira Progoff asked Uvani during a sitting with Mrs. Garrett, "How have you been since we last met?" The question seemed to completely confuse Uvani and he made no answer, despite the fact that he himself had asked Progoff the same question during previous sittings and had thereby shown that he understood the question.

The few empirical studies that have been done regarding spirit controls support the argument that they are expressions of the medium's personality. With statistical advice from Robert Thouless (1936 – 1937), Whately Carington (1933 – 1934, 1935, 1936 – 1937) conducted a quantitative study of three mediums and their respective spirit controls: Mrs. Leonard and Fedra, Mrs. Garrett and Uvani, and Mrs. Sharplin and Silver. Using a stopwatch during a word association test, he measured the response times to the words by the mediums in their waking state and in trance when their controls were in charge. The results indicated that two of the medium-control pairs (Mrs. Leonard & Fedra, and Mrs. Garrett & Uvani) had significantly matching personality characteristics, whereas the third pair (Mrs. Sharplin & Silver) showed none. For the two pairs in which a relationship was found, this took the form of "counter-similarity" in their response times; that is, a negative correlation: Terms to which the medium took a long time to respond, took a short time for the controls, and vice versa.

In a series of ESP card experiments, J. B. Rhine (1934) compared Mrs. Garrett's ESP performance in her waking state with the ESP performance of Uvani. Mrs. Garrett and Uvani were each tested for telepathy and clairvoyance in five uneven groups of runs. The results are shown in Figure 1.

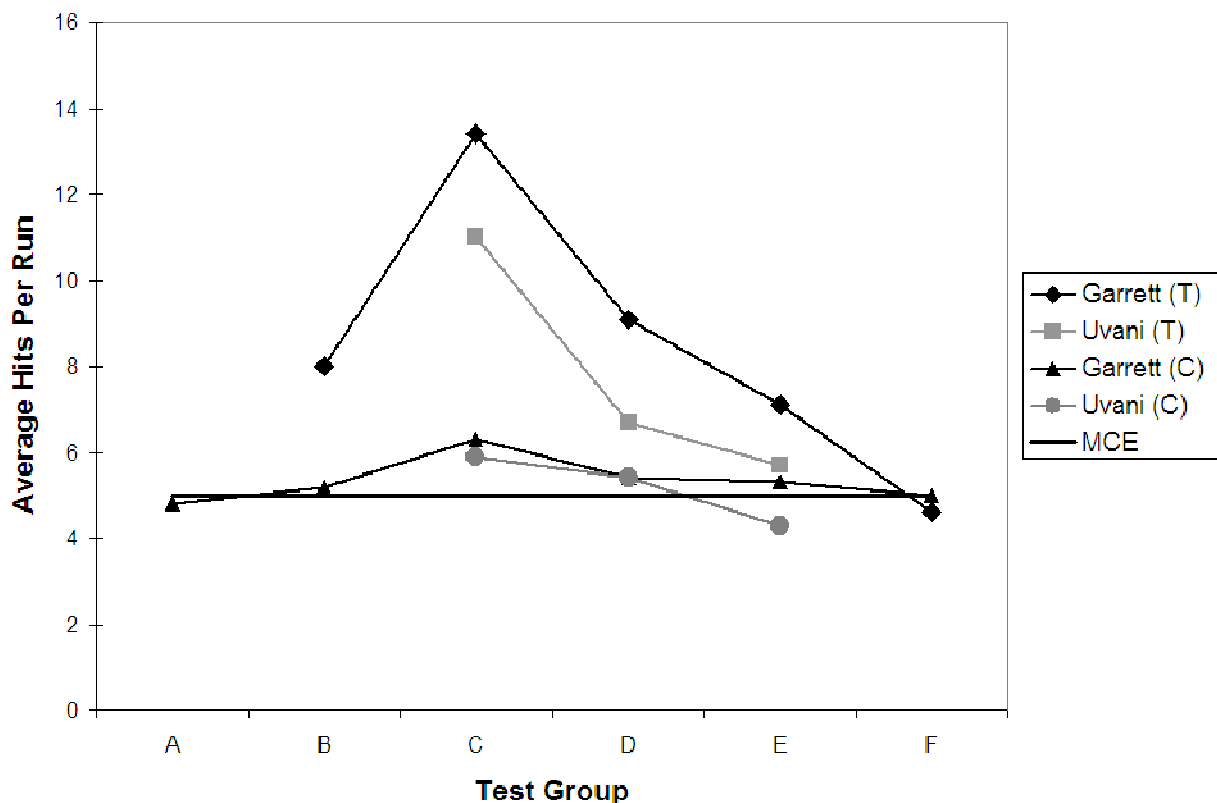


Fig 1. Graphical representation of five groups of ESP card test runs showing the average number of hits per run respectively scored in each group by Mrs. Eileen Garrett and her spirit control Uvani under telepathy (T) conditions, and under clairvoyance (C) conditions. The smooth horizontal line at 5 indicates mean chance expectation (MCE) per run. Reproduced from data presented in Rhine (1934).

A comparison of the ESP test results for Mrs. Garrett and Uvani reveals striking parallels. Both produced an above average number of hits per run under telepathy conditions before declining to mean chance levels. They also both failed in the clairvoyance condition, scoring around chance. Although he had expressed a willingness to try the card tests, Uvani claimed that he had no ESP ability of his own, insisting that any he might exhibit would actually be those of “the instrument” (his term for Mrs. Garrett). In discussing the results, Rhine (1937) commented, “Uvani would seem to be right: the gifts are the gifts of the medium, whatever Uvani himself may be” (p. 225).

SIMILARITIES BETWEEN THE SPIRIT CONTROL PHENOMENON AND DISSOCIATIVE IDENTITY DISORDER

Since the early days of psychical research, researchers (Braude, 1988; Mitchell, 1921; M. Prince, 1900 – 1901; W. F. Prince, 1915, 1916; Troubridge, 1922) have noticed that spirit controls resemble multiple personalities. Although relatively unexplored at the present, it remains a relevant question (Alvarado, 2004). Multiple personality is now referred to as dissociative identity disorder (DID), a rare disorder in which a patient displays two or more distinct personality states, each of which may have its own autobiographical memory, temperament, behavioral habits, medical conditions, cognitive functioning, and social relations that are different from those of the patient. The alternate personalities often seem to have been created by the patient because of extreme trauma and its psychological impact.¹ In other words,

¹ The term “dissociative identity disorder” is a misnomer unless the condition is painful or results in problems for the person and/or his or her social group.

alternate personalities may be viewed as psychological defense mechanisms to protect the person's core personality from the effects of trauma, and may be induced under similar conditions of stress or trauma. Subjective reports from patients diagnosed with DID show that the switching from one personality state to another is often accompanied by the sudden onset of drowsiness, blackouts, disorientation, and/or amnesia. Usually an alternate personality exhibits no awareness of the thoughts, actions, or existence of the other personalities. In some cases, however, such awareness (known as co-consciousness) has occurred either spontaneously or through psychotherapy (for a detailed overview of DID and discussion of cases, see, e.g., Kluft, 1991, and Putnam, 1989).

