

BOOK REVIEWS

What Happens When We Die by Sam Parnia. Carlsbad, CA: Hay House, 2006. 201 pp. \$19.95 (hardcover). ISBN: 978-1-4019-0710-5.

This is an informative, thoughtful, and engaging book about research on Near-Death Experiences focusing on the author's attempt to study them systematically. For anyone who wants to know where NDE research stands today, this is a book to read, clearly written, entertaining at times, and a personal account by a young British physician specializing in pulmonary and critical care medicine.

Sam Parnia designed a prospective study of NDEs in patients that suffered a cardiac arrest at the Southampton General Hospital in England. He describes the difficulties he had when setting up his study, and how he wanted to test the out-of-body aspect of NDEs by hanging up 150 boards near the ceiling in wards, emergency areas and a resuscitation room. On their upper side were printed various images only visible from above and near the ceiling.

Within a year Parnia found 63 patients who survived a cardiac arrest (Parnia et al. 2001; Parnia & Fenwick, 2002). Four of them brought back from their coma memories that could be defined as NDEs according to the Greyson Scale, and two people experienced NDE-like features but scored too low on the scale to be defined as NDE. These experiences were feeling very peaceful, experiencing light, and seeing a tunnel and a relative who had passed away, all typical features of earlier NDEs studies. Not every person experienced all these features. None of Parnia's patients described an out-of-body experience that is sometimes reported in NDEs, and hence its validity could not be tested by the numerous boards that were so painstakingly set up. The sample proved too small.

Other prospective studies conducted around this time (Greyson 2003; Van Lommel 2001; Schwaninger 2002) revealed that relatively few cardiac arrest patients do experience NDEs, namely 10, 12 and 24 percent respectively in these studies, a much lower proportion than originally expected.

Parnia states that this was the first attempt to test the out-of-body state in this way. That is true for patients near the brink of death, but Charles Tart and Karlis Osiris both made decades ago attempts to test self-induced OBEs in a similar manner and with some success.

The fact is—as this reviewer sees it anyway—that most aspects of the NDE are sometimes experienced without coma and without critical illness although in many cases death may loom around the corner, such as in deathbed-visions. In the study that Karlis Osiris and I conducted in the seventies, there were many fully conscious patients who—shortly before they died—suddenly had experiences of great peacefulness and joy, of seeing relatives who had passed away, and who had experiences of otherworldly “lightful” beings (Osiris & Haraldsson, 1986). If

we look at the 16 items of the Greyson Scale so widely used to determine NDEs, we find overlap with ecstatic/religious experiences as William James describes them. Some of James's cases might even reach the critical number of seven to count as NDEs although they are not occurring near death, and they can certainly be a point of touch with what appears to be a reality beyond our ordinary conscious awareness, or as Karlis would have said, "glimpses of the world to come".

As in death-bed visions, NDEs tend to occur primarily when the risk of death seems high, and Parnia's finding that resuscitated patients that experience an NDE are significantly more likely to die within a month than patients without NDE, is a reminder of that.

Parnia attempts to test some theories that have been advanced to explain the NDE state, such as lack of oxygen to the brain. His sample was too small to generalize widely, but oxygen levels were higher in those who survived cardiac arrest than in those who had no NDEs. This comes as no surprise to this reviewer. When *At The Hour of Death* (Osis and Haraldsson 1986) appeared in Swedish a physician reviewed it for a major Swedish newspaper stating that deathbed-vision could be explained by lack of oxygen. Shortly afterwards I received a letter from a physician working for the Norwegian Air Force. He pointed out that aviation medicine had made many studies about the effect of lack of oxygen in pilots. He advised me to write to a friend who headed an institute for aviation medicine for the US Air Force and ask him what evidence there was that pilots experiencing lack of oxygen had hallucinations of persons before they fall into coma. In all the studies not one incident was found. The hallucinations that sometimes occurred were in the periphery of the visual field and consisted of geometrical forms, were not of persons living or dead, or imagery of the kind found in NDEs.

"What happens when we die" deals also with various theories of consciousness and how consciousness may emerge from activity of the brain. How can the paradox that the NDE presents be explained? "How can there be such clear and lucid thought processes when the brain is at best severely disrupted, and as far as we can measure, not functioning?"

It was my late colleague Karlis Osis's dream to see a prospective study made of NDEs and deathbed-visions. Now we have four of them for NDEs and to my knowledge no one has described them as eloquently as Sam Parnia in this book.

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The Way of the Explorer: An Apollo Astronaut's Journey Through the Material and Mystical Worlds, revised edition (2008). Edgar Mitchell with Dwight Williams, Career Press, Franklin Lakes NJ, ISBN-13: 978-1-56414-977-0.

This is a very readable book that gives, as the long title indicates, one man's view of the complex joining of two worlds—the materialistic and scientific on the one hand, and the ephemeral realms of mind and experience on the other. Edgar Mitchell has an ease with physics and science that give his language and descriptions transparency that is good for the general reader as well as for techies. He is a very human fellow, whose life history (the framework for this book) includes triumphs like the Apollo 14 moon landing followed by his epiphany on the journey back to the earth he now sees as one with and fully connected to the universe. But he also honestly recounts his personal hurt when the board of the Institute of Noetic Sciences he founded decided to oust him from the president's role during a period when research seemed less important at IONS.

Ed's direct experiences are complemented by careful experiments that are, from a retrospective view, all designed to test and discover the nature of the central issues he ultimately describes in a dyadic model of mind and matter. He wants to solve the problems epitomized by the confrontation of duality and monism in philosophy, and he argues forcefully for his own model. I think there remains a lot of work to do to make it a fully functioning explanatory framework, but it does go a step beyond mere naming to suggest what can be done.

Mitchell cuts through verbal thickets where metaphors escape their role and confuse our thinking, using common sense in his simple but technically correct descriptions of quantum mechanical conundrums, among many difficult-to-translate scientific questions. He succeeds, for example, in making it clear why consciousness is an important aspect of QM, and shows how the conceptual structures for the material and the mental complement each other. He talks about the energy environment “and its patterns, which we call information,” laying the foundation for his dyadic model in which these separate and complementary aspects are seen as unitary in a fundamental sense. There is structure and

patterning in the material (energy) of the universe, and this makes all the difference. No rock or tree, no water or air exists without structure, and certainly no life. The material rest or remainder is a pile of bricks with no architect. It awaits the patterning that we represent formally as information, which creates all we observe and all we can imagine.

As a researcher in one of the edge sciences, I appreciate that Mitchell takes on the sort of scientific chauvinism which accepts amazingly unlikely things like the many worlds conception of “entire universes created by casual observation,” but not good evidence for psychokinesis or resonance of consciousness, which “can be observed and verified and do not violate conservation laws.” He is quite clear that such attitudes not only disrespect science itself, but risk missing the interesting bits while filling in the blanks.

Mitchell likes to turn an idea on its head, and this talent for independent thinking has served him well. His book is a kind of scientist’s report of a shaman’s world, with gems of wisdom from both. I suppose it is fair to regard the book as an instantiation of his dyadic model—if the reader is willing to look behind the veil of disbelief that seems to cripple so many who choose science as their way, it is possible he or she will find, as the shaman does, more than meets the eye.

