

BOOK REVIEWS

The Gold Leaf Lady and Other Parapsychological Investigations by Stephen E. Braude. Chicago: The University of Chicago Press, 2007, 227 pp. \$22.50 (cloth). ISBN-13: 978-0-226-07152-7.

In this book Stephen Braude describes several cases that he has investigated and reflects on some issues raised by his investigations. Some of the cases appear to be genuinely anomalous, such as that of Katie, the “Gold Leaf Lady” (Chapter 1); and those of Ted Serios, who could apparently produce images on photographic film (Chapter 6); and Gina, Braude’s wife, who could ostensibly predict the outcomes of sports events through the use of astrology (Chapter 8). Other cases clearly have mundane explanations, such as that of the policeman who mistakenly thought that he could transfer images from photographs onto other objects (Chapter 5). Some remain ambiguous but serve to illustrate problems associated with this type of research (Chapters 3 and 4). The remaining two chapters are concerned with the history of the study of macro-psychokinesis, particularly that of D. D. Home and Eusapia Palladino (Chapter 2) and synchronicity (Chapter 7).

Perhaps the most striking case is that of Katie, on whose face and other parts of the body gold-colored foil appears spontaneously. The foil sometimes covers fairly large areas of her body and is often “uncomfortable, accompanied by a burning or itching feeling and sometimes leaving behind reddened skin when it’s removed” (p. 7). Upon examination, the foil has turned out to be brass similar in structure to that used for commercial purposes. Braude describes witnessing and photographing the manifestation of this foil and discusses various aspects of this case as well as methodological and substantive issues that it raises. On the face of it, this appears to be either a case of apportionation (if the foil were simply to have been moved from another location in space and time to Katie’s body) or materialization (if the foil came into physical existence at the time of manifestation).

Less striking, but perhaps more instructive, is the chapter about astrology because it challenges the manner in which we think about the structure of reality. There is little evidence that astrology actually works, yet it seems to work for Gina. Braude mentions an incident that stood out for him in which Gina recommended to a soccer coach that he play his reserve goalkeeper for two games. What is interesting is that in those two games, it is not that the reserve goaltender played well, but that the other team could not hit the net. Ostensibly, had the coach played the regular goaltender, the other teams would not have had the same difficulty. If this really were an anomalous occurrence, then it suggests that events, such as the presence of one or another person, can have non-local effects that bypass ordinary causal pathways.

Of course, much of what Braude says hinges on the credibility of the data that he presents. And what data there are, vary in type and amount. There is some reasonable documentation for the case of Katie; only Braude's informal observations of Gina's forecasting; and some mixture of formal and informal evidence for the others. This is not a book in which readers will find carefully laid out proofs for the existence of anomalies. But then, that is not the purpose of this book.

As I see it, among others, there are two types of scientific books that one can write about weird things. The purpose of one type is to show that weird things happen. And there are lots of that type of book on the market. The second type of book begins where the first type leaves off—acknowledging that weird things sometimes happen, what are the parameters affecting their occurrence and issues raised by their presence? It is to this second category that Braude's book belongs. In the course of discussing some of the cases he has investigated, Braude addresses a number of issues such as the role of attributions on the part of mediums in facilitating the phenomena that they produce, the effects on phenomena of the manner in which participants are treated in case studies of anomalies, and the problem of determining the source of causality if psychokinetic effects occur.

The book is written using a conversational writing style, often in narrative form, whereby the reader gets drawn into the confidence of the author. I think that the style works well in this case. This is an easy book to read. However, I would have liked it if it had been a bit more tightly organized. For example, I thought that the reader could have been better set up for which cases were considered to involve anomalous events and which were not. Also, some of the issues raised could have been better worked into the text rather than remaining as digressions (e.g., pp. 22–23). And occasionally the language becomes a little too colloquial for my taste (e.g., p. 96).

I found the arguments presented by Braude in this book to be sound overall and concurred with many of the points that he raises. For example, his characterization of the manner in which some skeptics mindlessly object to information that does not concur with their opinions is right on the mark. The only serious problem I had was with his philosophical analysis of the reason why synchronicity, which he thinks does occur, cannot result from meaningful connections between events in nature isolated from any psyche but must necessarily involve the perspective of an agent for whom such connections are meaningful events. I follow his philosophical arguments but feel that they in turn can be eroded with a more penetrating analysis of our suppositions about what nature is like. After all, to the extent that astrology could describe the occurrence of meaningfully congruent events independent of any psyche, we have an example in the astrology chapter of just such connections. To my mind, it is possible that meaning really is part of the essential fabric of reality.

Overall, Braude carries the discussion about the nature of consciousness and reality in light of the occurrence of anomalous events into deeper waters than

those usually entered, thereby giving the reader an opportunity to consider matters at a greater level of complexity. I liked this book. And it was fun to read. Others might also find it worthwhile.

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The Paranormal and the Politics of Truth: A Sociological Account by Jeremy Northcote, Imprint Academic, 2007. pp. 237 (paper). \$29.90. ISBN 978 184540 0712.

This book analyzes debates regarding anomalous topics in order to show how knowledge is “constructed” in Western society. Author Northcote states, “In particular, I want to make transparent the ‘politics of truth’ surrounding the paranormal subject—that is, the discursive processes involved in defining the validity and value of paranormal ideas in Western society . . .” (page 6). A basic assumption is that sociologists can write about issues regarding paranormal claims without passing judgment regarding the validity of these claims.

Northcote’s exploration of paranormal issues explores a wide variety of sources but draws heavily on the work of David Hess (1993) and interviews with parapsychologist-turned-skeptic Susan Blackmore. Northcote defines the paranormal as “a category that denotes a range of alleged phenomena judged to be unexplained or inexplicable in terms of ‘normal’ scientific understanding” (page 13). He also draws from UFO literature, sociology of science literature, skeptical writings, histories of the paranormal debate, the New Age movement, writings of occult practitioners, and Christians writing about the paranormal. After he defines “The Paranormal,” further chapters are titled: “A History of the Struggle,” “Players in the Contemporary Debate,” “Becoming a Participant,” “The Discursive Basis of Conflict,” “Strategic Action within the Debate,” and “Conclusion: The Possibility of Strategic Action.”

The Paranormal and the Politics of Truth covers similar ground as did Collins and Pinch (1982) and McClenon (1984) but this book has less of a sociology of science perspective and more of a “post-structuralist” orientation—similar to that of anthropologist David Hess (1993). Northcote writes, “I am essentially stating that the disputes that take place over the paranormal are more political in character rather than scientific—that is, matters of ideology rather than of evidence. Further, I contend that such political processes are not guided by aliens, demons, or psychiatric tendencies, but by sociological processes of truth construction (this perspective constituting my particular ontological bias in this

study)” (page 10). “The paranormal debate is political because it challenges the boundaries between ‘legitimate’ and ‘illegitimate’ knowledge that lie at the heart of our ‘modern’ society” (page 11).

Researchers advocating belief in a particular anomalous phenomenon might argue that Northcote’s “ontological bias,” ignores the tendency for scientific truth to be uncovered through empirical research. But, over the years, sociologists have noted that the conflicts between proponents of various anomalous claims and their critics have not been resolved and that there has been little progress toward resolution. Sociologists suggest that the rhetorical and political nature of science prevents resolution.

Although Northcote’s post-modernist discussions take abstract forms, proponents of various positions could benefit from his thoughts. For example, he reviews Michael Foucault’s “tree of enunciative derivation,” arguing that competing positions may share the same basic discourse consisting of general “governing” statements that “put into operation rules of formation.” Opposing positions differ at their “summit,” where each discursive formation is “more delicately articulated, more clearly delimited and localized in its extension” (page 81). Northcote uses this model to explain how scientific paranormal research “may be regarded as a subversive branch of the same enunciative discursive base from which Skepticism is derived—both positions valuing Rationalist ideals such as objectivity, logic and provability, but expressing them in different ways” (page 82). Although such prose has an abstract quality, those familiar with the “paranormal” debates—the typical interactions between believers and skeptics—will recognize Northcote’s understanding of common issues. This book reflects a basic “social reality.” It demonstrates scholarly and ethnographic competence.

I provide a lengthy quote so that readers may judge the degree an individual reader might find this book of interest. Northcote seeks an understanding of the factors influencing proponents’ positions. He states:

My contention is that the manner in which individuals are influenced by these discursive processes, and the extent of that influence, largely determines the ideational position they initially take in the paranormal debate, the strength of their commitment to that position, and the changing nature of their involvement over time. In terms of the strength of their commitment, for example, the associations, or links, that participants make between various wider discourses and their paranormal-related position, can lead them to attach a much greater significance to that position than their paranormal ideas alone might seem to warrant. Discourses, then, tend to situate the paranormal debate within a wider matrix of ideas and influences, bringing all sorts of non-paranormal related issues (such as the basis of knowledge and awareness, social equality and personal identity) to bear on the debate. In this respect, a discursive approach allows us to incorporate various emic and etic explanations within a single, overall framework, thereby offering a much more comprehensive explanation of people’s involvement than explanations that rely on one or two processes alone” (page 118).

I argue that, although there is value in exploring this line of thought, the “relativistic” position (advocated by Northcote and many others, including

myself) is not fully comprehensive. Northcote is aware of this problem and notes that many of those investigating anomalous claims oppose his “discursive perspective.” “For them, the ‘truth’ of their position is reason enough for their initial and ongoing attraction (or resistance) to the paranormal, and it is by virtue of their special abilities, experiences and insights that they have come to see the ‘truth’, not because of the influence of various truth-defining discursive formations” (p. 119). His analysis is actually a form of philosophizing based on sociological analysis. His observations ring true to the degree that they reflect “social reality.” I argue that this post-modernist paradigm limits the discourse. Post-modernism does not lead to testable hypotheses and predictions about the future of parapsychology, for example. Analysis merely implies that major issues will not be resolved.

It is unclear how the conclusions within this book might be evaluated. Northcote states:

... the paranormal debate, although held by participants to *ideally* be a rational dialogue over the nature of reality, is in fact a *dispute* that is primarily discursive in nature. In particular, I have argued that the dispute appears to center on underlying discursive structures that have produced (or at least exaggerated) certain paradigmatic dichotomies as a means of defining a noble “Self” against a demonized “Other.” This “otherness” ... is not simply a means of defining in-group identity, but is a distinction that is deeply discursive in nature—centering on epistemological, ideological and ontological notions concerning the value and place of virtues such as discipline, spirituality and dutifulness in the proper functioning of society and the cosmos as a whole” (pages 145–6).