Like the alternate personalities of DID, the spirit controls of mediums are experienced as separate and autonomous entities with detailed personalities of their own. Abrupt changes in depth or tone of voice, posture, and overt behavior characterize both DID and spirit controls. Price (1960, p. 205), Gauld (1977, p. 581), and Braude (1988, p. 180) point out that many controls either claim to be deceased children, or show childish behavior. William Brown (in Tyrrell, 1961) noted that Mrs. Leonard's control, "'Feda,' who is apparently of a childish nature,...may psychologically be regarded as a regression in relation to Mrs. Leonard's adult consciousness" (p. 284). Putnam et al. (1986) found child alternate personalities to be a predominant aspect of 85% of the 100 cases of DID they examined.

Another similarity can be found in the epistemological relation between the parts of an individual's mind that appear to be dissociated, particularly in the limited memory and awareness that mediums display while in trance (Braude, 1988). Rhine (1934, p. 99) noted that Mrs. Garrett had no memory of what took place during the time her controls were in charge, which is similar to the amnesia found for DID patients across personalities (Putnam, 1989; Putnam et al., 1986). Mrs. Garrett's control Uvani seemed to have some awareness of her existence because he referred to her as "the instrument" (p. 103), thereby suggesting a degree of co-consciousness. A similar suggestion may be applied to Mrs. Piper and her controls as noted by Sidgwick (1915): "Mrs. Piper in a state of self-induced hypnosis may sometimes deliberately and consciously personate the control, and at others believe herself to be [her controls] Rector or Phinuit, while at still other times something between the two may occur and she may have a more or less hazy consciousness of being Rector, but also of being Mrs. Piper" (pp. 326 – 327).

One common and frequent factor leading to the development of dissociative disorders (including DID) may be the exposure during childhood to aversive family conditions, neglect, isolation, and/or abuse (Atlas, Weissman, & Liebowitz, 1997; Ellason, Ross, & Fuchs, 1996; Putnam, 1989; Putnam et al., 1986). Similarly, Mrs. Leonard (Roll, 1982b) and Mrs. Garrett (1939, 1949; McMahan, 1994; Roll, 1982b) were noted to have had an unhappy, isolated childhood, which, in Mrs. Garrett's case, was also an abusive one. In order to dissociate themselves from their mental anguish, these two mediums may have developed fantasy-prone personalities (Roll, 1982b). During her childhood, Mrs. Leonard reported visions of "Happy Valleys," and Mrs. Garrett (1949) experienced "The Children," two imaginary girls and a boy who were her playmates. Mrs. Garrett (1949) wrote in her memoirs: "During all my life I had unconsciously developed the technique of escape in order to avoid suffering. I could now perceive how this practice had perhaps prepared the way for the development of the trance state" (pp. 123 – 124). Fantasy-proneness has been hypothesized to be a developmental concomitant of DID (Brenneis, 1996; Lynn, Rhue, & Green, 1988²; Putnam, 1989, pp. 52 – 54): The childhood capacity for fantasy is extended to dissociative states such that these become endowed with psychological and physiological attributes and thereby appear to take on a specific sense of self, analogous to an elaborate imaginary playmate of childhood. Putnam (1989) notes: "Alter personalities sometimes report that they first arose as imaginary companions but later took on a life of their own when the child was unable to cope with abuse or some other trauma" (p. 52). Wilson and Barber (1983) found that individuals who are highly fantasy-prone have two characteristics germane to our topic: They exhibit highly imaginative and vivid fantasies often incorporating several sensory modalities, and they often believe themselves to be psychic and to have had frequent ESP-type

² This reference was provided to us by one of the referees of this paper and has not been verified because we have no archival access to the *British Journal of Experimental & Clinical Hypnosis* at the time of this writing. By the time of the PA convention we expect to have read the actual paper. We thank this referee for drawing this reference to our attention.

experiences.³ Both of these aspects seem to be reflected in Mrs. Garrett's (1949) accounts of "The Children." In addition to looking and acting like real playmates, her imaginary friends seemed to have ESP since they guided her to hidden things. In other words, "The Children" may have been Mrs. Garrett's first spirit controls.

Braude (1988) points out a similarity between the switching of alternate personalities in DID and the appearance of a spirit control for a medium. Immediately before a control takes charge of an entranced medium, the medium may display characteristic behaviors, such as a vacant stare, eye-rolling, body swaying, and groaning. Tyrrell (1961) notes that the early trances of Mrs. Piper were accompanied by convulsive movements, but that the change later "became quiet and placid" (p. 167). Rhine (1934) said that when Mrs. Garrett was in trance, "her eyes are turned upward as in sleep" (p. 99). The length of time it takes for a control to fully emerge varies, from instantaneous to several minutes.

Variations in bodily response and length of time during personality switch are also seen in DID. As in mediumship, bodily responses may include a vacant stare, eye-rolling, and body swaying (Putnam, 1989, p. 119 – 121). In their famed case "The Three Faces of Eve," Thigpen and Cleckley (1954) noted that their patient, Eve White, reported headaches and experiencing blackouts prior to the emergence of her second personality "Eve Black" (p. 137). Before her third personality "Jane" emerged for the first time (p. 144), Eve White became drowsy and slipped into what the therapist labeled a "sleep or trance" for approximately two minutes, after which she awoke as Jane. Putnam et al. (1986) found that the duration of the personality switch for 92% of their 100 DID cases ranged from seconds to as long as five minutes.

If spirit controls are forms of DID, it is to be expected that the two share the same functional areas within the brain. It appears that the temporal lobe may be involved in both. Mesulam (1981) reports 12 dissociative cases from the neurology unit of a Boston hospital, seven of which were suggestive of DID, while the other five involved illusions of possession. Aside from two cases with unclear readings, the electroencephalograms (EEGs) of the patients showed abnormal spike activity around the temporal lobes in either or both hemispheres. Such spikes may indicate complex partial epilepsy. Shenk and Bear (1981) reported on female patients with DID and related dissociative disorders. Of the 40 patients diagnosed with temporal lobe epilepsy, 33% exhibited dissociative episodes following the development of their epilepsy.

Studies using brain imaging technology have also implicated the temporal lobe in DID. Mathew, Jack, and West (1985) measured the cerebral blood flow of a female DID patient using positron emission tomography (PET). Comparison of PET scans taken when the patient was displaying her core personality and one of her alternate personalities revealed increased blood flow only in her right temporal lobe, which was attributed to functional hyperactivity in the region since the patient showed no signs of temporal lobe epilepsy in her clinical evaluation. Hughes et al. (1990) used EEG data they collected over a two-month period from a DID patient with ten alternate personalities to produce brain maps of the patient and each of her personalities. Comparisons of the brain maps revealed differences for four of her personalities in the left temporal and right posterior regions of her brain. These differences were primarily in the theta and beta wave frequency ranges. Similar maps made from EEG data taken while the patient was merely pretending to be her alternate personalities or when a professional actress was imitating the personalities did not show these differences. On four occasions, Saxe et al. (1992) monitored the cerebral blood flow of a DID patient with four alternate personalities using single photon emission computerized tomography (SPECT). The images of the patient's brain revealed increased blood flow in her left temporal lobe across her four personality states. Most recently, Tsai et al. (1999) used functional magnetic resonance imaging (fMRI) to obtain brain images of a DID patient as she switched personality states. They found that the change from her core personality to her alternate personality was associated with an inhibition in the bilateral hippocampus and in the right parahippocampal and medial temporal regions. In contrast, when the patient switched back from her alternate personality to her core personality, activation was observed in her right hippocampus.