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Inner Paths to Outer Space: Journeys to Alien Worlds through Psychedelics and Other Spiritual Technologies, by Rick Strassman, Slawek Wojtowicz, Luis Eduardo Luna, and Ede Frecska. Rochester, Vermont: Park Street Press, 2008. 344 pp. 24 colour plates. \$19.95 (paper). ISBN. 978-159477224-5.

I was particularly keen to read this text having read Rick Strassman’s (2001) earlier book, *DMT: The Spirit Molecule*, in which he documented his extraordinary medical research administering the potent psychedelic neurochemical, dimethyltryptamine (DMT), to human volunteers. After receiving intravenous injections of DMT, Strassman’s participants reported a range of exceptional phenomena from entity encounters and alien abduction-like experiences to near-death-like experiences. *The Spirit Molecule* documented the whole experimental process whereby over 60 participants received a combined total of 400 doses of DMT. It concluded with the theory that the near-death experience (NDE) is caused by the action of DMT in the pineal gland, where Strassman speculates it is made because DMT is known to occur

naturally in the human body. The book currently under review, *Inner Paths to Outer Space*, is the natural sequel to that book in that it considers the DMT-induced entity encounters and alien abduction-like experiences from Strassman's research in further depth, particularly in the contexts of quantum physics, science fiction and shamanism, proposing that access to alien worlds in outer space occurs in the inner space of the psyche.

Having four authors, three of whom hold medical degrees and one a PhD, the book could almost be an anthology, but it has just enough continuity in the chapters to read like a single text, the backbone of which consists of the earlier human DMT research of Rick Strassman, who contributes four of the 12 chapters. The first three of Strassman's chapters essentially précis *The Spirit Molecule*, though this time without detailing the lengthy bureaucratic process he had to endure in attempting to conduct the research, and thankfully this time *Inner Paths* has an index as well as a notes section and references. These three chapters map out the bizarre territory of the DMT scenario, drawing on a number of examples of entity encounter experiences, especially of the alien kind, which are loosely compared to spontaneous alien abduction experiences. As in the previous book, it is pointed out that both DMT entity encounters and alleged alien abductions are experienced as being "more real than real" and, for instance, that both may feature alien operations and the insertion of probes.

Compelling as this cursory comparison is, a systematic analysis of the correspondences between these two experience syndromes would have been well received at this point in *Inner Paths*, because a more thorough analysis is still wanting – although Hancock's (2005) recent book made some attempt at this. Nevertheless, despite the apparent similarities, the classic "greys" themselves are absent from DMT experiences, as Barus (2003) has pointed out. What is conspicuous from the examples of drug-induced experiences presented in *Inner Paths*, however, is the prevalence of contact with insectoid entities, particularly praying mantis-like beings, although it is not pointed out that these *also* frequently occur in abduction experiences. This strange fact, had it been mentioned, alongside the rest of the similarities between DMT and abduction experiences might indicate that we are truly dealing with the same entity encounters – one spontaneous, or perhaps hypnotically-induced, and the other drug-induced. Although, alternatively, the constructivist argument would suggest that the chemically-induced experiences have been influenced by the parallels drawn to alien abduction experiences extant in the public domain, especially those occurring since the most outspoken psychedelic commentator of the last 30 years, Terrence McKenna, reported contact with insectoid aliens on psilocybin a few decades ago (McKenna & McKenna, 1975). Nevertheless, the universal prevalence of particularly praying mantis-like aliens in DMT and other tryptamine reports seems worthy of more detailed investigation, as it seems to better support a kind of perennial philosophy rather than a constructivist argument – because this specific mantis feature appears not to have been widely

popularised in the psychedelic literature and yet it has been widely reported. Unfortunately, none of this is discussed in *Inner Paths*.

Aside from his three integral chapters, Strassman also adds a valuable chapter at the end of the book that acts as a fairly comprehensive guide on how to conduct psychedelic group experiences safely and meaningfully. This subtext of the book, as a guide to experiencing psychedelic states, happens to compose a fairly substantial theme, as the second of Luis Luna's chapters also offers a guide to what might be expected when taking ayahuasca, the Amazonian jungle decoction that gives extended DMT experiences. The other of Luna's chapters offers a fascinating, but condensed, biography of his extensive involvement in the anthropological and ethnobotanical investigation of ayahuasca-use in South America. Both of his chapters offer wonderful insights into the indigenous use of the DMT-rich brew, such as how the shamans introduce other plants to the ayahuasca so that their visions may reveal the healing properties of the added plant. Of particular interest to parapsychology, it is well known that ayahuasca was once called "telepathine" because of its apparent telepathic, precognitive and clairvoyant-inducing properties, but we also discover from Luna how shamans of the Shuar tribe take the decoction to also *create* the future, not just see it. Furthermore, it is described how alien abduction-like experiences also occur on ayahuasca, as we might expect, as well as out-of-body experiences, glossolalia, entity encounters and ostensible shapeshifting and past-life experiences. Given the similarities between experiences on DMT and ayahuasca, it is no surprise then that the chapter by Slawek Wojtowicz on psilocybin- and psilocin-containing "magic" mushrooms also recounts NDEs and science-fiction-sounding alien entity encounter experiences with this substance, because we learn that the active molecule in these fungal substances, psilocin (4-hydroxy-dimethyltryptamine), is a very close chemical relative of DMT.

Having laid out the basic background and phenomenology, however, it is not until we come to Ede Frecska's three chapters about halfway into the book that we arrive at any concerted effort to account for the ontology of these exceptional tryptamine-family-induced experiences. His first chapter draws the basic distinction between scientism and the culturally relativistic approach to explaining the phenomena, and while he purports to offer a neutral argument, he clearly falls on the side of the latter – but not without good argument. Offering a number of examples of shamanic divination – explained either in the consistent terms of the action of spirits, or from a number of varying sceptical perspectives – Frecska deftly demonstrates that Occam's razor is a double-edged sword for sceptics because under this rubric the consistent shamanic perspective has far greater parsimony than the numerous sceptical explanations.

Frecska then uses such further logical gymnastics to springboard into his own dichotomous conception of quantum-based psychology, in which the ordinary perceptual-cognitive-symbolic mode is contrasted with the direct-intuitive-nonlocal mode. The latter mode being one in which quantum processes

supposedly occurring in the brain's microtubule system engage a state of interconnectedness that allows for parapsychological phenomena to occur. The implication being that DMT can activate such states, and this harks back to Karl Jansen's (1999) earlier idea that Bell's theorem arose in synchrony with the use of the psychedelic anaesthetic, ketamine, allowing humans to directly experience nonlocal space-time through the dissociative effects of this molecule.

Frecska then dazzles us with some further intellectual back flips, such as a poetic comparison between the mediumistic effect of channelling and the tunnelling effect in physics (although itself completely unexplained), because both involve the location of information where it would not ordinarily be expected. Yet, despite his obvious depth of knowledge on the possible quantum processes of consciousness, Frecska tends to assume the poetic appeal of his notions of local and nonlocal perception at the expense of acknowledging his theory really is just that, a theory, and is not actually substantiated by either physics or psychology thus far. Nevertheless, misquoting Einstein, imagination probably is more important than truth, and the 24 beautiful, futuristic colour plates of chemically-induced sci-fi landscapes and beings, by artists Pablo Amaringo, Karl Koefed, Robert Venosa, Martina Hoffmann and the author Slawek Wojtowicz, indicate that this book is as much, if not more, for a psychedelic sci-fi audience as a scientific one.

