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EDITORIAL

In my view, the time is long overdue to remind—or just as likely, to inform—readers about the *Hypothesis of Trans-Temporal Inhibition*, advanced by Charles Tart in the 1970s to account for some striking features of data obtained in several of his ESP studies. Although in these studies Tart was exploring the importance of immediate feedback, the real interest of his results lies not so much in the strength of their evidence for ESP—at least as determined by the customary measures of deviation of hits from mean chance expectation.[1] It concerns, rather, a certain unexpected *pattern* in the data, quite unlike familiar position or decline effects. This pattern suggests not only a new way of measuring the presence of ESP effects in data, but also some new ways of conceptualizing psi functioning. Tart's analysis is quite complicated, and my own brief summary will hardly do justice to the care with which he interpreted his results. But I'll try to indicate in broad terms what Tart had in mind, and I encourage interested readers to go to the source for the full story (see Tart, 1977a, 1977b, 1983), and also Tart's more recent thoughts on the subject in an article in this issue.

To understand Tart's hypothesis, we must first review a particular approach to analyzing ESP data. Parapsychologists frequently look for evidence of *time-displacement* in ESP scores, because they've realized for some time that, while percipients' calls at t may not correspond significantly to targets generated at t, they may correspond significantly to targets generated before or after t. For instance, we may obtain no above-chance scores when comparing calls at t_i with targets generated at t_i. But above-chance scores may result from comparing calls at t_i with (say) the $(t_i + 1)$th target. That sort of consistent scoring may be taken as evidence for precognitive ESP.

Now one would think that if ESP were not operating in a precognitive or retrocognitive mode, tests for time-displacement would not reach significance. For example, we would expect calls at t_i to correspond at chance levels only to targets at (say) $t_i + 3$. But when Tart evaluated the data from some of his ESP-learning experiments, he found a very unusual pattern of time-displacement (see Tart 1976). When percipients tended to hit on real-time targets—that is, when calls at t_i tended to match targets at t_i—hitting tended to correlate with *missing* on the +1 and −1 targets. In other words, calls at t_i tended not to match the $(t_i + 1)$th and $(t_i - 1)$th target. Tart also observed that the +1 missing was significantly smaller in magnitude than the real-time hitting (i.e. on the (t_i)th target). He reasoned,

then, that one would need ESP-gifted percipients, scoring significantly on the (t_i)th target in order for the +1 missing to reach detectible significance.

Tart also considered a possible difference between −1 and +1 missing. He reasoned that missing on the −1 target might be best explained as "an ordinary memory and bias effect."[2] That is, percipients knew what the target had just been, and they might be in the grip of the common, and mistaken, belief that random numbers don't repeat. So they might have a tendency not to call the same number twice or more in a row. Granted, Tart theoretically discussed trans-temporal inhibition as though it might be a symmetrical effect, but that would need to be tested by studying gifted psi percipients *without feedback*.

At any rate, what struck Tart as especially interesting was the fact that significant missing tended to occur only for small temporal displacements. That is, there tended to be fewer correlations between calls at t_i and targets at $t_i + 1$ and $t_i - 1$ (and often $t_i - 2$) than between calls at t_i and targets further removed from the (t_i)th target. Tart also found that the degree of missing on immediately past and future targets was correlated (to a statistically significant degree) with the degree of real-time hitting. The more real-time hits the percipients made, the greater the likelihood of finding a significant number of misses on immediately past and future targets (even though scores for greater time-displacements continued to hover more closely around chance levels).

This suggested to Tart that psi inherently operates in a wider "now" than ordinary sensory perception, one which would allow interference from the immediately future target. But in that case, from an engineering or perhaps evolutionary perspective one might expect to find some sort of extrasensory discrimination process, whereby percipients suppress information about the immediate past and future in order to enhance the detectability of the desired real-time target. Tart writes,

> What I am postulating, then, is an active *inhibition* of precognitively and postcognitively acquired information about the immediately future and the immediately past targets, which serves to enhance the detectability of ESP information with respect to the desired real time target. As the inhibition extends over time, I have named this phenomenon *transtemporal inhibition*. (Tart 1977b:15)

This hypothesis benefits from an interesting comparison with the well-known neurological process *lateral inhibition* (see Cohen 2011; a classic text is von Békésy 1967), in which stimulated neurons send inhibitory impulses to immediately adjacent neurons and receptors. This is the phenomenon

that allows us, for example, to feel sharp pointed objects pressed on the skin as sharp pointed objects, even though the stretched skin is stimulating a range of sensory receptors (not just the one under the point), and which sharpens the visual perception of edges.[3] Tart is thus suggesting that in psi functioning there's a similar process of *contrast sharpening* (a common engineering term for this process) achieved through the suppression of ESP information concerning the immediate past and future of the real-time ESP information.

Tart tested this hypothesis in a preliminary way by exploring some of its apparent implications. I'll discuss two of these. Here, Tart's data seem most strongly suggestive of the reality of ESP, since the existence of the predicted additional patterns seem especially mysterious on the assumption that there's no ESP, or at least none at work in these cases.

Tart's discussion wavers between describing trans-temporal inhibition psychologically (as a process creating *dispositions* or *biases* against calling targets) and more mechanistically (as an information-suppression mechanism). Of the two, the latter most closely corresponds to descriptions of lateral inhibition. But the descriptions are not incompatible. For example, if information about the identity of the +1 target is suppressed, the subject may develop a bias against calling that target. Of course, one must be careful here, because the putative relationship between information suppression and bias development is likely to be contingent and not lawlike. Thus, that relationship may hold only for some percipients, or only for certain times rather than others. In any case, Tart postulated that the suppression at t_i of the identity of the target at $t_i + 1$ would create a kind of holdover effect. That is, the suppression (and any biases developed at t_i against calling the digit of the next target) would probably linger for a while, thus increasing the likelihood that the subject would *not* call the digit corresponding to the $(t_i + 1)$th target at $t_i + 1$. Since Tart hypothesized that trans-temporal inhibition is correlated with psi-hitting, he suggested that, when a subject hits at t_i, he is more likely to miss on the next trial than if he had not hit at t_i. Therefore, Tart reasons that the data should show fewer hit doublets (i.e. two hits in a row) than would be expected if every trial were independent of the previous one, an effect Tart called *psi-stuttering*. There is, indeed, some evidence for this in Tart's data: the more that percipients showed real-time hitting, the more hitting tended not to occur sequentially.

Tart also reasoned that the effect of trans-temporal inhibition would appear in tests for precognition. He predicted that there would be a similar pattern of missing surrounding hits on whatever future target the subject focused on. Thus, if the subject were to try to guess the targets at $t_i + 10$, we should expect information to be suppressed concerning the identity of

the targets at $t_i + 9$ and $t_i + 11$. Hence, we would expect missing with those targets to accompany hitting on the $(t_i + 10)$th target.

To test this hypothesis, Tart conducted a brief preliminary experiment with Ingo Swann. He did not inform Swann of his prediction; but since he had told Swann about the rudiments of his hypothesis of trans-temporal inhibition, he expected him to have more concern for the identity of the +1 target than others tested in Tart's lab (whose scores provided Tart with his data). Accordingly, Tart expected Swann to show real-time hitting as well as +1 hitting,[4] with missing on the +2 target.

Although Swann's visit was rushed and he had time to complete only 129 trials, his results are nevertheless suggestive. He made a total of 21 hits on the real-time target, where only 12.9 would be expected to occur by chance. He also showed some psi-stuttering (but not, in this small sample, a statistically significant degree of it). Swann also made 19 hits on the +1 target, where 12.4 were expected by chance. (In measuring displaced hits, the length of the run decreases with the degree of displacement, thus accounting for the difference in expected hits between real-time hitting and +1 hitting.) But Swann scored only 7 hits on the +2 target, where 11.9 would be expected by chance, and he showed a slightly greater degree of missing on the –1 target.

Although these results are suggestive, the trial sample is obviously much too small to warrant sweeping conclusions, or even to support Tart's conjecture about precognitive trans-temporal inhibition. Also, the results are somewhat confounded by the fact that Swann showed bursts of hitting twice in a row on the +1 target. If Tart were justified in expecting psi-stuttering in his real-time ESP tests, then we should expect psi-stuttering in the +1 target for the same reasons. But again, the number of trials is still too small to enable us to interpret this fact clearly. And the other psychological conditions of the test, including concern for a friend of Swann's who had come along, made it hard to consider it a uniform psychological test period.

In any case, whether or not Tart was correct in all his conjectures about trans-temporal inhibition, his analysis suggests that the presence of psi functioning may be measurable even when the subject's number of hits does not represent a statistically significant deviation from mean chance expectation. Rather than simply measuring the number of hits, we should perhaps consider the difference between hits and *adjacent misses*. If psi hitting on the (t_i)th target correlates with psi-missing on the $(t_i + 1)$th and $(t_i - 1)$th targets, then when psi is operating we should presumably find a greater difference between the score on the (t_i)th target and scores on adjacent targets than between the score on some other target in the series and scores on targets adjacent to that—say, targets surrounding the $(t_i + 18)$th

member of the series, or between the score on the (t_i)th target and scores on targets not surrounding that one.

I should emphasize that Tart's personal position for decades now has been that the existence of ESP was established long ago and that he only works with it to try to understand its nature and potential applications. Accordingly, Tart felt that trans-temporal inhibition may provide a clue to the nature of psi and mind. That, after all, was the topic in which he was most interested.

Finally, I'm pleased to say that, after I decided to write about this subject for my Editorial, I was able to persuade Tart to say even more about it for this issue. It's been many decades since Tart originally tackled the topic of trans-temporal inhibition, and now *JSE* readers can see for themselves what his current thoughts are.

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On another matter, I'd like to welcome an addition to our distinguished, discerning, and hardworking team of Associate Editors—Imants Barušs. As many *JSE* readers undoubtedly know, Imants is Professor of Psychology at King's University College at University of Western Ontario, and he's a long-time member of the SSE and a contributor to its conferences, as well as to the *JSE*. Coincidentally, his latest book receives two reviews in this issue.

Notes

[1] However, Tart reminded me in a personal communication: "By the customary measures we had enormous amounts of psi compared to standard studies."

[2] Personal communication, January 2, 2017.

[3] Tart also suggested that there may be an analogous phenomenon of trans-*spatial* inhibition in ESP, in which hitting on distant targets correlates with missing on spatially nearby targets.

[4] Because, according to Tart, he was probably thinking about the +1 target as well as the present time target, although this is a guess about Swann's mental processes.

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RESEARCH ARTICLE

Anomalous/Paranormal Experiences Reported by Nurses in Relation to Their Patients in Hospitals

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Abstract—Using existing reports of Anomalous/Paranormal Experiences (APE) by nurses in hospital and health center settings, the aim was to determine the extent of occurrence of certain types of anomalous perceptual experiences and their relationship to the nurses' job stress, proneness to hallucination, and psychological absorption. From the total number of 130 participants recruited from nursing departments, we received 100 usable questionnaires from eight hospitals and health centers in Argentina. Using the Anomalous/Paranormal Experiences in Nurse & Health Workers Survey (which measures frequency of paranormal/anomalous experiences) (see Appendix), 54 experiencer nurses (APE) and 46 control (non-experiencer nurses) were reclustered. All of them also filled out the Maslach Burnout Inventory, the Hallucinations Experiences Questionnaire, and the Tellegen Absorption Scale. While nurses reporting such experiences did not tend to experience greater job stress, those who reported a combination of hallucination perceptual experiences and a high level of psychological absorption tended to score higher for anomalous/paranormal experiences compared with those who did not report such experiences.

Keywords: nursing—anomalous/paranormal experiences—job stress—hallucination—dissociation—absorption

Introduction

Existing reports of Anomalous/Paranormal Experiences (APE) by nurses (Barbato, Blunden, Reid, Irwin, & Rodriguez 1999, Fenwick, Lovelace, & Brayne 2007, O'Connor 2003) and doctors (see Osis & Haraldsson 1977, 1997) consist of apparitions, "coincidences," deathbed visions, and other anomalous phenomena, sometimes in relation to patients. Visions

involve the appearance of dead relatives who have come to help patients and residents through the dying process, providing comfort to them and their relatives. Coincidences are experienced by someone emotionally close to the dying person but physically distant, who is somehow aware of their moment of death, or says the person "visited" them at that time to say goodbye, again providing comfort. Others describe seeing a light, associated with a feeling of compassion and love. Other phenomena include a change of room temperature; clocks stopping synchronistically; accounts of vapors, mists, and shapes around the body at death; and birds or animals appearing and then disappearing (Brayne, Farnham, & Fenwick 2006, Katz & Payne 2003).

More recent anecdotal accounts from nurses and doctors suggest that APEs consist of a much wider range of phenomena than purely deathbed visions (Barret 1926, Osis & Haraldsson 1997, Kubler Ross 1971). They may include coincidences around the time of death involving the dying person appearing to a relative or close friend who is not present at the time of death, or a need to settle unfinished business such as reconciling with estranged family members or putting affairs in order before death (Baumrucker 1996).

O'Connor (2003) conducted research with care nurses suggesting that they find APEs neither rare nor surprising, which our own research has found corroborated even among palliative care professionals (Katz & Payne 2003, Kellehear 2003). Many people now die in hospitals, where, unfortunately, nurses have neither the time nor the training to deal adequately with this very important aspect of the dying and grieving process. Imhof (1996) points out that, since death is not taught as a medical subject, and 'dying right' is not part of medical studies, this special awareness of the dying process is often ignored by those who care for the dying. Thus coincidences that occur around the time of death, involving the appearance of the dying person to a close relative or friend who is not physically present (Kubler Ross 1971, Fenwick & Fenwick 2008), may be missed. Phenomena occurring around the time of death such as clocks stopping, strange animal behavior, or lights and equipment turning on and off (O'Connor 2003, Betty 2006; for review see Fenwick, Lovelace, & Brayne 2010), similarly may be overlooked.

One of the problems associated with such experiences by nurses is that there are no studies about possible associated psychological variables. However, there are numerous studies that suggest possible correlations between occupational stress in nursing and proneness to hallucination and absorption as a variable that could modulate stress and hallucination proneness.

Given that professionals in mental health have the power to define experiences as symptoms of illness, the views and experiences of nurses

would appear to be particularly important. Millham and Easton (1998) observed a prevalence of auditory hallucinations in nurses in mental health. Eighty-four per cent of the 54 experiencer nurses who returned the questionnaire described having experiences that might be described as auditory hallucinations. Studies have demonstrated the existence of hallucinations in the general population (Bentall 1990, 2000, 2003, Larøi, Marcezewski, & Van der Linden 2004, Larøi 2006, Parra 2014), but we found no study that had examined the prevalence of auditory hallucinations in mental health nurses, who are the workers who most often have contact with people who hear voices.

Another variable potentially related to anomalous/paranormal experiences in nurses could be job stress. Stress is usually defined from a 'demand-perception-response' perspective (see Bartlett 1998, Lazarus & Folkman 1984, Lehrer & Woolfolk 1993, Crandall & Perrewe 1995). The transition to severe distress is likely to be most detrimental for nurses, closely linked to staff absenteeism, poor staff retention, and ill-health (Healy & McKay 2000, McGowan 2001, Shader, Broom, West, & Nash 2001).

In fact, nursing provides a wide range of potential workplace stressors, as it is a profession requiring a high level of skill, teamwork in a variety of situations, provision of 24-hour delivery of care, and input of what is often referred to as 'emotional labour' (Phillips 1996). French, Lenton, Walters, & Eyles (2000) identified nine sub-scales of workplace stressors that might impact on nurses; one of them is dealing with death, dying patients, and their families (for review, see McVicar 2003). At the same time a number of authors have also pointed to the role of stress-induced arousal in hallucinations, although Rabkin (1980) has noted a number of methodological weaknesses in this kind of work. Not surprisingly, there is evidence linking hallucinatory experiences to specific stressful events such as the loss of a spouse (Matchett 1972, Rees 1971, Wells 1983) and potentially life-threatening situations such as mining accidents (Comer, Madow, & Dixon 1967), sustained military operations (Belensky 1979), and terrorist attacks (Siegel 1984; for review, see Bentall 1990).

A third variable of interest in this context is absorption, which is the capacity to focus attention exclusively on some object (including mental imagery) to the exclusion of distracting events; it refers to a state of heightened imaginative involvement in which an individual's attentional capacities are focused in one behavioral domain, often to the exclusion of explicit information processing in other domains (Tellegen & Atkinson 1974). High absorption indicates the ability to momentarily inhibit reality monitoring, often including a high incidence of subjective paranormal experiences, such as apparitions (Parra 2006) and aura vision (Parra 2010a,b, Parra & Argibay

2012). The object seems to have a heightened sense of reality, as do APEs. A capacity for absorption, by itself, may not be sufficient; perhaps people must also have a motivation or need for the experience of absorption, as well as a situation suitable for inducing workplace stressors, such as a hospital setting. Although the limited number of studies suggests no difference in capacity for absorption, there is some indication that experiencers and non-experiencers may differ in their need for absorption (Irwin 1985, 1989). Furthermore, when Glicksohn and Barrett (2003) investigated whether the personality trait of absorption is a predisposing factor for hallucinatory experience, they found signs indicating a common, pseudo-hallucinatory experiential base, suggesting that absorption can indeed serve as the predisposing factor for hallucinatory experience.

The purpose of this study, therefore, was to determine the extent of occurrence of certain types of APEs in hospitals and their relationship to job stress, hallucination proneness, and absorption. We hypothesized that:

(H1) nurses who report APEs will tend to score higher on job stress;
(H2) nurses who report APEs will tend to score higher on absorption;
(H3) nurses who report a combination of APEs and higher absorption will tend to score higher also on job stress than those who do not report such experiences.

Methods

Participants

From a total of 130 nurses recruited from nursing departments, we received 100 usable questionnaires (76%), including females and males ranging in age from 22 to 64 (Mean = 40.17; SD = 10.45). They were recruited from eight hospitals and health centers in Argentina through the cooperation of the Research and Teaching Area of the Nursing Department of each (the Principal Nursing Officers of each area were invaluable to us), who gave us permission to do the interviews and administer the set of questionnaires. Participation was voluntary, and the nurses received no pay. The professionals scored a mean of 6 years in their work as nurses (Range = 1 to 20 years; SD = 5.60). Nurses who answered "yes" to items 3, 4, 5, 6, 8, 9, 11, and 12 of the *Anomalous/Paranormal Experiences in Nurse & Health Workers Survey* were grouped as "experiencers," while nurses who answered "no" were grouped as "non-experiencers" (along with nurses who answered "yes" to items 1, 2, 7, and 10).

Experiencers. The sample consisted of 54 participants (82% female and 18% male). Twenty-four (44%) of them worked on the afternoon shift and 27 (50%) worked on the night shift (just 3 worked on both, 5.6%). The

work areas were Rooms (51%), Guard (24%), Intensive Care (13%), and Neonatology (11%).

Non-experiencers (control). The sample consisted of 46 participants (82% female and 18% male). Twenty-one (45%) of them operated in the Afternoon Shift and 22 (48%) operated in the Night Shift (just 3 operated in both, 6%). The areas were Rooms (50%), Guard (24%), Intensive Care (11%), and Neonatology (15%).

Instruments

Anomalous/Paranormal Experiences in Nurse & Health Workers Survey. This is a 13-item self-report (rated 0 = never to 5 = very often) that we created, inspired by accounts of many nurses in our interviews and by the literature (see Fenwick, Lovelace, & Brayne 2007, 2010, Fenwick & Fenwick 2008, Osis & Haraldsson 1977, O'Connor 2003). It measures frequency of paranormal/anomalous experiences during hospitalization, such as near-death experience, out-of-body experience, sense of presence, an apparition, floating lights, or luminescence; or unexplained object movements, hearing strange noises, voices, or dialogues, crying or moaning, seeing energy fields, lights, or "electric shock" around or out of an inpatient. Other indications might include having had an extrasensory experience, a malfunction of equipment or medical instrument in certain patients, or a spiritual/paranormal form of intervention (e.g., prayer groups, laying on of hands, rites, images being blessed) (Cronbach's alpha of 0.71). The survey questions could also be split into two types: (1) Nurses as listeners to the paranormal/anomalous experiences from patients and other (reliable) nurses (items 1, 2, 7, and 10), and (2) Nurses as experiencers themselves of the paranormal/anomalous experiences (items 3, 4, 5, 6, 8, 9, 11, and 12).

Maslach Burnout Inventory (MBI) (Maslach, Jackson, & Leiter 1996, Gil-Monte 2002, 2005). Recognized for more than a decade as the leading measure of burnout, the Maslach Burnout Inventory (MBI) addresses three general scales: (1) Emotional exhaustion measures, or feelings of being emotionally overextended and exhausted by one's work; (2) Depersonalization measures, an unfeeling and impersonal response toward recipients of one's service, care treatment, or instruction; and (3) Personal accomplishment measures, or feelings of competence and successful achievement in one's work. The original measure that was designed for professionals in the human services is the MBI-Educators Survey: an adaptation of the original measure for use with educators. The MBI-General Survey is a new version of the MBI designed for use with workers in other occupations. The internal reliability of the MBI is good, with a Cronbach's alpha coefficient of 0.75 (see Gil-Monte 2002, 2005). The Chilean/

Argentine version adapted from the Mexican-Spanish language version was used for this study (Cristhian Pérez, Parra, Fasce, Ortiz, Bastías, & Bustamante 2012).

Hallucination Experiences Questionnaire (Barrett & Etheridge 1992, 1994). This questionnaire collects 38 different types of hallucinatory experiences, such as hearing one's own name when nobody is present, hearing one's own thoughts aloud, hearing voices coming from a place where there is nobody, or hearing voices belonging to dead friends or relatives. The frequency with which these phenomena are experienced are rated on a scale from 1 (never) to 5 (very often). In its original version, a Likert-type scale was used, from 1 ("just once or twice ever") to 7 ("at least once a day"). We adapted this questionnaire to insert 16 additional items (N items = 38) in order to collect more hallucination experiences, as well as hypnagogic/hypnopompic hallucination based on each sensorial modality. The internal reliability of the *HEQ* is good, with a Cronbach's alpha coefficient of .93; the test–retest reliability of the Argentine-Spanish version has also been found to be acceptable (Parra & Espinosa 2009, Parra 2010a,b, 2014).

Tellegen Absorption Scale, TAS (Tellegen & Atkinson 1974). This is a 34-item self-report inventory, each item of which requires a 'true' or 'false' response. If a subject answered 'true' to any of these, s/he was instructed to answer two more questions appended to each of the TAS items, which were designed to ascertain: (a) approximately how frequently people engaged in the given TAS activity (creation of opportunity for absorptive activities); and (b) how easy it was for the respondent to do so (capacity for engaging in these kinds of experiences). The internal reliability of the *TAS* is good, with a Cronbach's alpha coefficient of .90; the test–retest reliability of the Argentine-Spanish version has also been found to be acceptable (Parra 2006, 2010a,b).

Procedure

The four questionnaires were given under the pseudo-title *Questionnaire of Psychological Experiences, Forms A, B, C, D* in a counterbalanced order to encourage unbiased responding. (The *Anomalous/Paranormal Experiences in Nurse & Health Workers Survey* was not included here.) The set of scales was given in a single envelope to each nurse during a working day. Each was invited to complete the scales voluntarily and anonymously in a single session, selected from days and times previously agreed upon with the nurses. As a part of the recruiting procedure, nurses filled out a consent form.

TABLE 1
Percentage of Nurses Who Report Anomalous Experiences (N = 100)

Anomalous Experiences by Nurses	Percentage
Type 2: Feeling the sense of "presence," an apparition, floating lights or luminescence, or unexplained movements of objects	30
Type 1: Hearing from reliable peers who have witnessed experiences	24
Type 1: Patients with Near-Death Experiences (NDEs)	19
Type 1: After some form of religious intervention (e.g., prayer group), patients recovered quickly and completely from disease	18
Type 2: Hearing strange noises, voices/dialogue, crying or moaning, and finding no source	17
Type 1: Anomalous experiences where children were involved	15
Type 2: "Knowing" intuitively what is wrong with a patient by seeing them, before seeing them, or without knowing medical history	14
Type 1: Having patients with Out-of-Body Experiences	13
Type 2: "Knowing" about anomalous experiences of a patient while *out* of the hospital setting (nurse was home or on vacation)	7
Type 2: Seeing medical equipment failing consistently with certain patients while not with others	6
Type 2: "Mystical" or special "connection" with patients	6
Type 2: Seeing energy fields, lights, or "shock" around, or coming from, a hospitalized patient	4
Type 2: Extrasensory experiences between nurses and patients	2

Results

Regarding APEs collected, survey questions were split into two types: Type 1 are Nurses hearing about APEs from patients and other (reliable) nurses, and Type 2 are Nurses as APE experiencers themselves (see Table 1).

A two-sample KS test was used for correlations. Then nonparametric statistics (Mann-Whittney *U* and Spearman´s *Rho*) were used, since the scores were not normally distributed. The resulting *U* statistic was transformed into a *z*-score for the purposes of assigning probability values. A Bonferroni correction method was used to counteract the problem of multiple comparisons, because it was considered the simplest and most

TABLE 2
Comparison of Nurses with Anomalous Experiences and Control Group [1]

	Experiencers [2] *(n = 54)*			*Control (n = 46)*			
Measures	***Range***	***Mean***	***SD***	***Mean***	***SD***	***z****	***p***
Maslach Burnout Inventory	14–96	58.89	13.08	58.70	12.79	1.48	n.s.
1. Emotional exhaustion	0–41	16.93	8.98	15.30	11.48	.36	n.s.
2. Depersonalization	0–20	4.44	4.37	5.30	5.94	.49	n.s
3. Personal accomplishment	9–42	32.39	7.08	33.26	6.55	.50	n.s.
Tellegen Absorption Scale	0–34	17.46	7.35	12.35	8.25	3.38	.001
F1. Responsiveness to engaging stimuli	0–7	4.24	2.04	2.89	2.19	3.05	.002
F2. Synesthesia	0–7	3.69	1.52	2.74	1.71	2.96	.003
F3. Expanded awareness	0–10	3.26	1.80	2.43	1.99	2.34	.019
F4. Dissociation	0–5	2.39	1.45	1.76	1.50	2.12	.034
F5. Vivid memories	0–4	2.04	1.30	1.30	1.24	2.82	.005
F6. Expanded consciousness	0–4	1.85	1.13	1.22	1.19	2.78	.005
Hallucination Experiences Questionnaire	0–59	12.22	12.40	7.76	12.69	3.36	.001
1. Auditive	0–30	4.17	5.37	3.00	5.50	3.05	.002
2. Visual	0–14	1.94	2.67	1.28	2.24	2.16	.031
3. Gustatory	0–10	1.93	2.24	1.26	2.19	2.12	.034
4. Tactile	0–11	2.02	2.39	.96	2.12	3.99	< .001
5. Olfactory	0–13	2.17	2.66	1.26	2.55	2.51	.012
6. Hypnagogic/hypnopompic	0–16	2.48	3.37	1.41	2.97	2.64	.008

* Mann-Whitney *U* was used.

[1] *p* adjusted to multiple analysis (Bonferroni correction, cutoff point $p = .003$).

[2] Items 3, 4, 5, 6, 8, 9, 11, and 12 were used to create an Index or count or total of APEs, that is nurses as paranormal/anomalous experiencers themselves. Nurses as listeners to APEs from patients and other nurses were excluded.

conservative method to control the familywise error rate of these analyses. All comparisons were one-tailed.