Perhaps the closest comparable study with mediumship is an EEG study by Nelson (1970) of 12 trance mediums, of which 10 showed signs of instability in the temporal lobe region as indicated on their EEGs

³ In the course of informal discussions, Wilson has told the second author that she herself is fantasy-prone, a fact that undoubtedly made her especially knowledgeable about this condition.

(there were no control subjects). None of the mediums were known to have a history of seizure disorder. A more recent pilot survey by Reinsel (2003) similarly showed that a group of eighteen mediums scored significantly higher on a measure of complex partial temporal lobe epilepsy than did a group of eleven control subjects. We assume that the mediums (or their controls) in the studies by Nelson (1970) and Reinsel (2003) had shown evidence of ESP, whether or not the evidence was any good. If they had not, the term “medium” would be a misnomer.

Surveys of individuals who are not identified as mediums or psychics support the existence of a relationship between ostensible ESP experiences and temporal lobe signs. Neppe (1983) found that six of 12 members of a psychical research organization in South Africa to whom he gave a temporal lobe signs questionnaire had reported several psi experiences⁴, while the other six reported few or no experiences. The psi experiencers showed significantly more temporal lobe signs than did the non-experiencers. In two studies by Persinger (1984) of groups of normal college students, he found a positive correlation between signs of complex partial seizure in the temporal lobe and the number of reported psi experiences. The finding was replicated by Persinger and Valliant (1985) with a third population of college students. In a survey by Palmer and Neppe (2003) of a neuropsychiatric population of 100 patients diagnosed with temporal lobe dysfunction, they found that 60 patients reported significantly more psi experiences than a comparison population of 27 patients with no temporal lobe dysfunction. They also found that the female patients had significantly more such symptoms than the male patients. Studies by Persinger and Makarec (1987, 1990), Persinger and Richards (1994), and Roberts et al. (1990) indicate that temporal lobe signs are present to a lesser degree in normal populations, suggesting that humans may be distributed across a continuum of temporal lobe lability. Perhaps individuals who frequently report ESP experiences, such as psychics and mediums, are to be found towards the upper end of this continuum.

DID patients and mediums with spirit controls may sometimes show similar EEG differences across alternate personalities and spirit controls. Some of the researchers who have done long-term studies of DID patients report EEG differences, mostly within the alpha range, across the alternate personalities (Larmore et al., 1977; Ludwig et al., 1972; Putnam, 1984; Thompson et al., 1937; Thigpen & Cleckley, 1954). However, Coons, Milstein, and Marley (1982), who performed the single study that included a control, found very few differences across personalities in the EEGs of two DID patients and the EEG of their healthy control, who imitated DID symptoms. These differences, moreover, could mostly be attributed to extraneous factors such as concentration, mood, muscle tension, and duration of EEG recording.

A few psi researchers have reported differences in EEG patterns across the controls of trance mediums. In an exploratory study by the Psychical Research Foundation, Solfvin, Roll, and Kelly (1977) collected telemetric EEG data from the medium Jan Cutler while she was in her waking state, and when she “left her body” and was “taken over” by either of her two controls, William and Mrs. William. The three personalities showed significantly different frequency patterns, although muscle artifacts could not be completely ruled out. Similarly, Heseltine and Kirk (1979) conducted an EEG study with a medium “J. G.” and her two controls Hotep and Shoalin. Different EEG patterns were observed between the controls (the study did not compare the medium’s EEG to those of her controls). It is of interest that the alpha brain wave pattern, which has been observed by some researchers in the EEGs of DID patients, has been found to correlate with successful ESP performance (Alexander et al., 1998; Cadoret, 1964; Honorton, 1969; Honorton et al., 1971; Morris, 1977; Morris et al., 1972; Rao & Feola, 1973; Stanford & Palmer, 1975). This is another possible indication that the same or similar neurological processes underlie DID and spirit controls. A model proposed by Persinger suggests what these processes may be.

⁴ Neppe (1983) uses the broader term “subjective paranormal experiences,” which could be interpreted as meaning that the experiences are not limited to those that show evidence of psi. However, he states, “I introduced the concept of subjective paranormal experience to refer to ‘subjectively perceived happenings pertaining to psi phenomena in individuals’” (p. 2); that is, he is using “paranormal” synonymously with “psi.”

PERSINGER'S MODEL OF VECTORIAL CEREBRAL HEMISPHERICITY

The emergence of spirit controls may be accommodated by Persinger's (1993) model of vectorial cerebral hemisphericity. The model postulates that the subjective experience of an incorporeal presence or an ego-alien entity may result from a transient episode of coherent interaction between the two hemispheres of the brain through the inclusion of neuronal patterns from both hemispheres at once (a process called intercalation), wherein the right hemispheric equivalent of the sense of self "intrudes" into left hemispheric processing. This interhemispheric coherence⁵ would occur primarily between the temporal-parietal cortices and their adjacent ventral limbic structures, and would be facilitated by any process that decreases the reciprocal inhibition that is maintained by the corpus callosum and other interhemispheric connections. Examples of such processes may include cerebral asymmetry due to brain organization in people with right hemispheric dominance, cortical and functional restructuring following brain injury, and reduced left prefrontal metabolism (Persinger, 1993; Persinger & Healey, 2002). Cortical restructuring has been indicated in the brain imaging studies of psychics Sean Harribance (Alexander et al., 1998; Persinger, 2001; Roll et al., 2002) and Ingo Swann (Persinger, 2001; Persinger et al., 2002).