Frecska's following chapter, however, goes a complicated conceptual step further and attempts to account for the alleged interspecies communication that occurs between shaman and plant by introducing the concepts of topological geometrodynamics, a concept so complex and yet so casually introduced into the text that the reader's understanding must by necessity become the hostage of their imagination. As a psychologist rather than a physicist I would have found such intellectual quantum leaps exhausting had it not been for some of the more down to earth twists and turns in this chapter as support for the possible consciousness of plants, such as Darwin's apparent conception of the root structure of plants as a neural network. This is no doubt a thorny point of departure from Darwinism for most modern scientists, but Frecska also confronts us with the fact that underground mycelia networks among single mushroom organisms can span 11,000 acres or more, and certainly have more interconnections than neurons in the human brain. Are these mushrooms in some sense conscious? Shamanic wisdom among those that consume psychedelic fungi for their input on the interspecies communication argument would say so.

Perhaps the most unsatisfying chapter of the book is Frecska's third, which takes a perplexing tangent into the possibility of earthly paleo-contact with ancient alien entities by rummaging through a range of archaic Middle Eastern texts, including the Bible. After shakily building up this rather New Age idea over nearly 30 pages, Frecska casually knocks it down again at the end of the chapter by suggesting that such antediluvian alien encounters were actually DMT-induced entities experienced "... through nonlocal, extradimensional connections within the multiverse" (p. 254), whatever that means exactly.

I had mixed feelings about Frecska's chapters, especially his last one, because on the one hand he made some observations highly contiguous with my own recent investigations into the ontology of DMT-induced entity encounters (Luke, 2008), such as the consideration of the Enochian "watchers" – the fallen angels – as possible DMT entities, and yet I feel he could have made a more concerted effort to offer some ontological speculations about the reality of these DMT entities, given that so much of the book is concerned with them. Rather we are left with the feeling that these entities are merely drug-induced, albeit by drugs that are naturally present in our brains and which may be able to help us access nonlocal information. But, does this imply a neurotheological-like reductionism for the existence of these entities, or a support for the perennial philosophy, or something else altogether? The authors don't really speculate much on this, unfortunately, although in their defence neither do they ever promise that they will.

Finally, the last couple of chapters by discuss some other related aspects of the speculated DMT-alien matrix, such as the late John Mack's research with hypnotically-recalled abduction experiences and Weiss' past life regression therapy. Connecting the possible past with the possible future, Wojtowicz also discusses some of the apocalyptic future visions that can be found within the altered states literature, specifically that of the anthropologist Hank Wesselman and writer Gary Renard, who both foresaw a fair amount of planetary doom and gloom round the corner. Though some of it, especially that concerning the supposed "Westernericide" forthcoming from the new Iranian premier, might be best kept quiet.

In conclusion, however, I found *Inner Paths* to be a highly stimulating and worthwhile read, even though I was a little disappointed that the reality of the aliens wasn't probed a lot more and that the insectoids weren't satisfactorily dissected. I also think that, without a more detailed analysis of the discussed phenomena, Strassman might seem to be trying to have it both ways by proffering DMT as the cause of both NDEs and alien abductions. He might be right of course, but what then of the differences between aliens and NDEs, or can we expect a UFO waiting for us at the end of the tunnel of light when it's our turn to do the mortal coil shuffle? Furthermore, Frecska also throws sleep paralysis into the DMT mix, but we might be more cautious of heralding DMT as the ultimate paranormal chemical catalyst, at least until further research can be done, because any one molecule that explains everything essentially explains nothing. In any event this book raises many fundamental questions about the nature of reality that have barely been asked in the scientific community, let alone answered, and I strongly urge all researchers of consciousness to read it.

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Extraordinary Knowing: Science, Skepticism, and the Inexplicable Powers of the Human Mind, by Elizabeth Lloyd Mayer. New York, NY: Bantam Books, 2007, 302 pp. \$26.00 (hardcover). ISBN-13: 978-0-533-80335-8.

This absorbing book is the odyssey of Elizabeth Lloyd Mayer, a psychologist into the land of psi. The journey began with the search for a harp that had been stolen from her daughter in Oakland, California. The harp was a valuable instrument carved by a master and loved by the girl for its special sound. Mayer checked with the police, instrument dealers, and so on, all to no avail. A friend then suggested contacting a dowser and got her the phone number of Harold McCoy, president of the American Society of Dowsters. Since all else had failed, Mayer called McCoy. After a moment, he said the harp was still in Oakland, and if she sent him a street map, he would locate it for her. She did and McCoy called back and gave her the address where the harp would be found. Mayer posted flyers in a two-block area around the house, offering a reward for the harp's return. Some days later a man called and said he had seen a flyer and that his next-door neighbor had shown him the harp, the caller offering to get it back to her. She was instructed to meet a teenage boy at a certain time and place and thereby received the harp. As Mayer drove home, "I had the thought, *This changes everything*" (p. 3).

Mayer was then teaching psychology at the University of Berkeley, was doing research on female development, was a training and supervising analyst at the American Psychoanalytic Association, and much else. She had a practice of her own and began listening more attentively to her patients. A deeply troubled woman, who had earlier insisted that she never dreamt, told her that she'd dreamed of Mayer going to Arizona, which was true, and which no one knew about. Mayer's curiosity opened a floodgate to other such dreams that the woman had learnt to keep to herself (her parents had beaten her and called her crazy when she told them about her dreams). Mayer's acceptance changed her

profoundly and positively. In turn, the patient's dream took on "an enormous resonance" (p. 8) for Mayer. The result was a long-term research adventure that took three forms: talking with colleagues and professionals who, like herself, had experienced things that went against their beliefs; interacting with practitioners like McCoy; and talking to prominent psi researchers, such as Larry Dossey and Robert Jahn. Readers of this *Journal* may know this group, so I shall limit myself to the parts where Mayer explores less familiar territory.

A colleague said, "I woke up in the middle of the night like I heard a shot; the next day I found out it was exactly when my patient took a gun and tried to kill herself" (p. 5). Mayer was fascinated by the eagerness of her colleagues to share personal stories with her however weird they seemed, and then realized that people needed to integrate experiences that did not fit the accepted worldview. Another told her, "I was on a bus and all of a sudden found myself smelling the perfume my brother's ex-wife used to wear. When the bus stopped, she got on. I hadn't smelled that perfume or seen her in 30 years" (p. 6). Incidents like this caused Myers and a colleague to start a discussion group at the American Psychoanalytic Association, for people with anomalous experiences of their own or their clients. The stories came pouring in. A child psychologist related that a four-year-old girl, who was engaged in play therapy, suddenly turned and said, "Your brother is drowning—you have to save him!" (p. 14). It was October 2nd, the anniversary of her brother's death by drowning years before.