H1 was not confirmed: That nurses reporting these experiences tended to experience greater job stress was ruled out. According to H3, nurses who reported a combination of perceptual experiences and psychological

TABLE 3
Correlation between Burnout and Psychological Absorption in Nurses with Anomalous/Paranormal Experiences and a Control Group [1]

	Absorption (Control n = 46)		Absorption (Experiencers n = 54)	
	Rho	***p***	***Rho***	***p***
1. Emotional exhaustion	.112	n.s.	.285	n.s.
2. Depersonalization	–.126	n.s.	.050	n.s.
3. Personal accomplishment	–.107	n.s.	.092	n.s.
Maslach Burnout Inventory	–.022	n.s.	.175	n.s.

[1] *p* adjusted to multiple analysis (Bonferroni correction, cutoff point p = .003).

absorption (high level) tended to rate greater work stress compared with those who did not report such experiences. Nurses reporting these experiences also tended to report greater psychological absorption, in relation to which hypothesis H2 was confirmed. Also confirmed was H3: Nurses reporting these experiences tended to report greater proneness to hallucinate. Nurses reporting these experiences also tend to report greater psychological absorption (not hallucinating). In relation to absorption, H2 was confirmed as well as H3—that is, nurses reporting these experiences tended to report greater proneness to hallucinate (see Table 2).

A correlation between experiencers (n = 54) and a control group (n = 46) in terms of work stress, psychological absorption, and proneness to hallucinate was carried out. H1 was that nurses who reported these experiences tended to experience greater work-related stress, which was *not* confirmed, and H3 was that nurses who reported a combination of perceptual experiences and psychological absorption (high level) tended to score greater work stress compared with those who did not report such experiences. H2 was that nurses who report these experiences tended to score higher on psychological absorption, which was confirmed: Nurses who have anomalous experiences tend to have higher absorption capacity ($p_{dif} < 0.001$) and scored higher in absorption on all the subscales. H3 was that nurses who reported these experiences tended to score higher in proneness to hallucinate, which was confirmed: Nurses who have anomalous experiences tend to have higher proneness to hallucinate ($p_{dif} < 0.001$) and scored higher in the six subscales for hallucination (see Table 3).

TABLE 4
Correlation between Burnout and Hallucination Proneness in Nurses with Anomalous Experiences and a Control Group [1]

	Burnout (Control n = 46)		Burnout (Experiencers n = 54)	
	Rho	***p***	***Rho***	***p***
Auditive	.15	n.s.	.08	n.s.
Visual	.05	n.s.	.21	n.s.
Gustatory	-.16	n.s.	.17	n.s.
Tactile	.34	n.s.	.12	n.s.
Olfactory	.009	n.s.	-.01	n.s.
HG/HP	.19	n.s.	.03	n.s.
Hallucination (Total)	.04	n.s.	.15	n.s.

[1] *p* adjusted to multiple analysis (Bonferroni correction, cut-off point $p = .003$).

A separate correlation between job stress and psychological absorption in experiencers and nonexperiencers (the control group) was carried out. No statistically significant result was found, except marginally between absorption and work stress ($r = .22$, $p = .044$). Absorption was also found to be correlated with emotional exhaustion. No statistically significant result was found (see Table 4).

A separate correlation between proneness to hallucinate and psychological absorption in nurse experiencers and a control group (without experience) was carried out. Significant correlations between the control group and the experimental group of nurses were found, although the latter showed a significant result ($p < 0.001$) (see Table 5).

Finally, a correlation between proneness to hallucinate and psychological absorption in nurses on the night shift and the afternoon shift was carried out (see Table 6). Significant differences for the night shift in absorption (NS Mean = 15.47 vs. AS Mean = 14.49, $p_{dif} < 0.001$) and proneness to hallucination (NS Mean = 20.31 vs. AS Mean = 9.76, $p_{dif} < 0.001$) emerged.

As post hoc analysis (predictive for N = 100), a Binary Logistic Regression (Wald method), was used to determine the best predictor among nurses with experience vs. no experience in absorption, job stress, and proneness to hallucinate. The results indicated that the best predictor was absorption in experiencers [$\beta = 0.33$, $df = 3$, $p = 0.005$; R2 = 0.12] compared with the control group.

TABLE 5
Correlation between Psychological Absorption and Hallucination Experience in Nurses with Anomalous Experiences and a Control Group[1]

	Absorption (Control n = 46)		Absorption (Experiencers n = 54)	
	Rho	***p***	***Rho***	***p***
Auditive	.53**	< .001	.39**	.003
Visual	.39**	.007	.19	n.s.
Gustatory	.32*	n.s.	.25	n.s.
Tactile	.28	n.s.	.40**	.002
Olfactory	.3[4]*	n.s.	.28*	n.s.
HG/HP	.39**	.007	.29*	n.s.
Hallucination (Total)	.43**	.002	.43**	.001

[1] *p* adjusted to multiple analysis (Bonferroni correction, cut-off point *p* = .003).

Discussion

The aim of this study was to determine the degree of occurrence of certain unusual perceptual experiences in hospital settings and their relationship to job stress and psychological absorption. The study was based on a

TABLE 6
Comparison between Nurses on Afternoon and Night Shifts [1]

	Afternoon Shift (n = 45)		Night Shift (n = 49)			
Measures	***Mean***	***SD***	***Mean***	***SD***	***z****	***p***
1. Emotional exhaustion	17.80	10.31	14.41	10.34	0.85	.394
2. Depersonalization	4.73	4.59	4.24	5.17	0.40	.689
3. Personal accomplishment	33.20	6.70	32.24	7.19	0.18	.851
Maslach Burnout Inventory	60.87	14.50	55.84	10.90	0.11	.907
Tellegen Absorption Scale	14.49	8.64	15.47	8.14	3.61	< .001
Hallucination Experiences Questionnaire	9.76	14.34	10.31	11.37	3.59	< .001

[1] *p* adjusted to multiple analysis (Bonferroni correction, cut-off point *p* = .003).
* Mann-Whittney *U* was used.

comparison of the degree of job stress and absorption in nurses having these experiences with nurses not having these experiences. Results showed that of the 100 nurses surveyed, 55 of them reported having had at least one anomalous experience in the hospital setting, the most common being the feeling of "presences," hearing strange noises, voices, or dialogues, noticing the tears or groans of patients, and intuitively "knowing" what disease patients have.

There are indications that those experiencing high absorption capacity generally also experience various forms of hallucinatory experiences (Irwin 1985, 1989). The state of absorption could be associated with the focal object of attention, even if imaginary, as it becomes totally real to the experiencer. In this study, however, capacity for absorption appears to be only one of a constellation of related factors. It may be that cognitive style is more important than capacity or skill, as in the case of absorption, which refers to the extent to which a person can be so engrossed in a mental experience at a given moment that reality monitoring is temporarily inhibited. In this study, nurses who reported these experiences tended to score higher on psychological absorption, which confirmed H2. Absorption may also indicate a more habitual use of or recurrent desire to engage in absorbed mental activity, such that habitually poor reality monitoring becomes an enduring aspect of one's cognitive style. Although the nurses who had APEs tended to show a higher proneness to hallucinate and scored higher in the six subscales on hallucination, this need not mean that all APEs are pure hallucinatory fantasies produced by job stress, since some could still be potentially veridical. For example, apparitional and other apparition-like experiences are related to higher levels of reports of absorption and imaginative-fantasy experiences in Argentine undergraduate students (Parra 2010a, 2010b) and paranormal believers/psychic claimants (Parra & Argibay 2007, 2012) in previous studies, indicating that visions of ghosts may be related to cognitive processes involving fantasy and cognitive perceptual schizotypy proneness, which are correlated with each other (Parra 2006).

Hence, in the context of this study, the distinction between purely subjective experiences and those considered paranormal (veridical APE) is irrelevant. Even veridical experiences may depend on the same psychological predispositional factors as do non-veridical experiences (see Irwin 2004 for a phenomenological approach). For example, significant differences in absorption and proneness to hallucination were found for nurses on the night shift, which could indicate both that certain APEs need lower "noise" in perceptual terms and that absorption could be a variable that is sensitive to certain anomalous experiences such as seeing apparitions or hearing voices. In coincidence with this finding, a previous study had

shown that nurses working morning shifts showed higher stress levels and poor sleep quality, indicating that stress level was directly correlated to sleep; this outcome suggested that the higher the stress score, the worse the quality of sleep (Pires da Rocha & Figueiredo de Martino 2010).

Most studies are related to job stress within the health sector, but few relate to absorption, a phenomenon which is almost nonexistent in studies associated with anomalous/paranormal experiences in nurses. However, neither of these variables (absorption or hallucination proneness) was found to be related to job stress (H1 unconfirmed), although it could be argued that the psychological pressure of the working conditions of nurses triggers such anomalous perceptual experiences. Nor were there indicators of psychosis proneness found, even in the experiencers with hallucinatory experiences. As was already mentioned, H2 was confirmed: Nurses with higher psychological absorption also had more anomalous experiences.

The most important limitation of the research was the willingness or unwillingness of nurses to participate in this study, followed by the fact that the responses could have come only from the experiencers. Yet the responses showed an equitable distribution. Our work was also restricted by the unwillingness of the nurses to provide information about their unusual experiences in their health institution. Another weakness observed in this study was the use of the *Maslach Burnout Inventory* which measures higher job stress on a psychopathological dimension instead of an appropriate stress scale. Future studies will be conducted using a stress scale for nurses, which could be more sensitive in measuring such a modulator for some anomalous experiences.

Other cases related the sense of presence, the experience of feeling that one was not alone, despite having the certainty that there really was no one else around; these sensations were usually associated with the dark atmosphere occasioned by strange feelings of loneliness and isolation presented in a context that triggers, initiates, and shapes these experiences. It was also revealed that the sense of presence also is associated with sleep paralysis, a state of involuntary immobility. It occurs before sleep or immediately upon waking (Cheyne, Newby-Clark, & Rueffer 1999) and is also associated with periods of sleep, defined as hypnopompic and hypnagogic imagery, in which brief but vivid visions are experienced in different sensory, visual, auditory, and tactile modalities, whether thermal or kinesthetic (Mavromatis 1987, Sherwood 1999). These characteristics may occur in hospitals during the night shift, when nurse staffing is low and the night time can cause sleep deficit leading to states of drowsiness in which one even can be overcome by sleep; in such situations there is a decrease in the assessment of reality and increased absorption (Foulkes & Vogel 1965,

Pires da Rocha & Figueiredo de Martino 2010, Rechtschaffen 1994). This research indicates that most of the experiences described occurred on the night shift. Other experiences were related to post-mortem apparitions that happened shortly after a recent death; these could result from unprocessed psychological reactions or may facilitate the grieving process for the loss of the patient (Osis & Haraldsson 1977, Fenwick, Lovelace, & Brayne 2007, Brayne, Lovelace, & Fenwick 2006).

Approximately 24% of the 100 respondents knew of such experiences by others, but had not had any themselves. The most common experiences reported by patients were near-death experiences (NDE, 19%). About 18% also mentioned an anomalous recovery through a religious intervention (18%). Clearly, spiritual and religious beliefs are a relevant factor (see Osis & Haraldsson 1977). In relation to anomalous experiences with children (15%), these experiences in general play an adaptive and protective function, which can decrease the level of anxiety around death and loss, and can relieve tension related to a memory (Knudson & Coyle 1999, Rojcewicz & Rojcewicz 1997).

A high prevalence of APEs in nurses working in mental health could lead them toward acceptance of the voices sometimes reported by clients. Nurses may listen to these experiences and seek to understand them by perceiving them as similar to their own, rather than fundamentally different, incomprehensible, or even schizophrenic. It could lead nurses to explore where, when, and how the experiences took place. As nurses have APEs, too, professionals can begin to understand the experience as not inherently bad and in need of elimination—rather, it is a common experience that we can accept and try to make sense of.

Generally speaking, the information that most people have about these experiences and their association with psychiatric disorders leads to prejudice and resistance to providing data. Thus there are a number of drawbacks connected with this research in hospital settings as they are conservative institutions, unlikely to be open about their population and even more so with respect to providing information relating to the subject of this investigation. The nurses did reveal their personal and professional experiences and those of their patients, noting that they considered experiences of paranormal phenomena within a hospital setting not to be infrequent or unexpected. They were not frightened by their patients' experiences, or their own, and exhibited a quiet confidence in the reality of the experiences for themselves and the dying person. Acceptance of these experiences, without interpretation or explanation, characterized their responses. By reassuring them that the occurrence of paranormal phenomena was not uncommon and was often comforting to the dying person, we may

assist nurses to be instrumental in normalizing a potentially misunderstood and frightening experience.

In fact, the purpose of conducting a qualitative study in the future will be to explore palliative care nurses' experiences of APEs, to reflect on the influence of these experiences on the care of dying patients and their families and friends, and to contribute to the limited nursing literature on the topic. The response of health professionals, specifically nurses, to APEs is an area not widely reported. Even palliative care literature is mostly silent on this topic. Indeed, the study of APEs is an area of much contention in many fields (Kellehear 2003).

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APPENDIX: PARANORMAL EXPERIENCES NURSING SURVEY

1. Patients admitted to my clinic have reported near-death experiences (or similar) during hospitalization or during clinical interventions (e.g., surgery), that I cannot explain as a health professional.

Yes/No. If your answer is YES, please expand your story here:

2. Patients in my health center have reported out-of-body experiences during their hospitalization that contains details that I cannot explain as a health professional.

Yes/No. If your answer is YES, please expand your story here:

3. During intensive therapy, I witnessed events of a kind of a sense of "presence," an apparition, floating lights or luminescence, or unexplained movements of objects, that I cannot explain as a health professional.

Yes/No. If your answer is YES, please expand your story here:

4. In my clinic (or elsewhere), I witnessed events such as a sense of "presence," an apparition, floating lights or luminescence, or unexplained movements of objects, that I cannot explain as a health professional.

Yes/No. If your answer is YES, please expand your story here:

5. In my clinic, I witnessed events such as hearing strange noises, voices or dialogues, crying or moaning, finding no source for them when checking, that I cannot explain as a health professional.

Yes/No. If your answer is YES, please expand your story here:

6. In my clinic, I had the experience of seeing energy fields, lights, or "shock" around, or coming from, a hospitalized patient.

Yes/No. If your answer is YES, please expand your story here:

7. Patients admitted to my clinic have reported extrasensory experiences (for example, knowing things about people or situations that they could not know because they were interned and isolated), that I cannot explain as a health professional.

Yes/No. If your answer is YES, please expand your story here:

8. I have had a strange experience such as knowing about the situation of a patient I had previously seen in my office or at work, while being at home or on vacation.

Yes/No. If your answer is YES, please expand your story here:

9. I have had the experience of seeing medical equipment failing consistently with certain patients while not with others, that I cannot explain as a health professional.

Yes/No. If your answer is YES, please expand your story here:

10. I observed that, after some form of intervention (e.g., prayer groups, laying on of hands, rites, or other objects, images, beatified saints, rosaries), some patients recovered quickly and completely from disease and/or trauma that I cannot explain as a health professional.

Yes/No. If your answer is YES, please expand your story here:

11. I have had the experience of "knowing" intuitively what is wrong with a patient just by seeing him/her, or even before or without knowing his/her medical history, that I cannot explain as a health professional.

Yes/No. If your answer is YES, please expand your story here:

12. I had an experience that could be defined as "mystical" or a special "connection" in the context of my clinic that I cannot explain as a health professional.

Yes/No. If your answer is YES, please expand your story here:

13. I have heard of, or met, reliable peers who have witnessed experiences like the ones above, IN A MEDICAL CONTEXT ONLY, that they cannot explain as health professionals.

Yes/No. If your answer is YES, please expand your story here:

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RESEARCH ARTICLE

On the Resurrection of Trans-Temporal Inhibition

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Abstract—Application of basic learning theory to multiple-choice ESP tests, like card guessing with delayed feedback, revealed this standard procedure to be an *extinction paradigm*, an analysis further supported by the evidence of frequent declines in ESP performance with continuing practice. This application of learning theory predicted that percipients who possessed some demonstrable ESP ability to begin with, who were attentive and motivated to learn, and who received immediate feedback, could learn how to score better and not experience declines. In a 3-stage Selection, Confirmation (for ESP ability), and Training Study, not only were declines absent, but much higher ESP-hitting than usually seen on the present time target was observed. A later exploratory analysis showed unexpected and very strong ESP-missing on the immediately future target. The theory postulated to explain this, Trans-Temporal Inhibition (TTI), parallels sensory enhancement processes in our ordinary senses, and, perhaps more importantly, suggests that some aspect of the mind may have a temporally wider "now" than our ordinary "now." The author hopes that presentation and discussion of this material here may stimulate others to devise more adequate physical theories about the nature of time and/or psychological theories about information processing procedures in ESP.

Introduction

Being blessed (or perhaps cursed[1]) with wide-ranging curiosity, I have studied many aspects of consciousness and psychic (in the paranormal sense) functioning. One of my most curious and frustrating findings, but one which may contain important clues as to how various forms of ESP or consciousness may function, is something I named *Trans-Temporal Inhibition* (*TTI*). Until this Journal's editor, Steve Braude, sent me a draft of his Editorial [in this issue] and an invitation to comment on it, I had resigned myself to thinking the concept of TTI was too strange or too far out to tempt scientists to investigate further, and I would see no more of it in my lifetime.[2] Yet I think TTI may be very important, so I thank Dr. Braude for this resurrection.

Dr. Braude has done an excellent job of explaining in his Editorial what TTI is, but the data and theory are complex, so let me start from scratch and from somewhat different perspectives to enrich the description and explain the theory.

While still in graduate school, and required to take a rather boring course on the psychology of learning, I had an insight about the standard multiple-choice type of test of trying to psychically identify a sensorially shielded target without immediate feedback that was almost universally used in parapsychology. This was typically some form of card guessing. But rather than only a test of possible skill, it was, from a learning theory perspective, actually a classical *extinction paradigm* of the sort typically used to confuse and inhibit a skill. Empirically supporting this analysis, so many multiple choice ESP tests showed decreasing above-chance scoring with repeated trials that this *decline effect*, as it had been named, was expected and, indeed, was correctly cited as supporting the existence of ESP (Tart 1966). "Chance" doesn't get tired or bored or inhibited, but people do.[3]

This also meant, in a perverse way, that parapsychologists were unwittingly killing off, extinguishing, the ESP talent they wanted to study.

I published this as a formal theory in 1966, staying largely within classical behaviorist learning theory, and later elaborated on possible internal processes involved (Tart 1977b). Briefly, studies of *confidence calls*, where a would-be percipient felt they were more likely to be right on a given trial, showed they indeed were more right on those trials. So while a percipient might be guessing most of the time, once in a while ESP had given them the correct information as to target identity on that trial *and* percipients could sense something different about their impressions on that trial. So if a percipient wanted to learn to get better at ESP, she could inspect her mental/body/emotional state on each trial, note any particular characteristics, then respond. If she got immediate feedback of right or wrong, she could gradually form a catalog. "When I feel A, I should relax and not make a call, I'm almost always wrong when I feel A. When I feel B, I'm right a lot of the time, let me try to perceive B more clearly and learn to use it as a guide for when to respond. Etc."

Immediate feedback was almost never given, however, when the usual ESP task was guessing the order of a shuffled deck of cards. The Zener 25 card deck, e.g., had 5 cards each of wave, star, plus, circle, and square sign, and a standard run was 25 guesses at a thoroughly shuffled deck that was sensorially isolated from the percipient. Chance was 5 correct hits, and statistical evaluation of more extreme scores was straightforward and well understood. If you gave immediate feedback of what the target was after each trial, though, a simple card-counting strategy could raise scores greatly

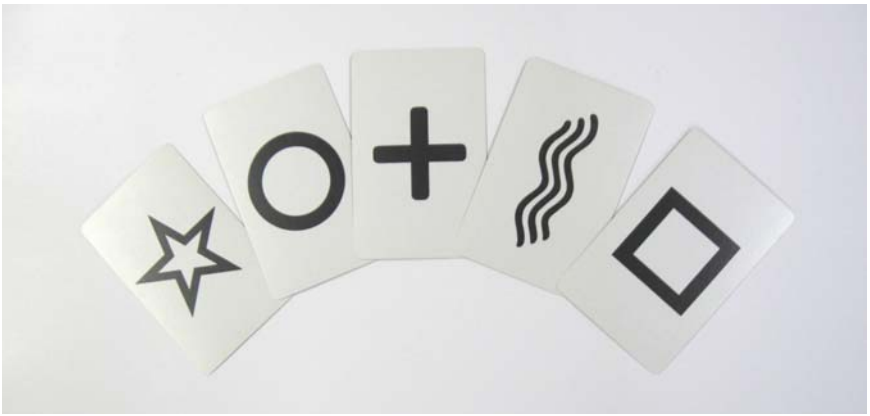

Figure 1. Symbols on the Zener cards, widely used in classical studies of ESP.

without any ESP being involved. When you knew most or all of the stars had already been used in this run, e.g., you guessed other symbols, etc.

With a lot more work than simply thoroughly shuffling the target deck before each run, you could effectively eliminate any usefulness of a card-counting strategy. If you blindly and randomly created a deck of 25 cards from a much larger deck, say 50 Zener decks all mixed together, then you usually didn't have an equal number of each target card in the target deck, and the changes in chance expectation became too small to worry about. But by the 1960s, when I was in graduate school, any lab could have some kind of electronic random number generator (RNG), where each trial was independent from the previous trial, so immediate feedback that did not confound the statistical evaluation became practical.

I began teaching an upper division class on experimental psychology in the1970s at the Davis campus of the University of California, and decided to teach by having the students be my apprentices in some real experiments involving immediate feedback to see if (a) the typical decline effect could be eliminated in ESP studies, and (b) learning, increased ESP performance with increased practice, might result. My students were very pleased with doing something real that might make a contribution, instead of old textbook exercises, and devoted many extra hours beyond those required to act as experimenters. I considered and treated them as my colleagues and co-experimenters (Co-Es), and they responded very well to being treated this way. The basic work has been described in detail elsewhere (Tart 1975a, 1976), and this kind of collaborative atmosphere is probably quite important in most psychological experiments, not just parapsychological ones.

In teams of two or three, my students requested the last few minutes of

class time from a variety of professors at UC Davis and, after a brief pep talk, gave a quick multiple-choice GESP card test, with no feedback, to the class. This was the initial Selection Study. *My learning theory approach required that potential learners have some ESP talent to begin with, otherwise immediate feedback about chance-driven responses would be useless for learning ESP*. I emphasize this, as several researchers later applied an immediate feedback approach to would-be percipients who had not been selected for having clear ESP talent to begin with, with no demonstrable effects of feedback. Such an outcome is what would be predicted with my feedback learning theory, but trivial. Multiple-choice guessing is full of hits from chance alone, and without a sufficient number of ESP-mediated hits also, there is nothing for the feedback to do to produce learning.

Students who scored highly in this initial mass Selection Study were invited by a co-experimenter to our laboratory for the Confirmation (of probable ESP talent) Study, half a dozen individual ESP tests on both a 4-choice and a 10-choice tester/trainer. Because so many students were tested in the initial Selection Study, some would have scored high by chance alone, but the odds of a particular student scoring high by chance twice in a row were much less (roughly $.05 \times .05 = .0025$), so those who did well in this Confirmation Study phase were invited to the actual Training Study. In that Training Study, each percipient chose to work exclusively with either the 4-choice trainer (Aquarius ESP Trainer) or a purpose-built 10-choice trainer (TCT, Ten Choice Trainer) for 20 runs. These 20 runs of 25 trials each were scattered over a variable number of days, determined by laboratory availability, class schedules, etc. Performance indicative of a high level of ESP was shown by both groups. I will focus on the TCT results here.

Ten percipients completed the planned 20 runs each on the TCT, with immediate feedback of target identity on each trial (the intended target lit up), scoring a total of 722 hits when 500 were expected by chance. This has a 2-tailed P value of 2×10^{-25}. As predicted by the theory, no significant declines were seen, and several percipients showed signs that could be interpreted as learning, even though 20 runs were probably not really enough training.

I will ignore the importance of the elimination of declines and possibilities of learning better ESP performance here, as we have a different focus.

I was unable to expand this research on the value of immediate feedback for learning better ESP skills for reasons beyond my control, and I also got involved in the SRI remote viewing research, but I'm pleased to note that relatively quick and non-interfering feedback[4] has generally been a part of remote viewing research, and declines are seldom, if ever, spoken about, in that literature.

Other Results of the Training Study

In addition to the obvious analyses for the presence of ESP, declines, and learning, I looked at the mass of data in various exploratory ways to see what hypotheses might be generated. One of these ways, often reported in the classical experimental parapsychology literature, was looking for temporal displacements. That is, might a percipient have been using ESP that was not "focused" properly in time? The stated task, for both percipient and co-experimenter, in our studies was to score high on the real-time telepathic task, to push a response button that matched the associated light that the co-experimenter/sender, in another room, was trying to telepathically "send" on each trial, time T.

I had been pleased that there was such highly significant hitting on the intended, present-time target, a degree of hitting well above that usually found in parapsychological studies. But what surprised and amazed me when I examined temporal displacements was an enormous amount of psi *missing,* scoring way below chance, when the response at time T was compared to the target at T − 1 or T + 1.

ESP-missing had been discovered long before I got involved in parapsychological research. If I shuffle a deck of ordinary playing cards, e.g., conceal it from your known senses, and ask you to call red or black as we go through the concealed deck, we know 50% correct is expected by chance, and we can evaluate the statistical significance of deviations from 50%. If you called every card correctly, 100%, that would be enormously significant, (one in $.5^{-52}$, probability about 2×10^{-26})! But what most people don't realize until they think about it is that it would be just as significant if you did not get a single call correct, 0%! Interestingly, various studies in the last century showed that significant psi-missing was associated with psychological factors, particularly a stated *dis*belief in ESP. This is usually referred to as the *sheep–goat effect*. This has long fascinated me. These were usually studies on students, people strongly conditioned to believe that tests show how much you know, or are at least supposed to show that. It makes psychological sense, then, that a person who believes there is no ESP, a goat, is pleased when they do poorly on an ESP test. It apparently validates what they believe; there is no such thing as ESP, thus there is nothing to know, so of course they got a low score. But scores significantly below chance can occur only if you postulate that some unconscious part of the goats' minds, intending to uphold their conscious beliefs, occasionally uses ESP to know the *correct* identity of a target card and then influences the conscious mind to call anything but that, thus producing the pseudo-validation of low scores . . .

Focusing on the TCT results, the 10 percipients got 720 real-time

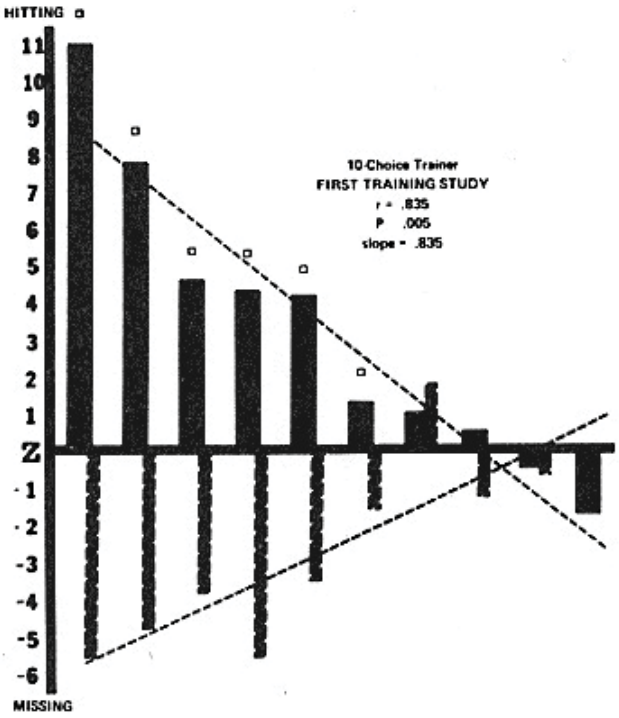

Figure 2. Real-time ESP-hitting versus +1 precognitive missing in the Training Study on the Ten Choice Trainer.

hits when 500 were expected by chance, with the conservative 2-tailed statistical likelihood of this being 2×10^{-25}. But in looking at T + 1 hits (precognition), the percipients got only 318 hits in 4,790 trials[5] when 479 would be expected by chance, the conservative 2-tailed P of this being 8×10^{-15}, a level of missing hugely stronger than that typically reported in ESP studies.