The subjective experiences resulting from right hemispheric intrusions into left hemispheric processes can include sensing the illusory presence of a sentient being or an ego-alien entity within one's personal space. Cook and Persinger (1997) induced this sensation by applying patterns of weak, complex magnetic fields to the junction between the temporal and parietal lobes. Bilateral application of weak (1 microtesla) magnetic field patterns to this junction elicited a sense of presence in a psychic and two groups of nonpsychic subjects. Attempts by the subjects to focus on the exact location of the sensed presence were followed by the impression either of a change in its location or of movement by the presence. Roll and Persinger (1998) were also able to induce the sensation in the psychic Sean Harribance by applying the fields to his right hemisphere, a sensation that he ordinarily attributed to ESP. A study by Cook and Persinger (2001) compared the responses of a group of 8 subjects with signs of above-average temporal lobe sensitivity to those of another group of 8 subjects with below-average sensitivity signs. A weak, frequency-modulated magnetic field was applied either along the right hemisphere or bilaterally across both hemispheres. The group with below-average signs reported no sensations in either condition, whereas 75% of the group with above-average signs reported a sensed presence when the field was applied to the right hemisphere, and 60% reported a presence when the field was bilaterally applied. Persinger and Healey (2002) replicated the findings of Cook and Persinger (1997) with a population of 48 subjects, finding a greater amount of reported presences, negative feelings, and odd smells in subjects who received magnetic stimulation to the temporal-parietal junction of either the right or both hemispheres as compared to subjects who only received stimulation of the left hemisphere or no stimulation at all. A third study by Persinger (2003) with 100 nonpsychics found that experiences of a sensed presence were more frequently reported by female than by male subjects. In a similar vein, Arzy et al. (2006) induced a feeling "of someone being close by" in a female patient being treated for complex partial epilepsy by electrically stimulating the temporal-parietal junction of her left hemisphere. The woman reported experiencing a "shadow" person nearby who mimicked her body posture and movements, indicating that she was perceiving an illusory analogue of her own body. The woman's epileptic focus was localized in her left temporal-parietal junction, and Arzy et al. (2006) suggest that her experience was consistent with this area being involved in self-processing and thereby with the cognitive distinction between self and other. Her experience was also consistent with the integration of multi-sensory aspects of body representation in the somatosensory cortex. A crucial structure found to be involved in the integration process is the angular gyrus, found within the temporal-parietal junction (Blanke et al., 2004; Brandt & Dieterich, 1999; Lobel et al., 1998).

Attempts by a group of Swedish researchers (Granqvist et al., 2005; Larsson et al., 2005) to independently replicate one aspect of Persinger's model and research (pertaining to the experience of a

⁵ We have adopted the term "interhemispheric coherence" from Persinger (1993), where it refers to the interaction between the two hemispheres that give rise to right hemispheric intrusions in left brain processing. Coherence has another meaning in electrophysiology, where it refers to a co-varying relationship between two or more electrode sites.

sensed presence) were not successful. Persinger and Koren (2005) argue that the methodology used by the group deviated too much from the original methodology developed by Persinger and colleagues to be regarded as a true replication. A second analysis by St-Pierre and Persinger (2006) of the original studies by Persinger and colleagues suggests that the Swedish group did not follow specific timing patterns in the application of the magnetic field, and that this may have led to the group's null results.⁶

In view of the temporal lobe instability found in trance mediums by Nelson (1970) and the positive correlation between temporal lobe signs and spontaneous psi experiences (Neppe, 1983; Palmer & Neppe, 2003; Persinger, 1984; Persinger & Valliant, 1985), we hypothesize that the experience of spirit controls by mediums is facilitated by right hemispheric intrusion into left hemispheric processes. Aside from a sense of presence, mediation of temporal-parietal information through the corpus callosum (facilitated by the hemispheric intrusions) may give rise to perceptions of distorted body image and/or intrusive voices (Persinger, 1993, p. 918), which some mediums may interpret as being the physical form and independent voice of their spirit control.⁷ A spirit control that is experienced as an autonomic entity by the medium may be an analogue of the medium's own body and may thereby implicate the temporal-parietal junction and the angular gyrus within this junction. This would lead to the prediction that fMRI scanning will show activation of the angular gyrus when a medium senses the presence of his or her spirit control. Such experiences may be encouraged by temporal lobe instability or by cortical and functional restructuring in or around the temporal-parietal junction. Activities that may facilitate interhemispheric coherence, such as transcendental meditation (which increases interhemispheric homogeneity of electrocortical activity in the alpha and theta ranges; Persinger, 1992) and binaural auditory stimulation (Johnson & Persinger, 1994), may be conducive to this process.

SPIRIT CONTROLS AND THE RIGHT BRAIN HEMISPHERE

Roger Sperry (1982) showed that the two hemispheres of the human brain function independently and differently when they are no longer linked. This was experienced by his epileptic patients after he had severed their corpus callosum to provide relief from their symptoms. Sperry found that, in contrast to the left hemisphere, the right hemisphere is adept at processing nonverbal, non-analytical, non-sequential, and visuospatial tasks, including "the reading of faces, copying of designs...the discrimination of and recall of nondescript factual and visual shapes, spatial transpositions, and transformations...and perceiving whole forms from a collection of parts" (pp. 57 – 58). Other cerebral lateralization studies have shown that the right hemisphere is primarily involved in the recognition and expression of emotions (Gainotti, 1979; Geschwind, 1990) and in tracking the passage of time (Lewis & Miall, 2006). In contrast, the left hemisphere is adept at serial learning and analytical thinking, and is the seat of language production and comprehension (Geschwind, 1990). The left hemisphere is dominant during waking consciousness and is mainly concerned with the "here and now;" that is, with objects that can be reached by the body's sensory-motor functions. In other words, with local objects. In contrast, the right hemisphere evidently interacts with distant, or nonlocal, objects by means of extrasensory-psychokinetic functions that seem to originate within this hemisphere (Roll, 2006a, 2006b; Roll et al., 2006).

⁶ Given that Persinger's vectorial hemisphericity model is still controversial based on these findings, we acknowledge that the discussion in this section remains tentative and awaits further evidence that either supports or disproves the model.

⁷ The vectorial hemisphericity model is not only intended to explain sensed presences, but also subjective perceptual experiences, including mystical experiences, religious conversions, and distortions in space-time. Persinger (1993, pp. 918 – 919, 923) outlines brain pathways that the model predicts may underlie these experiences. Persistent interhemispheric coherence "would facilitate the multiple egodystonic or ego-alien experiences that constitute some Schneiderian symptoms (Ross, 1989); they include thought insertion, thought withdrawal and 'hearing' extrapersonal voices..." (p. 923). Putnam (1989, p. 81 – 82) notes that some DID patients report lesser symptoms that are akin to Schneider's first-order symptoms for schizophrenia, including hearing voices and feeling as though their bodies are being controlled by an external force, as in automatic writing. It should be pointed out that this form of motor automatism is deliberately used by many mediums and their spirit controls to facilitate the flow of ESP, thereby pointing to a further similarity between the alternate personalities of DID and spirit controls. The vectorial hemisphericity model does not only apply to experiences of full-fledged personalities, but also to indistinct figures and voices. Persinger regards such experiences as undeveloped constructs of imaginary personalities.