This may be the case, but how are we to evaluate the degree that this is true? Sociologists quantify variables and evaluate change over time. The histories of scientific revolutions reveal that *many* scientific issues have been resolved. Successful scientific revolutions occur when revolutionary scientific organizations experience rapid, often exponential, membership growth. Successful scientific movements attract private, academic, and governmental funding. These movements gain rhetorical and political power through their capacity to (1) replicate basic experiments supporting their fundamental paradigm (2) develop innovative experimental procedures that attract new proponents and resources (3) create a growing body of knowledge resulting in increasing coverage by introductory textbooks. Although science is a rhetorical and political process, it is possible to evaluate the interaction between research results and that process.

Fields such as parapsychology constitute special situations—which I term “deviant science.” They depend on lay publics for financial support rather than academic and governmental institutions. Deviant sciences gain longevity beyond that of unsuccessful scientific revolutions but do not experience the exponential growth associated with successful scientific paradigms.

We can quantify the “success” of parapsychology by monitoring changes in membership in the field’s major scientific organization, the Parapsychological Association. Membership was 205 in 1970, 279 in 1980, 306 in 1983, 275 in

1986, 246 in 1992, 251 in 1999, and 254 in 2001 (McClenon, et al., 2003). These numbers indicate gradual growth followed by decline. This pattern does not reflect that of a successful scientific revolution. A content analysis of introductory psychology textbooks results in parallel conclusions. Introductory psychology textbook authors, over many decades, provided limited (not increasing) coverage of parapsychology and tended to focus on the field's failures rather than its successes (McClenon, et al., 2003). Parapsychology's longevity, non-scientific financial support, stagnant organizational membership, and shoddy treatment in introductory textbooks suggest that future claims of experimental replicability will be evaluated skeptically.

Some parapsychologists argue that psychic phenomena have qualities that thwart scientific evaluation. Yet individual paranormal experiences seem to occur in all societies and eras. The appendix of *The Paranormal and the Politics of Truth* provides results of a 2001 Gallup Poll of Paranormal Beliefs. Among this random sample of USA respondents, 54% believe in "psychic or spiritual healing," 50% believe in ESP or extrasensory perception, 42% believe that houses can be haunted, 41% believe that people on this earth are sometimes possessed by the devil. Surveys of paranormal belief, over time, reveal flux—but also a basic stability. We might hypothesize that people in all societies, and in all eras, experience paranormal episodes and these perceptions provide foundations for folk beliefs in spirits, souls, life after death, and magical abilities.

I argue that post-modernist sociological paradigms have few practical applications. Better orientations are available. Darwin's theory of evolution, for example, provides testable hypotheses regarding why people believe in anomalous phenomena (McClenon, 2002). Spiritual healing over the past hundreds of thousands of years has provided survival benefits to those with genotypes allowing them to respond to ritual suggestion. Such genotypes, allowing hypnotic suggestion and dissociation, seem linked to the propensity for anomalous experience (many studies show correlations between these variables and hypnotic capacity has been shown to have genetic basis). This leads to testable hypotheses. We should find that all societies contain people who are more open to ritual suggestion and spiritual healing. We should find that such people more often experience apparitions, paranormal dreams, waking extra-sensory perception, out-of-body and near death experience, psychokinesis, and synchronistic events. We can predict that these people will tend to believe in the spirits, souls, life after death, and magical abilities—beliefs useful to spiritual healing. This line of thinking can be evaluated within scientific paradigms leading to advances in psychotherapy.

The Paranormal and the Politics of Truth is required reading for anyone who desires to use a post-modernist perspective to analyze conflicts at the borderlines of science. This book illustrates how social scientists can contribute to the sociology of knowledge. But greater contributions are possible. Social scientists, working within scientific, rather than philosophical, paradigms, can shed light on the ways that humans evolved due to their capacity to benefit from ritual

processes. Although the political nature of sciences makes it difficult to resolve certain issues regarding anomalous claims, alternate paradigms are available.

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Opening to the Infinite: The Art and Science of Nonlocal Awareness by Stephan A. Schwartz. Buda, TX: Nemoseen Media, 2007. 418 pp. \$24.95 (paper). ISBN 978-0-9768536-1-9.

Opening to the Infinite is the latest book in a series by Stephan Schwartz that looks at how the ostensible psychic (psi) ability of remote viewing (RV) may be put to practical use in real-world applications. It does not just passively illustrate RV applications, however; it is also a useful applications manual in itself.

Following an introduction to the terminology used in parapsychology and RV research in Chapter 1, Schwartz does two important things in Chapters 2 and 3: He outlines why RV is important, and he shows why RV deserves serious study, respectively. The reasons Schwartz lists for why RV can be important to the general public are practical: it can allow them to find hidden resources, it may help them gamble or trade on the stock market, and it may assist in national security (p. 27). The reason that RV is important for science, as Schwartz illustrates (pp. 30–33), is that it seems to pose a serious challenge to the materialistic approach to the mind. RV, and ESP in general, suggests that individuals are able to gather sensory information about persons, objects, or places that are distant (or nonlocal) in space-time, beyond the range of the body's sensory-motor system. This conflicts greatly with traditional materialism, which assumes that sensory information is only locally attainable through the body's five known sensory modes, and the common response to this conflict by

many mainstream scientists has been to either dismiss the phenomena that give rise to it, or simply ignore it. In the face of impressive statistical evidence for RV, and thus for ESP (Utts, 1996, 1999), it would seem that to uphold such ignorance would be to prevent the advancement of knowledge in thinking about the possible relationship between mind and matter.

Schwartz shows why RV deserves serious study through an illustration of a notable 1977 experiment that was designed to test the spatial and environmental limits of RV (Puthoff et al., 1981: 51–57), an experiment that he was instrumental in getting off the ground. A preliminary hypothesis proposed by the Russian physiologist Leonid Vasiliev in the early 1960s offered the idea that the information transfer process in ESP may involve some aspect of the electromagnetic spectrum that might act as a transmitter (pp. 42–45). The mostly likely candidate seemed to be the extremely low frequency (ELF) waves found in the frequency range between 3 Hz and 3 kHz, given their high penetrability, low attenuation with distance, and information carrying capability (albeit with a low bit rate). The possible involvement of ELF in ESP was also considered by other researchers (Kogan, 1968; Persinger, 1979) with various pros and cons, but a way to resolve the issue would not come about until an experimental test of the hypothesis could be made. Schwartz had hoped to conduct such a test by carrying out an RV experiment using a deep-dive submersible to see if RV subjects were still able to give accurate impressions of the target while being several hundred feet below the surface of the ocean, a medium that is able to effectively block out ELF waves with depth. He had first tried to interest the United States Navy in the experiment in 1972 while serving as the Special Assistant for Research and Analysis to the Chief of Naval Operations, only to be told that it would have no potential applications for them. The opportunity only arose after he had left the service, when he discussed the idea again with a former Deputy Director of Navy Labs in 1976. This former director was now heading the Institute for Marine and Coastal Studies at the University of California, and he knew that a Canadian ocean research corporation was looking to test their new submersible, the *Taurus*, in the waters surrounding the Institute's research facility off the coast of Los Angeles. He discussed the idea with the *Taurus*' owners, and they allowed it to be used for the RV trials over the course of three days.

At that time, various U.S. military intelligence agencies were funding a covert series of RV studies being conducted at the Stanford Research Institute (SRI). The two physicists heading the SRI series, Harold Puthoff and Russell Targ (1976), had just published a detailed paper describing the early part of the series in the prominent engineering journal *Proceedings of the IEEE*. Schwartz's attention was drawn to their paper by an acquaintance he had in the Central Intelligence Agency, and he immediately looked to collaborate with them on the submersible experiment. Participating as the RV subjects were photographer Hella Hammid and painter Ingo Swann, both of whom had demonstrated impressive RV abilities in the SRI studies (Puthoff & Targ, 1976; Targ & Puthoff,

1977). Accompanied by SRI researcher Edwin May, Hammid and Swann were each individually taken several hundred feet down into the Pacific Ocean in the *Taurus* and asked to describe the geographical locations where Puthoff and Targ were located, approximately 500 miles away. Once their verbal mentation was recorded on audiotape, May broke open a sealed envelope containing a list of six geographical locations, one of which had been randomly selected by computer as the target location where Puthoff and Targ had gone. Hammid and Swann were then asked to select the location they thought was the target based on their impressions, and they both correctly did so, a result that has a combined probability of .028. The fact that both Hammid and Swann had demonstrated successful RV at sufficient seawater depths to attenuate ELF waves seemed to provide evidence against the hypothesis that ELF is a part of the ESP mechanism. This suggests that something more complex may be involved, and that serious study is warranted in order to determine what that something may be.

The book quickly goes from illustration to application in Chapter 4 as Schwartz begins to outline a basic working procedure that may allow readers to explore RV for themselves. Unlike the many commercialized RV training programs that one may see in public forums, the procedure that Schwartz offers is very simple, easy to follow, and sensible. He likens the RV experience to being an eyewitness (p. 68), in that information from many different sensory levels may be received, and that one can at times have the sense of almost experiencing the target directly. He emphasizes that readers should proceed at their own pace in a relaxed, informal manner, taking breaks when it is felt necessary to regain focus. He also warns against things that may potentially be psi-inhibitive, such as the desire to directly analyze the incoming information in order to directly identify the target or otherwise draw conclusions about it, a process sometimes known as analytical overlay (p. 73). This is a good point, as others who have written about RV (Targ, 2004: 58–59, 71; Targ & Harary, 1985: 211–213) have also argued that such a tendency to analyze can potentially diminish RV quality, leading more to mental noise than anything. Schwartz notes that this tendency can also be provoked if an interviewer working with the viewer asks leading or specific questions about the target's details (p. 74), and he cautions against allowing this to slip into the session.