There was also highly significant missing for the T − 1 trials, but since this could be conservatively attributed to people's general belief that random numbers do not repeat, and the percipients knew what the T − 1 target had been because of sensory feedback, and so deliberately did not use the last target identity as their call, we will not give much attention to the T − 1 performance here.

Figure 2 shows real-time hitting and +1 missing scores from the ten percipients using the TCT, my first Training Study, the data from which the TTI theory was developed.

What was going on?

There MUST Be Something Wrong With The Statistics!

Since experimental evidence for the existence of ESP became well known, especially once J. B. Rhine's laboratory at Duke University published extensive studies, resistance to the idea that ESP could be real has been widespread, and almost universally includes a charge that there must be something wrong with the probability statistics used to analyze the data. My assessment is that this is usually primarily irrational rather than scientific resistance, as the critics almost never actually prove just how the statistics of a given experiment can be wrong, simply reiterating that they *must* be wrong. Nor do the critics deal with the fact that if the very basic analyses that have found significant hitting, arguing for the existence of various forms of ESP, are indeed fundamentally flawed, then the bottom has been knocked out of many scientific disciplines which use the same methods. See Utts for elaboration of this (Utts 2015).

But of course statistics are occasionally used incorrectly, or target sequences in repeated calling are not adequately random, so one of the first analyses I did of the Training Study data was to examine the target sequences post hoc for signs of deviation from randomicity. The size of the possible biases in target sequences was rather small, however, while the present time hitting was large. But could they have accounted for the real-time hitting results?

I devised a computer-based card calling program, the Probabilistic Predictor Program (PPP), to see if these biases could explain the observed hitting, and Eugene Dronek, a colleague at UC Berkeley, wrote programs to test it on a mainframe at UC Berkeley.[6]

Here is the abstract of our published report (Tart & Dronek 1982):

> With increasing use of immediate feedback of target identity in parapsychological research, the question of departures from randomicity (equal probability and serial independence) in target generators becomes important, as it is possible that some percipients might identify such departures and develop a mathematical inference strategy for predicting targets, thus artifactually inflating their scores. A key aspect of randomicity of relevance is not a lack of pattern per se, but the predictability of the generator. It is shown that standard chi-square tests of randomicity are poor measures of predictability in short to moderate length experiments. A direct approach to the predictability of possibly biased target sources has been developed, the Probabilistic Predictor Program (PPP), which is probably much more powerful than most human percipients could be. The operation of the PPP is described in detail. The PPP is then applied to both the target and response data of Tart's first training study, where some small departures from randomicity were found in the electronically generated target sequences

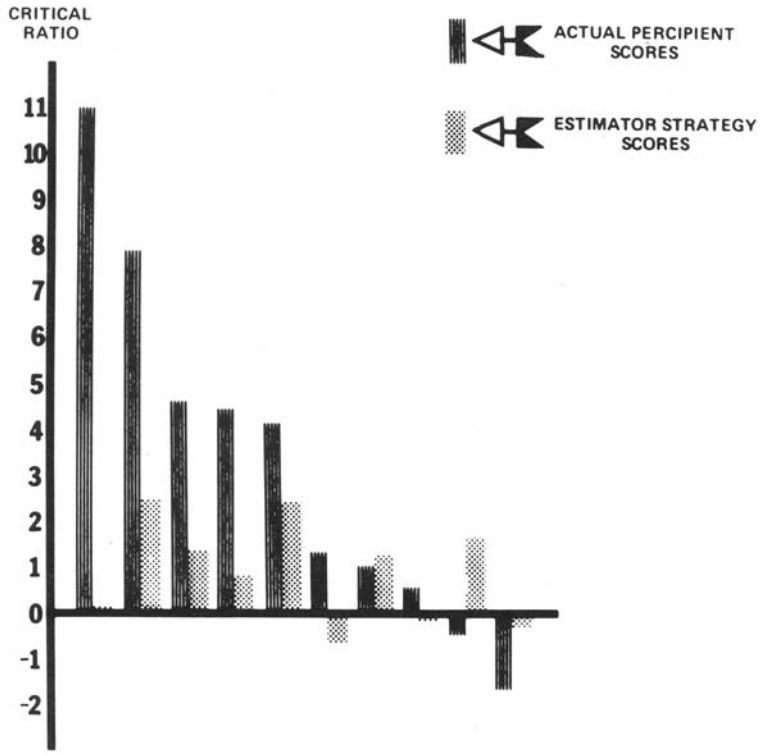

Figure 3. Real-time ESP-hitting in the Training Study by actual percipients versus the card-calling strategy of the Probabilistic Predictor Program.

and, of course, in the percipient-generated responses sequences. The PPP was found occasionally to score significantly on the target sequence, but far less successfully than the actual percipients did. The more biased response sequences were predicted quite significantly by the PPP. Examination of the internal displacement scoring patterns of the PPP was also compared with the patterns of actual percipients and found to be radically different. For these two reasons, it was concluded that use of mathematical inference strategies of the PPP sort could have only accounted for a trivial portion of the extremely high target scoring of the percipients in the first training study. While we should normally strive for completely random targets sequences, the PPP is offered as a powerful approach to the question of predictability when departures from randomicity do occur, and can be of use in working with other experimental data.

Figure 3 shows how the PPP scored compared with the actual percipients' real-time hitting scores. You can see why I think the slight

biases in the target sequences were of no real consequence. As noted briefly in the quoted abstract above, it did not produce the +1 missing pattern that the actual data did.[7]

Somewhere in the middle of my career I noticed that statistical analyses applied to testing the existence of ESP were almost always of the most basic sort, deliberately and appropriately conservative. Once we accept the reality of occasional ESP, though, exploratory examinations of those old datasets might contain valuable hints on the nature of ESP or the style of its psychological processing, such as TTI. I tried to interest colleagues in setting up a permanent data repository, with no luck. It was too labor-intensive at that time.[8]

Reaction to Huge ESP-Missing

I should add that, personally, I found this enormous ESP-missing shocking! Years before, I had intellectually accepted the reality of occasional precognition occurring as a result of studying the experimental literature. That ESP-missing, commonly referred to as psi-missing, (on the designated, present time target) could occur was not surprising to me, and I had always been fascinated by the psychological theory that such ESP mediated missing happened to support conscious disbelief in ESP. And with almost all laboratory ESP results being weak, real-time ESP or deliberate precognition, statistically significant at the .05 or .01 level but weak in actual magnitude, precognition was just an intellectual concept to me. But this very strong level of it, happening in my own laboratory, forced me to think more deeply about it, and I realized that while I *intellectually* accepted precognition's reality, at a "gut level" it did not exist, the data could not be like this! I couldn't even say that I had psychological resistances to the concept of precognition; you don't have or need defenses about things which make so little sense that they obviously don't exist. I lived in a Newtonian universe, the present was real, the past was gone, the future did not yet exist.

But here was powerful data, and my attempt to explain it away as some sort of artifact in the random order of the targets didn't go anywhere. What could I make of it?

A Clue—Lateral Inhibition

After hearing me give a preliminary presentation on the feedback training study and its +1 psi-missing (Tart 1980) to the Langley-Porter research division of the University of California in San Francisco, research director Enoch Calloway told me it reminded him of a sensory phenomenon of neural inhibitory fields surrounding a stimulated neuron, so I looked into the work

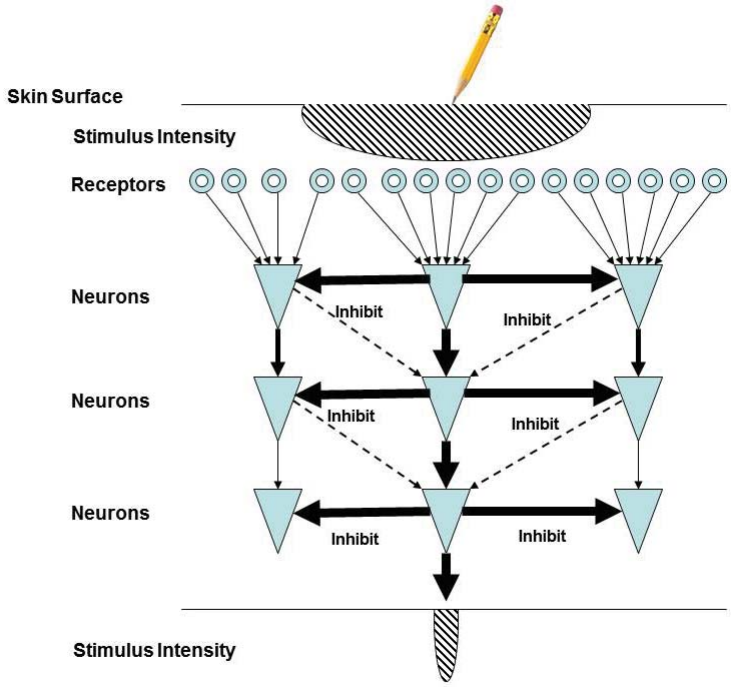

Figure 4. Lateral inhibition in touch receptors.

of Nobelist Georg von Békésy (von Békésy 1967). My Figure 4 shown here, inspired by one of von Békésy's drawings, shows the phenomenon for our sense of touch.

Picture a small, sharp object like a pencil point pressing down on your arm, hard enough to depress the skin a quarter inch or so, but not hard enough to break the skin. What will you feel? A sharp point pressing down, of course.

But think about it. The skin is stretched all around the pencil point. For simplicity, assume your touch-sensing receptors (represented by the triangles in Figure 4) are distributed in a fairly regular grid. The shaded area at the top of the figure represents maximum skin displacement/pressure around the pencil point. Touch receptors all around the pencil point are being stimulated as well as the one directly underneath the point, although not quite as strongly. Simplifying to one linear dimension and just three receptors in the figure, the middle receptor, directly under the pencil point, will be receiving the strongest neural impulse (represented as 6 arrows),

while those on each side receive a weaker stimulus, represented as 4 or 5 arrows.

But if we look at the outputs of each receptor, the receptor directly under the pencil point puts out a much larger signal than those to the side, and with each neural layer we get a strong signal directly under the pencil point and none from the stretched skin around it. This is because each neural receptor also generates an inhibitory signal laterally to those around it, represented by the heavy, horizontal arrows in the figure. The first stimulated receptor is telling the next receptor up the chain toward the brain, "Pass on a strong signal," but telling the receptors beside it: "Relax, no need to respond much." After just a few levels, the nervous system is transmitting only a signal of a sharp point, not of a stretched area.

This kind of signal processing has been found, to my knowledge, in all the classical sensory systems, and the process makes stimulating objects stand out from each other more clearly. The same process is used in modern electronic equipment, where it may be referred to by names such as *edge detection* or *contrast enhancement*.

An Initial Theory, Trans-Temporal Inhibition

Then followed months of looking at the data in many ways, plotting it out to look for possible visual patterns, reading in the philosophical and scientific literature on the nature of time, etc. This reading on time was both interesting and frustrating, as I learned all sorts of clever ways of thinking about time, multiple instrumental and scientific ways of dividing and subdividing time ad infinitum, etc., getting further and further from the way I actually experience time, particularly the *now*. It's clear, e.g., that when I examine my experience and say something like "I am sitting in front of my computer, typing and thinking, and I'm doing it *now*," that makes perfect sense and useful sense to me and others. Worrying about ideas like "now" as actually a mathematical abstraction of no or infinitesimal duration, that it is only an abstraction dividing the past and the present, doesn't shed any light on my actual experience. And seeing "now" as a useful psychological concept for experience does nothing to explain how precognition could work . . .

Let's look at my main study procedure in more detail.

Imagine you are the designated percipient in a formally designated telepathy experiment. Each time a signal light in the center of your Percipient's console shows a new trial has been initiated, you know from previous instructions that a distant experimenter/sender has triggered an electronic RNG to select a number from zero to nine, has switched that target light on on his or her Sender's console, and is trying to mentally send it to you.[9]

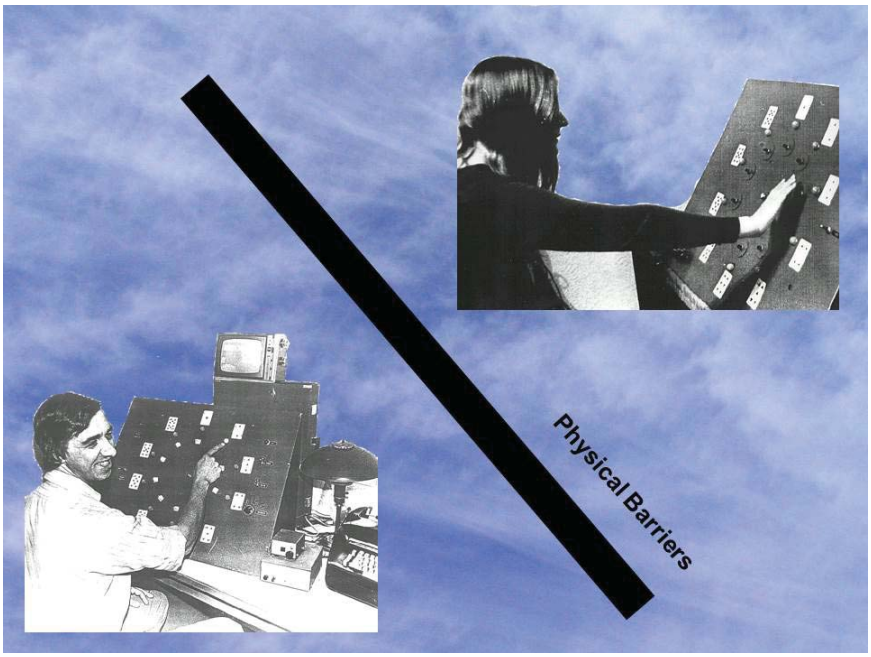

Figure 5. Experimenter/Sender's console (lower left) and Percipient's response console (upper right) of the Ten-Choice Trainer.

Figure 5 shows the response panel before which a percipient sat, at upper right, with the lit Ready light in the center (almost covered with the percipient's hand in this photo), showing that a trial had commenced. The experimenter/sender, me in this photo, lower left corner, is concentrating on sending target number 2. The TV screen is connected to a camera above the percipient's console giving the experimenter/sender continuous feedback as to where the percipient's hand is on the TCT response console.[10]

When you, as percipient, finally make a choice by pushing a response switch, your choice is recorded and shortly the next trial is initiated.

Theory of Trans-Temporal Inhibition

Figure 6 below shows an illustrative sequence of 11 consecutive trials. On the first the target is 4, next it is 7, then 2, etc.

If the percipient could visually see the lit target number, as in ordinary sensory perception, it would be conventional and useful to talk about a small amount of time, an experienced "now" that focused on the first target,

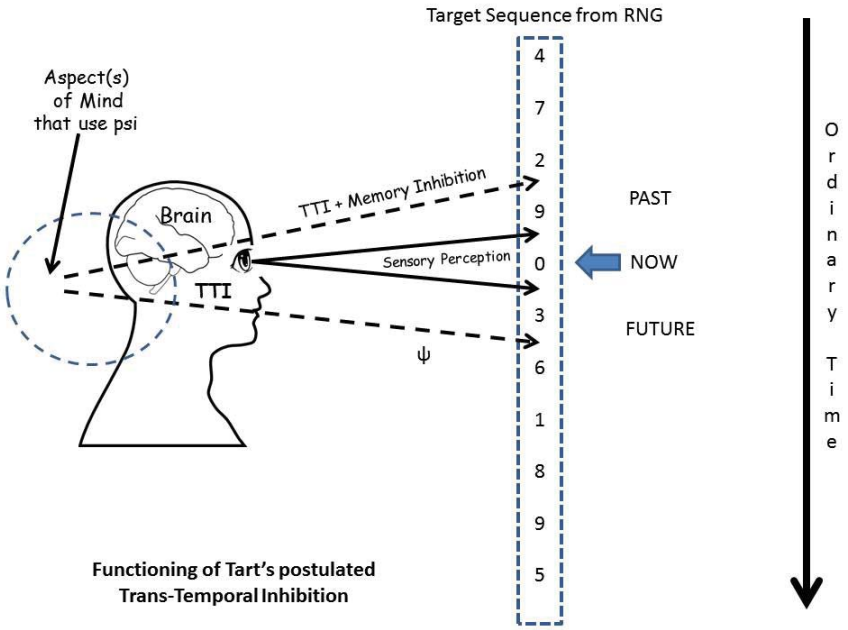

Figure 6. A sequence of 11 ESP trials.

then moved to the next target on the next trial, etc. This is shown by the narrow sensory perception cone in Figure 6.

It's straightforward to think in ordinary terms that this narrow cone of perception constitutes a "now" of its own, "Now I am looking at the fifth target," to be followed by "Now I am looking at the sixth target," etc.

But the strong precognitive missing effect in the data suggested to me that the "now" cone for ESP can be temporally wider than the present time "now." I have sketched it in in Figure 6 as including both the immediately past −1 trial (where the target was 9) and the immediately upcoming future +1 trial (where the target, not yet selected by the RNG, will be 3). While the percipient is trying to psychically identify this fifth target (a zero in Figure 6), at some level of the mind, probably not conscious, the percipient may, during the experienced "now" of trial five, develop positive feelings about both the number zero and the number three, which, while not yet picked by the RNG, will be the target randomly picked for trial six. The possible precognitive perception of the 3, the next target identity, is ***wrong***, though for the intention of using ESP to identify the current target, the ordinary "now" target. Thus it would help performance on calling the now targets

if there were inhibitory feelings, negative feelings of some sort about the identity of the next target, even if it is in the "now" cone of the ESP time present. I named this inhibition to call the next target when you're trying for the ordinary time "now" target *Trans-Temporal Inhibition, TTI.*

Note I sketched in and theorized that the "now" for ESP can be wider in both past (−1) and future (+1) directions, as I've been influenced by knowing (at a lay person's level) that many (perhaps most?) of the successful equations of physics are symmetric with respect to time. In this data, though, the excessive missing on the immediately past, −1 targets, could be more conservatively explained, as noted earlier, as memory of the sensory feedback about past targets' identities, combined with a common human bias that "random numbers don't repeat." Insofar as the "now" of ESP can be wider than our ordinary sensory "nows," however, it will be important to experimentally determine if there is a psychic TTI for the (immediate) past as well as the (immediate) future, and this could be done in repeated calling studies using no sensory feedback.[11] For its stimulation value, though, I'm going to assume that TTI is a time-symmetrical phenomenon, so the −1 missing is a combination of both memory plus bias about random numbers not repeating, as well as ESP-mediated post-cognitive identification of the identity of the −1 target, combined with some recognition that this is adjacent to, not the same as, the desired now target, and so should be inhibited.

As I stated at the beginning of this response, I doubt that I really understand what's going on with this strong psi-missing, but it's powerful empirical data, and I hope this response and the earlier data-rich reports on TTI and the learning aspects of immediate feedback training (Tart 1975b, 1977a, 1977b, 1978a, 1978b, 1979a, 1979b, 1979c, 1979d, Tart & Dronek 1980, 1982) will stimulate others more competent than I to come up with better understandings.

I have long been impressed with Stanford's hypothesis of Psi Mediated Instrumental Responses (PMIRs) (Stanford 1974b, Stanford et al. 1976) and Carpenter's further rich development of the psychology of ESP (Carpenter 2012), postulating that normally unconscious aspects of a person's mind may scan that person's immediate spatial location for events and conditions that would help that person fill their various needs and, sometimes, subtly influencing that person to, for no obvious reason, just happen to wander to that location and be "lucky." Now I see I have been forced to expand that idea to non-conscious ESP scanning of a person's immediate future, not just spatial location.

I should also note that there has been a fair amount of interest in a form of precognition usually titled *presentiment* in the last decades. As a recent meta-analysis (Mossbridge et al. 2012) observes in its abstract,

> This meta-analysis of 26 reports published between 1978 and 2010 tests an unusual hypothesis: For stimuli of two or more types that are presented in an order designed to be unpredictable and that produce different post-stimulus physiological activity, the direction of pre-stimulus physiological activity reflects the direction of post-stimulus physiological activity, resulting in an unexplained anticipatory effect. . . . The results reveal a significant overall effect with a small effect size [fixed effect: overall ES = 0.21, 95% CI = 0.15 – 0.27, $z = 6.9$, $p < 2.7 \times 10^{-12}$; random effects: overall (weighted) ES = 0.21, 95% CI = 0.13 – 0.29, $z = 5.3$, $p < 5.7 \times 10^{-8}$]. Higher-quality experiments produced a quantitatively larger effect size and a greater level of significance than lower-quality studies. . . .

Whether I, or anyone else, can make satisfactory sense of precognition, then, more and more data force us to deal with it.

Putting it Together

As living, biological organisms, we need to protect ourselves from danger and find and use resources to make ourselves reasonably happy and safe. The vast majority of the time, our classical biological five senses are superb for telling us about relevant events in our immediate physical environment, but clearly there are times when some sort of ESP would give us advance warning of both dangers to avoid if possible and opportunities that would be highly advantageous.

So let's imagine that I am here in the role of would-be percipient, sitting in front of the response console. My experimenter has explained to me that we will be doing 25 trials in this particular run, and on each trial she will be using an electronic device, an RNG, to randomly select one of the 10 possible targets and trying to send its identity to me. I am to pay attention to whatever impressions I get, hoping that one of them will be about the identity of the target my experimenter is sending, and push the corresponding response button. I am to be on the lookout for subtle clues about my own state that are associated with hitting or missing, and adjust my strategy accordingly. If I have a certain feeling on a given trial that is usually associated with missing (which I potentially know from the feedback I get), I can push the Pass button to skip that trial, or I can just wait till that feeling goes away, or some feeling associated with hitting comes up, or I could just push a button pretty much at random.

My psychological universe of concern has been set up to be the run of 25 trials.

Insofar as the TTI theory is correct, there is a part of my mind which uses ESP, and its "now" is inherently wider than my ordinary sensory "now." So as I try to pick up subtle hints from that part of my mind to help

me respond, it's picking up information about the +1 and −1 targets, as well as the current now target.

If somehow I could control that extrasensory part of my mind so that its now was narrowed down to only include the present trial, possible confusion or distraction caused by the +1 and −1 targets wouldn't matter. But apparently, at least sometimes, it's the nature of the ESP part of the mind to have a wider "now," and, in this case, include the +1 and −1 targets. For efficiency, then, there has to be some quality detectable by the extrasensory part of my mind that identifies the +1 target as future and the −1 target as past (or at least as not-now), and so I develop a negative feeling toward the +1 and −1 target identities. This happens often enough to come out to be quite statistically significant, thus the phenomena of TTI appears.

The TTI process, this contrast enhancement, is not a conscious experience of the percipient, though, and whether this happens "unconsciously" to whatever part of the mind uses ESP or is a "conscious" process within that part of the mind is unknown.

So is TTI telling us something about the actual "physical" or "non-physical" nature of reality, or does the phenomena represent only information processing that has nothing to do with the nature of ESP and/or precognition itself?

So Reality Is?

The beauty and power of science, as I understand it (I discussed science's basic nature in 1972 in a forum widely read in the scientific community, and I have not seen any refutation of my basic description of scientific method since then) (Tart 1972), comes from its insistence that *data is always primary*. Theory to explain the data is our goal, but that theory must lead to predictions that can be empirically tested. If no empirically testable predictions can be made, the theory is philosophy; interesting perhaps, but not science. If the predictions don't work out, the theory is inadequate or wrong, no matter how logically and mathematically elegant and appealing it is.

Sometimes a theory will not lead to testable predictions for some time, but acceptance of or commitment to such new theories may lead to considerable effort on them continuing. For years, for example, I've been reading accounts of how string theory remains one of the biggest activities in physics, invisible "strings" in their own dimensions, perhaps 4 of them, perhaps many more of them—in spite of the fact that there is still no clear empirical evidence supporting the existence of these strings. So I'm now asking people to think about the possible nature and implications of TTI, a request that apparently goes against long-established physical theories . . .

yet there is a great deal of empirical evidence for precognition, as opposed to invisible strings . . . ☺

With TTI, I've created a first draft of a theory to try to make sense of some strong ESP data, and the theory predicts psi-missing on +1 trials in repeated guessing tasks and suggests (Tart, Puthoff, & Targ 1979) that the difference between real-time ESP-hitting and +1 ESP-missing (and perhaps also −1 ESP-missing in non-feedback studies) may be a more sensitive indicator of the operation of ESP than simply real-time scoring. If the TTI idea of a "wider" "now" for a part of the mind that uses ESP is even partially correct, it may suggest, to those more educated in physics than I, new ways of thinking about time and the physical world.

Meanwhile, as I've learned from physicist colleagues, it may be quite "interesting" to think about a different physical understanding of time and/or a part of the mind that is "spread out" in time.

Notes

1 Cursed in the sense that with so many interests I seldom have time to explore a particular finding in the depth I would like.

2 I originally presented this material as a Presidential Address to the Parapsychological Association in 1977, where it was printed in the *Proceedings* (Tart 1978b), and later as a book chapter (Tart 1979c) in a scientific book focused on remote viewing, not realizing few active investigators think of book chapters as sources of data, so it had only narrow exposure to relevant research communities..

3 I will be putting lots of terms in quotation marks in this essay to indicate how rough and imprecise the usage of many terms are, but it would take us too far afield to go beyond the relatively apparent meanings in each context.

4 In the classic remote viewing procedure (Targ & Puthoff 1977), the viewer is taken to view the actual distant target after the viewing trial is completed. This is not immediate feedback, but there are no other remote viewing trials sandwiched between this viewing and the feedback, like there are other card-guessing trials before delayed feedback in standard card-guessing tests, so I expect the comparing of qualities that call for emphasis because they are associated with remote viewing success is effective rather than the confusion of other trials before feedback in card guessing. To clarify that, in the usual delayed feedback card guessing, suppose on the 12th and 17th trials you had a similar funny feeling. Maybe that would be a guide to being more sure it was ESP? But before you got any feedback (scoring at the end of the standard 25 trial run, you made 13 and 8 more calls. Then you found out you were right on the 10th call.

Were you sure that funny feeling was on the 12th or the 17th? What about feelings a little earlier or later? But in classical remote viewing, you make your description, you officially/psychologically stop trying, and the trial, the data collection, is now over. There's a 20-minute or so drive with the returned outbound experimenter (beacon person), probably with social chitchat about other things, a clear non-RV related period before feedback, probably making it easier to recall any special feelings during the RV session. In classical learning theory, "immediate" usually means less than several seconds to get feedback on the consequences of your response, here "immediate" has more of the connotation of non-interfering or confusing activity between response and action. Probably the best "immediate" feedback would be only a few seconds after the response and with no interfering activity. See (Tart 1977b) for detailed consideration of possible internal processes involved in learning better ESP performance.