There is a small amount of experimental evidence that ESP may be a function of the right hemisphere. Braud and Braud (1975) found an advantage of borderline significance in free-response ESP trials after the subjects had listened to a tape intended to elicit right hemispheric mentation as compared to trials following a left mentation tape. They called right hemispheric mentation, "the psi conducive syndrome." In a study designed to determine if the left hemisphere interferes with ESP, Broughton (1976) compared conditions where the subjects were occupied with reading, a left hemispheric activity that may distract this hemisphere from blocking ESP, with trials without reading. The tests also addressed the laterality issue by having the subjects record their responses with either the left or right hand. There were tendencies for higher ESP scores when the left hemisphere was occupied with reading, and for greater divergence from chance when the left hand (controlled by the right hemisphere) was used. After completing the experiment, Broughton (1978) learned about the discovery that hemispheric differences are less pronounced for females than for males, which has been attributed to the fact that the corpus callosum has more connections in the female brain. A reexamination of his data showed that the interference effect was in fact only present for the male subjects. However, the interference effect and the sex difference did not show up in two later studies (Broughton, 1978). Broughton (1977) has pointed to the proclivity for ESP to take the form of visual images as indicating right hemispheric mentation. For instance, White (1964) found that most of the psychics in her survey relied on visual images, and Kelly et al. (1975) observed that in tests with the psychic, Bill Delmore, his ESP was "encoded in the form of fleeting visual images." Broughton also noted that dreaming, which seems psi conducive (e.g., Ullman, Krippner, with Vaughan, 1973), may be a function of the right hemisphere. Ehrenwald (1979) noted that the drawings of patients with injuries to their left occipital-parietal region, including one of his own patients, were strikingly similar to drawings from subjects in telepathy experiments. He wrote, "The world of the patient suffering from optical agnosia...closely resembles the telepathic or clairvoyant percipient's impression of his target...psi phenomena, lacking as they do, the precise spatio-temporal ordering and organizing qualities of the dominant hemisphere, are processed in...the right side of the brain" (p. 221).

There are some exceptions to the finding that ESP is predominantly right hemispheric. Tests by Maher and her associates (Maher, 1986; Maher, Peratsakis, & Schmeidler, 1979; Maher & Schmeidler, 1977) suggest that ESP may be processed by either hemisphere. Alexander and Broughton (2001) reported a ganzfeld study in which right hemisphere dominant subjects scored fewer direct hits than subjects with left hemispheric dominance (the difference in scoring rate was not significant).

In contrast, recent brain imaging studies of two psychics suggest involvement of the right hemisphere. Quantitative EEG (QEEG) and SPECT measurements of the psychic Sean Harribance by Alexander et al. (1998) and by Roll et al. (2002) showed focal anomalies and concentrations of activity in the occipital-parietal region of Harribance's right hemisphere while he was engaged in ESP tasks. Subsequent magnetic stimulation of Harribance's right occipitoparietal region induced sensations that he attributes to ESP (Roll & Persinger, 1998; Roll et al., 2002). EEG and fMRI scans of the brain of the psychic, Ingo Swann, also indicate increased activity, as well as changes in structural and functional organization, in the occipitoparietal region of Swann's right hemisphere (Persinger, 2001; Persinger et al., 2002).

SPIRIT CONTROLS AND PSYCHOMETRY

In order to prevent mediums and their spirit controls from relying on telepathy from sitters who knew the deceased target personality, absent sittings were instituted in which neither the sitters nor anyone else present knew about this deceased person. Instead, a personal item, a so-called psychometric object, from this person was used as a link to the medium. This procedure would hardly have prevented the medium from acquiring the needed information from the minds of living individuals not present at the sitting, but the method had a secondary and more important effect in that it excluded the sitter as a source of sensory cues.

Psychometric objects are routinely used by many mediums and psychics as links to people, whether living or dead, and to events distant or near in space-time (Barrington, Stevenson, & Weaver, 2005; Renier, with Lucks, 2005; Roll, 2004; Schwartz, 1978/2001, Ch. 2, 4, 5, & 6), but the role of physical

objects in acquiring ESP information has been difficult to comprehend. In any case, the fact that mediums and psychics use the same procedure may suggest that they utilize the same process. Following the requirement (Occam's razor) that the simpler hypothesis is preferable to the more complex one, the hypothetical process used by psychics, which only requires the postulate of ESP, is preferable to the hypothesis of mediumship, which requires spirit controls plus ESP.

CONCLUSIONS

A spirit control does not seem to represent a distinct and autonomous entity, but can be conceptualized as a mental construct created and personified by the medium in order to interact with nonlocal objects but without infringing on the medium's (left-hemispheric) sense of self. The construct would thereby be consistent with the medium's sense of self at the same time as it would occupy the space-time of the right hemisphere. Given that the right hemisphere encompasses nonlocal objects, the construct would be conceptualized by the medium as capable of interacting with such objects, including the minds of the departed. The construct itself may be formed based on cognitive details relevant to the medium's own personality and knowledge that are available through his or her own memory and may be further detailed and/or personified through imagination. Alvarado (2004) points to the work of psychical researchers such as Flournoy, Lebedzinski, and Sudre, who suggested that indirect suggestion, belief, and demand characteristics on the part of sitter or researcher may contribute to the development of the details that make up the personality of a spirit control. Assuming that trance is a form of dissociation, then some constructs may be formed and emerge only under the conditions of the dissociative state. If the formation of the constructs also incorporates the medium's own memory and imagination (the latter would be most applicable to mediums who may have had fantasy-prone personalities from childhood; Roll, 1982b), then ESP information may be incorporated into the personality of the controls through the apparent link between ESP and memory (Roll, 1966, 1975; Irwin, 1979).

Our proposal leads to testable hypotheses. While the closest analogue we have to the apparent neuropsychological correlates of mediumistic phenomena comes from studies of psychics, similar EEG and brain imaging research with mediums and their spirit controls is needed in order to test the applicability of such correlates to mediumship. We predict that fMRI scanning will show activation of the angular gyrus and the areas around the temporal-parietal junction when a medium senses the presence of his or her spirit control.

We have noted that spirit controls display characteristics that are similar to those exhibited by the alternate personalities of patients with dissociative identity disorder. Closer clinical case studies, and especially neurological work that compares mediums and DID patients, are needed in order to better determine if the two populations differ in anything but the terms by which they are described; i.e., as having DID dysfunction or as possessing the gift of mediumship. Such research will be aided by the advanced imaging technology that is now available. This will give us the capability to peer through the skull and examine the functional brain correlates of the alternate personalities of DID and the spirit controls of mediums. Before then we must discover mediums with spirit controls *and* ESP.

It seems likely that some so-called mediums have no psychic ability either with or without their supposed spirit controls. Such individuals are akin to DID patients and should not be regarded as mediums. It is also likely, and may indeed be predicted, that some DID individuals are "closet mediums;" that is, that they will exhibit above average ESP under the right circumstances. Instead of being burdens to themselves and society, they might join the helping professions as grief therapist or as serving other functions that require knowledge beyond the immediate environment.

ACKNOWLEDGMENTS

The second author thanks Gary L. Owens for support in preparing his contribution to this paper, and Jeffrey Thomas for computer assistance.