In Chapter 5, Schwartz details a technique that he has personally used to help develop the ability to focus on an RV target, and that technique is meditation. He briefly summarizes some of the research on meditation (pp. 78–81), noting that a relaxation effect often occurs in the body and that a deep “stillness” or “silence” can occur that may open a person more toward experiences of transcendence. Something that Schwartz doesn't specifically mention is that some experimental evidence suggests that meditative states are ESP-conducive (Braud, 1975; Honorton, 1977: 438–442), perhaps because relaxation and sensory reduction seem to be ESP-conducive states.

In Chapter 6, Schwartz discusses some possible geophysical correlates to psi that one may take into account when scheduling an RV session. He specifically

notes the negative correlation between ESP performance and geomagnetic field activity found by Persinger (1989), and also Spottiswoode's (1997a) finding that the effect size in various ESP experiments tends to maximize at around 13:30 hours Local Sidereal Time (LST, a time often used by astronomers that is measured by the position of the stars in the sky overhead relative to the motion of the Earth). Spottiswoode (1997b) later found that the negative correlation between ESP and geomagnetic activity was also maximized around this same hour, hinting at a possible link to this factor. However, a second analysis of the effect size correlation with LST by Sturrock and Spottiswoode (2007) with a larger ESP dataset found that this correlation, though still apparent, had reduced in statistical significance, and the possibility remains that the correlation may be artifactual. This second analysis also produced statistical evidence suggesting a possible lunar modulation effect on ESP performance, which, if replicated, could add another factor that one may take into account. Schwartz also directs readers to useful Internet websites where they can easily determine the LST and current level of geomagnetic activity in their local area.

Schwartz discusses two target factors in Chapter 7 that one may take into account in creating a target pool for RV sessions. The first factor relates to May et al.'s (1994, 2000) finding that the quality of ESP performance is positively correlated with the change in the amount of Shannon entropy across the target image, analogous to the way sensory systems appear to be more sensitive to changes in the intensity of a stimulus rather than the absolute magnitude of the stimulus itself. The second factor is what Schwartz calls *numinosity*, a form of intentioned awareness or coherence. A crucial aspect of a target that gives it *numinosity* is its emotional meaning for the viewer, which may allow them to relate to the target, and thus perceive it. Or in some cases, if the meaningful aspect is negative for the viewer, it may lead to target avoidance. Schwartz gives two examples of the latter. In one (pp. 125–128), the RV subject was unable to describe the central aspects of the geographical target – pumpkins and Halloween decorations found in a patch – even though he was able to describe the area surrounding the patch. The subject reportedly had an ill episode after eating a whole pumpkin pie on Halloween night in his youth, causing him to form a negative association with pumpkins and the holiday. The other example comes from the childhood of George McMullen, who has contributed to efforts in psychic archaeology (Schwartz, 1978/2001, Ch. 4–6; see also my review, Williams, 2006). After he had predicted the drowning of a childhood friend, McMullen was taken to the local church and harshly reprimanded in public. The great effect this had on him has apparently made him unable to correctly describe religious objects or buildings when these are selected as ESP targets (pp. 129–130). This meaningful aspect of psi can be seen most clearly in spontaneous cases of ESP and PK (Rhine, 1961), where the person, object, or place involved in the experience often has an emotional significance to the experient. Roll (2005) suggested that an object can have two aspects: it has a material aspect that defines it in space-time, making it local. It also has

affective meaning attributed to it by others, and this may be the aspect of the object that is nonlocally perceived in ESP. The concept of numinosity, as presented in this chapter, seems akin to this.

Schwartz gives another example of how a target's meaningful aspect may affect one's ability to describe it while discussing displacement in Chapter 8. In an RV trial conducted when she was a teenager, the late Elisabeth Targ had described a unique pair of sunglasses instead of the correct target. Her father Russell Targ contributed the glasses to the target pool (pp. 140–143), and their significance may have allowed her to relate to them, leading to target displacement. Schwartz also mentions in this chapter the decline effect that sometimes occurs in ESP performance over time, and reminds readers again about the diminishing influence of analytical overlay.

A discussion of the different variations on the RV theme that have been explored in laboratory studies is described by Schwartz in Chapter 9. These include geographical RV, precognitive RV, and coordinate RV. The latter derives from a successful set of studies in the SRI series, where RV subjects were able to describe a geographical target when only given their map coordinates (Targ & Puthoff, 1977: 27–34). He ends the procedure section by giving some simple tips on RV analysis and feedback in Chapters 10 and 11, respectively.

In Chapter 12, Schwartz introduces an RV method that has been particularly successful in practical application by him and other psi researchers. This method is associative RV (ARV), in which each of the objects in a target pool is associated with a given event outcome that is potentially realizable at some future time. The goal of the RV subject is to describe the one object in the pool that is associated with the outcome that will actually be realized. Schwartz illustrates the method's application value through example, describing an ARV session he conducted with Edwin May in which the subjects attempted to describe the object associated with the winner in an upcoming horse race. Prior to the race, the subjects gave their impressions, and these were combined by majority-vote to give a single collective impression on the likely winning horse. Bets were placed on this horse, and the payout was big. Targ and Harary (1985: 104–105) give an account of a similar ARV session in which Elisabeth Targ also attempted to describe the object associated with the winner in a horse race, with successful results. Other successful ARV applications that Schwartz describes include two that attempted to predict futures on the commodities market. Puthoff (1985) had seven subjects attempt to predict the direction of the market's daily activity by describing the target that was associated with the market outcome for the next day. A commodities broker then made an actual monetary investment in the market on behalf of Puthoff and the subjects based on their collective prediction. Overall, the subjects had a 62.9% hit rate, and raised a total of \$25,000 out of the successful investments for a school charity. Targ and Harary (1984: 189; Targ, 2004: 90–91) had made a similar investment in silver futures based on market predictions made through ARV, which was quite profitable in

the first phase of the study, but failed miserably in the second phase when miscommunication and competing personal interests had corrupted the procedure (Harary, 1992b). Targ et al. (1995) were later able to replicate this silver futures study with notable success, although no actual market investments were made.

Gambling and investing are only two of the valuable ways in which ARV can be used. In Chapters 13–15, Schwartz details another way that he has put to extensive use over the past several decades: searching for archaeological sites. This method of application builds upon an extensive case history of psychic archaeology, in which psychic information gathered through techniques such as automatic writing, dowsing, and psychometry (aka token object reading) was used by archaeologists and anthropologists to help guide them to the locations of hidden historical artifacts and sites. Schwartz (1978/2001) gives a detailed account of seven cases of psychic archaeology in his book *The Secret Vaults of Time* (see also my review, Williams, 2006), cases that laid the foundation for his own pursuits in a research effort dubbed *Project Deep Quest*. Schwartz describes the project's pilot expedition in Chapter 14, which was carried out in tandem with the submersible RV experiment described in Chapter 3. The objective of the expedition was to locate the wreckage of a ship lost in the waters off the coast of Los Angeles, and Schwartz asked Hella Hammid, Ingo Swann, and George McMullen to describe any RV impressions they had of something unknown there. Their responses regarding location were marked on nautical charts and combined by majority-vote into a collective impression of a target area that would be explored further by the expedition team. In addition, the three RV subjects offered descriptions of three main artifacts that would be found along the sea floor of the site: a steam-powered wench, a Y-shaped object with knobs on its ends, and a large granite slab. At first, the dives to the sea floor in the *Taurus* came up empty, and the search plan was revised to include a radio homing buoy to mark the target area, and one of the RV subjects (Swann) accompanying the expedition team in the descent to help guide them in locating the area. This revision proved to be fruitful, and the team first discovered the remains of the steam-powered wench that the subjects had described (pp. 191–192). Additional dives later uncovered the Y-shaped object and the granite slab, and all the objects dated to around the late 1800s, within the timeframe given by the psi subjects in their impressions (pp. 195–197).

In Chapter 15, Schwartz outlines the specific methodology developed by his long-time research organization, the Mobius Society, for using RV as a supplemental tool in the search for archaeological sites (Schwartz, 1982), coupled with conventional detection methods such as satellite imaging, radar and sonar scans, and proton precession magnetometry for verification. Each step in the methodology is illustrated by specific examples from Schwartz's various psychic archaeological expeditions to give the reader an idea of how each one is implemented. Included are examples from the search for Cleopatra's palace and the tomb of Alexander the Great in Alexandria, Egypt (Schwartz, 1983), and the

discovery of the American brig *Leander* off of Beak's Cay in the Great Bahama Banks (Schwartz & De Mattei, 1989). Despite the claims made by Harary (1990, 1992a) that the *Leander* had been a random chance find stumbled upon in an area around Beak's Cay that was a possible ship's graveyard, raising some controversy as to whether or not the discovery had been the result of psychic guidance (Schwartz gives calculations of the probability that chance had factored into the *Leander* discovery on pp. 256–257 as a counterargument; see also Schwartz and De Mattei's [1990] response to Harary), the methodology as it was applied by Schwartz in the *Leander* and other expeditions seems to nonetheless offer the potential for applying RV in a way that may be of use to other disciplines.

In the remaining chapters of the book, Schwartz reviews other practical applications of ESP to crime detection, business decisions, locating geological resources, and medical diagnosis. He also provides a brief review of dream ESP studies and how RV may play into dreams. In Chapter 23, he addresses an important issue that may potentially shed light on the reason why analytical overlay seems to diminish ESP: the difference between “left brain” and “right brain” thinking. Cerebral lateralization studies suggest that the brain's left hemisphere is functionally associated with language and analytical thinking, whereas the right hemisphere is associated with visuospatial processing and non-analytical thinking (Carlson, 1992: 448–449; Schneider & Tarshis, 1995, Ch. 18). There is also some evidence to suggest that ESP, and psi in general, is largely associated with the right hemisphere (e.g., Braud, 1975; Broughton, 1976; Ehrenwald, 1977; Roll, 2006; Roll et al., 2002). In trying to analyze ESP impressions as in analytical overlay, one may perhaps spontaneously shift to left brain thinking, taking the mental focus away from the ESP domain of the right brain. Schwartz illustrates the apparent difference between left and right brain thinking in two RV subjects who participated in his *Leander* expedition: fiction author Michael Crichton, and intuitive psychiatrist Judith Orloff. He notes that both seemed to use different modes of thinking, depending on the task at hand. They seemed to use the free-flow of right brain thinking while gathering RV impressions, and then switched to the analytical detail of left brain thinking when trying to interpret their impressions afterward (pp. 337–338).