[5] Remember there was no future target for the last call of each run, so N, allowing for some missing data, is 4,790 rather than 5,000.

[6] The computational demands of the PPP were huge for the time, making it impractical for most people who did not have a lot of mainframe time available to work with it, but I hoped (still hasn't happened) someone with good programming skills could write a version of it that will run on today's desktop computers. The PPP could be a practical and much more understandable test of randomicity than the rather abstract mathematical tests traditionally used. Anyone knows that if you count cards, which is basically what the PPP does, you gain an advantage.

[7] In the 25+ years since I retired from UC Davis, the analyses supporting that conclusion disappeared in the course of moving material from my office and laboratory to my home office when I retired.

[8] Today, with so much data being computer-recorded from the outset, it would be easy. I put my data banking and sharing proposal at http://blog.paradigm-sys.com/proposal-to-create-a-parapsychological-2/ in the hope it might stimulate someone to set up something along those lines. Or go to http://www.paradigm-sys.com/, choose CTT Articles Library, then "Proposal to Create a Parapsychological Database."

[9] We don't really know how much the experimenter/sender's efforts matter in this kind of experiment, as results could occur by clairvoyance or precognition, but we'll stay with the framework that percipient and experimenter/sender are trying to telepathically communicate. Incidentally the experimenter/sender gets immediate feedback as to the percipient's choice, so it's possible that this kind of immediate feedback allows the experimenter/sender to learn to "send" more effectively. But

we have no way of assessing this separately from overall results in this kind of GESP experimental procedure, although it could be assessed with a different procedure, such as only giving the experimenter/sender feedback of the percipient's hand movements and choices on random trials and comparing those with no feedback trials.

[10] Percipients often "dowsed" over their response panel, although the equipment was designed so there were no differential electrical fields there that might be associated with the target on each trial, even if the percipients had some unknown electrical field detection sense. Seeing how this dowsing was going was rewarding and involving to the experimenter/sender, often focusing the sending process to something like thinking "Now!" when the percipient's hand was over the correct button or "No! Keep moving!" when it looked like the percipient was going to press an incorrect button. There is no space to consider this phenomenon here, but all the experimenters felt this dowsing-like behavior could provide valuable clues to when the percipient was getting a correct impression.

[11] To avoid possible confusion, a few parapsychologists have explored theories that postulate that all apparent present-time forms of ESP are actually accomplished by precognition of the percipient's future brain state when they receive sensory feedback of target identity. Thus there is no strange mystery of ESP-mediated information crossing the space between percipient and target, but "crossing" time is acceptable for some physicists. This tends toward theoretical predictions that no ESP will be observed if there is no future sensory feedback about the targets to the percipient. While I can envision this kind of precognition as happening in some cases, there are too many instances of successful ESP with no future feedback to make this a general case.

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COMMENTARY

New-Paradigm Research in Medicine: An Agenda

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Abstract—Critics of Western medicine have long heralded a "new paradigm" opposed to the reigning materialistic worldview of biomedical science and allopathy. This new paradigm has undergone several name changes (e.g., holistic, alternative, complementary, integrative) and presumably advances a radically new worldview. On closer inspection, it looks more like the opposite pole of the same dualistic worldview and not a radical break with the past. A truly new paradigm prepared to jettison tacit conceptual assumptions would have significant implications for medical research, provided that institutional and professional constraints not inhibit the studies to follow. A research agenda is proposed comprising possible jumping-off points for investigators comfortable with working around the reigning assumptions both of current medical thinking and of a rapidly institutionalizing integrative-medicine worldview. These include proposed medical research on spirituality, alien abductions, hierophanies, thought forms, placebo pharmacology, radionics, arcane medical wisdom, prenatal ensoulment, and musical genetics.

Keywords: medicine—research—paradigms—spirituality

Introduction

Over the past few decades, proponents of a "new paradigm" in medicine have heralded the emergence of a way of healing radically at odds with the materialistic paradigm of biomedical science and allopathy. Commentators even have used the words heresy or heretic to describe this critique of Western medicine (e.g., Stambolovic 1996, Wolpe 1990). Concomitant to the rise of this new school of medical thinking has been a flowering of buzzwords, some neologistic and others redefined versions of longstanding terms: holistic (or wholistic), wellness, bodymind, noninvasive, whole-person care, bioenergy, consciousness, alternative, complementary, integrative, and more. Early proponents conceived of this new wave in medicine as an ascendant movement poised to overthrow the old worldview through "paradigmatic retransformation" (Ferguson 1980)—replacement of the

reigning medical model with a new consensus, defined and contextualized by leaders of this new medicine.

Largely uncommented upon since this discourse began is the observation that the seminal charismatic spark which ignited this movement may have become routinized, in the sense that Weber (1922) used the word, subject to co-optation by the mainstream of medicine, and the most innovative features of this new model discarded. Another observation: The rewards of "normal science," as described by Kuhn (1970), are quite magnetic, and a field of integrated, wholistic, noninvasive, meta-concerned physicians was always at risk to develop into no less an intellectual lacuna and top-down orthodoxy than what Western biomedicine is presumed to be. More ironic is the striking similarity of the foundational assumptions and values of this so-called emergent paradigm to those of the supposedly outdated biomedical view that is still dominant.

Of the many commentators on these developments, Dossey (1984) has been almost alone in identifying this functional equivalence of the old and new paradigms. He made these observations early on in the new-paradigm discussion. To Dossey, the holists' attribution of the radix of pathogenesis and therapy to a mental "level" is just as reductionistic and dualistic as the mechanistic positivism imputed to their adversaries who, the holists claim, err by limiting their focus merely to the physical level (see Levin 1988). In other words, biomedicine and holism as medical paradigms are each myopic, in their own unique ways, and could perhaps be viewed as "mirror images of each other" (Levin 2009:484).

As the new paradigm is so consonant in its basic assumptions with the prevailing paradigm in medicine, it might be more instructive to think of these competing perspectives as representing two poles of a single worldview, one characterized by shared dualistic assumptions. With a fundamental view of people as conglomerations of matter unconnected in space–time, other components of this common perspective follow: disease as a substantive phenomenon (whether a material entity, as the traditionalists say, or a psychosocial/biobehavioral process, according to the holists); disease as a deleterious status (whether an enemy to be defeated or a step to be climbed on a ladder of wellness); professional and patient as separate role-identities (whether hierarchically or cooperatively arranged); healing as a managed intervention (whether comprising technological or natural means); the mind as a separate factor in illness and healing (whether secondary to the body or more dominant or interacting in some manner).

In *The Aquarian Conspiracy* (Ferguson 1980), additional features of this common perspective were outlined in detail, although unknowingly so, as the old and new paradigms were presented as starkly contrasting:

e.g., patient is dependent vs. patient is autonomous; reliance on quantitative medical data vs. reliance on qualitative medical data; emphasis on eliminating disease or symptoms vs. emphasis on achieving wellness or "meta-health." In proposing to chart such alleged divergences, however, much more revisionary propositions were overlooked: the concept of patient is itself outdated and inhibits healing; healing is attainable without reliance upon any data whatsoever; symptoms, disease, wellness, meta-health, and so on are just conceptual categories created for heuristic purposes by those who see life only in terms of matter and measurable states of one sort or another moving forward in linear time.

Almost as soon as it was identified, this putative new paradigm was seen as having made an identifiable impact on the practice of medicine, to the benefit of patients. This has become an article of faith among both practitioners of integrative medicine and New-Age–oriented patients. Thirty years ago, a well-known trance-channel and author noted, "Physicians who once regarded the body as a mere machine are now . . . advocating such previously arcane practices as meditation for reduction of blood pressure" (Montgomery 1986:234). This may be an unconventional and no doubt welcomed development, but is it really paradigm-busting? Or, rather, does it represent an unorthodox practice marshaled to serve as a medically prescribed therapy directed against a defined disease entity—a treatment course directed by a physician to a patient diagnosed with hypertension? All the contingencies of the old paradigm are manifest: the conceptual segregation of healer and healee; the assumption of informational hegemony on the part of the physician; the definition of the healing agent as a *thing* given *by* an authority figure *to* a passive recipient. To be clear, this is not to dispute the efficacy of meditation for cardiovascular health or to disparage meditation. But by conceiving of this ancient practice as just another treatment to be prescribed at the credentialed professional's discretion for conditions he or she alone defines, florid claims of paradigmatic transformation are overstated.

Perhaps it is unnecessarily critical to underscore the mundane holism characteristic of the New-Age conspirators. After all, we do exist within physical bodies in a world of matter and, whether materialists, humanists, positivists, religionists, Theosophists, idealists, fundamentalists, mystics, or whatever, it is little comfort to be told that our angina pectoris or breast cancer or AIDS or depression is *maya* (illusion) when we are hurting. But, because so many people do suffer, is it not just as mean-spirited to confront this suffering with jargon-laden dismissals of sincere allopaths and self-congratulatory talk of a new paradigm which differs only marginally from the traditional practice of medicine? Forgive the cynicism, but the

proliferation of conferences, symposia, tape series, websites, talk-show appearances, newsletters, and assorted networking activities may bespeak more a collective desire to establish new fiefdoms or brands than a thirst to search for and apply genuinely revolutionary knowledge. What is being called a new paradigm may be more an old paradigm in a new wrapper.

A signpost of truly paradigm-shifting paths of scientific investigation is a pressing forward into the unknown—not merely to the outer limits of the known. It is the asking of questions that people do not realize can be asked, much less answered. A worldview-changing innovation in science does not necessarily manifest as a popular movement or fashionable trend, its proponents commanding exorbitant lecture fees and receiving lucrative, mass-market book contracts. Rather, it is often the work of a lone wolf whose ideas are seen as so crazy or threatening to the institution of science and the security of those who control it that the innovator is ritually banished from the clinical or scientific community and often from society itself. From Copernicus to modern-day heretics such as Reich, Velikovsky, Leary, and Sheldrake, the work of paradigmatic retransformation may be a lonely and even life-endangering business.

In ages past, challengers of existing scientific paradigms were tortured or burned, and, sadly, only the means of punishment are different today. Since the 1950s, Reich was imprisoned, his papers torched, and his equipment confiscated and purportedly destroyed; Velikovsky suffered an organized attempt by academic scientists to suppress the publication of his research and writing (Velikovsky 1984); Leary was imprisoned (in solitary confinement at Folsom State Prison) and effectively anathematized among academicians; and, the editor of *Nature* famously declared that Sheldrake's *A New Science of Life* (Sheldrake 1981) was "the best candidate for burning there has been for many years" (Maddox 1981:245). Who can say how many other innovations have been crushed so completely in utero that they have never publicly been aired?

Most unfortunate in this suppression is not just that scientific innovation is discouraged, although this is surely bad. Nor is it just that careers and lives are destroyed; although this, too, is bad, most innovators seem to recognize that it comes with the territory. Rather, the greatest loss lies in the expunging of those wild stabs in the dark whose often serendipitous outcomes dot the history of medicine, from the discovery of penicillin to the observation of hair-growing side effects of minoxidil use. For biomedicine, the implications of such unexpected breakthroughs can profoundly and directly impact the human condition. Provided an idea is even partly falsifiable, it should not be laughed off nor its proponents scorned, especially as the lives of many suffering people may hang in the balance. In formulating truly new-

paradigm ideas, the step-sequential, inductive march of scientific progress we learn about in school may not apply. It is instead the creative, artistic spark—of genius or lunacy—which is essential. If an idea sounds crazy, the best defense of scientific integrity is simply to test the cursed thing and see if it can be disproved. But, to dismiss a promising scientific idea outright and persecute its originator is to condemn and suppress the creative essence of the human soul.

An Agenda for New-Paradigm Research in Medicine

These prefatory comments should not be construed to suggest that the present author sees himself as a herald of a *real* new paradigm in medicine. That would be no less self-congratulatory than what just has been described. One cannot vouch for the fruitfullness of any of the lines of research about to be proposed, nor can one guarantee that truth lies waiting down any of these paths. Much of what follows is admittedly off-the-wall, and it is not suggested that any of these ideas are as substantial as those of the visionaries mentioned earlier. But they are a start.

In light of these comments, a rough sketch is now proposed for a research agenda that may be challenging to some of the reigning assumptions of biomedical science and allopathic medicine (see Table 1). Granted, the following issues are not equally amenable to empirical investigation for at least a couple of reasons. First, as just discussed, heresy has its consequences. For example, an issue may be so outside the pale of current conceptual, theoretical, or disciplinary bounds as to appear to be lunacy; external funding for such research may be lacking; colleagues may be few or nonexistent, and others may be generally hostile, disbelieving, or merely reticent; and, publication outlets may be nil. Second, the tools required to conduct such research simply may not exist at the present time—and, for issues positing currently "superempirical" effects or pathways, may exist only well into the future.

These provisos aired, what follows is a wild stab at delineating a list of topics and study questions for which answers—or, more likely, the process of searching for answers—may prove enlightening for interested investigators. These issues are listed in no particular order, and they broach matters ranging from the metaphysical to the subatomic and to regions in between and beyond. Even those who conduct "alternative" or "new-paradigm" research in respective fields within medicine may believe that some of what follows is going too far. But that is the purpose of the present paper: to identify new cutting edges, now that the old ones (e.g., psi, alternative medicine, quantum physics, mind–body healing) may not be so envelope-pushing anymore.

TABLE 1
An Agenda for New-Paradigm Research in Medicine

The epidemiology of spiritual experience
The therapeutic sequelae of alien abduction
The psychophysiology of hierophanies
The risk or protection derived from thought forms
The pharmacology of placebos
The use of radionics in population-wide intervention
The collation of medical wisdom from arcane traditions
The mapping of prenatal ensoulment
The use of sound and music in genetic engineering

1) The Epidemiology of Spiritual Experience

Beginning in the mid-1980s, a cohort of investigators uncovered a neglected treasurechest of unusual findings lying hidden at the fringes of the medical research literature (see Koenig, King, & Carson 2012, Levin 2001, Levin & Koenig 2005). By now, thousands of clinical, biomedical, epidemiologic, and behavioral studies have identified statistically significant associations between various religious indicators (e.g., attendance at religious services, subjective religiosity, belief in God, religious membership) and rates of morbidity or mortality due to almost every physical or psychiatric affliction (ischemic heart disease, uterine cancer, hypertension, colitis, infectious diseases, genetic diseases, physical symptomatology, infant mortality, functional disability, psychopathology, and others). The field of study that since has grown up around this body of data has been termed the "epidemiology of religion" (Levin & Vanderpool 1987) and seems to raise more questions than it answers, central of which is the possibility of associations between spiritual and somatic states (see Levin 1994). While existing population studies cannot address this issue directly, they seem to intimate that specific experiences that are currently classified as spiritual or numinous may have measurable effects on the flesh.

For the most part, this research has emphasized population-wide trends between respective measures of public or private religious behavior and

particular disease outcomes. These studies tell us, for example, that more frequent attendance at religious services is associated, on average, with lower rates of depression or anxiety within particular populations. Such findings, focused mostly on religious behaviors or attitudes, do not say much of anything about spiritual belief or experience; nor do the outcomes under study tell us much of anything about impacts of these constructs on human physiology, psychophysiology, pathophysiology, or healing. This research is often misinterpreted as providing information on such associations, but it does not. This is unfortunate, as the possibility of validated physiological or healing impacts of religious, spiritual, or numinous states or experiences has long been identified as a cutting edge for this field (see Levin 2011), but one that remains in its infancy, save for a growing literature of studies on meditation (Murphy & Donovan 1997). Research questions addressing outcomes of more esoteric spirituality have been too marginal to attract much attention or funding.

Any of the following seemingly off-the-wall queries might be good places to begin to take things a step further, metaphysically speaking: Does the opening or balancing of, say, the heart *chakra* have salutary cardiovascular effects? Do reports of out-of-body experiences (OBEs) or theophanies (hearing or seeing God) correlate significantly with certain health-related improvements or declines? Is the visualization of certain colors of light (e.g., blue) during meditation therapeutic for certain "totemic" conditions (e.g., sore throat)? Are particular spiritual affirmations (e.g., the Jesus prayer; chanting *Om Sri Ram*; certain *mantras*) associated with protection against or healing of disease? Or, as an editorial in the *British Medical Journal* wondered, "Born again and live longer?" (Review 1980).

These examples do not begin to exhaust the sorts of questions that might be posed. As strange as these questions may appear to Western scientists or medical practitioners, such a descriptive and exploratory search for underlying patterns in unusual data is a well-tested empirical approach recalling the early work of pioneers in mind–body medicine, which led to the fields of stress research (Selye 1950), psychosomatic medicine (Alexander 1962), and psychosocial epidemiology (Cassel 1974), three not-so-ancient heresies. The objective here is to move beyond a limited focus on observed religious behaviors (e.g., frequency of church attendance) that has characterized research on spirituality and health (see Levin 2011) to engage more existential and experiential aspects of human spirituality in relation to assessments of real disease processes, not just subjective self-reports of general well-being.

2) The Therapeutic Sequelae of Alien Abductions

Thousands of individuals have reported contact with alien or discarnate entities through UFO experiences (e.g., being taken aboard spaceships and medically examined or implanted), through encountering or becoming "walk-ins" (i.e. undergoing a sort of ego substitution where the inborn soul allegedly leaves and another replaces it), through travels to different vibrational octaves or dimensions (during meditation or sleep or subtle-body projection), or through trance-channeling experiences (see summaries of contactee experiences in Jacobs 1992, Mack 1994, Leir 2000). Setting aside for now the veracity of such accounts, it would be of inestimable value to catalog the health advice provided through such contacts, perhaps in the form of a comprehensive *materia medica esoterica*. The followers of the late seer Edgar Cayce have done just that on a smaller scale through the maintenance of files of his trance readings in Virginia Beach, Virginia, and publication of compilations such as their *Encyclopedia of Healing* (Karp 1986).

Efforts have been made to cumulate if not catalog accounts of anomalous or inexplicable healings resulting from alien contact (e.g., Dennett 1996, Dvir 2003). But nothing like a true population sample is currently able to be drawn for surveying, for obvious reasons. Conspiracy theorists believe that such information already exists in the archives of some unnamed government agency, but, if true, these data are not accessible to investigators. The best that one can do for now, absent the requisite security clearances, is make use of existing survey data on beliefs or attitudes from recruited or non-probability samples, as in a recent report published in *JSE* (Levin 2012), or from surveys conducted for other purposes. Such data tell us, for example, that contactee experiences may involve up to 0.5% of the U.S. population (ABC News/*Washington Post* 1994) and that most clergy (Levin 2012) and about 88% of the general population (RoperASW 2002) do not believe that a crisis of faith would ensue from the government coming clean about such reports, if indeed they are true. The latter point remains the subject of polarizing controversy (see Alexander 2011).

Setting aside the physical reality of such claims, subjective perceptions of such are apparently widespread enough to merit more systematic exploration. If a resourceful scholar with the requisite multidisciplinary background could produce a volume comprising references from all such sources, this would represent one of the cardinal intellectual achievements in medicine. While the skeptic might substitute the word psychiatry for medicine, the contribution of such a study would be no less significant. Here, presumably, would be an archive of reports of anomalous healings experienced by a cross-section of the global population involving sources

that are literally (or are perceived to be) out of this world. If there is anything to learn here about etiology, treatment of disease, or human pathophysiology or healing—and information on these subjects has been reported by contactees—then such a compendium would be worth pursuing.

3) The Psychophysiology of Hierophanies

Aside from compiling any nuggets of wisdom received through such experiences, UFO-related or otherwise, equally important would be identifying actual patterns of physiological response to such close physical encounters with the numinous or supernatural—hierophanies, as historians of religions refer to intersections of human life, sacred space, and transcendental experience. There are many useful sources of data for such analysis: the *Torah*, synoptic Gospel accounts of Jesus' ministry, accounts from other religious traditions, anthropological reports of shamanic rituals in primitive *culti*, and any of the array of more modern *esoterica* (somatic reactions to or sequelae of UFO abductions, past-life readings, trance-channeling sessions, etc.).

Central to this line of research would be to identify how people cope with coming face to face, so to speak, with *noumena*, or manifested truths of arcane teachings. Scriptural and popular depictions provide a nearly endless list of claimed physiological and psychophysiological reactions: shock, paralysis, "falling out," sudden personality change (e.g., Paul's Damascus experience), ego substitution or walking-in, salutary transformation or regeneration of gross anatomical members (such as extremities), death, resurrection, arrest or reversal of chronic and acute morbidity, and more. Validation of these phenomena would be a helpful first step—however that might conceivably be done—followed by correlation with antecedents.

The challenge here is to take the next step beyond simply cataloguing such data. Researchers including Vallee (1975), Gowan (1980), Watson (1987), and Murphy (1992) already have begun this task. What is now required is a search for latent patterns—for connections of particular hierophanies or classes of hierophanies with particular therapeutic responses or classes of responses. Such a research program would require collaboration among scholars from across disciplines and fields: Biblical scholars, Orientalists, religious historians, physicians, epidemiologists, neurophysiologists, transpersonal psychiatrists and psychotherapists, parapsychologists, ufologists, military intelligence officers, sensitives, and perhaps others. Considering how hard it is to convene sociologists and psychologists—even variant species of psychologist—it does not appear likely that the modern university with its departmental and disciplinary boundaries could serve as the locus for such research. Perhaps deep within

the ultra-compartmentalized black projects of the Department of Defense or unpublicized military contractors such investigations are already ongoing.

4) The Risk or Protection Derived from Thought Forms

Returning from the etheric realms to a more grounded arena—thought and belief—might particular belief systems or ideologies be associated with particular patterns of somatic pathology? More specifically, might certain thoughts be etiologically significant for certain illnesses, exacerbate extant conditions, or cure or engender remission of certain diseases? Researchers have known for decades that aspects of belief, personality, and cognition are salient influences on the course and prevention of disease—for example, the early work on the Type A or coronary-prone behavior pattern (e.g., Friedman & Rosenman 1971) and on the health belief model (see Rosenstock 1974). The former was derived from observations of heart patients; the latter was developed as a theory for predicting preventive health behavior. But can we be more precise? Can specific thoughts be implicated in the etiology or cure of specific diseases?

Many spiritual healers recommend a positive attitude as therapeutic. Some, such as Hay (1984), go further by outlining precise thoughts and concomitant somatizations, as well as thoughts that can remedy particular diseases. Medical clairvoyants and intuitive diagnosticians likewise attach certain thoughts to increased risk of certain medical diagnoses (see, e.g., Shealy & Myss 1993). For example, rheumatoid arthritis is believed to be "generated by a combination of chronic anger and resentment . . . . as though he or she is being held in emotional bondage with no alternative available for emotional release other than to internalize it" (Shealy & Myss 1993:237), a reaction, in turn, that restricts movement within the joints. One could imagine both physiological and metaphysical mechanisms of action: respective cognitions and affects translate into health-impacting etiologic factors via a network of neurological, endocrinological, and immunological pathways (see, e.g., Ader, Felten, & Cohen 1991); or such ideations invoke higher-order forms which "precipitate" down into denser realms thus impacting on the physical body.

The latter hypothetical mechanism borrows on the Theosophical and mystery-school conception of thought forms—semi-material forms generated by thought and existing in the mental plane, a dimension which vibrates at a higher frequency than the physical plane (where our bodies materially precipitate into sense-able manifestation) or the astral plane (the dimension of emotions, where, it is believed, people typically first arrive when they project out of their physical vehicle during an OBE or

immediately after death) (see Besant & Leadbeater 1975). Esotericists have proposed that thought forms have tangible effects in the physical plane, including on the functioning of the human body, a cornerstone tenet of occult healing (see Burnett 1918). This has been validated, to a degree, via observations made by energy healers during the energy-field scanning or diagnostic phase of their work (e.g., Batie 2004).

For sure, any bench research on this subject would require subtle instrumentation capable of measuring such thought forms. Interestingly, photographic techniques developed around the turn of the 20th century have shown promise in this regard (Krippner & Rubin 1973). Western biomedical scientists and clinicians might be surprised to learn that discussions of practical applications of methodologies to assess subtle-energy fields are not limited to parapsychologists but have occurred within engineering (e.g., Tiller 1976), biology (e.g., Oschman 2016), physics (e.g., Rubik 2004), and medicine (e.g., Rosch 2009).

5) The Pharmacology of Placebos

In recent years, much has been written about placebos. According to the National Library of Medicine's PubMed search engine, more than 5,500 journal articles (at the time of this writing) match on the phrase "placebo effect," dating to 1948. Yet, as Weil has noted (1988), Western medicine continues to treat placebos as a sort of ash heap—a valueless residual category in double-blind clinical drug trials. That is, if Drug A cures Disease B in 38 percent of cases and a placebo pill made of milk-sugar does so in, say, 35 percent of cases, and if based on sample size and statistical power there is no significant difference between the two cure rates, then the trial is said to have failed. What seems to be overlooked is the startling effectiveness of milk-sugar pills. If one were to re-collate all of the thousands of negative findings from the archives of double-blind clinical drug trials, one might discover that a concoction of milk-sugar or whatever else is used has apparently cured almost every known affliction. Instead of decrying this, one would think that by now someone would have bottled the stuff and made it available. Ironically, homeopaths do just that and (possibly) more, yet are accused of quackery by allopaths and skeptics.

The challenge here for biomedical science is no less than to study the pharmacology of placebos. Such research actually has been ongoing since the early 1950s (e.g., Wolf 1950), with findings published in mainstream medical journals. The U.S. National Institutes of Health convened an expert panel to examine the issue of placebo and non-specific effects more than 20 years ago. The chair of the panel later stated that he prefers "meaning

response" to "placebo effect" (Moerman 2013), since placebos, being inert, are incapable of effects but the meaning attached to their administration may point to a mechanism of action. Despite decades of scientific research and writing on this subject, the promise of placebos—or meaning therapy—as legitimate first-line medical treatment has not gotten very far.

A renewed effort to study placebos and their mechanism(s) of effect would best be done in a multidisciplinary setting, through collaboration among pharmacologists, biochemists, biostatisticians, and clinical scientists, and perhaps a few (secretive) consults with homeopaths. Besides the difficult issue of mechanisms, the most clinically relevant questions include: Might certain afflictions be more amenable to this therapy than others? Does a dose-response relationship operate? Are certain presumably inert substances less inert than others? Do interaction effects exist between placebos and certain pharmaceutically active agents? Can placebos ever be therapeutically dangerous (over and above the possibility that they may not work)? Can such treatments be standardized?

These are empirical questions which require scientific investigation. None necessarily posit mechanisms or pathways as far out as those noted earlier in discussion of UFOs, trance channels, thought forms, and other mysteries; this is a job for clinical and bench science. These questions, however, may represent a profound threat to what has been termed "pharmaceutical hegemony" (Radelet 1979)—pharmaceutical conglomerates acting as agents of medical social control (see Conrad 1979) by working in tandem to suppress non-pharmaceutical cures or treatments of prevalent diseases that constitute a large global market for such firms. In light of the conjecture of some on the far left and the libertarian right that the U.S. pharmaceutical industry may be complicit in the coup that toppled the Allende government in Chile (see, e.g., Modell & Waitzkin 1974–1975), it may be that such avenues of scientific research will be blocked. Nevertheless, collaboration between bench scientists and clinicians has much to offer if the promise of placebos is to move from speculation to inquiry.