Mayer was unable to decide which of two women to choose for a job, when a friend said he had just received an accurate diagnosis of a medical condition from Deb Mangelus. Mayer called Mangelus, mentioning neither her name nor dilemma, but Mangelus immediately homed in on the two women, "One is fiery, playful, someone you can have fun with. She has trouble with words. Maybe she's not always reliable . . ." She paused, "The other person is different . . . She's very responsible. Dutiful. Orderly. The funniest thing is happening . . . I keep seeing her hands and they're clasped in her lap. I simply *can't* get her to unclasp her hands" (p. 44). Mayer got "the same sudden sensation of my world shifting in some irrevocable way," as the night of the harp. She said the first woman "seemed like she'd be enormous fun to work with, though her writing samples were terrible and I wondered how she'd handle details. I'd been less drawn to the other woman. She seemed great on details, but. . . struck me as boring. Even more to the point was this: The second woman had managed to sit through our entire two-hour interview *holding her hands firmly clasped in her lap.*" When Mayer heard Mangelus, she thought, "She knows me better than I know myself; she's gotten ahead of me in my own life" (p. 63).

Mayer did not know what the neurobiological basis might be for this type of knowing until she read a book by Andrew Newberg et al. (2001)⁽¹⁾ that included studies of meditators. During moments of deep meditation or prayer, the posterior parietal lobe of their brain was unusually inactive. This is the part of the brain that orients us in relation to the environment. Mayer explains, "During

the subject's moments of deepest meditation and prayer, what stopped firing were all the signals that tell us where to locate the boundaries that separate us from everything that isn't us" (p. 65). This was consistent with Mangelus's belief about her ability, "I know what I know about the other person because I go where they are. I draw on how connected we all are so I really am seeing with their eyes when I read them" (p. 67f). Mayer spoke with three other intuitives, John Huddleston, Helen Palmer, and Ellen Tadd, who had impressed her with their explanation of how they did it. Huddleston: "It's ordinary because it's just there, all that information about the other person. All you have to do is get yourself out of the way. We're all connected, that's the point. We don't know it most of the time because we think we'd rather feel separate." Palmer: "You read the other person accurately because you *are* them; you know them from the inside because you've stopped being separate" (p. 67). Tadd: "It's a state of oneness, really—from that oneness you get a very profound knowing" (p. 68).

Mayer then turned to psi researchers. Physicist Harold Puthoff said he had invited Ingo Swann, the artist and psi sensitive, to Stanford University to test his ability. A physics professor, Arthur Hebard, had installed a magnetometer in a vault beneath the floor. Puthoff asked Swann to affect it, with the result that the rate of decay of the magnetic field in the magnetometer was doubled, to Hebard's astonishment. Hebard then asked Swann to stop the field change, which Swann did for about 45 seconds. Swann then drew a sketch of the complex interior of the apparatus. The CIA got wind of the tests, and a 24-year, \$20 million project was initiated to explore remote viewing by this and the Defense Intelligence Agency. This did not happen in a vacuum but was a Cold War spin-off. It was known that parapsychology was funded by Soviet security services, and the US needed to know whether and how psi might serve its own intelligence needs. This resulted in 266 papers by Puthoff and his associates, which seemed to provide conclusive evidence that remote viewing occurs and that it can be used to gather military information. The program ended in 1995, as the cold war wound down.

In 1988, in the midst of the government-mandated psi research, the National Research Council of the National Academy of Sciences wrote a report where it announced that it had found "no scientific justification from research conducted . . . for the existence of parapsychological phenomena" (pp. 130f). The NRC had commissioned Harvard psychologist, Robert Rosenthal to examine the evidence. But he and his associate, Monica Harris, reported that "the ESP ganzfeld studies regularly meet the basic requirements of sound experimental design" (p. 121) and that it would be "implausible" to suggest the results were due to chance. How did the NRC deal with the Harris-Rosenthal paper? They simply omitted it from their report.⁽²⁾ Mayer examines other facets of the psi controversy, including a remark by a reviewer for a physics journal who rec-

commended that an article about psi be rejected because “This is the kind of thing that I would not believe in even if it existed” (p. 133).

Mayer has a new way of understanding those who reject psi categorically versus those who accept it as a matter of course. She compares the two perspectives to a tool used by Gestalt psychology to illustrate their point that any experience gains meaning because it is part of a unified whole. The tool consists of drawings that represent different objects depending on how you look at them, such as a the picture of a white chalice against a black background, or two profiles in black against a white black background, if you shift your point of view.⁽³⁾ Mayer’s point is that it is impossible for us to organize our perceptual field such that we can see both at the same time; you have to see one, then the other. With respect to psi, the problem is that the researcher is committed to the perspective of rational scientific thinking, which is incompatible with the mindset that governs psi. This problem is compounded by fear that arises from the likelihood that the border between self and other, including the researcher and his or her subjects may disappear in psi.

Mayer relates the figure-ground relationship of gestalt imagery to the concept of complementarity (introduced by quantum physicist, Niels Bohr) according to which two descriptions of nature may both be valid but cannot be observed at the same time. She brings in quantum entanglement where two subatomic particles that were previously connected will continue to intersect regardless of how distant they are from each other, a principle that has since been extended to objects on the macroscopic level. In other words, there may be a physical basis to the correlation seen, for instance, in remote viewing between the impression of the viewer and the remote scene.

As Mayer was struggling to capture the sense of knowing that she had been told about, she suddenly recalled an incident that happened long before her journey began. Her husband’s aunt had given him a gold watch that was too showy, so he gave it to Mayer’s sister, who was saying with them. She wore it daily, but was 17 and careless and would leave it at various places, until one day she couldn’t find it. The sisters sought everywhere, but it was gone. “At that point something happened that was unlike anything I’d ever experienced. I was standing . . . near the door of my husband’s study. I walked into his study: deliberately, intentionally, but with no awareness of volition on my part. It was as if I was watching myself in a slow-motion film. I walked straight to a closet . . . I’d entered maybe twice . . . over the course of our entire marriage” (p. 58). She reached in, and at the back corner of the closet, behind shoes and boxes, her hand went to a small leather case where she found the watch. She showed it to her sister. Then she returned it to the closet to “save face for everyone.” When her husband came home, she mentioned her sister’s panic, her husband saying he had found the watch in the bathroom and wanted to teach the girl a lesson before returning it to her. Mayer’s odyssey, which had lasted 15 years, five years longer than Odysseus’, had come full circle.

Mayer died on New Year's Day, 2005, shortly after completing *Extraordinary Knowing*.

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Notes

- ¹ Andrew Newberg, Eugene D'Aquili & Vince Rause, *Why God Won't Go Away: Brain Science and the Biology of Belief*. New York: Ballantine Books, 2001.
- ² The full story came out in an article by Daryl Bem and Charles Honorton in 1994 in *Psychological Bulletin*, a publication by the American Psychological Association. Bem was a social psychologist at Cornell, and Honorton, did the ganzfeld experiments that Harris and Rosenthal had praised. Bem and Honorton said that Rosenthal had told them that the NRC chair had asked him to delete the parapsychology section of the paper, and that he had refused to do so. Nevertheless it was omitted.
- ³ A more familiar example may be the drawing of an old hag, who becomes a young woman from another perspective.