As mentioned, *Opening to the Infinite* is not just another book in a series by Schwartz that describes psychic archaeological applications; it is also an applications manual. Like other books written about RV (Targ, 2004; Targ & Harary, 1985), it offers an easy to follow, yet seemingly effective approach to using RV, unlike most of the commercial RV training programs, which tend to make the RV process seem more complicated than it really is, perhaps for the sake of selling it as high-priced classes. For people desiring to learn how to possibly improve their own psychic skills through RV, reading this book could possibly save them a lot of money in the end. By showing how RV may be applied in archaeology, Schwartz also subtly shows how psychic abilities may be useful in gaining possible insight about the past, a value most clearly

demonstrated in *The Secret Vaults of Time* (Schwartz, 1978/2001). In that sense, the present book would instead be another by Schwartz that only adds to the argument that the human mind is able to reach farther across space-time than previously thought. That alone may have great value in the long run.

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Psi in the Sky: A New Approach to UFO and Psi Phenomena, by Keith L. Partain. Xlibris, 2001. 165 pp. \$20.99. ISBN1401028705.

In this book, psi investigator Keith Partain attempts to forge a new paradigm to explain psi and UFO occurrences. He uses selective pieces of the new research emerging in physics and biology, combined with less mainstream ideas. He has some interesting theories, which deserve to be explored further and perhaps expanded.

Unfortunately, Partain is a poor writer, and his book is difficult to read and understand. This stems partly from a weakness for heaping up jargon into impressive strings and butchering basic grammar. But, the problem runs deeper than that. Partain uses technical lingo without explaining either the terms or the ideas, and this makes it nearly impossible to evaluate his opinions or the original research. He is also disorganized, skipping through topics without connecting them.

Nevertheless, for the reader prepared to wade through his prose, Partain offers some innovative notions. His fundamental theses are two: first, that psi is a natural human trait; and second, that UFOs are psi manifestations, which interact with humans' energy fields. He considers psi to be a naturally evolved trait in humans, though unevenly expressed and perhaps vestigial since the development of language. By exploring the idea that UFOs and beings are separate consciousnesses, whose psi interacts with our own, he confronts the popular skeptical notion that the human mind somehow manufactures these events.

These are intriguing ideas that could be profitably explored by researchers. Regrettably, Partain's attempts to marshal evidence for his theses are the weakest part of the book. His discussion of quantum physics and its inability to explain psi is really understandable only to the specialist. He does, however, make it clear that he prefers David Bohm's idea of the implicate order over other theories.

Partain locates the evolutionary base of psi in the "Aquatic Ape" theory, popularized by Elaine Morgan. Unfortunately, he simply accepts it wholesale. The Aquatic Ape theory is a very controversial theory of human evolution, and Partain's use of it dilutes his argument.

He then turns to the idea of the "third eye" as the locus of human psi. Though his reasoning is choppy and incomplete, he builds an interesting case for the pineal gland as the third eye, culling his ideas from British researcher Serena Roney-Dougal. Along the way he discusses the importance of theta brainwave states to psi activity.

The second part of the book is largely devoted to UFOs. Partain tends to agree with well-known UFO researchers Jacques Vallee and John Keel that many UFOs are manifestations of beings, usually called "fairies" in European folklore, who have always been around and interacted with humans. Bravely, Partain discusses not only cases he has investigated, but also those which he

experienced. Very few investigators do this, for fear of being branded biased or marginal.

One of the most interesting cases he describes (of which he was also a part) concerned five people who experienced unseen harassment, psi and evil-looking manifestations at different times for fifteen years. Partain summed up the case by quoting W.B. Yeats to the effect that there are “chains upon chains” of beings able to take any form. They frequently haunt rivers. Partain, mapping his informants’ homes, discovered they all lived near the same creek at the time of their experiences. This marriage of folkloric knowledge with new research is very fertile ground that other investigators might find well worth pursuing.

Partain’s discussion of ancient UFOs is rather muddled. He uses the same sources everyone must for these events, but no clear theory emerges from his treatment, save for agreement with Vallee that the ufological phenomenon is manipulating human consciousness. His discussion of more recent events, such as Kenneth Arnold’s famous 1947 sighting, Uri Geller’s psi manifestations, and Bob Pratt’s research on dangerous Brazilian UFOs, is quite scattered. He does propose some interesting geomagnetic correlations.

The most interesting part of these discussions is Partain’s look at UFO experiences in light of the experiencers’ psi abilities. This leads him to a discussion of electromagnetism (EMR) in UFO and psi. He sketches a paradigm change that makes more sense of visitations and psi without positing EMR as the cause. He adamantly opposes the idea that psi is electromagnetic in nature. Rather, he says, we identify psi by its electromagnetic consequences, and mistake the result for the cause.

The book ends with a discussion of humans as an emergent species. We are, he says, evolving into a more psi-sensitive species. This is a slow, ongoing process. The emergence of *Homo hypnagogia* will increase psi abilities, but not make us a race of gods. He presents this idea in a level-headed manner, though rather sketchily.

This book is mainly useful for the interesting ideas the author floats. It is too poorly written to have influence in other venues.

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The Intention Experiment: Using Your Thoughts to Change Your Life and the World by Lynne McTaggart. New York: Free Press, 2007, 318 pp. \$26 (hardcover). ISBN-13: 978-0-7432-7695-5.

There has been considerable recent interest in the manner in which the mind can directly affect physical reality as witnessed by the popularity of books such as *The Secret* (Byrne, 2006) and *Ask and It Is Given* (Hicks & Hicks, 2004). The idea is that we just have to think of what we want and then it happens through the “law of attraction.” On the face of it, this is silly, and the silliness of it has been played up in reviews in the conventional media (e.g., Feschuk, 2007). Moreover, such beliefs are a constituent part of “magical thinking” which is regarded as a symptom of Schizotypal Personality Disorder (American Psychiatric Association, 2000). That is to say, only sick people think that their thinking has a direct effect on the physical world. The truth of the matter lies somewhere in between the giddy holus-bolus embracement of the “law of attraction” and the opinion that its acceptance is a sign of a mental disorder. And it is into this middle ground that Lynne McTaggart deftly inserts herself with *The Intention Experiment*.

McTaggart starts with the notion that the participatory role of the observer in the Copenhagen interpretation of quantum mechanics opened the door to more general speculations about the manner in which intention could affect physical events and then goes on to review evidence to support such speculations. Research concerning psychokinesis, healing, mind-body interaction, intercessory prayer, precognition, retroactive intention, the effects of geomagnetic fields, and other anomalies associated with consciousness has been included. Readers of this journal will find much that is familiar, including the work of Robert Jahn and Brenda Dunne, Roger Nelson, Hal Puthoff, Gary Schwartz, William Tiller, Dean Radin, Stanley Krippner, and Richard Blasband. There are older studies such as those of Cleve Backster in which he looked at the effects of intention on plants. And there are examples taken from outside the scientific literature, such as those from sports, used to illustrate the techniques that could be used to augment the effects of intention. However, as McTaggart says: “What has not been tested is the extent of [the power of intention] in the cut and thrust of ordinary life” (p. 199). Nonetheless, based on her summary of the available evidence, she extracts what appear to be the relevant variables and, in the penultimate chapters, provides guidelines for the practical use of intention. She concludes the book with an invitation to readers to participate in ongoing group experiments and directs them to her website.

It is laudable that McTaggart, a journalist, has taken this subject matter seriously and written a thoughtful review of much of the relevant research. And, in trying to make sense of the subject matter, she occasionally displays considerable perceptiveness as she does, for example, with her handling of the contradictory data from the prayer studies. Overall, I liked this book. I found, however, that sometimes McTaggart would intermix the peripheral with the

essential when describing scientific procedures, results, and theorizing, so that I had to interpret her accounts in a way that made sense to me. And I noticed a couple of errors, such as the conflation of theory with experiment when discussing Bell's theorem, and the contention that only recently have scientists given up on the idea that the two sides of the brain work independently, something that had actually already gone out the window by 1980 (e.g., Ellenberg & Sperry, 1980; Yates, 1980). There is also noteworthy relevant research that is missing, such as the work of Jeffrey Schwartz concerning self-directed neuroplasticity in the treatment of obsessive-compulsive disorder (Schwartz & Begley, 2002). But these are minor glitches and do not detract substantially from the value of this book. I recommend *The Intention Experiment* for anyone who is looking for an even-handed introduction to the evidence for the anomalous role of intention in physical events.

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The Synchronized Universe: New Science of the Paranormal, by Claude Swanson. Colorado Springs, CO: Poseidia Press, 2003, x +307 pp. \$19.95 (over-size paper). ISBN 0-974S261-0-X.

If one intensively works (for eighteen years) as a parapsychology test subject, one has ample opportunity to observe the existence of some interesting oddities about the multiple fields of paranormal research, oddities that seem to go unnoticed. For example, the accumulated literature of those fields is quite large, but it seems to specialize in selected aspects of the paranormal, with the result that a possible all-inclusive bigger-picture within which the aspects belong is missing. Another even more obvious example of such oddities is the prevailing absence of a descriptive A-to-Z encyclopedia of known and suspected “paranormal” faculties and abilities universally and historically experienced throughout our species. (Of course, it might also be noted that an encyclopedia detailing so-called “normal” faculties and abilities is also absent).

The Synchronized Universe helpfully trends toward ameliorating these and other oddities. With its excellent overall presentation, elegant readability, and many relevant and informative graphics, this book configures fresh approaches and concepts that probably will have ultimate meaning to research of the paranormal—and could possibly contribute much to a deeper understanding of consciousness itself.

After its Introductory comments, the book is divided into thirteen Chapters, the first twelve of which discuss some 95 “paranormal” topics and aspects. These do not yet constitute an A-to-Z encyclopedia, but the overall sum is entirely suggestive of a fluctuating spectrum within universal human consciousness potentials quite capable of experientially downloading various types of actionable information not available within the so-called “limits” of the physical senses. The first twelve Chapters and their multitudinous topics depend on various examples of excellent modern research yielding positive results—and even more importantly, on emphasizing that the topics discussed have deep, species-wide roots that enduringly transcend the various information limits of ever-changing societal frameworks. Said roots, therefore, exist as actual human generic consciousness faculties and potentials. Each Chapter concludes with (thank goodness) a brief, but quite impressive Summary that deservedly dignifies and humanizes this inherent consciousness-generic factor—regardless of various mere tenuous social restrictions and confusions about it.