6) The Use of Radionics in Population-Wide Intervention

Radionics is a psionic or psychotronic healing modality intended for the diagnosis and treatment of medical problems (see Tansley 1984). Through combining the diagnostic use of psychic intuition (e.g., by the oracular use of a crystal pendulum) with the imbuing of salutary vibrational energies projected to the healee either through an ingested medium (e.g., water) or by absent healing, a therapeutic transaction occurs outside of the currently accepted bounds of material culture and empirico–positive measurement.

In less abstruse terms, radionics is a form of absent or invisible or nonlocal healing, one step removed even from homeopathy, in that the latter does not conventionally incorporate absent-healing methods. Thus, to the orthodox allopath, radionics is an even greater heresy than homeopathy and must be quackery (see Belden-Adams 2012).

Setting aside for now the reservations of the biomedical establishment, radionics—accepting at face value the claims of proponents—would seem to offer a therapeutic avenue by which communicable diseases, such as AIDS, could be cured or even eradicated at a population-wide level. While it should not be presumed that most radionics practitioners would necessarily endorse such a claim, several pieces of information support this idea. First, radionics has already been used successfully by farmers to eliminate agricultural blight caused by certain organisms (Diver & Kuepper 1997). Second, a means to defeat an infectious agent, such as the HIV virus, may be "implicate" in the order of things (e.g., Bohm 1980)—although perhaps outside the consensus bounds of the space–time coordinate system that now define and limit the focus of our conscious attention. Third, this could be operationally conceived of as a "morphogenetic field" (Sheldrake 1981)—a sort of Platonic form lying dormant, waiting to be tapped and then triggered by something akin to a "hundredth monkey phenomenon" (Keyes 1982).

Granted, liberties have been taken in characterizing and concatenating these ideas. But in conjoining them in an experimental setting with, say, a couple hundred HIV-positive subjects, might one hypothesize a sequence of events that could trigger eradication of the HIV virus throughout the world (provided, first, that each of the above theories is correct, and, second, that they can be operationally synthesized in such a fashion)? At worst, if there is therapeutic efficacy in such a radionic remedy, the trial might help or cure a couple hundred people radionically. Unorthodox? Of course. Unscientific? Not at all. Still, as with medical studies of UFO contacts and trance-channels and the rest, it is hard to fathom that the requisite financial support for such a project would be forthcoming from conventional public funding sources, no matter the promised cost-effectiveness and immensity of its potential payoff.

7) The Collation of Medical Wisdom from Arcane Traditions

Continuing with the topic of absent healing, various modalities are reputedly familiar to initiates of mystery schools and esoteric brotherhoods (see Levin 2008). As with the suggestion concerning extraterrestrial healing methods described earlier, these methods, too, could be catalogued and codified. Much of the highest, most advanced scientific wisdom of the ages is said to be contained within secret teachings of initiatory orders (see Hall 1977).

Much of this wisdom concerns healing (Hall 1972). Some scholars (e.g., Smith 1976) contend that these secret teachings comprise a common inner path, a "perennial philosophy," fundamentally identical across outwardly divergent faith traditions. That is, the healing philosophies and methods of Kabbalists, Sufis, Tibetan lamas, Zen masters, Rosicrucians, Theosophists, Christian mystics, adept yogis, initiates of arcane Masonic rites, and others privy to as yet largely unpopularized mysteries may converge about a singular set of truths universal to our species.

An obvious stumbling block to retrieving and collating this wisdom is that many of these teachings are protected by oaths—vows of secrecy that prevent their transmittal to the uninitiated. While currently egalitarian sensibilities may bristle against this discrimination, apparently some things are not meant to be revealed to the intellectually and spiritually unprepared. The bearers of esoteric knowledge (religions and secret orders alike) seem united on the necessity of initiation (e.g., Bailey 1953). Perhaps, scientists are best encouraged to gain initiation into the mysteries and then, like esotericists of old, allow bits of the arcane learning to spill out into their writings, while the more complex teachings rustle about in their minds, supplying the substance by which intuition and divine guidance can provide a higher collation and lead to formulation of new research agendas to recover eternal truths seemingly lost to time.

8) The Mapping of Prenatal Ensoulment

Such a process might produce many highly unusual research questions. One such question, which has plagued theologians and philosophers for eons and Western politicians and bioethicists for decades, has to do with when, exactly, the soul first enters the physical body. Many answers have been proposed, each with ideological devotees, the three most popular being at conception, at birth, or never, the latter common among secular humanists as a direct corollary of their belief that no such thing as a soul actually exists (Minsky 1976). As every reader is aware, this issue is not just a matter of intellectual and religious debate, but of highly contentious political dispute due in part to its relation to longstanding policy discussions regarding abortion, stem cells, and cloning (see Dolgin 2004).

In some metaphysical circles, such as according to psychic channels, a much more complicated hypothesis emerges: The soul incarnates into the embryo or fetus at variable points in its prenatal development, and may come and go at will until birth or perhaps beyond (e.g., Newton 1994). A more concrete understanding of this phenomenon would help resolve one of the great ethical dilemmas of our day, namely abortion. Barriers to such a conversation may be omnipresent, however, due to ongoing hostilities

between proponents of respective viewpoints prioritizing female autonomy or human life.

There is some danger for medical science to wade into such a highly charged political and ideological debate. For one, each side is convinced that it is morally in the right, an absolutism that fuels mischaracterizations of its normative position by opponents. Accordingly, pro-choice proponents are recast as baby-killers; pro-life advocates likewise are spun into oppressors of women. The debate is so polarized that its construction precludes alternative positions, the more metaphysically grounded of which might require engagement of ideas such as reincarnation, astral projection, the existence of subtle bodies, and nonlocality of consciousness outside of individual physical bodies—concepts that may require abandonment or modification of prevailing worldviews and challenge established bases for political activism.

Moreover, because of the possibility of affront to the ideologically charged temperament of partisans on both sides, such research may be dangerous to the well-being and livelihood of scholars whose views are located outside of these two positions. It is well to recall the reaction of leaders of the skeptical "new inquisition" (see Wilson 1987) to paradigm-challenging research at the Stanford Research Institute (SRI). Not only was the innovative physics research of SSE members Puthoff and Targ on remote viewing derided as having dared to violate the revealed tenets of materialism—which the debunkers "knew" to be true—but they went as far as to label such research and the spectre of further such explorations at SRI and elsewhere as incompetence, quackery, and even fascism (see Schnabel 1997, Targ & Katra 1999, Targ & Puthoff 1977). Whatever one may think of the idea of research on prenatal ensoulment, however such studies might possibly be done—and the present author has no helpful suggestions here—it pays to keep in mind the hostile and programmed response of the skeptical community to highly innovative research in theoretical physics, a field considerably more mainstream than esoteric obstetrics.

9) The Use of Sound and Music in Genetic Engineering

The final proposal in this new-paradigm research agenda may be the most unusual and promising. The late Dr. Susumu Ohno, distinguished molecular biologist, devised a peculiar new alchemy: transubstantiation of portions of genetic code into musical melodies and vice versa (Associated Press 1988). Each of the four basic nucleic acids, the building blocks of DNA, were assigned musical notes and written out in the sequence in which they appeared in a particular gene. The result was a musical score encoded from mouse RNA, rainbow trout, slime mold, a chicken's eye, and so on. The

scientifically and metaphysically significant element in this exercise was the remarkable resemblance of the resultant music to the intrinsic essence or soul of the seed DNA sequence. That is, mouse RNA sounded like an uptempo waltz, the lens of the eye sounded light and airy, an oncogene sounded somber. In reverse, the same correspondence held; for example, a funeral march by Chopin, decoded, resembled a human cancer gene.

Perhaps the results of this truly inspired work are not all that remarkable given the well-known esoteric principle of "as above, so below." The microcosm reflects the macrocosm, and both reflect a higher form, and all such forms reflect the essence—the ultimate monad, the One (see Blavatsky 1970). Esotericists across traditions have been making this observation for ages (see Faivre 1994). On the other hand, according to "some experts," reported the Associated Press, this work "has no practical application" (Associated Press 1988).

On the contrary, one may envision all manner of fantastic applications of this process, building on the principle that sound and music, being vibrational frequencies, can interact with and physiologically and morphologically affect the physical and subtle bodies, being conglomerations of frequencies themselves. And these applications extend far beyond typical bench-science experiments. Does the patient have an infection? Then take a sound bite of the appropriate antibiotic. No cost, no toxic side effects, no pharmaceutical profits. On the downside, want to harm a large population—an incurable disease or agricultural blight, perhaps? Then how about a form of mutagenic terrorism—the introduction of a genre of music into a culture or society which can precipitate disease through wreaking genetic mutations?

These sorts of scenarios may not be so far-fetched. Evidence suggests that the genre of New-Age music has effects on the body, mind, and emotions (e.g., Kemper & Danhauer 2005). Jim Oliver, for example, has gone one step further than most by creating musical compositions specifically for purposes of engendering physical healing (Bartoo 1988). Using a bank of wave forms, thousands of different sounds were tested in hundreds of client sessions—an empirical program not unlike the "provings" of the early homeopaths (see Jonas & Jacobs 1996). Specific tones have been identified to replace dental anaesthesia, realign vertebrae, stimulate acupuncture meridians, and even provide a sort of massage (Bartoo 1988). One interesting side-effect in many clients was stimulation of intuition coupled with fortifying the will to improve one's life.

In sum, this interplay among sound, music, genes, disease, and human bodies promises a comprehensive new *materia medica* linking sound vibrations to specific states of health and disease. Combined with evidence of healing through the use of light, color, and visually detectable vibrations

due to correspondences with respective *chakras* (Hunt 1971), we have the makings of an entirely new, yet ancient, therapeutic approach: totemic medicine. Each disease, each cure, each organ, each *chakra* is part of a vast family with its respective musical note, color, planetary influence, herb, emotion, archangel, Kabbalistic *sefira*, gemstone, element, visual symbol, Hebrew letter, flower, Ray, etc. By marshalling the appropriate members of the target-state totem, perhaps a salutogenic response is hastened. This concept is not dissimilar to the efforts of shamans and practitioners of sympathetic magic—indigenous healers from across global cultures whose work has been ongoing since long before Western medicine came into being (see Murdock 1980) and which may remain with us after its demise.

Conclusions

Spirituality, alien abductions, hierophanies, thought forms, placebo pharmacology, radionics, arcane medical wisdom, prenatal ensoulment, and musical genetics—these are not exactly the stuff of medical school curricula and externally funded research grants. But, why not? Each topic has been framed in terms amenable to investigation via the accepted hallmarks of the scientific method—statements of theory, hypothesis formulation, empirical testing through data collection, and so on—and each may have meaningful, if currently unrecognized, clinical and therapeutic applications. The principal barrier to such investigations cannot be a lack of some intrinsic qualities that might lead opponents to label these ideas "unscientific." They are entirely scientific—that is, amenable to empirical testing leading to validation or rejection. Rather, these agenda points broach issues and concepts that may violate the worldview or dominant ideology of the majority of those individuals who call themselves biomedical scientists. But, this is not the same as saying that these ideas violate the underlying tenets or methods of science.

This confounding of what biomedical scientists and allopathic physicians believe as people and what the current state of their professions' knowledge base propounds is mirrored in other intellectual disciplines. For example, sociology can be defined simply as the study of society or of social institutions and social behavior. Yet to variant breeds of sociologist—functionalists, symbolic interactionists, conflict theorists, or others (see Parsons et al. 1961, Wallace 1969)—alternative definitions of sociology are likely to go on for paragraphs and include a menagerie of unusual words and phrases: behavior, objective study, regularities in conduct, heuristic knowledge, scientific, human environment, the socius, uniformities in group behavior, the processes of companionship, general laws of social change, and more. Each collection of words helps justify a narrow conception of

the field that places borders around acceptable research questions and even around acceptable conclusions.

It is not hard to see this same process at work in Western medicine, except that it is so pronounced and ubiquitous as to be nearly invisible. It is a common observation among social science faculty in medical schools that medical students (and some clinical faculty) are largely unaware that their study and practice is limited to one particular historical school of medical philosophy; indeed, many students and teachers have never even heard of the term "allopathic." At least a structural–functionalist sociologist is aware of symbolic interactionists and others; and transpersonal psychologists are aware of behaviorists, experimentalists, and their social, cognitive, and psychodynamic counterparts. In the mainstream biomedical world, however, the current state of professional knowledge is elevated to the status of revealed doctrine, and research questions that do not build on current programs and pay homage to the operant worldview are so marginalized that they rarely ever get formally asked.

A promise of the holistic or alternative or complementary or integrative medicine community is the engendering and support of individuals who ask such off-the-wall questions. But, sadly, holistic medicine has taken on many of the trappings of mainstream medicine. In addition to the obvious social and professional similarities described earlier, many holistic or New-Age therapies are no less reductionistic than Western medicine. To its credit, the allopathic approach at least focuses on the whole person, or, rather, the whole physical person. As long ago noted by Vanderpool (1984), Velimorovic (1984a, 1984b), and others (e.g., Levin & Coreil 1986), certain alternative specialties are even more narrowly focused than the most vilified Western subspecialties. Entire systems of treatment and/or diagnosis are based on the *chakras* or the iris or the tongue or the spine or the etheric body or the *nadis* or the foot. Therapy, as well, may be limited to a single modality: laying-on-of-hands, breathing, fascial manipulation, the use of quartz crystals, application of transcribed messages from channeled entities.

This is not to discredit any of these alternative therapies. There appears to be great efficacy for many of them (to which the present author can attest through personal experience), and, in certain situations, they may be of greater benefit to suffering people than medicine as currently envisioned and practiced. Yet the continued reification of Western disease categories, compartmentalization of people into a sick role, and fragmented professional treatment of parts of the body (physical or subtle) hardly herald the coming of a new medicine. It is as if for all the inspired talk of new paradigms, changing medical consciousness, and societal transformation, many of the reigning theorists of integrative medicine are fearful of breaking with the

past and proposing theories, treatments, or research protocols that are truly revolutionary. This sensitivity to overstepping the bounds of good judgment suggests that, as with allopathy and its allied biomedical sciences, the early idealism and radical adventuresomeness of holism have given way to the hegemony of a dominant, common ideology which may be, at best, a modest derivative of the prevailing materialist worldview of modern medicine. The unorthodox risk becoming a new orthodoxy, their dogma no less reductionistic than the old orthodoxy.

How then does one engender the radical new approach to healing that is so needed? Throughout history, such changes—such paradigm shifts—such overthrows of one system by another—have been driven by the research findings of solitary figures working alone, like mad artists, seeing the world through open eyes. For the most fortunate of these, discoveries are made that are disregarded in their day but which eventually seep into the tacit truths of some later time. Sometimes the lag period is brief—a few decades—while other times it is centuries. It is hoped that the many unusual research programs proposed here, by one securely niched in academic science, can serve to encourage and jump-start the explorations of the brave medical scientists and healers who have quietly seen the future.

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HISTORICAL PERSPECTIVE

Anomalous Phenomena and the Scientific Mind: Some Insights from "Psychologist" Louis Favre (1868–1938?)

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Abstract--At the turn of twentieth century, in France, psychical research wasn't fully separate from psychology. The Institut Général Psychologique (IGP) was created in 1900 as an attempt to integrate the scientific study of anomalous phenomena into modern science. One forgotten actor in this society was "psychologist" Louis Favre, a polymath researcher with a passion for scientific methodology and the "scientific mind." He developed a pioneering experiment on the influence of magnetic passes on plants and microbes, with a control group. He also participated in IGP's 3-year study of physical medium Eusapia Palladino, from which he made general suggestions for the study of anomalous phenomena. Later in life he classified this study as at the forefront of scientific dynamics, naming this field "Anomalialogy of phenomena." According to him, this field is highly compatible with the scientific method, and may even be the best place to train our "scientific mind."

Keywords: history of parapsychology—Louis Favre—Eusapia Palladino—anomalistics—Institut Général Psychologique (IGP)

In France, the competition between psychology and parapsychology is now well documented by historians (Plas 2000, Méheust 1999, Brower 2010, Lachapelle 2011, Evrard 2016a). But psychology and parapsychology first shared the same institutions, journals, and research objects. Historian Andreas Sommer (2013:11) noted that "the intersection between 'official' nascent modern psychology and psychical research was, albeit relatively short-lived, nowhere as overt as in France." But it's only through integrative or symmetric work that we can understand the historical significance of this "strong albeit clandestine historical continuity" (Sommer 2013:12) between orthodox and heterodox psychology (Evrard 2016b).

One attempt to build such continuity was one of the first formulations

of what we now call *anomalistics*, as an epistemological posture that generalizes the scientific approach to border-areas.[1] Within the framework of psychical research in early twentieth-century France, at the Institut Général Psychologique (IGP), the psychologist Louis Favre tried to identify the place of "parapsychology" in the classification of sciences and to justify the importance of the study of *anomalous phenomena* for all people with a "scientific mind."

The Institut Général Psychologique

During the Fourth International Congress of Psychology in Paris in 1900, the psychologist Théodule Ribot announced the launching of the *Institut Psychique International*, soon renamed *Institut Général Psychologique* (IGP). Physician and psychologist Pierre Janet (1859–1947) and physiologist Charles Richet (1850–1935) were to be the two heads of this new scholarly society which was funded by a young Russian prince, Serge Youriévitch (1876–1969), who interpreted some of his experiences as paranormal and wished them to be studied scientifically (Youriévitch 1944). Spiritualist and religious interpretations of these phenomena were shelved to make way for a self-proclaimed more positivist and empirical approach: psychical research (Lachapelle 2011).

The IGP received a lot of support from elite scientists and soon became the major private society studying the mind (Brower 2010:47–74). But the mission of this institute was soon "rectified" by Janet—according to historian Régine Plas (2000:148)—to become more "psychological." Evidence of that is the immediate replacement of the epithet "psychical" with "psychological" in the name of the organization and its bulletin, during the launch, leaving the impression of a diplomatic mess.

Membership in the IGP was diversified. Psychologists were in the minority (Plas 2012:99) among physicists, biologists, physicians, and psychical researchers, many of them members of respectable Academies and occupying prestigious positions in the academic system. The historian Matthew Brady Brower (2010:59) saw in them the ideological and institutional heirs of Claude Bernard, Louis Pasteur, and Jean-Martin Charcot. After one and a half years of activity, the IGP had more than 400 members.

Janet said that he didn't recognize himself in this approach of giving too much space to popular expectations of the empirical and theoretical study of the paranormal that went beyond his psychopathological scope (Plas 2012). According to him, so-called paranormal phenomena revealed subconscious activities requiring clinical management, rather than encouraging a spiritist delusion (Le Maléfan 1993). Quickly, he would subtly divert some resources

from the IGP to create, first within it, a *Société de Psychologie*, which would become independent in 1904 and later became the French Society of Psychology. This Société de Psychologie was autonomous, with its own membership limited to 40 psychologists (without any foreign or psychical researchers), and a more hierarchical functioning.

The paradoxes of the birth of the IGP were criticized by proponents of psychical research (De Vesme 1901): Several issued a call for the creation of a genuine society for psychical research (Sage 1904, Geley 1905). But the IGP nevertheless conducted a masterly study of the medium Eusapia Palladino (1854–1918) among several other clever studies (Courtier 1908; on Palladino see Alvarado 1993). It was done through a subdivision of the IGP, the *Groupe d'étude des phénomènes psychiques* (GEPP). We can see that parapsychology was integrated as one of the specialties of this institute, in the larger undertaking of understanding the nature of mind and its role in nature, adjacent to the study of mind in animals, social groups, criminals, etc.

Introducing Louis Favre

One of the main researchers of the GEPP was Louis Favre (1868–1938?), an agricultural engineer, who was professor of experimental methods at the School of Psychology.[2] Without clinical training, he was part of a heterogeneous group of scholars with an enthusiast interest in psychology, before the professionalization of the discipline in France (Carroy, Ohayon, & Plas 2006). He had published several treatises on scientific methodology (Favre 1898, 1900, 1903, 1904b) and an application of that methodology on the "things of everyday life" (Favre 1899) which was confined almost exclusively to demonstrate, through logic and psychology, the innocence of Alfred Dreyfus! (In these publications, he had already highlighted the problem of prejudice and categorical statements.) Favre also had a degree in science, one in law (which made him a lawyer at the Court of Appeal of Paris), and was once a president of the *Société des gens de science* (Society of Men of Science). He spent time in the Laboratory of Experimental Phonetics at the College de France where he worked on diction; and inaugurated in 1898–1899 a free course on the "experimental method" at the Sorbonne. He participated in the First Congress of the "physiological psychology" section of the French Association for the Advancement of Science, in July, 1914.

In the Bulletin of the IGP, his publications shed light on many aspects of research and epistemological reflections current at the IGP. Favre's obsession was methodology. This obsession was such that his colleagues were forced to cut short his interventions, so that he was known as the professor of the experimental method! When he published his pioneering experiments on the influence of magnetic passes on microbes (Favre 1905),

only one paragraph lost in the middle of the presentation described (loosely) the results! Yet some of his works deserve some attention. Psychical research or "Metapsychics" (as Richet coined it in 1905) fascinated him because of the methodological and epistemological challenges it poses (Favre 1925).

Experimental and Conceptual Studies of Anomalous Phenomena

Favre therefore began with a study of magnetic passes in 1903. He innovated by testing firstly their effect on plant seeds and secondly on microbes because their control is easier. Not using human or animal targets allowed him to avoid any effect of suggestion. He introduced a control group of microbes from the same strain and left them in identical experimental conditions, except for magnetic passes. Differential effects were measured (Favre 1904a). He first presented this work at the IGP, then at the 5th International Congress of Psychology in Rome in 1905 (Favre 1906). The results were encouraging but not completely convincing due to biases he himself found. However, his methodology would be perfected in later studies of direct mental interactions of living systems (DMILS) (Schmidt 2012).

In 1905 the study of the medium Eusapia Palladino began, in which he participated assiduously. In the group of renowned scholars, he took the floor during the final discussion (see Courtier 1908:547–578), providing some ideas that he later deployed in several communications:

- One idea is that psychical researchers should express their séance observations as percentages, that is to say in degree of plausibility (Favre 1910a). This should reflect variability in observations, opportunities, and abilities, thereby improving discussions.
- On several occasions, Eusapia produced phenomena after a meeting was over. Controllers slackened their attention and the light was relit, and suddenly the long-awaited phenomena appeared. Obviously, the relaxation of controls was canceling the interest of these phenomena. Favre, pushing the logic to its extreme, therefore suggested feigning adjournment of the experiment, turning on the light, and keeping close watch on the medium (Favre 1910b). With the light, the controls are better and the elusiveness of the phenomena is thwarted.

Favre understood that the difficulty in such studies is to obtain an optimal balance between production and control. "Production" defines all the conditions that allow the psychic to produce phenomena (darkness, songs, trance, etc.); "Control" refers to all the conditions that establish their scientific value (brightness, measuring devices, fraud controls, etc.). It is rare that the two meet easily; and that's why psychical researchers cultivate the

delicate art of maximizing both production and control. They wait patiently, establish a trusting relationship, encourage the subject to work under the conditions that are most comfortable to him. Then they add controls, helping the subject to increasingly accept stringent constraints, without breaking the trust bond and other production-conducive factors. Psychology professor and psychical researcher Théodore Flournoy explained the interest of such a methodology:

> For phenomena which are still so mysterious, with a very complex and delicate determinism, one should start by patiently observing their spontaneous production, before venturing to experiment, that is to say, to impose certain conditions. And since their main factor is in any case a human being, the medium, whose psychology and physiology we know so little, it is above all [important] not to rush him, but rather to surround him with compliance and respect, to show him and inspire in him the most confidence, to even enter into his views and those of the "Spirits" he is supposed to be the instrument for, by temporarily adopting his perspective; in short, one has to encourage him by treating him humanely and sympathetically, instead of running the useless risk of paralyzing him through contradictions or by immediately subjecting him to control processes which he does not feel the need for and which seem purely vexatious to him. It will be soon enough when his faculties will bloom freely, and that phenomena have begun to deploy, to bring him gradually, by persuasion and by gradual trials, to operate in conditions which are better and increasingly conform with the stringent requirements of the experimental method. (Flournoy 1911:371)

The logic of such an approach is strongly advocated by Favre (1912a:1): "To control facts, first you need to have some. This is why it's essential—here as in any other scientific field—to take care not only of the controls, but also (contrary to what too many psychical researchers do) of the production." This special methodology, between psychology and physics, is at the heart of discussions between psychical researchers and their opponents. Psychical researchers would inevitably blame the skeptics as they are not looking enough at meeting all the conditions favorable to production; while those skeptics, in a dialogue of the deaf, would swear only by the quality of controls.

Favre found that the progression to maximum control was not obvious, for a good reason: Control devices were sometimes disturbed by anomalous phenomena! Several failures and destructions were observed during Palladino's study and, very often she announced ahead of time her enmity toward the targeted device (Favre 1910c). But if the best means of control are rejected by the medium or rendered unusable, this affects the overall quality of results.

To solve this problem, Favre offered a psychologically based solution (Favre 1910b, 1912b). One must know the psychology of the medium to locate objects and devices that are sympathetic or unsympathetic to him. Then, using ruse, one might associate pleasant and unpleasant control devices, so as to develop recursive control possibilities. Knowledge of the medium should be used to provide attractive and fun targets, like the flour that could be thrown in the face of the experimenters (!). Or a wax doll which would be placed on the light switch, so that its telekinetic displacement immediately actuates a reinforcement of the control. Using other similar ideas, Favre behaved as an engineer convinced that every problem has a logical solution, without suspecting that attempts to outwit the subjects will lead *ad infinitum* to new tricks from them, while damaging confidence in the relationship.

Favre also offers other simple devices to establish controls with minimal interference in the production of mediumistic phenomena. For example, the light should not be directed directly on the medium but reach him by reflection. If, nonetheless, the experiment could not be conducted in the light, bright marks in the form of phosphorescent strips could be placed on what is likely to move: the medium, objects, and experimenters. Finally, to remove more doubt about the distance between the subject and target objects, a fixative device called "distancer" could help maintain and measure that distance.

Favre concluded that, according to this dialectic of production and control, it would be wrong to dismiss a phenomenon that disappeared when you changed the conditions of the experiment, usually to more effectively trap the genuine phenomenon or its fraudulent avatar: "When an attempted control seems contrary to production (which is rather common), it is up to the experimenter to find an equivalent that does not eliminate the phenomena" (Favre 1910c:23).

Favre's legacy seems to lie more on the conceptual side, as we found few details about his involvment in other experimental studies of mediumship or other paranormal phenomena. Apparently, Favre hadn't had the opportunity to implement all his ideas as part of IGP's work. However, he did discuss the study of metapsychics itself, its methodology, and its place in the classification of sciences.

The Place of Metapsychics in the Classification of Sciences

By stepping back, Favre has defined psychic phenomena as anomalies or paradoxes. They are abnormal, irregular, unusual, exceptional. (Here as elsewhere, Favre should have used the word "anomalous" referring to the "anomalies" instead of "abnormal," but the French language is under the

influence of an etymological blockage that does not exist in the Anglo-Saxon languages.) These are monsters, but even monsters have their place in science. There is indeed a "teratology of beings" which studies, from biology, zoology, and soon genetics, all the anomalies of the animal and plant kingdoms, all exceptions to the rules. If this teratology had already been a science for a century when Favre evoked it, the "teratology of phenomena"—to which he equated metapsychics—"has not yet reached the scientific stage where it is already the teratology of beings" (Favre 1921:9).