On Being Certain: Believing You Are Right Even When You're Not, by R. A. Burton. St. Martin's Press, 2008. 256 pp. \$24.95 (hardcover). ISBN 978-0312359201.

Cognitive scientists spend a lot of time attempting to name the processes that go on in our minds (or brains, or both). The task is daunting because the tool that they use to make the description is the same as the object they are trying to describe. Inevitably, this seems to produce self-reference loops and insoluble philosophical puzzles.

In this book, the process that Burton wants to address he calls the *feeling of knowing*. This is a sense that we have about some particular fact or situation which transcends both evidence and rational thought. It is more like the primordial senses of sight, hearing, touch, taste, and smell, in that when we receive a message from one of these five senses, we are unable to deny its veracity. In effect, Burton argues that we have another sense, which he should

call the *sense of knowing* but instead calls the *feeling of knowing*. When this feeling is activated, our brains are not capable of denying it, that is, not capable of disbelieving it. His basic purpose is to point this out to us, and argue that just as with our basic sensations, a *feeling of knowing* is not something we choose, but something that happens to us.

There are sound biological reasons for Burton's view, many of which he cites throughout the book. It is very common to see biological processes that have both fast and slow versions. The fast version is not usually terribly smart, but there is always a way in which it makes sense. The slow version is more deliberative, almost cognitive, and provides the possibility of correcting the excesses of the fast version. For example (not one of Burton's) the immune system has a rapid non-specific response to a non-self entity that invades the body, and this response is very general, but not particularly effective. The slower immune response recognizes the chemical configuration of the invader, and mounts a very much more elaborate and targeted retaliation, which ultimately is much more effective. It does not seem to be an enormous leap to imagine that the brain (or nervous system) includes the same kinds of biological processes. A *feeling of knowing* would be something triggered very rapidly, and leading to immediate action, of the kind that would cause one to elude a predator, or to avoid being hit by an oncoming car. Such a capacity would have an obvious survival advantage, but perhaps only if paired with a slower, more rational process that weighed alternatives and considered chances, when immediate action was not required.

If this argument makes sense, then (as Burton suggests) we should have a visceral sense of knowing that can in some ways compete with our slower and more reasoned ways of knowing. Although he gives references to experiments that shed light on this hypothesis, they are fleeting, and more of them would have been welcome. He does point out, however, that in general when people are faced with a contradiction between their *feeling of knowing* and their slower rational responses, they inevitably pick the former. This should not be interpreted in some judgmental way, but rather in the same spirit in which we observe that optical illusions cannot be willed away (because they are created by the nerves behind the eye, *before* the signals are sent to the brain).

Burton's distinction leads us to think about how knowing and the *feeling of knowing* relate to each other. There does not seem to be any problem when they coincide. Oddly, knowing without having the *feeling of knowing* can be demonstrated in physiological experiments (like blindsight). Here the person has the sense that they do not know something, but when questioned they do better than someone who genuinely does not know it. Almost certainly, the reversed situation is more frequent, in which the person has the *feeling of knowing* when in fact they do not know. We have all engaged in political arguments with know-it-all family members, rendering experiments in this area all but redundant.

The *feeling of knowing* concept has important implications for anomalies research. There is certainly no lack of examples in which a conventional *feeling*

of knowing has blocked scientific progress. Anomalists, as well as historians of science more generally, might be tempted to ascribe this to blindness, or arrogance. I think Burton would say that we have to recognize that the *feeling of knowing* is a genuine neurobiological phenomenon, that we do not really understand how it arises, and it is not under the control of the individual who has it. We would better take the attitude that as with any other human trait, we must at least sympathize with the bearer. The other side of the coin, of course, is the anomalist who cannot shake the *feeling of knowing* some particular phenomenon that conventional science rejects. Although Burton again does not account for how this feeling arises, he would regard it as a genuine mental state.

In the later parts of the book, Burton tends more and more into areas in which his own *feelings of knowing* may mislead him. He mounts a few strange little attacks, involving Andrew Weil (in which Burton reveals that, as a physician, he does not know the definition of alternative medicine) and Richard Dawkins (in which Burton equates the belief in the absence of a creator with a philosophy of pointlessness). Burton seems to have a *feeling of knowing* that there is something wrong in Dawkins's view of the universe, but he does not seem to have a feeling of knowing of his *feeling of knowing* this, or at least not one that he can express to us. He then continues to spin this off into thin ruminations about the existence of God that do not really draw on his central theme of *feeling of knowing* in any informative way.

My attitude is that Burton is right when he identifies a *feeling of knowing* as something worthy of our attention, and I would be more than willing to imagine that it plays an important role in many parts of human life. For me it was, therefore, disappointing when Burton did not develop the consequences of this insight in any illuminating or convincing way. How do *feelings of knowing* arise, and how do they interact with slower rational beliefs? Are *feelings of knowing* as fixed as Burton implies, or can they be modified, and if so, how? Is it possible for those who have *feelings of knowing* to recognize that that is what they have, and do some people have the abilities to see these things more clearly, and perhaps alter what happens to them? If a *feeling of knowing* is an event that is imposed on someone from outside, then is there any sense in which we can hold them responsible for these kinds of beliefs, or the actions they engender? None of these (or other) questions are even hinted.

Burton is strongest when he brings in experiments, explains to us what they might mean, and uses them to support his idea of a sense of belief. He is weaker, and wanders about a bit too much in directionless speculation, when he tries to apply his basic idea in wider realms. While it is fine to ask questions, it is better to distinguish good questions from bad ones, and try to give some idea of what kind of knowledge (or belief) we would need to resolve the former, and in the later parts of the book this is what Burton mostly fails to do. However, the fact that a good idea, worthy of development, has not yet been fully developed, is no criticism of it. The implications of Burton's thinking about the nature of some

kinds of beliefs may turn out to be fundamental for understanding the brain/mind in several distinct ways, and for that reason his book is well worth reading.

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The Deniers: The World-Renowned Scientists Who Stood Up against Global Warming Hysteria, Political Persecution, and Fraud. And Those Who Are Too Fearful to Do So by Lawrence Solomon. www.richardvigilantebooks.com. Richard Vigilante Books, 2008. 239 pp. \$28.00 (hardcover). ISBN 978-0-9800763-1-8.

At first *The Deniers* . . . might appear to be about characters opposite in philosophy to that of SSE members. Not so. The deniers are highly qualified mainstream scientists in geology, meteorology, climatology, physics, and astronomy, often professors in respected positions and recipients of awards and prizes.

A columnist with the *National Post* of Toronto, Lawrence Solomon is an author of other books, an environmentalist and an activist. In the latter role Solomon strives to save the world's rain forests and prevent nuclear power expansion. He works for an environmental group called Energy Probe. Despite these credentials, he has written an unusually accurate work about climate change.

To discredit dissenters from his views on climate catastrophe, the term "deniers" was coined by Al Gore et al. to place them in the same category as Holocaust deniers. Other forms of slander and intimidation are exposed by Solomon. The book was inspired by a bet by a climate "warmer" or alarmist that he could name three areas of climate science that were settled. Solomon showed that a *credible* dissenting scientist could be found to refute each one, winning the bet.