All of the above having been said, the super-problem hanging over all of this book’s multitudinous topics is the nature of consciousness itself—and in mentioning this we encounter yet another oddity that not only plagues all of the paranormal fields, but also even so-called “normal” existence as well. In 1980, Seymour Mauskopf and Michael R. McVaugh published a rather excellent science-oriented book about the “Origins of Experimental Psychological Research”—which they entitled *The Elusive Science*. In 1994, one of the world’s great physicists, Roger Penrose, published his *Shadows of the Mind*, subtitled “A

Search for the Missing Science of Consciousness.” So, as it might seem, it can be noticed, in a kind of amusing closed-loop circular way, that (1) the contexts of the Elusive science have been “scientifically” pursued via (2) the contexts of Science within which the “missing science of consciousness” has been and is still missing.

And thus, smilingly perhaps, we come to Chapter 13 of *The Synchronized Universe* that is somewhat humbly entitled “The Beginnings of a Theory.” After discussing the shortcomings of the present scientific model, i.e., that it cannot explain the paranormal, and that science “has no clue about what consciousness is,” and that “there is no adequate physical theory for it,” it is pointed up (as others also have earlier) that there are “large-scale coherent, resonate processes where trillions of molecules in the body are in communication with one another. This brings up a new possibility. Maybe the body is a macroscopic quantum system, with a set of coherent quantum states. Even so quantum mechanics, in its present form, does not have all the answers.” The insertion of quantum contexts into the book’s discussions might at first paralyze the cognitive limits of many, but, with a little patient interest, one finds that the author gently walks the reader through his conceptualized new theory-model with great agility, accompanied by a quite fine, if not intuitive, selection of graphics that clearly aid in achieving a working threshold of comprehension.

For example, attention is first drawn to research in which sensitive photomultiplier tubes were used to measure the biophoton light emitted by humans—that amounted to between 50 and 220 photons per second. In this biophoton measuring, it was also found that certain individuals were able to consciously increase their photon output by as much as 67 percent—as has been the case with certain energy healers, psychokinetic types, and in states of conscious Intention, etc. After outlining more evidence that there are deeper underlying forces that “are NOT built into our conventional physical theories,” the author again gently, and with a conciseness *seldom* encountered, begins to outline and detail “The beginnings of a theory,” tentatively embedded in the “Synchronized Universe Model (SUM)” principally based in the concept that all photons, electrons, and other particles are “actually connected to one another.”

Then follow discussions and graphics of quantum, non-local hidden variables via which one is introduced, for example, to the “Round-Trip” photon; how electrons interact across great distances; photon pulses; mutual interaction of two massless electrons; quantum photon; the synchronizing principle; four-dimensional holography; radiation balance of past and future; brain holography; Time independence of ESP and PK; OBEs; the power of the phased array; parallel universes. Finally, there is an all too brief summary of what has been discussed, after which are provided 24 pages of rather high-class references.

The Synchronized Universe Model makes no claim to be a rigorous theory (the math is not presented), but is intended more as a demonstration that it may be possible to extend current physics so as to begin accounting for paranormal phenomena, and to present some ideas that might be helpful in this important

and evolving process. Technical quantum readers will recognize that this theory-model is consistent with the fundamental quantum concepts advanced, such as in the earlier work of J. A. Wheeler and R. P. Feynman (1945); David Bohm (1951); Bell's theorem (1964); and the work of more contemporary researchers, such as T. H. Boyer; B. Haish; A. Rueda; H. E. Puthoff; etc. The author's website can be found at www.synchronizeuniverse.com.

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The God Theory: Universes, Zero-Point Fields and What's Behind It All, by Bernard Haisch. San Francisco: Weiser Books, 2006, 157 pp. (hardcover). ISBN-10: 1-57863-374-5. ISBN-13: 978-1-57863-374-6.

Surely it is time for all of us scientists to consider returning to God?

If reading that first line makes your blood boil, and you wonder how the Editor could possibly allow such a sentence to appear in what is, after all, the "*Journal of Scientific Exploration*," well, you need to read Bernie Haisch's excellent book. Your blood will quickly cool down, and you will become a happier person than you are at present. And you might even do better physics!

A few years ago I attended, at an American Astronomical Society meeting, an invited lecture on Evolution and the fight against Intelligent Design. The talk ran over, so instead of a question period, we were invited to cluster round. I asked the speaker, "why did you make no mention of quantum mechanics in your talk?" The speaker replied, "because I don't know boo about quantum mechanics."

To me, that is today's problem in a nutshell. What is presented as science is not science at all; it is a bunch of engineering approximations that have produced our technological plenty, but that have also produced spurious "explanations" for things; explanations that ultimately are incorrect, useful though they may be in a limited sphere. How can you fight something with nothing? The something is the spiritual feeling of purpose in human consciousness that makes so many susceptible to religions; the nothing is half-baked pseudoscience parading as Laws of Nature. No wonder religion is winning!

It does not have to continue so. The cure is for scientists to awaken to what real science is actually telling us. Bernie Haisch is an astronomer who has undergone such an awakening, and his thoughtful book can help you make that transition, if you have not done so already.

I have known Haisch for quite some years, because for a while we were both astronomers working in exactly the same field, chromospheric ultraviolet

emissions from cool stars. We are also both astronomers who have become deeply interested in fundamental physics, and who, despite our limitations, insist on probing physics as best we can.

Much discussion of “religion v. science” today centers on the observed “fine-tuning” of the universe that allows human existence. This is supposed to prove something, which it does not. To some degree Haisch falls into this trap, particularly in mentioning more than once the Fred Hoyle prediction of a key nuclear level in carbon through noting his own existence. If the level were not there, there could be little carbon, hence no Hoyle. Ergo, the level exists. David Gross rightly points out that quantum chromodynamics is fixed, complete, and not tunable, and it just so happens that the level *is* there, Hoyle or no Hoyle.

But that kind of argument is not the essence of Haisch’s case for God. Let me quote a single sentence from his book, which I have chosen because it so perfectly encapsulates my *own* understanding: “It is not matter that creates an illusion of consciousness, but consciousness that creates an illusion of matter.” That is correct physics: it is not controversial in the *slightest* degree that there is no reality; this has been demonstrated in both theory and experiment (Gröblacher et al., *Nature*, 446, 871, 2007).

And yet in how many physics classes today are students made aware of this most fundamental discovery? In all of my classes, I assure you; but I am confident that this is not common. The illusion of matter, which is to say the illusion of a really-existing world, is so strong, that I think most scientists are unable to overcome it. It took *me* decades to finally realize that this is *not* a joke, and that the universe is *purely* mental: that mind is fundamental; matter merely an illusion—and that this is *physics*, not philosophy (or religion).

And how, out of this, does *God* appear? Well, the only mind I *know* exists is my own. My choice is solipsism or God. A leap of faith is required, yes—but it is an easy leap indeed! Haisch, too, says his is “a theory that looks promising, not scientific proof.”

Haisch vividly points out the bloody history of organized religion that makes so many scientists happy to be freed from it, and makes them loath to come back to God. Haisch’s early history is that of a Catholic seminarian; mine, that of a child raised in wishy-washy Protestantism, but never taking it seriously. You can read in the book what Haisch considers himself to be today—I would call it Unitarian. And as for me, I am now a theist. That is just an atheist—but without the *a*. All the difference in the universe!

So what is the practical effect? Take evolution. Like Haisch, I utterly reject Intelligent Design. But my view of evolution is drastically different from the conventional, supposedly scientific, view. We know from quantum mechanics that our observations *create* the past, as demonstrated by the famous delayed-choice experiment. Again, this is *established physics*, not philosophy. So evolution is simply not an issue for me: it is entirely correct, but of course backward. What is the result? Why none, except spiritually: the scientific investigation of the details of evolution must proceed apace! As with *all* of

science! It is of immense value—but do not abuse science by trying to use it to deny spirituality, which is in fact its source.

Haisch brings out the idea of subtraction as how God created the universe; it is a nice idea. Read the book! (I recall wondering myself whether, perhaps, on our first appearance as homo sapiens, we were not *all* Ramanujans-*cum*-Mozarts, and that evolution had damped this in most of us for the survival of the species.)

In his Introduction, Haisch says “I have arrived at a personal worldview that offers a satisfying and hopeful explanation of reality—a worldview that is not only possible, rational, and compatible with modern science, but compelling and capable of resolving some of the most intransigent moral issues facing us today. It embodies a way out of our global dilemma and so I offer it for your consideration.” I endorse this offer.

I am still personally uncomfortable mentioning God. When I made the transition (2004) I composed “Great omniscient Spirit” (GoS), to keep my notion pure, and free of the historical, often vicious, God. But I am coming to think that this is a mistake; that we scientists should be *in the lead* of the battle to reclaim God from the wrong-headed.

You will enjoy Bernard Haisch’s occasional dry humor, and I think that you will be struck by the happy reasonableness of his proposal. I would like, please, *every* scientist, to give *consideration* to how much better off we would be, individually and collectively, if the God Theory could become, once again, just as it was for Newton, the working hypothesis of modern science. It beats hell out of reductionism!

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The Chaos Point: The World at the Crossroads, by Ervin Laszlo. Charlottesville, VA: Hampton Roads Publishing Co., Inc., 2006, 175 pp. Paper: \$16.95.

This is an inspirational book, a call for action, and a basis for hope. We have entered a window of opportunity that the author brilliantly illustrates using the concepts of chaos theory. Dr. Ervin Laszlo is a unique scientist who founded systems philosophy and general evolution theory. But he is also the founder and president of the Club of Budapest, an informal association of highly creative people who use their insight to enhance awareness of global problems and human opportunities.

The book starts with a Chinese proverb that warns, "If we do not change direction, we are likely to end up exactly where we are headed." The author then summarizes the problems the world is now facing and their causes. He emphasizes that we are at a critical juncture in history. We now face a "decision-window." We are headed on a path towards global breakdown where societies will experience accelerating terrorism, crime, wars, intolerance and an inhospitable biosphere for human life. Thus, there will either be a global breakdown of civilization or a breakthrough to a better future for our children and us.