This delay is detrimental because, as Favre said: "Where there is a paradox, there is a discovery to make." Exceptions, anomalies, or exaggerations—whatever the field—put us on a path of discovery: "because they reveal or make sensitive the action of unknown factors, they facilitate the study that will explore these factors" (Favre 1909:6).

Then Favre tried to lay out the lineaments of this science in gestation, which led him to reject abusive names such as "psychic sciences," "parapsychology," or "metapsychism" (Favre 1921:13), because they were too soaked with interpretations. The outlines of this science are poorly established, everything remains to be done, he claimed. Thus he started from scratch. As he expressed at the 3rd International Congress of Psychical Research in Paris in 1927, the place of metapsychics should be as a branch of a more general science, the *Anomalialogy of phenomena*, that is to say, the study of anomalies, of all anomalies. One should not only be focused on the *supernormal*, in new and revolutionary phenomena, but also on the *infranormal* such as pathologies, illusions, frauds, etc., that can explain these strange phenomena. The "tactical" is to deal systematically with all the abnormal—whether supra- or infra-normal—so that no one can deprecate this approach (Favre 1928:284).

This science of anomalies, with such a neutral approach, perfectly fits into the normal scientific process and could garner more researchers:

> To attract more and more researchers, it is necessary that this science cease to appear to them as an unscientific thing. Metapsychics is not (. . .) a study of the supernatural, but a study of the abnormal (. . .), of the *abnormal* [anomalous] *phenomena* (that is to say, of the Anomalialogy of the phenomena), and particularly of the abnormal [anomalous] phenomena which seem, rightly or wrongly, to depend on hidden intelligent forces. (Favre 1928:285; his italics)

More than an anomalistic psychology, as it is developing today, Favre caught a glimpse of an *anomalistic science* that embodies this eminently scientific function of the treatment of the unknown, of the brush clearing of border areas. This study, now called "anomalistics," must retain its

subversive dynamic, its principle of innovation that leaves the door open to exceptions which should not be perceived only as nuisances. This is at the price that the study of anomalies can be integrated into the process of scientific discovery, despite the resistances and dogmatic trends of "normal science."

On this ridge, Favre still clung more and more to this meta-knowledge of the scientific method. He pointed this out in the conclusion of his analysis, which is also a true metapsychical profession of faith:

> In summary, we can say—in this house of Science [the 3rd Congress was at the Sorbonne]—that Metapsychics is a science, a classified science. And we can add that it is we the scientists, *because* or *when* we endeavor successfully to broaden and deepen the field of general science, adding to the knowledge of the normal (with which most men are satisfied) the knowledge of the abnormal—which, in nature, complements and enlightens the normal. We are the pioneers, the vanguard men. We are going toward the darkness, it is true; but it's to fight and destroy it, if possible. We want to bring the light there. We want to disoccult the occult, to naturalize the supernatural—or rather what some mistakenly take for the supernatural. We want to normalize the abnormal, recognizing and showing the links between the two forms, seemingly opposite, of natural phenomena.
>
> To accomplish—without fear and without reproach—our beautiful task (certainly the most difficult of all the scientific tasks, because of the many causes of errors that can play there), we will charge ourselves to track and always more rigorously apply the rules of the experimental scientific Method. Thus Metapsychics will be scientific. It will be scientific or it will not be. (Favre 1928:285; his italics)

Metapsychics and the Scientific Mind

Favre was nevertheless aware that all researchers are not equipped in the same way to move toward these border studies. He based his argument on his studies of the "scientific mind," which he defined as "all the features needed to advance science" (Favre 1909:9). This psychologization of the scientist resulted in the consideration of the strengths and weaknesses of:

- the affective order (such as "disinterested love of the truth"),
- the intellectual order (such as "critical thinking free of all authority" or "the spirit of invention"),
- and the order of the will or character (patience, boldness, prudence, tolerance, courage, modesty) (Favre 1909:9–13).

Not only did Favre anticipate the study of epistemic virtues (Kidd 2014), but he had already used metapsychics as their privileged vantage

ground. Research in heterodox areas seems relevant to test the strengths and shortcomings of available scientific methods from other orthodox fields. Moreover, among the good reasons to study psychical phenomena, he included the "excellent training" (Favre 1909:7) from confrontation with these areas for the training of the scientific mind. An exercise where, unfortunately, many fail:

> He who acts as a scientific mind when he studies other objects, appears unscientific when addressing these difficult issues or this land where you have to walk alone, where the good guides and good examples that you can follow or imitate easily, are quite lacking. (Favre 1909:11)

Favre met there the observations later collected by Walter Franklin Prince (1930) and gathered in his book on *The Enchanted Boundary*. But rather than denouncing the excesses of rationalism, he made it an additional asset of metapsychics: "This study is the reagent of choice to detect and meter the scientific mind—our own and that of the individual with whom we speak or discuss" (Favre 1909:19). The way this field excites the passions, making many people partial and unscientific, supported his idea of a metapsychics as a "sensitive reagent." This discipline would have this "touchstone" function by the yardstick of which we could re-evaluate the claims of the supposed holders of the scientific mind. Who truly combines curiosity and critical spirit, benevolence and rigor? According to Favre, very few of his contemporaries can consider themselves as such:

> When we do the test or the assay, we find that people with enough scientific mind or a sufficient 'title' are rare. Many who have a head 'full of knowledge' are far from having a rightly shaped mind. (Favre 1909:8, with a reference to a famous quote of Montaigne)

Favre deconstructed the figure of the scientist because he noted repeatedly that people give their opinion on metapsychics without having studied it, something which is usually doomed from the outset in any other field. He gave several examples of conversations with scholars who opposed him with prejudices, "common sense," authority arguments, peremptory affirmations, or a refusal to examine based on the conviction that the whole issue has already been adjudicated and resolved (Favre 1909:13–18). He observed that many established scientists failed to apply rigorous science in these areas because of personal, economic, or social prejudices. What is happening in this zone of turbulence may also reflect the psychological and social investment of *orthodoxy*, even when it is minimized through the rhetoric of openness, truthfulness, and disinterested and dispassionate scientific practice. His conclusion was unequivocal:

> At the present time, the best area for scientific intolerance is that of psychic phenomena. The prouds who know everything can not tolerate that those who claim to know only what they have studied expressed a different opinion. (Favre 1909:27)

In the face of this, Favre could only ask, as a former lawyer, to "appeal" and get a "revision" of the scientific trial against metapsychics. He did it in the name of Science, of its Methodology, its Spirit, which are both his deep ideal, the heart of his profession, and the religion that the contemporary world allows him to preach.

Favre's discourse is exemplary—even if we find a similar enthusiasm among several other members of the IGP—in that it shows, on the epistemological level, to what extent the supporters of metapsychics conformed to the scientific ideals of their time—which are not so different from ours. . . . We may oppose their disappointing results and methodological biases, but it's difficult to take away their "right" will to do science. The *science of the mind* meets the *scientific mind*.

Conclusion

We have few clues about the reception of Favre's works among his circle of colleagues. In the archives of the Institut Métapsychique International (IMI), we found offprints of his articles sent personally to Dr. Eugène Osty, director of the IMI from 1925 to 1938, but no correspondence. The IGP archives are still missing, making it difficult to fully understand his connections with other psychical researchers and contemporary scholars.

A contextual analysis brought us two hypotheses: firstly, Favre, partly because of his personality and partly because of his lack of high-level credentials, was a jobber in the midst of IGP scientific elites; secondly, his focus on general methodological and epistemological issues in psychical research was not the most central to the evidence-driven debate, but maybe it was—for that very reason—particularly ahead of its time and relevant to contemporary research. These two hypotheses may explain why Favre's contributions were swallowed up in the history of metapsychics.

A key point in his work is his attempt to integrate the psychology and ecology of experimental subjects into experimental design, in an adequate balance with scientific constraints. This is still a major epistemological issue in all human sciences, and may especially distinguish standardized quantitative parapsychology following J. B. Rhine's research and other more ecologically driven paradigms, such as metapsychics (Méheust 1999, Evrard 2016a). Another key point is his neutral approach to anomalistics, which brought the same level of interest to the study of psi and non-psi

processes. This orientation gives more legitimacy to a scholar's approach to paranormal phenomena, but its success depends on the ability of researchers themselves to tolerate the undecidability of their hypotheses. What might have happened if Pierre Janet had agreed to participate in the experimental study of Eusapia Palladino, despite and thanks to his critical attitude, as he had previously with the lucid somnambule Léonie Leboulanger (Le Maléfan 1993)? Favre showed us that the study of paranormal phenomena gives good examples of how a psychology of science and scientists may contribute to the understanding of conventional scientific practices (Feist & Gorman 2012, Kidd, 2014).

Notes

[1] A previous version of this article was published in German (Evrard 2015), thanks to Gerd Hövelmann, whom I also acknowledge for his authorization to publish this material again.

[2] The Paris School of Psychology opened its doors in 1884 and gathered, at the time of Favre, teachers such as Edgar Bérillon, Paul Magnin, Felix Regnault, Paul Farez, Caustier, Lépinay, Binet-Sanglé, and Felix Régamey. The teaching was public and was intended for physicians, students, and minds eager to know about scientific acquisitions in the fields of positivist psychology and sociology (see *Revue de l'hypnotisme* Journal, *20*(7)(January 1906):193–194).

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ESSAY

The Challenge of Ball-Lightning: Evidence of a "Parallel Dimension"?

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Abstract--Ball-lightning, well described by Barry (1981), Singer (1971), and Stenhoff (1999), currently has no valid explanation. Attempted theories, based on present-day physics, fall into two categories: one in which energy is stored in the ball-lightning, and the other in which energy is fed into the ball-lightning as an electrical current or as microwaves. Some theories explain some of the facts, but no theory explains all of the facts. This suggests that we may need to introduce a new concept into our thinking. The concept of a "parallel dimension" seems promising.

Introduction

Ball-lightning is a scientific enigma. It is not a common phenomenon, but neither is it extremely rare. An average person is not likely to see one in his lifetime, yet it is likely that a friend or relative may have seen one. My mother saw one as young girl. She was in the family kitchen when a luminous ball came through an open window and moved slowly toward the kitchen table, where it made contact with a china plate. There was an explosion, the plate was shattered, and the ball vanished.

Luckily, that event did no serious damage or injury, but such is not always the case. A famous event occurred in St. Petersburg, in 1753, when the distinguished scientist Professor F. W. Richmann was carrying out an experiment to measure the atmospheric electric field during a storm. What happened has been summarized by Singer (1971:9]:

> Witnesses outside the laboratory saw lightning hit the metal rod on the roof which was connected to the measuring apparatus located in Richmann's laboratory. Inside, a ball of blue fire the size of a fist came from a metal rod on the apparatus straight to Richmann's forehead as he stood approximately one foot away. There was a shot as loud as a pistol shot when the globe hit Richmann . . . (Singer 1971:9 contains an engraving which may or may not be an accurate depiction of the event).

Stenhoff (1999:75) adds the following interesting information:

> The shoe belonging to the left foot was burst open. Uncovering the foot at that place they found a blue mark, by which it is concluded that the electrical force of the thunder, having forced itself into the head, made its way out again at the foot.

It appears that Richman was electrocuted by a current that entered at or near his forehead, and exited from one of his feet, but it is curious that the injury was localized to the foot.

The neurologist Oliver Sacks has described an almost identical case (Sacks 2007). A middle-aged man went to a payphone one afternoon (in 1994). There were no lightning events at the time, but there was "a little bit of rain" and thunder in the distance. He was about to leave the phone when a flash of light came out of the phone and hit him in the head. "Next thing I remember, I was flying backwards." Then "I saw my own body on the ground." For a few minutes, he had an out-of-body experience. He knew he had returned to his body when he found he was experiencing pain from burns on his face and his left foot. It appeared that "an electrical charge had entered and exited his body." One may surmise that the telephone, or wires feeding the telephone, had been struck by lightning, but Sacks does not provide information on that point. (Sacks' interest was in the curious fact that, after that event, the man developed an obsession for music.)

The Richmann case and the case described by Sachs are remarkably similar—in each case, the fatal or near-fatal event began with a localized electrical injury to the forehead and ended with another localized electrical injury to a foot. The fact that in each case there were two sharply localized electrical events raises the interesting possibility that each case may have involved more than one ball-lightning.

Fortunately, most ball-lightning events are less dangerous, although they can still be very dramatic. Singer describes the following case:

> On an oppressive day in Scotland in 1947 in which, however, there was no rain or thunder, a fireball was seen running along an outside electric wire. It struck a very large oak with a terrific explosion, shattering the tree to pieces. In the house nearby, the radio, telephone, and all fuses were burnt out; but the detonation did not break any windows or cause other damage. (Singer 1971:44)

Despite these and other impressive descriptions of ball-lightning events, some meteorologists doubted its existence even in the 20th century (Sturrock 2015:5). The reason was due in part to the rareness of the phenomenon, but perhaps in no small measure to the fact that scholars could offer no theoretical explanation.

The challenge to find an explanation became acute in the 20th Century when ball-lightnings would (fortunately only rarely) appear inside aircraft! The following is a description of such an event (Stenhoff 1999:113, Sturrock 2015:8).

> Professor Roger Jennison, then Professor of Physical Electronics and Director of the Electronics Laboratories at the University of Kent at Canterbury, England, was traveling in an Eastern Airlines all-metal aircraft over the East Coast of the United States during a thunderstorm on March 19, 1963, at 12:05 a.m., Eastern Standard Time. He was seated near the front of the passenger cabin. There was much turbulence. The aircraft was evidently struck by lightning (he saw a bright flash of light and heard a loud bang) and some seconds later a perfectly symmetrical glowing sphere of diameter 22 ± 2 cm emerged from the pilot's cabin and traveled at constant height and speed (75 cm above the floor at 1.5 ± 0.5 m/s relative to the aircraft) and in an undeviating path down the central aisle of the aircraft approximately 50 cm from him. The blue-white sphere had no structure, and was somewhat limb-darkened and optically thick [i.e. not transparent], hence appearing almost solid. It did not seem to radiate heat, and appeared to have an optical power of about 5 to 10 W. It was also seen by a terrified air stewardess as it disappeared into the toilet compartment at the rear of the aircraft.

There is still no accepted theory to explain ball-lightning. Barry (1981), Singer (1971), and Stenhoff (1999) all agree with the following statement by Hill et al.:

> There have been many theories advanced to explain ball-lightning [but] no theory is completely satisfactory . . . (Hill et al. 2010)

Finkelstein expressed the following opinion:

> We should be able to deal with it [ball-lightning] at least qualitatively from fundamental principles. We can't, and it's getting embarrassing. Nor is the reputation of science much improved by our again denying the existence of what we cannot account for. (Finkelstein 1972)

The difficulty that scientists have had—and continue to have—in finding an explanation of ball-lightning raises the question of whether we may be fundamentally on the wrong track. Theories are based on concepts. If current theories seem hopelessly inadequate, it may be that we are using inappropriate concepts, in which case it may be time to start looking for a new one. That is the purpose of this article.

We briefly list the basic facts concerning the phenomenon in the next section "Basic Facts," we comment briefly on current theories in "Current

Theories," we offer a new proposal in the section "A New Concept," and we conclude with a brief Discussion.

Basic Facts

According to Barry (1981), Singer (1971), Stenhoff (1999), and others (for a brief introduction, see Sturrock 2015), some of the basic facts concerning ball-lightning are the following:

1. The diameter of a ball-lightning is typically in the range 10–50 cm. There are few reports of ball-lightnings that are very much smaller or very much larger.
2. The lifetime is typically in the range 1–5 seconds, but there are reports of longer lifetimes.
3. Ball-lightnings are self-luminous with a luminosity comparable to that of a few-watt lamp.
4. Ball-lightnings are typically described as transparent or semi-transparent rather than solid in appearance.
5. Ball-lightnings have varying colors, common colors being red, orange, and yellow.
6. Ball-lightnings tend to move slowly, with speeds of order 1 meter per second, often erratically.
7. A ball-lightning may fade away quietly or may explode.

The phenomenon has electromagnetic characteristics:

8. Ball-lightnings tend to occur when and where lightning is occurring or is likely to occur.
9. Ball-lightnings often follow telephone lines or other electrical structures.
10. A ball-lightning may have the appearance and odor of an electrical phenomenon, with sparkling and jittering fine structure.
11. Some witnesses have experienced electric shocks by being in contact with a metal structure that was contacted by a ball-lightning .
12. Some ball-lightnings have put a magnetic compass out of action—presumably by demagnetizing it.
13. Telephones and other electrical devices, which may be some distance away, may be put out of action at the time of a ball-lightning event.

The following facts make the phenomenon particularly intriguing:

14. A ball-lightning can move independently of the atmosphere. Jennison (1969a) refers to an observation of a 20-cm ball that appeared 50 cm above the trailing edge of the wing of an aircraft in flight. It moved parallel to the wing at a speed of about 1 meter per second before being cast off at the end. The ball was not blown off despite its remarkable air speed.

15. A ball-lightning can move through a window or even a 2-foot-thick wall (Singer 1971:37).
16. Ball-lightnings have entered or formed within aircraft (Jennison 1969b). Singer mentions a case in which the pilot of an aircraft observed *a yellow-white ball approximately 45 cm in diameter enter through the windshield* (Singer 1971:40). When inside an aircraft, the ball-lightning is typically said to move at a steady speed of order 1 meter per second in a straight line from front to rear of the aircraft.
17. A ball-lightning may cause no damage or great damage. Some have been reported to destroy trees. Some have killed men or animals. According to analyses of some events, the energy released by a ball-lightning can be as high as 3 megajoules.
18. A ball-lightning may melt metal, for instance pitting an aircraft wing or propeller.
19. There appears to be little or no correlation between the energy released by a ball-lightning and its appearance (size, luminosity, etc.).

Current Theories

If we accept as a basic premise the principle of conservation of **e**nergy, leading present-day theories can be divided into two categories. In one category, energy emitted by a ball-lightning has been stored in the ball-lightning itself. In the other category, energy emitted by a ball-lightning is fed into the ball-lightning as an electrical current or as electromagnetic waves such as microwaves. Barry, Singer, and Stenhoff consider a number of stored-energy models but find none satisfactory. A recent example of such a model is given by Oreshko (2015).

The fact that some ball-lightnings can move independently of the atmosphere is a problem for all such models. (See, for example, item 14 above.) Another general problem, noted by Singer, is that typically there is no decrease of size or brightness or change of color during the lifetime of a ball-lightning (Singer 1971:93). Finkelstein and Rubenstein examined the implications of the virial theorem for plasmoid models, and found that it sets too low a limit on the energy that can be stored in such a structure (Finkelstein & Rubinstein 1964). The virial theorem holds not only for a nonrelativistic plasma configuration but also for a relativistic plasma configuration such as the *spherical plasma bubble* model recently proposed by Wu (2016).

A major problem with injected-current and injected microwaves proposals is the difficulty of understanding how an electrical current or electromagnetic waves could penetrate the metal shell of an aircraft.

Since the two current categories of theory are widely considered inadequate for explaining the properties of ball-lightning, it seems there is nothing to be lost in looking for a third category.

A New Concept

We now argue as follows:

(a) Since there is no known way for the required energy to be stored in the ball-lightning, there must be a reservoir of energy remote from the ball-lightning (presumably related to the electrical energy responsible for lightning).

(b) Since the reservoir is remote from the ball-lightning, there must be some way to transfer energy from the reservoir to the ball-lightning. We therefore conceive of a *duct* that connects the reservoir to the ball-lightning.

(c) A ball-lightning may now be regarded as a *port* through which energy in the duct can be released into the atmosphere.

Concerning the duct, we require that, in addition to its electromagnetic properties or capabilities,

(a) its motion is not restricted by the atmosphere;

(b) it can penetrate a wall or window without causing any damage;

(c) it can penetrate a metal structure such as an aircraft fuselage; and

(d) it is invisible.

These characteristics are suggestive of a modification of our familiar *overt* space, which we can think of as a different but parallel *covert* space. The transition from the overt space to the covert space may be an on–off proposition or a matter of degree.

These thoughts suggest the following hypothesis:

> *A ball-lightning is a port connecting our overt space to a covert space with similar but not identical properties.*

As a metaphor for such a concept, one may consider a sheet of paper, and suppose that a population of ants lives on one side of the sheet (the *overt* space). The ants have no reason to suspect that there is another dimension to their universe (the other side of the paper, the *covert* space).

However, suppose there is a sudden event (such as a lightning flash) that temporarily punctures a hole in the paper. For a short interval, the ants will get a glimpse of something unfamiliar—which we know is a brief glimpse of a dimension that has been there all along, but with which they are normally unfamiliar.

This model seems to be compatible with items 1 through 7 above. Just as the appearance of a household electrical outlet bears no relation to the current being drawn from the outlet, this model can explain why the size, luminosity, and other manifest properties of the ball-lightning seem to bear no relation to the energy released by the ball-lightning.

This model seems also to be compatible with items 8 through 13 above, since in this model a ball-lightning is coupled to a remote reservoir of electromagnetic energy. We note in particular that this model can accommodate item (13); the reservoir may be far from the ball-lightning so that the duct may have influences far from the ball-lightning. The sudden eruption of a duct to form a ball-lightning may trigger a disturbance throughout the duct that results in electromagnetic events remote from the ball-lightning (reminiscent of an Alfven wave traveling along a magnetic flux tube).

Discussion

Concerning the two fatal or near-fatal events described briefly in the Introduction, each event may have involved a ball-lightning, or conceivably two ball-lightnings comprising an entry port and an exit port.

Is there any evidence for a duct in ball-lightning events? Singer mentions two cases in which a bright *ray* or *line of fire* extends from a ball-lightning (Singer 1971:29, 39). These rays may be manifestations of the hypothesized ducts.

Is there any evidence that the interior of a ball-lightning has unusual properties? Singer mentions a case in which two witnesses encountered a large bright ball 4 m in diameter:

> The ball sank through the telegraph wires, which glowed, and then enveloped the couple. They stood in a thick white sea of light in which the sensations of odor or heat were absent. There was no breeze from the motion of the ball, and they could not feel the outside wind. They could see only the pebbles of the road. (Singer 1971:45).

Are there any other phenomena that have points of similarity with this concept of ball-lightning? We have recently drawn attention to the phenomenon known as *Mobile Luminous Objects* (MLOs) that form in superconducting cavities at very low temperatures in response to strong radiofrequency electromagnetic fields (Sturrock 2015, Anthony et al. 2009). These seem to resemble ball-lightnings but are much smaller, with diameters of order 1 millimeter. An MLO may be an exit port rather than an entry port: Electromagnetic energy from the RF field may pass through a mini–ball-lightning (an MLO) to inject energy into a reservoir. After the RF field is turned off, the reservoir may return some or all of the energy in the reservoir for a short time via the same mini–ball-lightning.

We may also ask whether there are other phenomena that lead one to consider possible extra spatial dimensions. A review of UFO-type

phenomena has led us to consider this possibility (Sturrock 2009). There is an interesting case in the Condon Report involving reports from an aircraft traffic control site of a object that was tracked by radar but was invisible (Condon & Gillmor 1969).

A possible experimental approach would be to reproduce the Richmann experiment (hopefully without the fatality) by imposing a very high voltage (supplying a very high current) on a conductor penetrating a protective metallic chamber. Such events have occurred by accident in connection with the switching of submarine batteries (Silberg 1962). There have been attempts to initiate similar events by triggering a discharge by the rocket-and-wire technique (Hill et al. 2010). Another avenue of research would be to pursue the investigation of MLOs (Anthony et al. 2009).

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LETTER TO THE EDITOR

Macro-PK, Real and Fraudulent

Stanley Krippner, in his review of *The Project Alpha Papers* and my *Companion to the Project Alpha Papers* in the Fall 2016 issue of this journal (Krippner 2016, Phillips 2015), comments on the break-in to our laboratory one night by two young men, Mike Edwards and Steve Shaw, posing as gifted psychics. Krippner writes, "I would have sent the Alpha Boys packing following this blatantly unprofessional behavior." But what unprofessional behavior? In their interactions with us, the two young men were unfailingly polite. During their break-in, they took care to leave the laboratory as they found it, except for some pieces of bent metal. Edwards has described how he scrubbed the wall to remove an incriminating footprint. And, of course, they latched the window before leaving through the door.

We should remember, too, that professional behavior is not necessarily required of subjects in our experiments, only of the experimenters. If Jule and Molly Eisenbud, for example, had not tolerated behavior from Ted Serios that was far from professional, we would not now possess some of his most remarkable psychic photographs. And I would be surprised if the shamans whom Krippner has so often visited have always behaved with strict propriety.

Krippner appears to me to think, "Surely it was *obvious* that this was a break-in, that the two young men were frauds, and should be dealt with accordingly?" It was not so obvious to us. In a parallel investigation, unrelated to Project Alpha, the MacLab staff—primarily Mike McBeath and myself—were trying to replicate the astonishing claims of PK being made by the late Ed Cox, in connection with the SORRAT group in Rolla, Missouri. The effects occurred in a small basement room (the Isolation Room) in the house of John T. Richards and his wife, Elaine. Cox recorded these events with a remotely triggered movie camera, as they occurred within a locked transparent box (a so-called minilab). A detailed report of the SORRAT group and its phenomena has been published in this journal (Grattan-Guinness 1999); Grattan-Guinness never met Cox, though he comments on his work.

Note that the claimed effects took place when the Isolation Room was unoccupied, often at night. The parallel with the MacLab break-in is obvious.

If we tentatively accepted the Cox claims as legitimate, we had to regard the effects we saw after the break-in as possibly legitimate also. Cox's claims have been hotly disputed, and (as I describe in the *Companion*) a physics colleague told me at once after the break-in that he thought we were dealing with a pair of frauds. We nevertheless chose to treat both claims as possibly valid.

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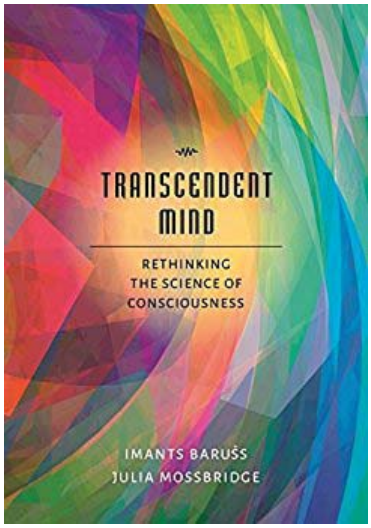
BOOK REVIEW

Transcendent Mind: Rethinking the Science of Consciousness by Imants Barušs and Julia Mossbridge. American Psychological Association, 2016. 256 pp. $69.95. ISBN 978-1433822773.

Imants Barušs, professor of psychology at Kings University College (Western University Canada), and Julia Mossbridge, Visiting Scholar in Psychology at Northwestern University and an experimental psychologist at the Institute of Noetic Sciences, have written what can be called a "post-materialist" psychology text. It alleges that consciousness is independent of the brain and that each person, potentially, is in contact with all other people and events in the past, present, and future and can not only obtain knowledge of these events but also influence them as well. Barušs and Mossbridge see consciousness as "fundamental," existing "prior to space and time as usually experienced." Their paradigm is meant to replace "materialism," which they purport is "on its way out" (p. 20), in part because it has ignored or discounted the acquisition of information outside of the usual sensory channels (p. 29).