Subtopics of climatology were discussed in *The Deniers* . . . along with the findings of one or more experts in each area. The 29 CVs of the "deniers" showed that they were usually more qualified than the alarmists making the doomsday claims. Several deniers are or were members of the Intergovernmental Panel on Climate Change, whose reports are normally presented as gospel by climate alarmists, media reporters and many politicians, but exposed as misleading or worse, at least in parts, by the deniers, and also by entire books and reports (Michaels, 2004; Singer, 2006, 2008).

Examples are given of punishment of deniers, no matter how good their science was, just for disagreeing and thus threatening the alarmists. Loss of

research funding, dismissal from expert panels, loss of office or status in scientific bodies as well as character assassination are all revealed.

Based on expert opinion, Solomon shows evidence that: (1) The 1990s were not the warmest decade in 1000 years, the period from 1100–1440 being warmer; and the evidence that the 1930s were warmer than the 1990s was given for the Arctic region, utterly uncorrelated with industrial CO₂ emissions. (2) Storms are not more frequent or more violent in the last 20 years, but were probably most so in the 1940s in the last 110 years. (3) The Antarctic peninsula (2% of the area of the continent) has lost ice, but the rest of Antarctica is cooler since 1957 and has gained ice. (4) Global warming of about 0.5°C in the 20th century followed equal warming in each of the previous three centuries, an utter disconnect with the claimed CO₂ levels in the air, which are not correlated with warming—the central dogma of climate alarmism. (5) Unusual even for climate realists, Solomon noted that CO₂ levels were higher than now in pre-industrial times (p. 91), and mentioned Ernst-Georg Beck's 2007 review of 90,000 direct chemical assays, but without the solid findings that those levels were over 420 ppm in 1823 and 1942, and the same as now in 1858. (6) Solomon showed that the ice core data for CO₂ levels used by warmers was hopelessly unreliable. (7) Climate modeling was shown to be badly flawed mostly because it does not model cloud behavior. (8) Several solar effects were shown to account for the warmings and coolings of the last 400 years. These include changes in the output of the sun, changes in the distance of the earth from the sun, and changes in the sun's ability to deflect cosmic rays from the earth. More cosmic rays mean more clouds, and lower temperatures, as in the Little Ice Age of 1600–1800. There were other aspects as well, all in agreement with a recent review in *JSE* (Kauffman, 2007).

On the other hand, Al Gore is taken to task for misinformation on temperatures, CO₂ levels, storm frequency and severity, warming as a spreader of infectious disease, and misinterpreting the positions of his Harvard professor, Roger Revelle. An article in *Cosmos* in 1991 by Revelle and Prof. S. Fred Singer (Meteorologist, University of Virginia), "What to Do about Greenhouse Warming: Look before You Leap," was seen by Gore as a threat to his intransigent climate positions. Gore tried to show that Revelle had become senile. Through another Harvard scientist, Justin Lancaster, Gore tried to have Revelle's name removed from a proposed reprinting of the article, and accused Singer of using Revelle's name over Revelle's objections. Singer sued Lancaster, and with overwhelming evidence, won. "Quite recently, Lancaster retracted his retraction, claiming he had only issued the retraction in the first place because of the financial strain of the lawsuit." (p. 197) Of course, this sort of fracas discredits many climate alarmist politicians and scientists and is discrediting all of science. It shows why so many climate realists ("deniers") are professors emeritus like me with not much to lose.

On the downside, Solomon mentions water vapor as a greenhouse gas, but not

that it is by far the most important one. He cites a claim that ethanol production requires 1,700 L of water per L of ethanol produced, as though the water is changed to other molecules, and will not fall as rain somewhere else. Also, he does not seem to understand that the nuclear reactor that failed at Chernobyl, Ukraine, was an inherently unstable type never built outside of the former USSR or its satellites. He mentioned a reactor failure in Ontario, PA, which I could not locate. The only one I know of in PA was on Three Mile Island, which did not kill or injure anyone (p. 212). He equates reactors with nuclear device (bomb) proliferation, even though the CANDU reactor type from his native Canada does not need enriched uranium-235. He calls hydroelectric dams and nuclear plants “grandiose government-backed relics of yesteryear” without providing any steady, large-scale alternatives. On the other hand, Solomon sees environmental havoc from the new designation of “carbon” as a currency (p. 210).

Except for its last 3 pages, *The Deniers* . . . is highly recommended for its unique approach, solid climate science and some astute environmental understandings. It has many graphs, extensive citations and an index.

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The First Fossil Hunters: Paleontology in Greek and Roman Times by Adrienne Mayor. Princeton University Press, 2000. 384 pp. \$24.95 (paper), ISBN 0691089779. \$62.50 (hardcover), ISBN 0691058656.

Fossil Legends of the First Americans by Adrienne Mayor. Princeton University Press, 2005. 446 pp. \$24.95 (paper), ISBN 0691130493. \$45.00 (cloth), ISBN 0691113459.

Thunderbirds: America's Living Legends of Giant Birds by Mark A. Hall. New York: Paraview Press, 2004. 204 pp. \$15.95 (paper). ISBN 193104497X.

Paleontology is supposed to have begun with Steno (Niels Stensen) in 1666, who hypothesized how shark teeth and seashells came to occur in rocks on mountains. Or maybe a century earlier with Conrad Gesner, whose 1565 book *De Rerum Fossilium (On Objects that Are Dug Up)* correctly identified fossil shark teeth. Or maybe even earlier with Leonardo da Vinci, who anticipated Steno in his private notebooks.

Adrienne Mayor, in her two wonderful books reviewed here, shows how myopic this perspective is. In classical antiquity, as well as by inferences made and transmitted in diverse nonliterate cultures, fossils were discovered and interpreted as once-living organisms.

Mayor is a folklorist of classical antiquity. In the course of her research for these books she visited a wide variety of places and talked with a wide variety of people. She even participated in some paleontological field work. Some previously lost collections were found from her efforts. She has managed to uncover a remarkably large amount of information that was previously unknown in a scholarly context, and to reinterpret a great deal more.

Her books are well written and are accessible to the general reader. There are many illustrations and some maps, and Mayor documents her statements by copious and detailed notes at the end of the books and a substantial bibliography. There are nevertheless occasional errors of various kinds, but they are all minor in this context. Mayor has made appreciable efforts to retrieve the names and other information on Native Americans associated with fossils.

The natural world doesn't come to us with labels, and different cultures have interpreted fossils within their own cultural frameworks. 'There were giants in those days.' Yes, but not giant people. Bones and teeth of mammoths and other large animals have commonly been regarded as human by people unfamiliar with their living relatives, or who were otherwise constrained, even 19th-century farmers. About 15% of bones of supposed murder victims in FBI records are nonhuman. It's outside Mayor's purview, but relics venerated as remnants of Christian saints are commonly nonhuman. American mammoths were first recognized as elephantine by African slaves about 1725.

Mayor's remarkable entry into the subject was with griffins. In classical Greece, at least from the 12th century BCE, they were taken to be real animals, with bodies

resembling those of lions and beaks (and later wings) like eagles'. They guarded gold in a far-off eastern land. The lore came from the Scythians, who lived in central Asia. The Greek poet Aristaeus visited them about 675 BCE, as did Herodotus about 450 BCE as well as others later.