REFERENCES

- Alexander, C. H., & Broughton, R. S. (2001). Cerebral hemisphere dominance and ESP performance in the autoganzfeld. *Journal of Parapsychology*, **65**, 397 – 416.
- 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. *Proceedings of Presented Papers: The Parapsychological Association 41st Annual Convention*, 3 – 12.
- Alvarado, C. S. (2004). On trances and spirit communicators: Research ideas from the old literature. *Proceedings of Presented Papers: The Parapsychological Association 47th Annual Convention*, 313 – 314.
- Angoff, A. (1974). *Eileen Garrett and the World Beyond the Senses*. New York: William Morrow.
- Arzy, S., Seeck, M., Ortigue, S., Spinelli, L., & Blanke, O. (2006). Induction of an illusory shadow person. *Nature*, **443**, 287.
- Atlas, J. A., Weissman, K., & Liebowitz, S. (1997). Adolescent inpatients' history of abuse and dissociative identity disorder. *Psychological Reports*, **80**, 1086.
- Barrington, R. M., Stevenson, I., & Weaver, Z. (2005). *The World in a Grain of Sand: The Clairvoyance of Stefan Ossowiecki*. Jefferson, NC: McFarland & Company.
- Blanke, O., Landis, T., Spinelli, L., & Seeck, M. (2004). Out-of-body experience and autoscopia of neurological origin. *Brain*, **127**, 243 – 258.
- Brandt, T., & Dieterich, M. (1999). The vestibular cortex: Its location, functions and disorders. *Annals of the New York Academy of Sciences*, **871**, 293 – 312.
- Braud, W., & Braud, L. W. (1975). The psi conducive syndrome: Free response GESP performance following evocation of “left-hemispheric” vs. “right-hemispheric” functioning. In J. D. Morris, W. G. Roll, & R. L. Morris (Eds.) *Research in Parapsychology 1974* (pp. 17 – 20). Metuchen, NJ: Scarecrow Press.
- Braude, S. (1988). Mediumship and multiple personality. *Journal of the Society for Psychical Research*, **55**, 177 – 195.
- Brenneis, C. B. (1996). Multiple personality: Fantasy proneness, demand characteristics, and indirect communication. *Psychoanalytic Psychology*, **13**, 367 – 387.
- Broughton, R. S. (1976a). Brain hemisphere specialization and its possible effects on ESP performance. In J. D. Morris, W. G. Roll, & R. L. Morris (Eds.), *Research in Parapsychology 1975* (pp. 98 – 102). Metuchen, NJ: Scarecrow Press.
- Broughton, R. S. (1976b). Possible brain laterality effects on ESP performance. *Journal of the Society for Psychical Research*, **48**, 384 – 399.
- Broughton, R. S. (1977). Brain hemisphere specialization and ESP: What have we learned? *Proceedings of the 26th Annual Convention of the Parapsychological Association*, 373 – 384.
- Broughton, R. S. (1978). *Brain Hemisphere Differences in Paranormal Abilities: With Special Reference to the Influence of Experimenter Expectancies*. Unpublished Ph.D. thesis, University of Edinburgh.
- Cadore, R. J. (1964). An exploratory experiment: Continuous EEG recording during clairvoyant card tests. *Journal of Parapsychology*, **28**, 226.
- Carington, W. (1933 – 1934). The quantitative study of trance personalities. I. Preliminary studies: Mrs. Garrett, Rudi Schneider, Mrs. Leonard. *Proceedings of the Society for Psychical Research*, **42**, 173 – 240.
- Carington, W. (1935). The quantitative study of trance personalities. II. Improvements in analysis. *Proceedings of the Society for Psychical Research*, **43**, 319 – 361.
- Carington, W. (1936 – 1937). The quantitative study of trance personalities. *Proceedings of the Society for Psychical Research*, **44**, 189 – 222, 276 – 277.
- Cook, C. M., & Persinger, M. A. (1997). Experimental induction of the “sensed presence” in normal subjects and an experimental subject. *Perceptual and Motor Skills*, **85**, 683 – 693.

- Cook, C. M., & Persinger, M. A. (2001). Geophysical variables and behavior: XCII. Experimental elicitation of the experience of a sentient being by right hemispheric, weak magnetic fields: Interaction with temporal lobe sensitivity. *Perceptual and Motor Skills*, **92**, 447 – 448.
- Coons, P. M., Milstein, V., & Marley, C. (1982). EEG studies of two multiple personalities and a control. *Archives of General Psychiatry*, **39**, 823 – 825.
- Ehrenwald, J. (1979). The right hemisphere: Pathway to psi and creativity. In B. Shapin & L. Coly (Eds.) *Mind/Brain and Parapsychology* (pp. 221 – 232). New York: Parapsychology Foundation, Inc.
- Ellason, J. W., Ross, C. A., & Fuchs, D. L. (1996). Lifetime Axis I and II comorbidity and childhood trauma in dissociative identity disorder. *Psychiatry*, **59**, 255 – 266.
- Garrett, E. J. (1939). *My Life as a Search for the Meaning of Mediumship*. New York: Oquaga Press.
- Garrett, E. J. (1949). *Adventures in the Supernormal: A Personal Memoir*. New York: Helix Press.
- Gauld, A. (1977). Discarnate survival. In B. B. Wolman (Ed.) *Handbook of Parapsychology* (pp. 577 – 630). New York: Van Nostrand Reinhold.
- Gauld, A. (1982). *Mediumship and Survival: A Century of Investigation*. London: Heinemann.
- Geschwind, N. (1990). Specializations of the human brain. In R. R. Llinás (Ed.) *The Workings of the Brain: Development, Memory, and Perception* (pp. 105 – 120). New York: W. H. Freeman and Company.
- Granqvist, P., Fredrikson, M., Unge, P., Hagenfeldt, A., Valind, S., Larhammar, D., & Larsson, M. (2005). Sensed presence and mystical experiences are predicted by suggestibility, not by the application of transcranial weak complex magnetic fields. *Neuroscience Letters*, **379**, 1 – 6.
- Gregory, A. (1985). *The Strange Case of Rudi Schneider*. Metuchen, NJ: Scarecrow Press.
- Heseltine, G. L., & Kirk, J. H. (1979). *EEG Activity of a Trance Medium*. San Antonio, TX: Science Unlimited Research Foundation.
- Hodgson, R. (1892). A record of observations of certain phenomena of trance. *Proceedings of the Society for Psychical Research*, **8**, 1 – 167.
- Hodgson, R. (1898). A further record of observations of certain phenomena of trance. *Proceedings of the Society for Psychical Research*, **13**, 284 – 582.
- Honorton, C. (1969). Relationship between EEG alpha activity and ESP card-guessing performance. *Journal of the American Society for Psychical Research*, **63**, 365 – 374.
- 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.
- Hughes, J. R., Kuhlman, D. T., Fichtner, C. G., & Gruenfeld, M. J. (1990). Brain mapping in a case of multiple personality. *Clinical Electroencephalography*, **21**, 200 – 209.
- Irwin, H. J. (1979). *Psi and the Mind: An Information-Processing Approach*. Metuchen, NJ: Scarecrow Press.
- Johnson, C. P. L., & Persinger, M. A. (1994). The sensed presence may be facilitated by interhemispheric intercalation: Relative efficacy of the Mind's Eye, Hemi-Sync tape, and bilateral temporal magnetic field stimulation. *Perceptual and Motor Skills*, **79**, 351 – 354.
- Kelly, E. F., Kanthamani, H., Child, I. L., & Young, F. W. (1975). On the relation between visual and ESP confusion structures in an exceptional ESP subject. *Journal of the American Society for Psychical Research*, **69**, 1 – 31.
- Kluft, R. P. (1991). Clinical presentations of multiple personality disorder. *Psychiatric Clinics of North America*, **14**, 605 – 629.
- Larmore, K., Ludwig, A. M., & Cain, R. L. (1977). Multiple personality: An objective case study. *British Journal of Psychiatry*, **131**, 35 – 40.
- Larsson, M., Larhammer, D., Fredrikson, M., & Granqvist, P. (2005). Reply to M. A. Persinger and S. A. Koren's response to Granqvist et al. "Sensed presence and mystical experiences are predicted by suggestibility, not by the application of transcranial weak magnetic fields." *Neuroscience Letters*, **380**, 348 – 350.
- LeShan, L. (1975). *The Medium, the Mystic, and the Physicist*. New York: Ballantine Books.
- LeShan, L. (1995). When is Uvani? *Journal of the American Society for Psychical Research*, **89**, 165 – 175.