Their paradigm is based on several strands of evidence drawn from such fields as special relativity and quantum mechanics, anomalous psychology, parapsychology, neurophenomenology, and ancient and contemporary philosophers. Inclusion of the latter sources will trigger a negative reaction from many potential readers, but they may forget that William James (1890), the founder of U.S. psychology, was a philosopher as well as a psychologist. James' concept of the "specious present" as "the original paragon and prototype of all conceived time" is one way to fathom the paradigm presented in this book and served as the basis of Gordon's (2016) review. The fact that her review appeared in the American Psychological Association's review journal, PsycCRITIQUES, and that *Transcendent Mind* was published by the American Psychological Association indicate that the time may be ripe for serious consideration of radical psychological and philosophical paradigms (see Vaidya 2015). Indeed, Francisco Varela (1999) also used the term "specious present" in his advocacy of neurophenomenology as a research method in the study of consciousness.

Barušs and Mossbridge explain that when they use the term "consciousness," they are referring "to subjective events suffused with existential qualia that occur privately for a person" (p. 15). "Qualia"



are described as the "raw feels" of perceptions, and "*transcendent mind* refers to the notion that mind is *transcendent* in nature, in that it cannot be adequately characterized in physical terms" (p. 15). Finally, "mind is the aspect of the psyche that embodies consciousness along with all nonconscious cognitive processes" (p. 15). To be nitpicking, "psyche" is not defined, and affective (and social) processes are ignored, but the authors have gone further in defining their terms than most writers on this topic have.

The authors review several theoretical models of consciousness, focusing on those that have attempted to explain the anomalies they present, including mediumship, out-of-body and near-death experiences, and mind-to-mind communication. They find none of them completely satisfactory and go on to elucidate their own proposal, namely that we live in a four-dimensional "block universe," one in which time has been "spatialized" and added to the three customary dimensions. The implications of this block universe may seem to violate the second law of thermodynamics, but we are reminded that this law was written for a "closed system," yet the universe may not be "closed" at all. Further, this law was not designed to explain time. Barušs and Mossbridge introduce the concept of "deep time," in which there is a sequence of potential "nows." When we make a decision to change an ongoing "now," we move to a different "block universe," one in which that event can occur. On the other hand, ordinary time, or "apparent time," does not facilitate this movement from one "block universe" to another. However, an understanding of consciousness depends upon fathoming "deep time." They conclude that "time and consciousness are so related that it can be difficult to disentangle them" (p. 59). Decades ago, the distinguished psychologist Gardner Murphy told me, "We will not understand parapsychology until we understand time"; in retrospect, his comment was wiser than I had realized.

This sequence of "nows" is discrete with physical manifestations coming into existence and disappearing, producing the appearance of a continuous stream of consciousness from a series of "nows." The philosopher Alan Watts (1966) wrote of a "hide and seek God," in which "nothing so eludes consciousness as consciousness itself" (p. 126). Watts' comments bear an

uncanny resemblance to Barušs and Mossbridge's statement that "we can think of this as a *flicker theory*" (p. 181). Later, they add *filter* to the name because they suspect that the origins of waking experiences lie in the deep unconscious; the more permeable the filter, the easier their accessibility. Consciousness contains an aspect that we can only partially know conceptually, but contemplative practices can foster this understanding.

The authors suggest how *flicker–filter* theory can explain any number of parapsychological phenomena including psychokinesis and precognition. However, it would have been to their advantage had they extended their explanation to related psychological puzzles. Are alterations in consciousness adaptive or are they mere byproducts of brain evolution? Is transcendence an adaptive "trait" or a socially constructed "state"? Are reports of "dual consciousness" following an operation that divides the cortical hemispheres grounded in brain neurology? The ubiquitous "hard problem" of consciousness is only briefly mentioned, even though its solution is implied. However, the authors maintain that it is the psi-related experiences that are essential to an understanding of consciousness, even though they admit that the money spent on their investigation, worldwide, is equivalent to two months of that devoted to conventional psychology (p. 42). It is this emphasis that will induce many potential readers to dismiss this book and its importance, much to their loss. Some of them might have been retained had the authors presented "neutral monism" (Vaidya 2015) and "naturalism" (Rousseau 2015) as alternative paradigms to those readers reluctant to part with "materialism."

After presenting the arguments against the materialist paradigm, claiming that it has held back progress in this field, Barušs and Mossbridge have drawn a "road map" for future studies of consciousness. Their suggestions for research include:

1. Using self-observation skills and reporting the outcome.
2. Examining hypotheses by using existing learning paradigms.
3. Using the services of skilled participants who have been pre-screened.
4. Devising game-like tasks to amplify the acquisition of data.
5. Obtaining computerized online single-trial datasets.
6. Performing open-ended thought experiments.
7. Utilizing dream reports to gather insights.
8. Asking the "embedded mind" appropriate questions.
9. Harvesting data at different points in time.
10. Looking for meaning in reports from transcendent states.

I would add that lucid dream reports might be especially fruitful, as well as reports from contemplative, hypnotic, and psychedelic sessions; there

is a vibrant literature regarding anomalous means of accessing knowledge (e.g., Krippner 2011). The search for meaning in ensuing reports is another worthwhile research objective. In a world beset by threats to the survival of the biosphere, and to that of the human species as well, a shift from a materialistic paradigm to one based on transcendence and unity might provide a useful antidote. As the authors conclude, ". . . such a process could lead beyond itself to states of mind in which we can more adequately comprehend what is happening mentally and physically in time and space" (p. 195). Their book is an invaluable addition to the literature arguing that consciousness (however defined) plays a key role, and perhaps an essential role, in the construction of reality (however defined). It is radical, even at times outrageous, but it makes its case elegantly and (for many readers) persuasively.

Stanley Krippner

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BOOK REVIEW

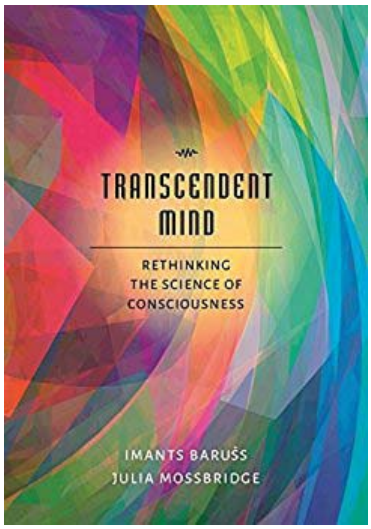
Transcendent Mind: Rethinking the Science of Consciousness by Imants Barušs and Julia Mossbridge. American Psychological Association, 2016. 256 pp. $69.95. ISBN 978-1433822773.

Once upon a time, not so long ago, there was a kingdom called Science whose citizens were guided by a uniform belief—that their consciousness is produced by the chemistry, physiology, and anatomy of the physical brain. Forfeited in this belief was the capacity for free will, as well as any higher meaning and purpose to existence. The possibility that consciousness might survive the physical death of the brain and body was considered heretical and blasphemous. The guardians of science exerted enormous pressure to conform to the concept of materialism undergirding this precious belief system. In support of these beliefs, an enormous body of data was marshalled that, they were convinced, confirmed their views. They were so committed to their position that evidence to the contrary was largely dismissed as irrelevant, and those who dared to challenge the materialistic perspective were often denigrated as traitors to the scientific tradition. But just when the materialistic edifice was considered beyond reproach and safe from significant challenge, there came this shocking announcement from two prominent consciousness researchers:

> We are in the midst of a sea change. Receding from view is materialism, whereby physical phenomena are assumed to be primary and consciousness is regarded as secondary. Approaching our sights is a complete reversal of perspective. According to this alternative view, consciousness is primary and the physical is secondary. In other words, materialism is receding and giving way to ideas about reality in which consciousness plays a key role. (p. 3)

This is the opening salvo of *Transcendent Mind: Rethinking the Science of Consciousness*. The authors believe that the materialistic credo is not merely off-base in a few minor details, but is fundamentally flawed beyond repair and is in retreat. The exploration of this "sea change" is the theme of *Transcendent Mind*.

I have introduced my comments about *Transcendent Mind* as a kind of fairytale, a product of the imagination, because that is how this book may be regarded by materialists and anyone who has not followed the implications



of consciousness research for the past few decades, elaborated by authors Imants Barušs, Ph.D., professor of psychology at King's University College at University of Western Ontario, Canada, and Julia Mossbridge, Ph.D., experimental psychologist and cognitive neuroscientist at the Institute of Noetic Sciences and a Visiting Scholar in Psychology at Northwestern University.

Chapter 1, "Beyond Materialism," defines materialism, "the paradigm that is disappearing." This discussion includes a brief history of the philosophy of materialism and "the billiard-ball version of reality." This is the view that "if we know all the equations governing the spatial positions of fundamental particles at a given time, along with their initial conditions, then we would know everything there is to know about reality." Barušs and Mossbridge identify the key characteristics of the materialistic worldview: It is scalable, deterministic, objective, and reductionistic; it depends on an absolute space and an absolute time, in which there is an ordered linear progression of events from the past to the future. The authors explain why "each of these six prongs of historical materialism has been pretty much dismantled by now" (p. 8).

In a brief review of key developments that led to quantum mechanics, they introduce a key assertion of the book, that "quantum events are not somehow encapsulated in a microdomain that has nothing to do with us." They assert an "upward creep" of quantum events into everyday life. "[P]eople-sized events [are] just what microevents look like at the people-sized level," they state (p. 11).

None of which means that materialism should be discarded. "[M]aterialism works reasonably well for our everyday experience of people-sized events, which follow the rules of classical mechanics, chemistry, and so on." The problem is that "bias blindness" commonly enters into our deliberations about how the world and we ourselves function. "So we may know intellectually that historical materialism is false, . . . but many of us, including psychologists and neuroscientists, are still reasoning as though it were true." Thus, for many materialists, materialism evolves into *physicalism*, "the view that the world contains just those types of things that physics says it contains." A widespread version of materialism

is "neuroscientism," the contention that consciousness is "necessarily the result of neural activity that is assumed to be isolated from quantum considerations" (pp. 11–13).

For the authors, consciousness is a term referring to phenomena that are not available "from the outside" but only "from the inside." "Thus, *subjective consciousness* refers to the contents of experience that occur subjectively for a person within the privacy of her own mind." The attempts of materialistic neuroscience to understand consciousness "from the outside" runs into insuperable difficulties. The overall evidence, the authors assert, points compellingly to the existence of "transcendent mind," the book's title—"the notion that mind is 'transcendent' in nature, in that it cannot be adequately characterized in physical terms" (pp. 14–15).

Particularly incompatible with materialism are "anomalous phenomena," in which the authors include remote viewing, remote sharing of thoughts, remote influence, precognitive dreams, the survival hypothesis including near-death experiences—generally the panoply of psi phenomena that will be familiar to *JSE* readers. "[These phenomena] have been called 'anomalous' not because they occur rarely or because there are no data to support their existence, but because, from a materialistic point of view, they should not exist." Much of the rest of the book is a discussion of the empirical evidence for these phenomena and their implications for an understanding of consciousness (pp. 20–21).

Part of the forcefulness of *Transcendent Mind* is the method of argumentation employed by Barušs and Mossbridge. They frequently put themselves in the shoes of the materialist and argue from her position. For instance (p. 21), they have the materialist saying, "Wait! You can't expect me to buy into that sort of woo. I was taught that this kind of thing is not science; that it's a pseudoscience!" This literary device permits them to take seriously the customary reasons why psi is rejected: the strategy of denigrating research of anomalous phenomena by calling it 'pseudoscience'; unjustly treating the results of psi research by rejecting publication of studies regardless of their quality; baseless accusations of fraud; dismissing psi experiences as hallucinations, delusions, and wishful thinking; dismissing those who experience psi events as mentally unstable or actually suffering from schizotypal personality disorder; the objection that extraordinary claims require extraordinary evidence; and the downright insistence that there is no evidence for psi phenomena whatsoever (pp. 21–24). They summarize the root of these fallacies with a telling comment by physicist Bernard Haisch, former *JSE* Editor-in-Chief:

> Modern western science regards consciousness as an epiphenomenon that cannot be anything but a byproduct of the neurology and biochemistry of

> the brain. . . . While this perspective is viewed within modern science as a fact, it is in reality far stronger than a mere fact: It is a dogma. Facts can be overturned by evidence, whereas dogma is impervious to mere evidence. (Haisch 2007:63)

The authors describe three types of attitudes toward the nature of consciousness and how they influence one's beliefs about reality:

> Thus, materialists regard consciousness as an emergent property of neural activity or as information in an information-processing system and tend to emphasize the behavioral and objective aspects of consciousness. For them, consciousness is an incidental aspect of reality. Those tending toward conservative transcendence endorse the subjective definitions of consciousness, believe that consciousness gives meaning to reality, and that it is a significant aspect of reality. Those tending toward the extraordinarily transcendent position prefer definitions of consciousness that emphasize the significance of altered states of consciousness. For them, consciousness is the ultimate reality that can only be known through a process of psychological change. Consciousness is all that exists. (p. 27)

In a study supporting this array of attitudes, of the 212 attendees responding to a survey at the 1996 conference "Toward a Science of Consciousness" in Tucson, Arizona, one-third thought that anomalous phenomena do not occur, another third thought they occur but could in principle be explained in physical terms, and another third thought not only that anomalous phenomena occur but also that consciousness is primary (p. 28).

In Chapter 2, "Shared Mind," Barušs and Mossbridge examine examples of nonsensory communication between distant individuals. They state that the most recent version of the American Psychiatric Association's *Diagnostic and Statistical Manual of Mental Disorders* (*DSM*) cites "belief in clairvoyance, telepathy, or 'sixth sense' as a symptom of schizotypal personality disorder" (pp. 655–659 of the *DSM*). In opposition to this purported link to psychopathology, the authors say that "two types of *shared mind* experiences [telepathy and clairvoyance] are being discussed quietly but seriously among clinical and experimental psychologists" (p. 29). They review the increasingly cordial ways in which Freud regarded these events late in his career, and how Hans Berger, the inventor of electroencephalography, experienced a sharing of thoughts at a distance with his sister at "a time of mortal danger, and as I [Berger] contemplated certain death" (p. 32). The authors describe how investigative tools have moved from crude personal descriptions, to EEG recordings, and most recently to fMRI findings, and how systematic and meta-analyses reveal enormous statistical odds favoring these phenomena.

How to explain these happenings? The authors state,

> Just because it appears that telepathy results from mind-to-mind communication does not mean that a signal is actually sent. And just because clairvoyance appears to not involve another mind, this does not mean that no other mind is involved. The point is that we do not understand the mechanism of either phenomenon, and both are anomalous. (p. 47)

One way to think about both telepathy and clairvoyance, they say, is that "we are sharing minds, but not necessarily with other individual people. The idea here is that we could be sharing access to a larger pool of information, like a unified, larger mind. . . . Such a source of information could be considered to be analogous to the long body [of the Native American Iroquois], or Carl Jung's . . . collective unconscious" (pp. 47–48). The key realization, the authors suggest, is that "the boundary between individuals breaks down when we recognize that our primary, and indeed only, direct experience is mental. . . . [I]t is possible that our individual experiences are connected to one another as well as to other sources of information of which we are not necessarily conscious"—a view reminiscent of William James's "continuum of consciousness . . . a mother-sea or reservoir" (pp. 50–51).

In "Rethinking Time," Chapter 3, Barušs and Mossbridge tackle the thorny, unresolved issue of the nature of time. They distinguish between an *apparent time* to which we feel we have access, and *deep time* "that structures the nature of consciousness and physical manifestation, and a possible relationship between the two" (p. 54). Their discussion of time in physics includes the second law of thermodynamics, the classic double-slit experiment, the role of an observer in quantum mechanics, and the famous delayed-choice experiments of physicist John Wheeler and others in which retrocausation appears to come into play (pp. 55–59). They explore the role of the unconscious in the presentiment studies pioneered by researcher Dean Radin, in which autonomic physiological effects seem to occur prior to their cause. A discussion of experiments in precognitive remote viewing pioneered by researchers Hal Puthoff, Russell Targ, Stephan Schwartz, Ed May, Robert Jahn, Brenda Dunne, and others continues from Chapter 2. The "implicit precognitive" studies of psychologist Daryl Bem and others also are examined, as well as the potential relevance of psi researcher James Carpenter's intriguing "first sight" model of how psi operates in daily life. The sense of altered temporality in life reviews and the experience of timelessness in mystical experiences and drug-induced states are addressed as well. What comes out of this bravura survey is the suggestion that "the deep structures underlying our waking consciousness are fundamentally spatially and temporally nonlocal in nature. This is a key reframing of

our understanding of consciousness in that consciousness now has been extended into temporal domains beyond apparent time. . . . Deep time may run concurrently with apparent time . . . " (pp. 63–81).

Chapter 4, "Interactions with Discarnate Beings," surveys the evidence suggesting contact with deceased individuals. If valid, these phenomena would be crucial evidence favoring a transcendent mind that in some sense survives physical death. Cases involving spontaneous and deliberate contact with the dead are described, as well as fascinating accounts of mediumship. The authors discuss the two contentious explanations usually offered for these happenings—the super-psi versus the survivalist hypotheses. Their sentiments lie with the latter. Citing the writings of philosophers Stephen Braude and Chris Carter, they note, "Taken together, features such as these have sometimes been judged to tip the scales in favor of survival" (p. 97).

One of the admirable features of this book is the willingness of the authors to venture into areas almost guaranteed to evoke pushback from many readers. This is nowhere more obvious than in the section "Unwanted Intrusions," in which they ask whether "those who have previously been human are the only entities that are present around us, or whether there are other types of disembodied entities of varying intelligence, character, and morality that we could encounter" (p. 97). Barušs and Mossbridge believe the decisions we make regarding this question "greatly complicate matters, including our understanding of the nature of consciousness. . . . It would be much easier to pretend that these sorts of problems cannot exist, and we are good at doing so." They quote J. Henderson, who probed this area more than three decades ago: "It is accordingly fashionable at least in professional circles to dismiss the notions of possession and exorcism as outmoded medieval superstitions of, at best, historical interest" (p. 97). They urge caution.

> [C]ontrary to the claims of some grief therapists that interactions with the deceased are always benign, that is not true of interactions with apparent discarnate entities in general. In fact, whatever psychological mechanisms allow for pleasant apparent interactions could equally allow for dysphoric apparent interactions were it not for whatever psychological mechanisms protect a person from apparent unwanted intrusions. . . . In fact, however those events are explained, there are already lots of cases in which people have ended up in serious trouble by stumbling into various practices for which they were not prepared. (p. 101)

This discussion segues into a discussion of deathbed visions and the extraordinary clinical benefit of these experiences, not just for the dying person but for loved ones as well. The work of psychiatrist Peter Fenwick is

emphasized, in which he describes three beneficial themes: the comfort felt by the dying individual and the attendant loved ones, the conviction that the vision was real, and a sense of relief in being able to talk freely about these visions. Barušs and Mossbridge sensibly conclude,

> Thus, it appears that we ought to at least reassure people that such experiences are normal and common, and perhaps even veridical. The end of life could well not be the end of life but a transition into other dimensions of being. If that were to be the case, then we would clearly need more research to understand that process and learn how to prepare people for it and to facilitate it within the context of their own death. (p. 101)

Chapter 5, "Separation of Mind from Brain," tackles more directly "the hypothesis that the mind is not an epiphenomenon of the brain, but instead is independently real even as it exists in some sort of relationship to the brain" (p. 103). Terminal lucidity—the unexpected return of mental clarity and memory shortly before death—sometimes occurs when the brain is substantially compromised in degenerative states such as Alzheimer's disease. Near-death experiences and veridical reports of visual information occurring in the congenitally blind is another major challenge to materialists. The authors critique the well-worn "explanations" offered by materialists for NDEs, such as a lack of oxygen or a buildup of carbon dioxide in the blood bathing the brain, temporal lobe seizures, drug effects, hallucinations, pre- and retrocognition, and so on. Particularly difficult to explain physiologically, the authors note, is the profound change in worldview and outlook and the complete lack of fear of death and a profound love for all living things in NDE survivors. They note,

> [I]t looks as though the less the brain is able to function properly, the more vivid the experiences that are occurring, assuming that the experiences are occurring at the same time as the brain is shutting down. . . . An alternative explanation that better fits the facts would be that mind, loosened from the brain, comes into its own, functioning without the constraints imposed by the brain. (pp. 110–111)

In this chapter Barušs and Mossbridge acknowledge the sheer magnitude of the task they have taken on, saying,

> In seeking information about the nature of consciousness in the afterlife the problem is not that there is no useful information out there, but, on the contrary, that there is way too much. If fact, there is so much information that we cannot effectively summarize it, let alone evaluate it, for the purpose of this book. (p. 118)

They honor psychologist and psi researcher David Fontana for making one of the most thorough analyses of this blizzard of data in his 2005 book *Is There an Afterlife? A Comprehensive Overview of the Evidence* (Fontana 2005), in spite of these challenges.

Chapter 6, "Direct Mental Influence," examines whether consciousness can cause physically demonstrable perturbations in the world by acting independently from the brain and body. They cite artist Ingo Swann's apparent mental influence on a magnetometer in studies supervised by physicist Hal Puthoff at Stanford Research Institute in 1972, since supported by experiments by consciousness researcher Dean Radin (Radin et al. 2012). The panoply of experiments at the Princeton Anomalies Research (PEAR) lab, conducted across three decades, also are explored.

Barušs and Mossbridge address the failure of a consortium of research centers to replicate PEAR's original positive findings involving the ability of subjects to influence the activity of random event generators (REGs). They hypothesize that the reason for this outcome is the failure of the experimenters to pre-test the subjects or "operators" for whether they could or could not affect the machines in the first place. "In other words," they say, "if one wishes to determine whether any human can play the piano, then one had better try to find a person who can actually play the piano. Once this person is found, we can begin to explore the necessary and sufficient factors required for piano playing" (p. 129). This caution applies beyond REG research. For example, it is likely that some studies that explore the effects of healing intentions show no positive results because the "healers" had no healing abilities in the first place. Some experimenters in this field do not seek out individuals with recognized healing abilities because they are eager to demonstrate that healing is democratically distributed among all people. This sort of distribution of talent is unlikely. Most humans cannot play the piano, run a four-minute mile, or master the Lorentz equations, but this does not mean these skills do not exist.

Barušs and Mossbridge add,

> It was found at the PEAR laboratory that one did not need to be physically present to demonstrate the intended effects. Further, one did not need to try to influence the machine at the time it was running to demonstrate the intended effects. (p. 131)

They then consider experimenter effects—the intended or unintended effects of an experimenter on the outcome of her experiments. Might *any* human influence an experiment if mind is transcendent, nonlocal, and unitary? Is *anyone* completely exempt from influencing an experiment? "Whether this entire-world explanation holds is not clear, but what is clear is the so-called

experimenter effect is something that needs to be carefully empirically investigated more so than it has been until now" (p. 131).

Researcher Dean Radin's replicated experiments showing that direct mental activity can affect photon interactions with double-slit devices get special attention by the authors. Macro-PK effects such as poltergeist activity and remote healing are also singled out as evidence for direct mental influence.

Chapter 7, "Reintegrating Subjectivity into Consciousness Research," is a plea for consciousness researchers to hone their "subjective observation skills" as a way of identifying and transcending their own biases. Failure to do so, they say, results in "scientists espousing materialist worldviews that are not reasonable if one takes into account the accumulating data from physics and psychology" pointing to a critical role of consciousness. The authors explore "how people have used controlled introspection and have combined first-person observational techniques with third-person observational techniques to investigate consciousness" (pp. 146–147).

Their recommendations are rooted in science from its earliest beginnings, including the view of Francis Bacon, who was well aware of the flaws that can bias observation. The human mind, he said, "is rather like an enchanted glass, full of superstition and imposture, if it be not delivered and reduced" (p. 147). Max Planck, the founder of quantum mechanics, appears to have agreed in principle, saying, "We cannot get behind consciousness. Everything that we talk about, everything that we regard as existing, postulates consciousness" (Planck 1931)—which opens the door for observational inaccuracies. Flawed observation becomes particularly problematic "in a situation like the current one, in which the dogma of scientism demands young scientists to conform their observations and inferences to the norm of materialism" (p. 150).

The authors describe specific methods "that scientists and clinicians alike can carefully use for becoming skilled first-person observers of conscious awareness" (pp. 162–166). They state, "If some forms of meditation training can allow us to more accurately perceive consensus reality, this suggests that each of us, nonmeditators and meditators alike, has some potential ability to perceive and act on information that is not available to our conscious waking awareness" (p. 168). In making these recommendations, the authors are following trails blazed by psi researcher Charles Tart in his 1969 landmark book *Altered States of Consciousness* (Tart 1969), and his concept of "state-specific sciences" (Tart 1972). Tart, and now Barušs and Mossbridge, realized that the psychological state of an investigator influences not only what *is* seen, but what *can* be seen.

"Transcendent Mind," Chapter 8, is a summing up of the postmaterialist

perspective. The authors examine filter theories of brain function that suggest that the brain restricts information input, resulting in a reduced and modified output of conscious awareness that Aldous Huxley called a "measly trickle," a stepped-down efferent of awareness that is designed to meet our creaturely survival needs (Huxley 1954). What is lost in this process, the authors state in agreement with Huxley, is awareness of our "disembodied . . . and expanded consciousness" (pp. 176–177). Throughout history, humans have struggled mightily to thwart the brain's filter function and expand awareness, thereby opening "the doors of perception," as Huxley put it. As the authors state,

> Timelessness, nonduality, bliss, and other features of transcendent states of consciousness could be explained as experiences that ensue when either the filter is removed or one's subjective point of reference somehow passes beyond the filter to the unconstrained mental level . . . with the caveat that such permissivity could lead us to become overwhelmed with unwanted influences. (p. 178)

They propose a "flicker-filter model" that introduces time into the brain-as-filter concept, and which permits the possibility that both the future and the past can be changed (p. 183). The authors' discussion of filter models of the brain is one of the best I'm aware of. Their position echoes that of physicist David Darling, that we are conscious not *because* of the brain, but *in spite* of it (Darling 1995).

The final chapter emphasizes a central tenet of the book—that consciousness cannot be set aside and disregarded as a "nuisance . . . in any explanation of the nature of the universe" (p. 174). The authors challenge the view of many physicists that they are "'discovering' a physical world that is independent of what they think it should be like"—for, as a result of the ineradicable presence of consciousness, it appears that "we not only 'discover' but also 'create' what we find, although the proportion of creation to discovery remains to be established." They ask, "To what extent are the expectations of scientists, with Nobel prizes at stake, unintentionally producing experimenter effects? We can no longer naïvely assume that we are just 'discovering' subatomic particles using various elaborate machines without considering that in some cases we may just be creating the appearance of having found them" (p. 175).

What are the limits of a transcendent mind? The authors imply that there may not be any. They reverse the materialist assumption that consciousness is a by-product of the brain by suggesting that the brain is a by-product of consciousness. "This is not a new position," they state. "In fact, *idealism*, the notion that mind is the fundamental reality from which the physical

world is derived, was a prominent philosophical position before the rise of analytic philosophy at the turn of the 20th century" (p. 179). But rather than revisit previous versions of idealism, they ask blunt questions: "How do we get a brain from consciousness? Why is brain activity correlated with conscious awareness? And what is the point of having a brain?" (p. 179). For readers who are shocked by these questions, the authors offer a consolation that might at least take the edge off: "[A]nyway, it is difficult for those who put forward the idea that the brain creates consciousness to explain why we have consciousness in the first place, so the difficulty is at least symmetrical" (p. 180).

The book ends on a practical note—ten guidelines that constitute "a field guide" for consciousness researchers (pp. 184–189). They also discuss the implications of *Transcendent Mind* for clinical practice by mental health professionals (pp. 189–192), as well as for scientific discovery in general (pp. 192–195).