The author points out that we can't use linear extrapolations of existing trends to predict the future. Humans, human society and the planet are all non-linear systems—like the weather. To understand how such complex non-linear systems develop, he believes that we need to use modern system theory. This involves the application of "chaos theory" to help us understand future options. Chaos theory shows us that the evolution of a complex non-linear system always involves alternating between periods of stability and instability, between order and chaos. When you reach *the chaos point* the present state of the system breaks down and a split or "bifurcation" occurs. The entire system is launched *irrevocably* on a new trajectory.

Data indicates that human civilization and the planet are now approaching a chaos point as the world becomes ecologically, socially and economically unsustainable. Since the 1960's the process taking us to the chaos point has been accelerating—there is no going back—the bifurcation point is coming—some predict around the end of 2012. However, there is great opportunity at such times as now. In periods of relative stability, the system tends to dampen our change. But that is not true in the period just prior to reaching the chaos point. Although chaotic systems are linked to past actions, the future is open during the window of time just before we reach the chaos point. As the system reaches the limits of its stability, chaos theory shows that the smallest "push" or "fluctuation" can impel the system to develop into a new and different trajectory. Because of this super sensitivity in the system even a small fluctuation produce large-scale effects. This is the legendary "butterfly" effect. As the saying goes, a butterfly flaps its wings in San Francisco and a storm is produced in Beijing. Thus, this time in history

presents a window of unprecedented freedom, for those who are consciously aware, to become midwives for a new world that is struggling to be born.

Chaos and system theory discloses that the transformation of society follows a recognizable pattern of major phases. In society, fundamental change is triggered by technological innovations that destabilize the established structures and institutions. Although technology can be powerful and sophisticated, it remains a tool. Its utility depends on how it is used and that is determined by the wisdom we possess.

The author emphasizes that society is culturally and not genetically coded. We can mutate our culture whereas we cannot change our gene pool. Such a change of culture can be willfully launched and consciously oriented to create a new civilization. This process depends upon the evolution of our own consciousness. A more evolved consciousness stimulates new thinking, which in turn is the key to the emergence of a new civilization. This is why the Club of Budapest “is dedicated to the proposition that only by changing ourselves can we change our world.” This evolution represents a precondition for our collective survival. It is supported by two key conclusions that come out of both physics and consciousness research: interconnectiveness permeates the universe, and thoughts/intentions have the power to affect the physical world.

As Jonas Salk stated: Our future evolution will not be decided by the survival of the strongest but by the survival of the wisest. Dr. Lazlo has written a book that is a call to action for all those who can “see” the problems that humanity will face in the near future. Now is not the time for despair, or for optimism or pessimism. It is a time for action! As Dr. Lazlo states: “We live at a time when we have unprecedented power—and hence unprecedented responsibility—to decide our destiny. —A critical mass of people in society must take an active role. That means you and me, and others around us.”

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1491: New Revelations of the Americas before Columbus by Charles C. Mann. Alfred A. Knopf, 2005. xii + 465 pp. \$30.00 (hardcover). ISBN 1-4000-4006-X.

A 1992 Columbian-quincentennial issue of the *Annals of the Association of American Geographers* (which carried a review by this writer: Jett & Wood, 1992) inspired science journalist Charles C. Mann to examine what the New World and its cultures were like on the eve of Christopher Columbus's 1492 Bahamian landfall and earlier. The fact that the title and dust jacket of Mann's book bear a distinct resemblance to those of Gavin Menzies's (2002) flawed but phenomenally popular *1421* (see Jett, 2003) is certainly not fortuitous, but the two books have little in common other than the same century of interest. Mann's aim is to showcase recently developed evidence and ideas concerning the origins, nature, and demise of pre-Columbian Native American societies, evidence that challenges conventional views, including those featuring 1) a circa-13,000-years-ago initial entry of humans into the Western Hemisphere; 2) historians' very low estimates for pre-1492 American Indian populations; 3) the notion of Amerinds' having had minimal impacts on ecosystems and landscapes; and 4) the perception that New World cultures were relatively unchanging and their peoples uninnovative.

To illustrate the achievements and impacts of New World societies, the author leads off with an example of a pre-Columbian anthropogenic landscape, i.e., one that has been thoroughly reconfigured by human activity. The instance presented is one once studied by University of Wisconsin geographer William Dennevan: eastern Bolivia's Beni savanna, a seasonally flooded region where people constructed a vast network of canals, mounds, and causeways, transforming into a mega-waffle, for human purposes, a naturally flat expanse the size of Illinois plus Indiana.

Like Sumer in Mesopotamia, says Mann, the Western Hemisphere's Mesoamerica and South America were hearths for a Neolithic Revolution that spread farming and its attendant cultural elaborations far and wide. In Mesoamerica, civilization began with the Olmec people of Mexico's Gulf Coast, who "invented" writing systems, developed wide trade networks, tracked the visible planets, "created" a 365-day calendar, wrote books of history on bark paper, and "invented" a zero sign. (Actually, writing, the calendar, and the zero have cogently been attributed to introduction by sea from Asia; see, inter alia, D. B. Kelley, 1996; D. H. Kelley, 1960; Xu, 2003.)

Mann discusses other, later remarkable pre-Columbian New World civilizations, including the Andes's Tiwanaku and Wari cultures and Mesoamerica's Maya.

The book's Part One is entitled "Numbers from Nowhere?" As a lead-in to a discussion on demography and disease, Mann provides a description of English/Delaware Indian relations in the Massachusetts Bay Colony of the 1600s, giving a much more nuanced analysis than the Thanksgiving story heard in elementary schools. He underlines the role that unintentionally introduced

Old World infectious diseases—to which the natives were not immune (see Jett, 2004)—played in the twilight of Delaware Indian power. Although the fact of disastrous impacts of such diseases throughout the hemisphere had long been recognized, according to Mann it was the anthropologist Henry Dobyns who, owing to his research in Peruvian colonial archives, in 1966 made widely known to his colleagues the magnitude of the demographic, social, and economic catastrophes attributable to these foreign maladies.

In 1491, the Inka ruled the world's largest empire, a domain larger than that of China's Ming emperors or of the Ottoman Turks. Inka success is attributable, in part, to the realm's possession of a great variety of ecozones. Inka hegemony expanded mostly by gradual co-option of local rulers via inducements and threats rather than through military conquest. The institution of community work obligations was established, and the state sent labor forces hither and yon, feeding them while away from home. The state controlled all resources, production, and social welfare. Communities were often relocated, to promote homogeneity throughout the empire. In short, this was a kind of socialist planned state.

But in 1531, the conquistador Francisco Pizarro, with but 168 men, took over the entire empire. Although the Spaniards had the advantage of horses, armor, swords, and firearms, the main reason for the weakness of Inka resistance was smallpox, which had reached Peru six years earlier and therefore far ahead of the Spanish advance; by the end of the following three years, perhaps half of the native population had died. Further, because smallpox had already killed the Inka (ruler), a civil war between his two sons had sapped the stability of the state, and subject peoples rose in revolt.

Smallpox had inadvertently been introduced into native Hispaniola in 1518, whence it had spread to Cuba. (Most Spaniards coming to the Caribbean region were immune, having had the disease in childhood back home in Spain.) From Cuba, the malady was carried to Veracruz, Mexico, by a slave, and it then diffused to the Aztec capital, Tenochtitlán (today's Mexico City). The disease spread like wildfire, ahead of Spanish contact, reaching Panama and then Peru, where there were epidemics in 1525, 1533, 1558, and 1565; ultimately, the Inka Empire's population was reduced by perhaps 90 percent.

Smallpox and other diseases killed not only directly but also because they debilitated the labor force, leading to neglect of crops, food-preparation, and child-care, thus engendering starvation. Dobyns estimated that in the hemisphere as a whole, 95 percent of the human population succumbed. Earlier estimates of the pre-Columbian New World's population size, based on colonial records, had fallen short by a factor of nearly twenty, concluded Dobyns. Physiologist Sherburne F. Cook and historian Woodrow W. Borah had come to a similar conclusion in the 1950s, but Dobyns's exposition caught anthropologists' attention (although many disputed his conclusions, at least initially).

Numerous examples of decimation by disease can be forwarded, and Mann presents several. In what was to become the U.S. Southeast, for example, microbes probably introduced by hogs brought along on the explorer Hernando

De Soto's 1539–1542 expedition led to demographic collapse and the destruction of native civilization throughout the region.

Turning to Mexico, the author perorates on the complexity and subtlety of Mexica (Aztec) religion, philosophy, poetry, and art, and speculates on how, had this culture survived, it might fruitfully have cross-fertilized with European ones. But instead, Mexica culture was shattered by Hernán Cortés and his successors. In 1519, Cortés made an alliance with the independent polity Tlaxcala to defeat an indecisive Mocutezoma (Montezuma) and to seize his capital of Tenochtitlán, a city larger (and cleaner) than any European one. Although the Mexica counterattacked and killed three-quarters of the Spaniards, the Iberian survivors immediately secured alliances with vassal states yearning for independence. Then, smallpox raged through the native population, killing a third of Tenochtitlán's inhabitants and allowing the foreigners to retake the city in 1521. Over the years, epidemics repeatedly ravaged the Indians of the metropolis, until the population had been reduced to a mere three percent of its pre-1519 size. Such horrendous outcomes demand that blame be assigned, says Mann, and he provides a balanced discussion of that issue.

The book's Part Two is entitled "Very Old Bones" and deals with the origins of the Native Americans, many millennia before 1491. After reviewing the once-popular pre-scientific Lost Tribes of Israel notion, he synthesizes long-standing professional resistance to the proposition that humans had been in the hemisphere more than a very few thousand years, a resistance originally led by the redoubtable early twentieth-century Smithsonian physical anthropologist Aleš Hrdlička. Mann follows with a treatment of the 1933 identification of distinctive spear points near Clovis, New Mexico, which were in association with bones of extinct Pleistocene mammals and which came to be thought of as representing the hemisphere's oldest, "Paleoindian" culture, dating to about 13,000 years ago. These people's ancestors, suggested archaeologist C. Vance Haynes in 1964, must have entered Alaska from Siberia toward the end of Pleistocene, just before sea levels—which had fallen during the Ice Age and were rising as glaciers melted—cut off communication between Siberia and Alaska; to get to the future United States, these hunters would have to have passed southward between the Cordilleran (Rocky Mountain) and Laurentide (Canadian Shield) ice sheets as the latter began melting back, opening an "ice-free corridor." Since most of the large Pleistocene mammals they hunted soon disappeared, paleoecologist Paul S. Martin proposed that the Clovis hunters had extirpated the big game. Other researchers' urgings that there were numbers of sites in the Americas that pre-dated Clovis were vigorously attacked by Haynes and company.