- Lewis, P. A., & Miall, R. C. (2006). Remembering the time: A continuous clock. *Trends in Cognitive Sciences*, **10**, 401 – 406.
- Lobel, E., Kleine, J. F., Bihan, D. L., Leroy-Willig, A., & Berthoz, A. (1998). Functional MRI of galvanic vestibular stimulation. *Journal of Neurophysiology*, **80**, 2699 – 2709.
- Lodge, O. (1909). Report on some trance communications received chiefly through Mrs. Piper. *Proceedings of the Society for Psychical Research*, **23**, 127 – 285.
- Ludwig, A. M., Brandsma, F. M., Wilbur, C. B., Bendfeldt, F., & Jameson, D. H. (1972). The objective study of a multiple personality. *Archives of General Psychiatry*, **26**, 298 – 310.
- Lynn, S., Rhue, J., & Green, J. (1988). Multiple personality and fantasy proneness: Is there an association or dissociation? *British Journal of Experimental and Clinical Hypnosis*, **5**, 138 – 142.
- Maher, M. (1986). Correlated hemispheric asymmetry in the sensory and ESP processing of “emotional” and “nonemotional” stimuli. *European Journal of Parapsychology*, **6**, 217 – 257.
- Maher, M., Peratsakis, D., & Schmeidler, G. R. (1979). Cerebral lateralization effects in ESP processing: An attempted replication. *Journal of the American Society for Psychical Research*, **73**, 167 – 177.
- Maher, M., & Schmeidler, G. R. (1977). Cerebral lateralization effects in ESP processing. *Journal of the American Society for Psychical Research*, **71**, 261 – 271.
- Mathew, R. J., Jack, R. A., & West, W. S. (1985). Regional cerebral blood flow in a patient with multiple personality. *American Journal of Psychiatry*, **142**, 504 – 505.
- McMahon, J. D. S. (1994). *Eileen J. Garrett: A Woman Who Made a Difference*. New York: Parapsychology Foundation, Inc.
- Mesulam, M.-M. (1981). Dissociative states with abnormal temporal lobe EEG: Multiple personality and the illusion of possession. *Archives of Neurology*, **38**, 176 – 181.
- Mitchell, T. W. (1921). The Doris Fischer case of multiple personality. *Proceedings of the Society for Psychical Research*, **31**, 30 – 74.
- Morris R. L. (1977). Parapsychology, biology, and anpsi. In B. B. Wolman (Ed.) *Handbook of Parapsychology* (pp. 687 – 729). New York: Van Nostrand Reinhold.
- 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.
- Nelson, G. K. (1970). Preliminary study of the electroencephalograms of mediums. *Parapsychologia*, **4**, 30 – 35.
- Neppe, V. M. (1983). Temporal lobe symptomatology in subjective paranormal experients. *Journal of the American Society for Psychical Research*, **77**, 1 – 29.
- Owen, I. M., & Sparrow, M. (1976). *Conjuring Up Philip: An Adventure in Psychokinesis*. New York: Harper & Row.
- Palmer, J., & Neppe, V. M. (2003). A controlled analysis of subjective paranormal experiences in temporal lobe dysfunction in a neuropsychiatric population. *Journal of Parapsychology*, **67**, 75 – 97.
- Persinger, M. A. (1984). Propensity to report paranormal experiences is correlated with temporal lobe signs. *Perceptual and Motor Skills*, **59**, 583 – 586.
- Persinger, M. A. (1992). Enhanced incidence of “the sensed presence” in people who have learned to meditate: Support for the right hemispheric intrusion hypothesis. *Perceptual and Motor Skills*, **75**, 1308 – 1310.
- Persinger, M. A. (1993). Vectorial cerebral hemisphericity as differential sources for the sensed presence, mystical experiences, and religious conversions. *Perceptual and Motor Skills*, **76**, 915 – 930.
- Persinger, M. A. (2001). The neuropsychiatry of paranormal experiences. *Journal of Neuropsychiatry and the Clinical Neurosciences*, **13**, 515 – 524.
- Persinger, M. A. (2003). The sensed presence within experimental settings: Implications for the male and female concept of self. *Journal of Psychology: Interdisciplinary and Applied*, **137**, 5 – 16.