In conclusion, Barušs and Mossbridge put their cards on the table:

> Okay, but what do we, the authors, really think consciousness is? . . . We think consciousness has an aspect that is a deep reality that we might only be able to partially know conceptually. On the basis of the evidence described in this book, we think it is likely to exist ontologically prior to space and time, at least as space and time are usually experienced. We speculate that consciousness creates physical manifestation through which it then expresses itself in stepped-down, accessible form. On the basis of this idea, in everyday waking consciousness, human beings are explicitly aware of only a fragment of the scope of consciousness. Self-development is necessary to deepen one's understanding of the nature of consciousness and reality. Deep consciousness offers an invitation to explore what it means to exist. Perhaps. . . . On the basis of what we have discussed in this book, such a process could lead beyond itself to states of mind in which we can more adequately comprehend what is happening mentally and physically, in time and space. That is the adventure that awaits us. (p. 195)

If these ideas appear radical, we should acknowledge that they have an impressive pedigree. The premise that consciousness is fundamental and transcendent has been endorsed by some of the greatest figures of twentieth-century science. To reiterate, Max Planck, the founder of quantum mechanics, observed, "I regard consciousness as fundamental. I regard matter as derivative from consciousness. We cannot get behind consciousness. Everything that we talk about, everything that we regard as existing, postulates consciousness" (Planck 1931). Erwin Schrödinger, another Nobel Prize-winning physicist, agreed: "Although I think that life may be the result of an accident, I do not think that of consciousness.

Consciousness cannot be accounted for in physical terms. For consciousness is absolutely fundamental. It cannot be accounted for in terms of anything else" (Schrödinger 1994). More recently, mathematician-philosopher David Chalmers states, "I propose that conscious experience be considered a fundamental feature, irreducible to anything more basic. . . . " (Chalmers 1995). And neuroscientist Christof Koch: "I believe that consciousness is a fundamental, an elementary, property of living matter. It can't be derived from anything else" (Koch 2012).

As to Barušs and Mossbridge's endorsement of shared, unitary minds, we again find Schrödinger in agreement: "The overall number of minds is just one. . . . In truth there is only one mind." And as the eminent physicist David Bohm observed, "Deep down the consciousness of mankind is one. This is a virtual certainty . . . and if we don't see this it's because we are blinding ourselves to it" (Bohm 1986).

Are the authors correct that a "sea change" is occurring and that the influence of materialism is receding in our understanding of the origins and destiny of consciousness? The verdict is still out. As physicist Neils Bohr is alleged to have said, "Prediction is very difficult, especially about the future." However, the fact that *Transcendent Mind* is published by the book section of the American Psychological Association, the venerable APA, is noteworthy. This *suggests* a sea change is taking place, especially since surveys have consistently shown that psychologists have the lowest level of belief in psi among healthcare professionals.

In any case, if Barušs and Mossbridge are correct that we do not merely *discover* what's real, but in some sense consciously or unconsciously *construct* reality, I choose to lean toward agreement with their contention of a sea change. I once asked the late futurist Willis Harman if he were optimistic about the future of consciousness research. He replied, "Of course. I have to be. My optimism—and pessimism—shape things."

According to journalistic protocol, reviewers are expected to include some criticism to demonstrate their critical distancing and objectivity, since no book is perfect. I'll break tradition, because my objections are trivial when compared to this book's overall contribution. This is simply a flat-out courageous, evidence-based, tightly reasoned document that no doubt will infuriate many paid-up materialists who read it—but that is one of the best compliments that a book of this genre could receive. Those who instinctively bridle at the authors' views perhaps might benefit from the following maxim, variously attributed:

> There is a principle which is a bar against all information, which is proof against all arguments and which cannot fail to keep a man in everlasting ignorance—that principle is contempt prior to investigation. (Keyes 2006)

As to criticisms of this book that I might have made, its authors have already beat me to them. As they say in the final pages (p. 184):

> The quantum mind, filter, consciousness-as-primary, and flicker-filter models, along with every other model of consciousness of which we are presently aware, are incomplete. Assuming the existence of something like what we have loosely identified as deep consciousness, extended mind, shared mind, the prephysical substrate, and so on, we are likely a long way from understanding consciousness. What is needed is a surge of creative research taking the investigation of consciousness in new directions.

Readers of *JSE* who are already committed to the philosophy elaborated by Barušs and Mossbridge—that of a transcendent, nonlocal, unitary, shared mind—will find affirmation of their views in *Transcendent Mind*; and any open-minded individual uncommitted to these views can find delight in exploring them as an intellectual adventure. You may not agree that these ideas constitute a sea change, but as you engage them you might just experience a C-change—a change of Consciousness—in this case, your own.

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BOOK REVIEW

What Science Knows and How It Knows It by James Franklin. New York & London: Encounter Books, 2009. 283 pp. $23.95 (hardcover). ISBN 978-1-59403-207-3.

Extreme views about science are widespread. The media, policymakers, self-styled "skeptics," and a variety of other science groupies take any contemporary scientific consensus as Gospel truth. Some go so far as to attempt to censor those who question mainstream dogmas, labeling them "denialists," the modern term for heretics, even as the actual evidence gives good grounds for holding the mainstream consensus as at best inadequate (Bauer 2012).

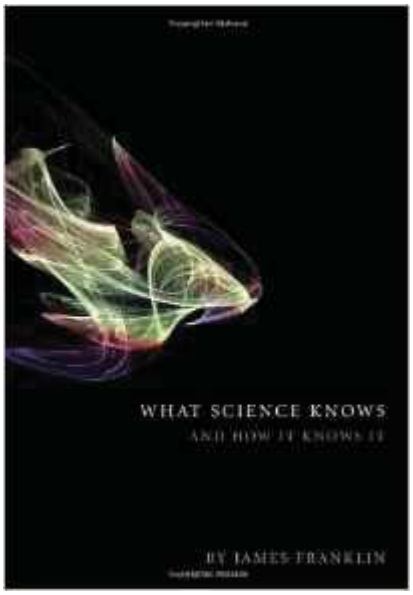
At the other extreme are the postmodernists, New Agers, and proponents of the "strong programme" in sociology of science, who deny that science can offer any authentic knowledge or understanding of reality.

The rational middle (where this book lies) is sparsely populated, if not in principle then certainly on specific issues. James Franklin hews determinedly to logic and evidence in seeking to clarify what science can know and the degree of probability that scientific knowledge can attain. His discussion is unfailingly clear-headed and thought-provoking, and the range of material he draws on is impressive.

Chapter 1, "Evidence," argues that the popular view that induction is always uncertain tends to be overly emphasized. Persistently pointing out that a "black swan" can at any time pop out at us from the "unknown unknown"—as many including me do—neglects the degree to which it is perfectly rational to draw inferences from gained experience about what is most probable. Chapters 2 and 3 extend this train of thought to demolishing the pretensions of "Enemies of Science," namely some early philosophers and the recent postmodernists.

Chapter 4, "The Furniture," discusses fundamentals: commonsense knowledge; problems of classification; the objective reality (or otherwise) of properties, of relationships, of classifications, of laws, and of concepts. Later chapters apply these insights to "The Physical Sciences" (Chapter 5); "Biology and Cognition" (6); "Mathematics" (7); "Enemies of Mathematics" (8); "The Formal Sciences" (9)—they include operations research, control theory, computer science.

Chapter 10, "Probabilities and Risks," explains the two kinds of



probability and elucidates issues of extreme risk, common sense, gut feelings. Everyone should have drummed into them the consequences of treating a statistical significance of $p \leq 0.05$ as noteworthy: "If one wants results at the 5 percent significance level one should have 20 graduate students repeating the experiment" (p. 205).

Chapter 11 discusses the scientific status of the social sciences. How "Actually Existing Science" differs from the ideal version is the subject of Chapter 12, and the following Chapter 13 explicates how complex issues present barriers to understanding. The two examples given, evolution and global warming, are handled with an admirable impartiality calculated to infuriate dogmatists of every stripe. Franklin points to one successful counter-example (bacterial flagellum) to arguments for the "irreducible complexity" claimed by scientific creationists and intelligent-design proponents, while not allowing the other side to pretend that there is already adequate understanding of how evolution made what seem like some quite discrete steps. As to global warming, "the complexities of the evidence are such that a higher standard of politeness to skeptics who raise serious problems would be well-advised" (p. 235).

That last quote illustrates the admirable clarity, even-handedness, and wry humor that enliven this book. After detailing early know-nothings—Gorgias who told Athenians "Nothing exists" and others of that ilk—Franklin describes a blending of those views as "a purée [that] has come to be called postmodernism, . . . now settled as a fixture on the intellectual scene" (p. 26); "Postmodernism is not so much a theory as an attitude" (p. 41), followed by a lengthy quotation from the French guru Gilles Deleuze (pp. 50–51) that defies any attempted satire in its opaque lack of meaning: Referring to Alan Sokal's hoax of the postmodernist journal *Social Text*, "Gödel's theorem, . . . a subtle result that angels fear to interpret, became . . . a favorite for postmodernists rushing in" (p. 139). I also enjoyed the quip that "Concepts that need to be expressed in German are, in general, dubious" (p. 194).

Chapter 13 mentions (p. 208 ff.) the 1993 *Daubert* decision by the Supreme Court on how to assess the quality of scientific evidence, a decision grounded in serious misunderstanding of science, since its recommended criteria include reliance on the prevailing consensus and the concept of falsifiability. Ethics in science is illustrated by Tom Lehrer's ditty: "'Once the rockets are up, who cares where they come down? That's not my department' says Wernher von Braun" (pp. 212–213).

The last chapter (14), "Is that all there is?", mentions consciousness and ethics and concludes, "We cannot believe that what science knows is all there is" (p. 251).

This book is a delightful intellectual treat, recommended for all readers.

I also recommend two other books by Franklin that will, however, appeal only to limited special audiences: *Corrupting the Youth: A History of Philosophy in Australia* (2003) which interested me for nostalgic reasons (events and people I had known first-hand) and *The Science of Conjecture: Evidence and Probability before Pascal* (2001), very detailed, for people seriously concerned with the history of thought about what became the formal discipline of statistics and probability.

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BOOK REVIEW

Les forces de l'ordre invisible. Émile Tizané (1901–1982), un gendarme sur les territoires de la hantise [The forces of the invisible order. Émile Tizané (1901–1982), a gendarme in the territories of the haunting] by Philippe Baudouin. Paris: Le Murmure, 2016. 320 pp. €39. ISBN 978-2373060157.

Philippe Baudouin is a producer at Radio France Culture, and a philosopher working on the archaeology of the radio. He published an essay about Thomas Edison's interest in psychical research (Baudouin in Edison 2015, reviewed by Evrard 2015). He frequently contacts me with strange requests for information. One time, he urgently requested haunted house plans! I sent him digitalized archives of the poltergeist investigator Emile Tizané, which had been received by several organizations in France a few years ago (although nothing was done with them). Baudouin was an enthusiast of the material and soon contacted one of Tizané's sons, who sent him paper archives and invited him to explore other pieces, as he was close to destroying them because of the apparent lack of interest. Baudouin's work helped to preserve this collection, and this beautiful book is full of colorful pieces from the archives.

In 2015, Baudouin contributed to the Parisian exhibition *Dessiner l'Invisible* with a special room for Tizané's artifacts and paper archives, and this exhibition involved a public roundtable about Tizané and Baudouin's contributions to the catalogue (Baudouin 2015), from which this book is extracted.

This new book is in large-size format, with graphics on half of the 271 pages. It has a Foreword by Dominique Kalifa (specialist on the history of crime) and an Afterword by Hélène L'Heuillet (philosopher and psychoanalyst, assistant professor in moral and political philosophy at the University Paris–Sorbonne). These short contributions don't add much understanding but do give academic credibility. The book ends with 5 pages of chronology and 4 pages where sources are detailed. Baudouin is responsible for 6 chapters, the Introduction on "cursed archives" (pp. 25–60), and the Conclusion (pp. 235–248).

Discovering the Man Beneath the Képi[1]

This book is by far the most exhaustive biography of Emile Tizané. Émile François André Tizané was born on June 29, 1901, in Algeria. In 1920, at 19, he volunteered to become a spahi, a rider in the French Army in Africa (Algeria and Morocco). At 28, he was promoted to lieutenant in the French cavalry, but chronic spinal pain following a riding accident shifted his career. Becoming a gendarme disappointed him, but he took it as an opportunity . . . *to investigate haunted houses*.

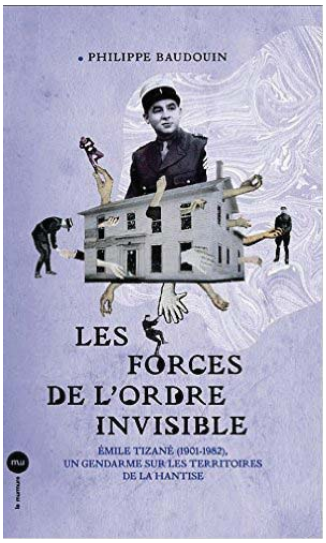
Since teenagerhood, he had developed a strong interest in occultism (Chapter 2:75–90). Between 1928 and 1932, he reproduced the neo-magnetic experiments of the Count of Tromelin, Hyppolite Baraduc, and Paul Joire, with his own "fluidoscope" (paper cylinder). He did (unpublished) experiments on plant germination and on silkworms (see Pérot 1977:130), and other hypnotic experiments on birds and horses. Within his family circle, he practiced telepathy and spiritualist experiments (turning tables, automatic writing, oui-ja, planchette). And later he became interested in Marian apparitions (Tizané 1977a) and ufology. But he only become famous in France for his investigations of haunted houses.

Investigating Crimes without a Cause

Assigned to the mobile republican guard of Grenoble, Tizané's attention was soon attracted by a haunted house in his region (Chapter 1:61–74). He conducted an unofficial investigation outside his district and collected testimonies of massive daily displacements of heavy objects at a farm. Marguerite Rozier, 13 years old, had scratch marks on her skin, and unusual nervous crises during which an unknown force ordered her to ransack dishes, while she tried to resist. The gendarme wondered: Who is responsible? Local gendarmes couldn't find a trivial explanation, and the family left the house less than one year later.

There are 300 files of haunted houses in Tizané's well-organized archives. But only a dozen are documented through his own field research. His main sources were newspaper reports and copies of police minutes. He tried to complete these files with written testimonies, pictures, and schematic drawings of the dynamic of the phenomena inside the haunted places. As a civil servant doing his administrative job, he obsessively used an ink stamp to authenticate all documents, an activity he called "poaching."

In addition to these analogies with Tizané's classic gendarme activities, Baudouin highlights some specifics of Tizané's methodology (Chapter 3:91–110, Chapter 4:111–164). He tried to ally police knowledge with spiritualist tools. In some cases, he used automatic writing, oui-ja, planchette,



hypnosis, and telepathy to gather data about a poltergeist case. But, these peculiarities are marginal in comparison with the main methodology, which Baudouin compared with hunting (noting that Tizané was a safari enthusiast, with several hunting trophies in his house). Hunting is a methodology, whose scientific name is cynegetic (p. 118). And Carlos Ginzburg (1989) highlighted how the cynegetic paradigm was developed at the end of the 19th century, with the examples of Freudian psychoanalysis, Morelli's history of art, and Conan Doyle's mystery novels. In line with this last example, Bertrand Méheust (1999) claimed that psychical research was another example of the cynegetic paradigm: Some parapsychological inquiries used an interpretative method based on marginal data usually judged as unimportant. Régine Plas (2000) even called parapsychology "a parallel history of the evidential paradigm." Critical analysis and classification of documentation, and collection and evaluation of testimonies were part of the usual material in psychical research journals. Baudouin evoked Bergson's SPR Presidential Address (Bergson 1913) about the "science of spiritual activity," and previous haunted-house investigators (Podmore 1896, Lombroso 1909, Bozzano 1920, Flammarion 1923) developed this specific methodology of suspicion that can be applied to hidden phenomena.

But using this methodology was not enough to convince his superiors. As he wrote in his own journal (1925–1933), Tizané was aware that: "We still do not believe in ghosts in the gendarmerie. Investigators must first of all look for a conscious hoax since they have been charged only with the purpose of discovering and arresting criminals" (Tizané 1971:51). Thanks to research into the Archives of the French national gendarmerie, Baudouin found the only remark on Tizané's parallel investigations: One of his superiors described him in 1944 as an "average intelligence officer, who works conscientiously, has an adequate general knowledge, and is interested in occult sciences" (p. 77).

Tizané did encounter resistance from his superiors. In 1937, he attempted to sensitize his colleagues to the haunted-house problem through a report on "the necessity to inform gendarme officers of the recommended solution to end some cases of so-called 'occult' phenomena." One of his superiors, Colonel Lavit, replied: "Gendarmes should not grant credit to

complainants, because, in such cases, hallucinations and hoaxes are very common"; "Gendarmes already know they should remove the person suspected of being consciously or not the cause of the disturbances." Yet, Tizané was not allowed to publish his work before 1950 (with anonymization and concealment of sources), and his investigations remain non-official, except in one case we will discuss later (Frontenay-Rohan-Rohan).

Tizané's Contributions to the Understanding of PK Phenomena

After World War II, Tizané published 6 books (Tizané 1951, 1962, 1971, 1977a, 1977b, 1980) that found a large public, even though the writing style is poor, i.e. similar to administrative documents. Baudouin identified 4 unpublished manuscripts, 11 non-peer reviewed articles (published in spiritist and occultist journals), and many interviews, some in mainstream media. Between approximately 1950 and 1980, Tizané was the French media target for haunting topics, before Hans Bender took over this role.

It's clear that Tizané should not be regarded as an academic specialist on haunting, or even as a scientific writer. He contributed, however, to the development of knowledge on the subject. He identified 27 characteristics of the poltergeist, but his categories overlapped. His vocabulary was influential, as he named "little haunting" (*petite hantise*), the occasional manifestation of poltergeist activity, which was distinguished from recursive haunted houses. The person whose presence coincides with the maximum poltergeist activity was called the "epicenter subject" (*sujet épicentre*), in a nice seismic metaphor. Indirectly, his observations on the elusiveness of poltergeist phenomena corroborate those of other researchers, and were integrated into Walter von Lucadou's model (1982).

Tizané's interpretations were a complex mixture of parapsychological and religious ideas. He was a careful reader of parapsychological research on unknown forces, especially Osty and Osty's study of the medium Rudi Schneider (1932). But he departed from the psychokinetic interpretation by introducing the possibility of *another* intelligence, foreign to the psyches of those present. He called it the "Unknown Host" (*Hôte inconnu*), using the ideas of Belgian Nobel laureate Maurice Maeterlinck (1917). He was even supported by Maeterlinck with whom he had a correspondence starting in 1948. But he goes beyond any lay interpretation and comes back to his Catholic faith:

> I conceive the Host in the guise of an intelligent invisible essence, born from a divine creative thinking and holding itself identical but with limited abilities, because there must be absolute distinction between God and his creatures. (Tizané 1977b)

All in all, Tizané described a very Manichean picture with a delinquent host (poltergeists) versus a benefical host (Marian apparitions) (p. 98). "The poltergeist is a delinquent" became his leitmotif. He thought the unknown host uses humans as feeder, as energy source, who provide him with what he needs for his evil deeds. And he restropectively applied this interpretation to all previous parapsychological data.

Tizané's Strange Friendships

Baudouin's book didn't focus solely on what may interest parapsychologists, and he never tried to develop a scientific evaluation of the empircal material gathered by Tizané. Nevertheless, he provided good historical coverage of his trajectory, especially in the chapter on "Vichy and Its Occultist Constellations" (Chapter 5:165–196). He dug into any names found in his correspondence and revealed how paranormal topics were received by French society over half a century. In addition to the support given to him by Maeterlinck and the Ostys, Tizané received support from philosopher Gabriel Marcel, and artist Jean Cocteau, among others. But he found strong support from French Physiology or Medicine Nobel Prize laureate Alexis Carrel. They had a correspondence between January 1942 and September 1944, i.e. during the Nazi occupation. At that time, Carrel was the regent of the French Foundation for the Study of Human Issues. Tizané was fascinated by the project, described in 1937 as an institution to apply physiology and physics techniques to experimental research on clairvoyance and telepathic phenomena. Carrel dreamed of a man skilled with both a disciplined intelligence and telepathic abilities (Carrel 1935). There are no discussions about eugenics or antisemitism in their correspondence.

Tizané seemed to have multiple contacts with researchers in occult circles. He was also in correspondence with Louis Lauliac, "teacher" at the "School of Psychology" and at the "Society of Metapsychical Sciences," among other pseudo-scientific organizations during WWII. For instance, Lauliac believed that, through a new translation of the Gospels, Jesus' return will be in France. . . . And Baudouin described Tizané's contacts with vicomte Bertrand de Cressac de la Bachelerie, an engineer with a strong interest in parapsychological phenomena. He was the co-founder in 1941 of the Association Française d'études Métapsychiques, a spiritist organization concurrent with the Institut Métapsychique International; but he used his society to hide meetings to organize Maréchal Pétain's propaganda. Finally, he was arrested in 1944 for "collaboration with the enemy."

Baudouin rigorously examined Tizané's passage in the "dark zone." His strange friendships seem motivated by parapsychological common

interests, but remain ambiguous. Also ambiguous was his role during WWII (Chapter 6:197–234). Promoted to Captain in 1935, Tizané was responsible for the section of Melle, in the Poitou. Following orders, he arrested in January 1944 at least one young Jewish woman (Ida Grinspan) who was sent to Auschwitz. She survived and was able to give details in an interview to Baudouin (2015). Despite that, Tizané was awarded medals and the Légion d'Honneur at the end of WWII, as he had helped leaders of the Resistance since 1942.

To understand Tizané's conduct, Baudouin makes a parallel between Ida Grinspan's arrest in January 1944 and the poltergeist case of Frontenay-Rohan-Rohan in November 1943. This was probably the best case of Tizané's field studies, and the only one for which he got permission for an unofficial investigation, outside his district. Some local gendarmes have confirmed the observations of the Auché family and their neighbors: strange noises, displacements of objects, but without any observation of the starting point or the trajectory of the objects. After half an hour there, he observed the displacement of a coffee grinder and a metal box over several meters, the sensational destruction of a lampshade, the disappearance of his gloves and his whip, and even the levitation of his képi. He made several drawings of the events and collected testimonies. He obtained more phenomena through oui-ja and automatic writing with Ginette, 15 years old.

Tizané's solution to stop the phenomena was to remove the epicenter subject from the haunted place, or "to discharge him/her through psychoanalysis or more complex operations (memory regression or personality dissociation)" (Tizané 1977b:11). But later a psychiatrist hired Ginette as a cook, and she admitted to him being the conscious author of these hoaxes, and confessed that to the gendarmes (on December 2, 1943). Immediately the press was unleashed and made fun of the naïve gendarmes who claimed to have observed paranormal phenomena. Ginette retracted this false confession in a letter to Tizané in February 1944. Tizané took this retraction as proof of her irresponsibility, but no legal authorities listened to him. According to him, Ginette was only a "victim of the invisible," i.e. she was not responsible because of Article 64 of the Penal Code: "There is neither crime nor offense where the accused was insane at the time of the action or when he was forced by a force he could not resist." Tizané attempted to restore order through restoring the truth, and therefore doing jurisprudence. Yet, because of his ambition, he sent his report to the press and entered into conflict with his superiors. He was sanctioned for a lack of reserve and discernment, and received a severe warning from the Commander of his Légion: "Your role and your comments have been judged with an ironic skepticism which spreads doubts about your perspicacity."

Conclusion

After this episode, Tizané remained more discrete until his retirement in 1954. He then had a second career of 30 years as the author of several popular books on hauntings, at a time when French parapsychology was in decline and almost invisible itself (Evrard 2016). Tizané's main objective was to "delimit the territories of the haunting" through a "penalist approach to occult phenomena." But he failed to introduce the subject of paranormal phenomena into the Law or into official organizations. Although he gave rational arguments about the way to deal with confessions and frauds, he said he also observed "Trickster" effects in haunting situations. As he failed to restore a rational order, he chose to believe in an autonomous Trickster entity, the Unknown host, who he blamed for all transgressions.

Studying his correspondence, Baudouin reveals the strange relationship between Tizané and his objects of study (Conclusion:197–234). He perceived how his occult investigations had aftereffects on the mood and sleep of family members, and how he was close to burning all his files. His wife urged him to stop spiritualist practices in 1932, but he came back to them at the end of his life. After a meeting with a PK medium, he received phone calls from a synthetic voice, claiming to be "Simonus," an entity from another planet, urging him to write a book about it. But he soon died of a generalized cancer and his wife destroyed (parts of) this "demonic" material.

For any historian with an interest in paranormal topics, coming across this book is a marvelous event. Baudouin saved Tizané's work from the scrap heap, and has given us direct and high-quality access to the treasures of his archives. We can only wonder about the many other private archives close to the bin, and hope that people with enough curiosity and epistemic courage will take them on.

Note

[1] A képi is a French military cap with a flat top and horizontal visor brim.

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Society for Scientific Exploration

The 36th Annual Conference of the Society for Scientific Exploration

will be held at

Yale University

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The nearby Courtyard Marriot hotel, and a limited number of dorm rooms will be available.

http://www.scientificexploration.org/2017-conference

SSE 2017 ANNUAL MEETING PROGRAM

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Expanding the Boundaries of Science
Founders Lecture – Brenda Dunne, ICRL, PEAR

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Session on Healing
Jim Oschman, author of *Energy Medicine: The Scientific Basis*
Rick Leskowicz, Harvard Medical School, Phantom Limbs
Bill Bengston, President of SSE

Session on Consciousness/Near Death Experience/Survival
Jeffrey Long, Near Death Experience Research Foundation
Ed Kelly, University of Virginia Perceptual Studies Division

Session on Biological Effects of EMF
Martin Blank, Columbia University
Martin Pall, University of Washington

Miscellaneous Session
Jerry Pollack, University of Washington, Institute for Venture Science

WORKSHOP ON SUNDAY
Rene Verreault, Anomalies of Foucault's Pendulum and Similar Devices

REGISTRATION

Conference pricing will remain the same as last year. Yale University will handle the conference registration:
https://www.regonline.com/registration/login.aspx?eventID=1952594

ROOMS

Yale dorm: 40 rooms. Cutoff date is May 21st.
Single bed dorm rooms connected to a center kitchenette and bath. One room is on either side of the shared kitchenette and bath. Pricing is $95 per night. We have 42 rooms reserved for the SSE. Yale housing registration may be done when registering for the conference. Rates are available for reservations from June 12 through June 20.

Courtyard Marriott: 50 rooms. Cutoff date is May 12.
Within walking distance of the Yale campus. These rooms have a discounted rate of $159/night for a king bed and $165/night for two queen beds. These rates are available for reservations from June 12 through June 19.

Other than these SSE reserved rooms, these venues are sold out, as are the local hotels, for the date of the meeting.

WEDNESDAY EVENING RECEPTION

YALE TOURS

Yale charges $40 for campus tours.

MEALS

Yale dining hall meals are $21.45 for breakfast and lunch daily. You can sign up for meal tickets when you register for the conference.

CONFERENCE BANQUET

Dinner will be catered by Yale. A cash bar is available.

SSE ASPIRING EXPLORERS PROGRAM

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

If your paper is selected for the Aspiring Explorer Award, you will be either invited to present your talk at the meeting or able to submit your paper as a poster session. We are very excited about doing poster sessions now, so please let your fellow student colleagues and professors know about this.
http://www.scientificexploration.org/2017-conference

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

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

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