Mann chronicles the unraveling of the "Clovis-first" hypotheses that had remained standard for three decades. He takes note of the "tripartite-migration" hypothesis forwarded in 1986 by linguist Joseph Greenberg, physical anthropologist Christy Turner, and geneticist Stephen Zeruga, which correlated alleged linguistic divisions, tooth types, and, to a lesser extent, genetics, to paint

a picture of three separate Beringian movements from Asia into North America, the earliest of which seemed to correspond in time to the supposed entry of the Clovis people.

The Clovis picture became increasingly problematic, as Clovis people's dependence on big-game animals came to be questioned and as it came to appear that many large mammals had gone extinct prior to the appearance of Clovis. Even more seriously, geologists and others determined that the "ice-free corridor" probably was not yet open by the time of the inception of Clovis, or, even if it was, was filled with glacial-meltwater lakes and remained too cold and windy to sustain significant vegetation and animal life. Mann does not discuss the intriguing alternative theory recently developed by archaeologists Bruce Bradley and Dennis Stanford (2004) to the effect that Clovis's ancestors were Paleolithic Europeans who crossed the North Atlantic along the edge of the Pleistocene ice floe that joined the two continents.

Although a few bold archaeologists and cultural geographers had long asserted that they had unearthed artifacts of pre-Clovis age, strong resistance to these claims persisted until 1997, when the University of Kentucky's Thomas Dillehay flew a dozen experts, including Haynes, to the site his team had been excavating since 1977 at the non-Clovis Monte Verde site in southern Chile, convincing these experts with his field evidence that the remains were indeed as old as he claimed, some 12,800 years (with hints of earlier occupation at perhaps 32,000 years). Although a few scholars still have reservations, the imprimatur of the specialists led to general acceptance of the 12,800-year-old date, which is not only earlier than any ice-free corridor but is also thousands of miles from Beringia. The implication of this is that instead of walking overland from Asia, the early human immigrants more likely entered the hemisphere via a littoral route, using boats to move relatively quickly southward along the Pacific coast—an idea that had been proposed as early as 1840 but whose modern version had been forwarded by archaeologist Knut Fladmark in 1979. Further, early skeletons found in the Americas (including that of Washington state's Kennewick Man) resembled those of Australian Aborigines and the Ainu of Japan more than they did living American Indians, who are generalized Mongoloids, suggesting that a pre-Mongoloid population entered the New World from eastern Asia.

Mann next turns to the antiquity, diversity, and complexity of the New World's civilizational centers: coastal Peru and Mesoamerica. Peru, he states, is yielding evidence of the earliest known urban societies in the hemisphere, notably in Peru's Norte Chico, where numerous high and extensive temple mounds were erected beginning about 3200 B.C.—a time at which, according to the author, Sumer in Mesopotamia was the only other urban civilization in the world. (The site of Caral now takes that date back another 300 or so years.)

An aim of Part Three is to debunk the persistent myth that the pre-Columbian Americans were children of nature in a near-pristine paradise where the footprint of humans on the earth was exceedingly light. One cannot generalize about

Indians' impacts, since technological levels and population sizes varied so much from place to place; however, in many cases, "They did not live lightly on the land" but were "superbly active land managers" (p. 245). Mann discusses major native metropolises such as Guatemala's Tikal (circa 60,000 people) and Illinois's Cahokia (about 15,000 people). He mentions the extensive use of environment-altering fire, as on the Great Plains and in the Eastern Woodlands, to drive game and to improve forage for it. And he reviews the history of eastern North American mound-building, from 3400-B.C. Louisiana's patterned earthworks through the great earthen pyramids of Mississippian culture with its vast areas devoted to the raising of maize. Rather than being unbroken forest in which a handful of Indian hunters flitted like shadows, the East became a mosaic of fields, managed wild nut-tree stands, and fragments of woods for game habitat, dotted with settlements, some quite sizable. The scenario of forest-clearing for fuelwood and for maize fields' leading to accelerated runoff and floods (with the extra shove of an earthquake and a riverine tsunami) followed by civil war's doing Cahokia in receives attention.

The Maya modified the Yucatecan landscape to their initial advantage by covering salty swamp-bottom sediments to improve water quality; by creating raised agricultural fields and hillside terraces; and by building reservoirs and canals. This did not lead to a permanent harmonious cultural ecology, however. As population grew, its support became increasingly dependent on these facilities. Over time, erosion of cleared land plus hurricane-rain destruction of agricultural terraces led to the silting up of reservoirs; sedimentation and weed growth choked irrigation canals and ditches. Century-long warfare ensued between Tikal (Mutal) and Calakmul (Kaan)—Calakmul being the largest Mayan city state, with a population of some 575,000. Calakmul won, and sacked Tikal. However, in 675, Tikal reasserted itself and defeated Calakmul.

Calakmul's destruction was the opening event in the Classic lowland Maya collapse. Between A.D. 800 and 830, most of the main Mayan dynasties fell. City after city "winked out"; the last long-count calendric inscription known displays the date 909. There was severe drought at the time of the collapse, but southerly wetter areas declined while northerly drier ones thrived, perhaps by concentrating on trading for food. The southern rulers seem to have neglected pragmatic administration in favor of pursuit of kingly glory. Post-Classic bas-reliefs feature religion, commerce, and war, but not kings, who had previously figured prominently in art.

Mann then turns to Amazonia. Traditionally, botanists have perceived the equatorial rainforest as undisturbed. Retired Smithsonian archaeologist Betty J. Meggers has long perceived the region's poor soils along with periodic mega-Nio droughts as confining the sustainable agricultural possibilities to swidden (slash-and-burn or shifting cultivation) and to have prevented the development of dense populations and complex societies. The elaborate pre-Columbian culture that existed on Marajó Island at the mouth of the Amazon was not indigenous, thinks Meggers, but was an import from the Andes, one which

declined over time owing to the constraints of the natural environment. A younger archaeologist, the Field Museum's Anna Roosevelt, has a completely (and hostilely) opposing view: that Marajó was densely populated by intensive cultivators and that Marajoa culture was indigenous and rather complex (although not reaching the state level of organization). The Marajoas constructed extensive public works and improved their physical environment. (Roosevelt has told me that she has considered the possibility that the demise of Marajó culture could have been triggered not by an unforgiving environment but by the introduction of Old World disease to the island by castaways from Africa.)

At Caverna da Pedra Pintada in Amazonian Brazil, Roosevelt found a human-occupation site that she dated at circa 13,000 B.P.—contemporaneous with but quite unlike North America's "Paleoindian" Clovis culture. Here, too, she found pottery that she dated to circa 6000 B.C., which would make it the oldest yet identified in the Americas. She presumes it to be a local invention, not an introduction. (She and Meggers differ wildly on their interpretations of the reliability of each other's dating, especially of ceramic traditions.)

By 4000 years ago, crop-raising characterized Amazonia. The historically almost ubiquitous practice there of shifting cultivation has long been assumed to go far back into antiquity. In this system, a patch of forest is cleared, the slash is burned, and crops are raised for a few years on the basis of the fertile ash, until soil fertility declines to the point at which the field is abandoned and a new patch of forest cleared. However, the American Museum of Natural History anthropologist Robert Carneiro and, more recently, geographer Denevan, have argued that shifting cultivation was too laborious to be practical previous to the post-Columbian introduction of the steel ax, and that Amazonian farming depended, instead, on permanent plantations of tree crops, amidst which were grown field crops such as manioc. (As they do not observe, however, the stone ax, though having only one-twentieth of the steel ax's efficiency, can easily be used to kill trees by girdling, which would allow in enough sunlight for crop growth; even without a great deal of ash, soil fertility might be adequate to allow cropping for a year or two.) Nearly 12 percent of the non-flooded Amazon forest vegetation is estimated to be anthropogenic, with a much larger percentage formerly managed to favor economic species.

Despite the low fertility of soils away from waterways, there exist, mostly on river-bluff tops, extensive areas of fertile *terra preta do Indio*, dark, organic-rich soils containing numerous potsherds. It is believed that these soils were human-created in the sense that amendments of refuse such as weeds, palm fronds, garbage, night soil, and bones were made, as was earth from termite mounds. The soil is rich in charcoal particles, to which organics adhere, preventing the latter from being washed away. It is hypothesized that the natives deliberately incompletely burned slash in order to produce this beneficial charcoal, which they stirred into the soil. The bluff-top sites would have been above floods but would have given the inhabitants access to the resources of both river and upland.

There is reason to believe that the *terra preta* system may have originated among Arawak-speakers from the south and west and to have accompanied Arawakan migrations into the central and lower Amazon country, with these incursions driving the Tupians already there toward the north and east. *Terra preta* could have supported dense sedentary populations, and some sites show evidence of elaborate causeways, canals, defensive ditches, and so forth. Thus, these peoples were transforming their habitat to their own ends, not merely adaptively adjusting themselves to it—an illustration of the theme that far from being passive players in a quasi-wilderness, many Native American groups were highly active actors who radically transformed nature.

The arrival of, and the colonization by, Europeans in and after 1492 drastically altered the cultural-ecological picture as it had existed in 1491. There were disruptive invasions of alien species from the Old World; top predators were widely extirpated, leading to explosions of prey populations; the decimation of the Indians was like the removal of a keystone species in an ecosystem and led to the return of wild vegetation and game animals to areas that had once been densely populated and intensively managed. This resurgence of the wild led Euro-Americans to the false impression that before 1492 much of America had been an unbroken Eden.

Mann's final chapter touches upon the Native American legacy in contemporary U.S. culture, including the libertarian ideas that characterized many of the Indian nations of eastern North America and which likely influenced American democracy.