- Persinger, M. A., & Healey, F. (2002). Experimental facilitation of the sensed presence: Possible intercalation between the hemispheres induced by complex magnetic fields. *Journal of Nervous and Mental Disease*, **100**, 533 – 541.
- Persinger, M. A., & Koren, S. A. (2005). A response to Granqvist et al. “Sensed presence and mystical experiences are predicted by suggestibility, not by the application of transcranial weak magnetic fields.” *Neuroscience Letters*, **380**, 346 – 347.
- Persinger, M. A., & Makarec, K. (1987). Temporal lobe signs and correlative behaviors displayed by normal populations. *Journal of General Psychology*, **114**, 179 – 185.
- Persinger, M. A., & Makarec, K. (1990). Complex partial epileptic-like signs as a continuum from normals to epileptics: Normative data and clinical populations. *Journal of Clinical Psychology*, **49**, 33 – 45.
- Persinger, M. A., & Richards, P. M. (1994). Quantitative electroencephalographic validation of left and right temporal lobe signs and indicators in normal people. *Perceptual and Motor Skills*, **79**, 1571 – 1578.
- 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 and Motor Skills*, **94**, 927 – 949.
- Persinger, M. A., & Valliant, P. M. (1985). Temporal lobe signs and reports of subjective paranormal experiences in a normal population: A replication. *Perceptual and Motor Skills*, **60**, 903 – 909.
- Price, H. H. (1960). Mediumship and human survival. *Journal of Parapsychology*, **24**, 199 – 219.
- Prince, M. (1900 – 1901). The development and genealogy of the Misses Beauchamp: A preliminary report of a case of multiple personality. *Proceedings of the Society for Psychical Research*, **15**, 466 – 483.
- Prince, W. F. (1915). The Doris case of multiple personality. *Proceedings of the Society for Psychical Research*, **9**, 1 – 700.
- Prince, W. F. (1916). The Doris case of multiple personality. *Proceedings of the Society for Psychical Research*, **10**, 701 – 1419.
- Putnam, F. W. (1984). The psychophysiologic investigation of multiple personality disorder: A review. *Psychiatric Clinics of North America*, **7**, 31 – 39.
- Putnam, F. W. (1989). *Diagnosis and Treatment of Multiple Personality Disorder*. New York: Guilford Press.
- Putnam, F. W., Guroff, J. J., Silberman, E. K., Barban, L., & Post, R. K. (1986). The clinical phenomenology of multiple personality disorder: Review of 100 recent cases. *Journal of Clinical Psychiatry*, **47**, 285 – 293.
- Rao, K. R., & Feola, J. (1973). Alpha rhythm and ESP in a free response situation. In W. G. Roll, R. L. Morris, & J. D. Morris (Eds.) *Research in Parapsychology 1972* (pp. 141 – 144). Metuchen, NJ: Scarecrow Press.
- Reinsel, R. (2003). Dissociation and mental health in mediums and sensitives: A pilot survey [Abstract]. *Journal of Parapsychology*, **67**, 261 – 262.
- Renier, N., with Lucks, N. (2005). *A Mind for Murder*. New York: Berkeley Books.
- Rhine, J. B. (1934). Telepathy and clairvoyance in the normal and trance states of a “medium.” *Character and Personality*, **3**, 91 – 111.
- Rhine, J. B. (1937). *New Frontiers of the Mind*. New York: Farrar & Rinehart, Inc.
- Roberts, R. J., Varney, N. R., Hulbert, J. R., Paulsen, J. S., Richardson, E. D., Springer, J. A., Shepherd, J. S., Swan, C. M., Legrand, J. A., Harvey, J. H., Struchen, M. A., & Hines, M. E. (1990). The neuropathology of everyday life: The frequency of partial seizure symptoms among normals. *Neuropsychology*, **4**, 63 – 85.
- Roll, W. G. (1960). The contribution of studies of “mediumship” to research on survival after death. *Journal of Parapsychology*, **24**, 258 – 278.
- Roll, W. G. (1966). ESP and memory. *International Journal of Neuropsychiatry*, **2**, 505 – 521.
- Roll, W. G. (1975). *Theory and Experiment in Psychical Research* [M.Litt. Thesis, Oxford University, 1959]. New York: Arno Press.
- Roll, W. G. (1982a). The changing perspective on life after death. In S. Krippner (Ed.) *Advances in Parapsychological Research 3* (pp. 147 – 291). New York: Plenum Press.

- Roll, W. G. (1982b). Mediums and RSPK agents as fantasy-prone individuals. In W. G. Roll, R. L. Morris, & R. A. White (Eds.) *Research in Parapsychology 1981* (pp. 42 – 44). Metuchen, NJ: Scarecrow Press.
- Roll, W. G. (2004). Early studies in psychometry. *Journal of Scientific Exploration*, **18**, 711 – 720.
- Roll, W. G. (2006a). The Janus face of the mind. Paper presented at the 25th Annual Meeting of the Society for Scientific Exploration, Orem, Utah, June 10.
- Roll, W. G. (2006b). 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., & Persinger, M. A. (1998). Is ESP a form of perception? Contributions from a study of Sean Harribance. *Proceedings of Presented Papers: The Parapsychological Association 41st Annual Convention* (pp. 199 – 209). Durham, NC: Parapsychological Association, Inc.
- Roll, W. G., Persinger, M. A., Alexander, C. H., & Williams, B. J. (2006). Psi and the brain. Unpublished manuscript.
- 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.
- Ross, C. A. (1989). *Multiple Personality Disorder: Diagnosis, Clinical Features, and Treatment*. New York: John Wiley.
- Saxe, G. N., Vasile, R. G., Hill, T. C., Bloomingdale, K., & van der Kolk, B. A. (1992). SPECT imaging and multiple personality disorder. *Journal of Nervous and Mental Disease*, **180**, 662 – 663.
- Schouten, S. A. (1994). An overview of quantitatively evaluated studies with mediums and psychics. *Journal of the American Society for Psychological Research*, **88**, 221 – 254.
- Schwartz, S. A. (1978/2001). *The Secret Vaults of Time: Psychic Archeology and the Quest for Man's Beginnings*. Charlottesville, VA: Hampton Roads Publishing.
- Shenk, L., & Bear, D. (1981). Multiple personality and related dissociative phenomena in patients with temporal lobe epilepsy. *American Journal of Psychiatry*, **138**, 1311 – 1316.
- Sidgwick, E. (1900). Discussion of the trance phenomena of Mrs. Piper. *Proceedings of the Society for Psychological Research*, **15**, 16 – 38.
- Sidgwick, E. (1915). A contribution to the study of the psychology of Mrs. Piper's trance phenomena. *Proceedings of the Society for Psychological Research*, **28**, 1 – 657.
- Solfvin, G. F., Roll, W. G., & Kelly, E. F. (1977). A psychophysiological study of mediumistic communicators. *Parapsychology Review*, **8**, 21 – 22.
- Sperry, R. W. (1982). *Science and Moral Priority: Merging Mind, Brain, and Human Values*. New York: Columbus University Press.
- Stanford, R. G., & Palmer, J. (1975). Free-response ESP performance and occipital alpha rhythms. *Journal of the American Society for Psychological Research*, **69**, 235 – 244.
- St-Pierre, L., & Persinger, M. A. (2006). Experimental facilitation of the sensed presence is predicted by the specific patterns of the applied magnetic fields, not by suggestibility: Re-analyses of 19 experiments. *International Journal of Neuroscience*, **116**, 1079 – 1096.
- Thigpen, C. H., & Cleckley, H. (1954). A case of multiple personality. *Journal of Abnormal and Social Psychology*, **41**, 135 – 151.
- Thompson, M. M., Forbes, T. W., & Bolles, M. M. (1937). Brain potential rhythms in a case showing self-induced trance states. *American Journal of Psychiatry*, **93**, 1313 – 1314.
- Thouless, R. H. (1936 – 1937). Review of Mr. Whately Carington's work on trance personalities. *Proceedings of the Society for Psychological Research*, **44**, 223 – 275.
- Troubridge, U. (1922). The *modus operandi* in so-called mediumistic trance. *Proceedings of the Society for Psychological Research*, **32**, 344 – 378.
- Tsai, G. E., Condie, D., Wu, M.-T. & Chang, I.-W. (1999). Functional magnetic resonance imaging of personality switches in a woman with dissociative identity disorder. *Harvard Review of Psychiatry*, **7**, 119 – 122.

- Tyrrell, G. N. M. (1961). *Science and Psychical Phenomena*. New Hyde Park, NY: University Books (Originally published in 1953 by the Society for Psychical Research).
- Ullman, M., Krippner, S., with Vaughan, A. (1973). *Dream Telepathy: Experiments in Nocturnal ESP*. New York: Macmillan Publishing.
- 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.
- Wilson, S. C., & Barber, T. X. (1983). The fantasy-prone personality: Implications for understanding imagery, hypnosis, and parapsychological phenomena. In A. A. Sheikh (Ed.) *Imagery: Current Theory, Research, and Applications* (pp. 340 – 387). New York: John Wiley.