Eastern Scythians did mine gold from the foothills of the Altai Mountains around the western border of Mongolia and China; 'Altai' even means 'gold'. Just east of the mountains is the late Cretaceous Djadochta Formation, where white bones of the dinosaur *Protoceratops* are conspicuous in the red strata.

Protoceratops had four feet with big claws, and a large beak convergent on that of raptorial birds. Its 'frill', a backward and upward extension of the skull, was initially depicted somewhat accurately (even on a tattooed Scythian mummy), but it was later interpreted as a pair of wings. It's quite clear that it was the original griffin.

Similarly, although with less complete evidence, the one-eyed cyclops that Odysseus killed in a cave was based on the skull of a dwarf elephant, the opening in the skull for the trunk calling to mind conjoined orbits. These elephants are found especially in caves in Sicily and Malta. Mayor didn't originate this interpretation, but she has an original drawing of a cyclops based on Greek sculptures, next to one of a skull of a dwarf elephant.

Not all fossil mammals were interpreted as human. In the fifth century BCE bones on the island of Samos were recognized as belonging to extinct animals. Christian worldviews largely eclipsed the possibility of extinction until Cuvier about 1800. (Cuvier himself recognized classical paleontology, but his recognition was forgotten.) Even the religious liberal Thomas Jefferson, who had fossils in the White House and actually described a partial ground sloth (although he thought the large claw was from a lion) didn't accept extinction, and one of his hopes for the Lewis and Clark expedition to the Pacific was that they would find living representatives.

The Greeks collected fossil bones for shrines (one had 2 tons of them) and stole them in war. Some Paleolithic people took fossils into their dwellings and graves, even a tooth of the extinct elephant *Stegodon* in the Congo. A vase from the sixth century BCE shows Heracles shooting arrows at a skull in a cliff: monsters came from the rocks. The killings of monsters by Zeus and Heracles were in places with large fossil bones. At this time Xenophanes found fossil fishes on Malta and on mountains and realized that the sea had once been there, and about 100 BCE Plutarch took fossil shells on mountains to be proof that all land was once sea. This view was apparently generally accepted then. (Did Steno read them? Leonardo didn't, as he lacked education.) The emperor Augustus established a museum on Capri for large fossil bones. Theophrastus wrote a treatise on fossil fishes, now lost, about 300 BCE.

In the first century BCE Manlius placed the giants at a time when the mountains were still being formed, before humans. Native Americans had a similar perspective.

Native Americans are much more diverse than the classical Greeks, but for many of them fossils represented remains of the eternal struggle for natural balance among forces of the sky, water, and earth. They were things of awe and respect. Many land animals, such as mastodons and giant bison, were grandfathers of their corresponding smaller living representatives, but they themselves were killed by lightning from the sky. According to the Zuni, human ancestors resembled large salamanders. The greatest battles were between thunder birds, who threw lightning, and water monsters. Large bones being found in lakes and marshes, it was easy to interpret them as from aquatic creatures.

The Sioux recognized four kinds of thunder birds as well as many kinds of water and land monsters. Mayor suggests that one of the thunder birds was based on pterosaur fossils and two others on large birds such as condors and the Cretaceous *Hesperornis*. She may be right, but here and elsewhere the bases for some of the creatures and phenomena are less well established than she was able to do for classical Greece.

Some origins, though, do seem clear. The Iroquois, at least, knew Big Bone Lick, on the Ohio River downstream from Cincinnati. After one of them reported it they sent another party to verify it. Some of Jefferson's bones came from here. In Sioux country thunder beasts lived especially in badlands, where large mammals such as Eocene brontotheres and Cretaceous *Triceratops* occur relatively frequently. Cretaceous mosasaurs were very probably one source for water monsters. Belemnites, elongate and pointed cones from Cretaceous squids, are commonly black. They were taken to be missiles associated with lightning.

The high plains are a rather dry region. The Pawnees, living in Nebraska and Kansas, interpreted large bones as from giants who died in a flood (and water monsters cause floods) and then sank into mud, which eventually became rock. Others regarded the giants as burrowers, living mostly where they died. Conspicuous and large helical burrows occur in some Miocene rocks, and paleontologists misinterpreted them for decades. But the Sioux had realized that they were formed by small beavers, as paleontologists eventually found too.

The Abenaki, of the Algonquin group, and the Iroquois had an oral record of a very large animal with a very tough hide, which strode through 8-foot snowdrifts and had a peculiar prehensile extra arm extending from its upper body. It's unclear whether this is a memory of living mammoths or was derived from individuals preserved in permafrost.

The Thunderbird book is a quite different kettle of catfish. It gives evidence, of varying quality but none conclusive, for the existence today of giant predeaceous birds in North America and elsewhere. The more common (or least rare) resembles the eagle-like *Teratornis*, supposedly extinct a few thousand years ago. The other is a giant owl such as *Ornimegalonyx*, of similar vintage; Hall calls it bighoot.

The evidence for these creatures is mostly reports of sightings, supplemented

by some Native American lore. Documentation of the evidence is excellent, and Hall has managed to come up with a remarkable diversity of sources. He is sometimes skeptical but is clearly a believer. He oddly reverses the burden of proof, saying that doubters should provide evidence that the reports are false.

When I was a student at Miami University, too long ago, a few boys from the next dormitory said that they saw a monster of some kind bounding up out of the ravine behind the dormitories and disappearing into the night. This managed to get into the newspapers and wasn't refuted in print. I knew the boys, and, yes, it was a prank. Despite this, someone I mentioned the event to thought that it might actually have been real. Wishful thinking, of one kind or another, is surprisingly common.

Some of the reports are of this quality, although not necessarily thereby false. A few are much better, and their cumulative effect can be persuasive, if one is willing to be persuaded. They are often, but not always, mutually reinforcing in their descriptions. People who report such crazy things, accurately or inaccurately, can be subject to ridicule, and there is indeed a reluctance by most scientific naturalists to investigate, partly for this reason. Such considerations aren't evidence, but they can affect what statisticians call prior probabilities and thereby somewhat influence conclusions. Whether such influence should be accepted is unclear to me, as a similar argument could be made for any nonsense claims.

Bigfoot reports are more common, and some of the apparent footprints provide a partly different kind of evidence. Here, though, the subject is well known and is therefore more easily amenable to deliberate or inadvertent copying. Such influence is less likely for most of the scattered megabird reports. Overall, the cumulative quality of evidence seems rather similar for the two cases.

Neither bigfoot nor megabirds are ecologically impossible, although any megabird population must be quite small and therefore vulnerable to extinction. It would be good to keep an open mind, but not so open that anything can enter unimpeded.

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Where Medicine Went Wrong: Rediscovering the Path to Complexity, by Bruce J. West. New Jersey: World Scientific, 2006. 337 pp. \$55.00 (paper). ISBN 9812568832.