There are four appendices: A) on what name(s) to apply to pre-1492 American indigenes; B) on the Andean *kipu* (record-keeping tally strings); C) on whether syphilis originated in the New World; and D) on calendrical mathematics.

Being a work with much geographical content, 1491 has gained considerable attention from the geographical fraternity, including from a number of the scholars that Mann cites. Geographers and anthropologists discuss the book's ideas in *Journal of the Southwest* (Lovell et al., 2004), and seven geographers comment and Mann replies in *The Geographical Review* (Geographical Review Forum, 2006). (I have avoided studying these discussions while composing my own, independent review.)

I consider Mann to have done a generally excellent job in conveying, for the educated public, many of the drastically changed or changing ideas about the pre-1492 natives of the New World and in describing the work of the geographers, anthropologists, archaeologists, and other scholars that has led to these dramatic reappraisals. He does well in discussing developments concerning early, probably waterborne entry into the hemisphere, the much-higher-than-previously-thought population sizes, and the enormous impacts that Indians had on ecosystems and landscapes. However, he omits to discuss the exploding knowledge concerning mobility of many pre-Columbian peoples, particularly via open sea. Not only was there regular sailing-raft traffic, trade, and cultural

diffusion between Northwest South America and West Mexico (e.g., Haslett, 2006), but evidence of major, perhaps transformative inputs across the oceans from the Old World now seems to be irrefutable (see Jett, 2007)—although this is a matter that has yet to be absorbed within the ranks of anthropologists. The fact of transoceanic traffic raises major questions regarding what Mann assumes were independent inventions by the natives of the New World.

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ARTICLES OF INTEREST

Dissociation in Britain during the late nineteenth century: The Society for Psychological Research, 1882–1900, by Carlos S. Alvarado. (2002). *Journal of Trauma and Dissociation*, 3, 9–33. Available in http://www.parapsych.org/PDF/Alvarado_JTD_Volume_3_2002.pdf.

“Automatism” and the emergence of dynamic psychiatry, by Adam Crabtree. (2003). *Journal of the History of the Behavioral Sciences*, 39, 51–70.

The modern historiography of psychology and psychiatry has a small but growing literature in which it is argued that parapsychology, instead of being an obstacle to the development of a science of the mind, was in fact influential in those developments. The writings of Henri F. Ellenberger, Pascal Le Maléfan, and Régina Plas are examples of this. The two articles noted here are further examples of this modern literature.

Carlos S. Alvarado discusses the work of nineteenth-century members of the London-based Society for Psychological Research (SPR), such as Frederic W. H. Myers (1843–1901) and Edmund Gurney (1847–1888). According to Alvarado: “Certainly it is clear that there was much opposition to some of the aspects of the SPR work But regardless of controversies, the SPR and psychical research in general contributed many facts (cases) and concepts to the development of nineteenth-century ideas of the subconscious mind and the process of dissociation” (p. 28).

In his paper Adam Crabtree documents the influence of Pierre Janet (1859–1947) and Myers on the current physiological conceptions of the concept of automatism. He wrote in the abstract: “Frederic Myers and Pierre Janet developed psychological frameworks for understanding these phenomena, positing hidden centers of intelligence at work in the individual, outside ordinary awareness Their attempts to unify this psychological framework with the existing physiological one failed. Nevertheless, their work played a crucial role in paving the way for what Ellenberger called dynamic psychiatry, which accepts the reality of an unconscious dynamic of the psyche.” Crabtree shows that Myers’s work was embedded in psychical research, and he argues further for the influence of Myers on Janet.

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“**Bigfoot Anatomy**,” by Marguerite Holloway; *Scientific American*, Volume 297, Number 6, Dec, 2007. (INSIGHTS, Cryptozoology): 50–52.

The first scientific paper addressing the evidence for the Sasquatch (or Bigfoot) as an extant mammal was published by the late physical anthropologist Grover Krantz in 1971. Despite his early lead, less than a handful of scientists have pursued a research agenda involving the scrutiny of evidence supporting the existence of the Sasquatch in North America. Of these, Jeff Meldrum has become especially visible because of his qualifications as a professor of anatomy at Idaho State University and his repeated attempts to explain why he finds the evidence so compelling.

Professor of jurisprudence Cass Sunstein recently described why scientists who persist in their attempts to attract attention to a minority scientific viewpoint, scientists such as Jeff Meldrum, may be perceived as dissidents by scientific colleagues. But, Sunstein notes, rather than being contrarians, “a discloser reveals information that he actually holds” and “[d]issenters who are disclosers, then, are to be prized.”

The *Scientific American* article gives examples of why Jeff Meldrum is less prized as a discloser and more criticized as a dissident. The article lists among his critics a scientist who is “mortally certain” that the Sasquatch does not exist. It is increasingly apparent to a handful of scientists that such critics may eventually have to review the basis for their certainty as evidence for the Sasquatch as extant continues to accrue. Ironically, their unawareness of such evidence may be partly the result of scientific gatekeepers in the peer review process (themselves perhaps also “mortally certain” that the Sasquatch does not exist) who have rejected papers submitted to illustrate such evidence and assist with its interpretation.

The prolonged process of the discovery of the Sasquatch appears increasingly to be characterized by scientific resistance, perhaps based on the enormity and widespread implications of the discovery. The *Scientific American* article is a revealing snapshot documenting the progress—or lack thereof—in the discovery process.

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John Bindernagel is the author of *The Discovery of the Sasquatch: Reconciling culture, history, and science in the discovery process*, which will appear in 2008.

“**Spirits and Ghosts**,” by Leander Petzoldt, in *Medieval Folklore*, C. Lindahl, J. McNamara, and J. Lindow, eds. Oxford: Oxford University Press, 2002.

Can the following be taken as evidence of crop formations several hundred years ago, better than and well beyond, chronologically, the putative pranks of Doug and Dave?

“[Crop] spirits are known by numerous personifying names and are said to take various human and animal forms: . . . all of which are invoked to frighten children and keep them from trampling the ripe grain.

“One of the most interesting forms is the *Bilwis*, which has undergone many transformations in medieval literature and subsequent folk belief. [. . .]

“[S]ince the sixteenth century . . . , especially in northeast Germany, the *Bilwis* has been conceived of as a grain spirit bringing wealth; yet this latest manifestation of the *Bilwis* has its harmful side, the *Bilwis-cutter*, who is blamed for the unexplained patterns that are formed among the rows of standing grain. [. . .] The *Bilwis* is one of the strangest and most mysterious beings in all of folklore; . . . it serves to explain the eerie appearance of turned-down rows of plants in cornfields.”

cf. GORDON STRASENBURGH
North Bend, Oregon

Gnawing Away at The Foundations Of Modern Cosmology

Disney, Michael, “**Modern Cosmology: Science or Folktale?**” *American Scientist*. 95:383, 2007.

Modern cosmology was birthed by two accidental discoveries:

- (1) The redshifts of astronomical bodies (now customarily taken to be measures of distance); and
- (2) The microwave background (customarily assumed to be proof of a hot birth for the universe).

Thus was born the Big Bang paradigm, which has successfully accounted for some but not all cosmological observations. However, to account for all observations, cosmologists have had to create “heroic and insubstantial” notions; e.g., dark matter and dark energy. At present, the most fashionable cosmological model requires 18 parameters. Of these, only 13 are supported by observations.

All in all, author Disney asserts that, at best, modern cosmology has only very flimsy observational support.

Disney elaborates by describing how cosmology is really a five- tiered edifice; that is, five separate theories built atop one another.

- Tier #1. The ground floor is the expansion theory, based upon the assumption that redshifts are measures of velocity. [This theory has been under heavy bombardment by H. Arp. (See *Science Frontiers* #138.)
- Tier #2. The theory that very early in its history the universe suddenly “inflated” immensely. Inflation is vital to help cosmologists explain the horizon and “flatness” problems created by the Big Bang. [Inflation was a truly miraculous event! The kind that scientists like to avoid.]
- Tier #3. The dark-matter theory needed to hold the galaxies together. [See the next article.]
- Tier #4. The hypothesis that some sort of “seed” existed from which the universe sprang. [This was one of those singularities forbidden in physics.]
- Tier #5. Top-floor is that mysterious dark energy required to explain the recently discovered acceleration of the (assumed) cosmic expansion. [See second article following.]

While not a house-of-cards, modern cosmology is threatened by several holes in the dike of science—to mix metaphors.

The Galactic Glue Is Missing

Schilling, Govert; “**Dark Riddles**,” *Scientific American*, 297:32, November 2007.

A team led by A. Mahdavi and H. Hoekstra (University of Victoria, British Columbia) wrote in the October 20, 2007, issue of the *Astrophysical Journal* that observations indicate that dark matter and the visible galaxies are not really physically associated with each other. In other words, the dark matter that has been postulated to provide the gravitational glue that holds galaxies together does not do this.

The dark matter (Tier #3) paradigm is therefore flawed.

Dark Energy Slows Down!

Shiga, David; “**Supernova Blow to Dark Energy Studies**,” *New Scientist*, p. 14, October 13, 2007.

The dark energy hypothesis exists because supernovas are not behaving as cosmologists have long believed. Supernovas are supposed to go through roughly identical life cycles everywhere in the universe thus providing cosmologists with “standard candles” with which they can estimate the distances of supernovas by their apparent brightness as seen through terrestrial telescopes.

Such distance measurements seem to indicate that the rate of the expansion of the universe is increasing; i.e., accelerating. Why should this be? Didn’t the

power of the Big Bang provide the only expansion force that sent matter—light and dark—flying outward into the void? Dark energy had to be invented to explain this acceleration.

But A. Howell et al (University of Toronto) now have observations that suggest that supernovas actually vary in brightness and therefore make poor “standard candles.”

Dark energy (Tier #5) may not exist at all because our supernova yardstick is faulty!

For the above three articles:

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Readers are encouraged to submit for possible inclusion here titles of articles in preferably peer reviewed journals (typically, which do not focus on topics about anomalies) that are relevant to issues addressed in JSE. A short commentary should accompany. The articles may be in any language, but the title should be translated into English and the commentary should be in English.

Erratum: In the review of “The Science of Low Energy Nuclear Reaction” in issue 21.4, Fleischmann was spelled Fleischman. The error was on the part of the Journal not the author.