This book focuses on one-dimensional biosignals, that is, time series of measurements commonly made in physiology or medicine. Analysts of such signals tend to fall into several different camps. One large group concentrates on the conventional interpretation, that a biosignal consists of a message plus noise, with noise being described in probability terms. They are concerned with using the message to model the underlying biological process, often in order to design therapeutic strategies. Another perhaps smaller but growing group of analysts consists of those who look at a biosignal as the result of a deterministic process, involving the ideas of complexity, chaos, fractals, and so on. West's book is clearly in the second camp, but rather than address issues separating "probabilists" from "determinists", he trains his guns on the primary medical use of such biosignals, which is to determine "normal ranges" and define diseases as systematic departures from these ranges.

Along with his fellow determinists, West believes that biosignals contain more information than is generally thought. What the probabilist sees as noise, West sees as an opportunity to get a deeper understanding of the mechanisms that produce the signals. The tool he wants to use for this purpose is the so-called "fractal dimension", a measure of the roughness of the biosignal, which was defined by Hausdorff and improved by Besicovitch in the first half of the past century. The basic idea is that a reasonably smooth curve (one that has a derivative, for example), plotted on a graph, is a one-dimensional object, no matter what sensible definition of "dimension" we use. One of the discoveries credited to Mandelbrot (although invented, but not developed systematically, much earlier) is the notion that some curves are so irregular that they have a higher, fractional dimension (between 1 and 2 in the case under consideration). One of the several competing definitions of "fractal" is a curve whose dimension (in the Hausdorff-Besicovitch sense) exceeds its usual topological dimension.

In the first two chapters, West introduces the role of probability in the study of disease, and recalls the interesting combat between Bernoulli and d'Alembert, which concerned whether probabilities should be interpreted in terms of groups (Bernoulli) or individuals (d'Alembert). West's purpose is to indicate that Bernoulli's victory had important consequences for how clinical medicine and epidemiology subsequently developed, and that perhaps the current volume in some sense digs up d'Alembert's arguments for reconsideration. He reviews some of the biosignals he intends to study, which include heart rate, respiration, and temperature (he adds gait, gut measurements, and neurons later in the penultimate chapter). His major point is that conventional science concentrates on the averages of these biosignals over various time periods, and ignores the possibility that their shapes or patterns within the time periods might contain even more valuable information.

The next two chapters are in some ways a diversion from his central mission. West spends considerable time discussing probability distributions with tails that are thicker than the Normal (or Gaussian) distribution, beloved of statisticians. His basic message appears to be that the history of applied probability advanced by adopting the law of “errors”, developed for the purposes of scientific measurements (mainly by Gauss), as if the same rules would hold in areas such as human behavior (mainly by Quetelet). Thus the quantifiers in the soft sciences, and in medicine, ignored the very real possibility (and to West, a certainty) that exceptional observations would be made in ordinary circumstances far more frequently than predicted by the Normal distribution. West lays very heavy emphasis on “inverse-power laws”, that is, an association between 2 variables that is linear when their logs are plotted against each other (a situation I will call “log-log-linear”). Such relationships occur quite frequently in a widely scattered variety of fields, and West evidently takes this to mean that they are important because they are ubiquitous.

The real message of the book then starts to appear in Chapter 5. West concentrates on a sort of scale-invariance to characterize fractals, which is linked to the earlier discussion by the fact that probability distributions with inverse-power tails are invariant under scale transformations. He goes on to introduce allometric relationships, rather casually given the large part they play in the remainder of the book. West concentrates on cases in which a time-sequence of values is available, the sequence is divided into non-overlapping, contiguous groups each of the same size, and a new sequence of sums (one for each group) is computed. He computes the variance of the original sequence, and then the variances of each of the sequences of sums, for groups consisting of 2, 3, 4, and so on, observations per group. Finally, he plots the log variances against the log average sums, computes its slope S , and then the fractal dimension $2 - S/2$. He applies this methodology to single cases of heart rate, breathing rate, gait, body temperature, gut function, and neurons, in each case computing a fractional dimension and concluding that the biosignal has fractal structure. In the final two chapters West discusses cases in which diagnosed pathologies can be detected by his fractal analysis, with heart rates dominating, if for no other reason than that more money and effort has been put into this area than the others. He speculates that therapies based on fractal principles will be more beneficial than the simplistic control-based therapies that dominate medical thinking. One of the more interesting conjectures here is that fractality is related to the ability to respond adaptively to a changing environment, which would account for the observation that diseased individuals (in cardiology, at least) seem to show either too much or too little irregularity.

I will couch my criticisms of the book in terms of my purpose for reading it, which was to see whether it would be appropriate for graduate students needing an introduction to the potential role of complexity theory in biomedical research. From this perspective, the book is narrow in several different ways. West's concentration on the log-log-linear phenomenon leaves out many of the other approaches that have been used on biosignals. In fact, it leaves out some of the

considerations in estimating fractional dimension altogether: see Carr and Benzer (1991). Aspects of complexity, other than fractals, get very short mention. The book gives the impression of being more interested in the log-log-linear approach than it is in understanding how the biosignals might be generated. Mathematical formulas have been assiduously avoided throughout, forcing the definitions and explanations to become vague, or opaque, or occasionally misleading. Even further, assertions are frequently made with no demonstration, no real suggestion why they should be true, and no further reading for the student to follow-up on.

This latter aspect is particularly concerning, in that the dominant analytic method (log-log-linear plots) is never fully explicated. West asserts, but does not argue in favor of the connection between allometry on the one hand and fractals on the other. In computing variances of aggregated sums, he seems not to realize that for correlated data (which certainly includes biosignals), the sample variance of the sums does not estimate their population variance. In fact, what he computes for a group of size m , and calls a variance estimate, is actually an estimate of $m^2\sigma^2(r_m - r_n) / (n - m)$, where n is the number of observations in the original sequence, σ^2 is the variance of an individual observation, and r_m is the average (including the diagonal) of all the correlations in an m -by- m diagonal block of the correlation matrix. (Technically this requires the time-series to be weakly stationary, but a corresponding, more complex formula holds in the general case.) Thus, West's method is based on an index that in a round-about way captures how fast correlations between observations drop off as they are further apart in time. It seems reasonable to expect that a conventional correlogram would do a better (and more understandable) job of this, but correlograms are not to be found in this book.

There is a large amount of space given over to the material on probability distributions with tails thicker than the Normal. West gives no actual examples of distributions with inverse-power tails, and he implies that the only examples are the symmetric stable distributions of Levy. First, a ratio of 2 independent Gamma variates has an inverse-power tail, and secondly, except for the Normal, all Levy distributions have infinite variance, which makes it hard to explain how they can apply to physiological measurements that are, by their very nature, bounded.

For students it is often important to have good definitions of terms, and good examples that they can examine to cement their understanding. I would have welcomed improvements in both of these areas. For example, when it first appears, a fractal is defined as a "non-analytic" curve. Defining something by what it is not tempts confusion, and in any case this would create a problem for anyone who knew the mathematical definition of "analytic function". West does go on to give a few illustrative examples, but given the central place that the concept of fractal holds for him, it is odd that he did not take the time to explicate some of the many simple examples that have been well-presented in existing books and websites (such as Barcellos, 1984). Similarly, the definition of fractal dimension could certainly have been developed in a satisfactory manner, as in Kinsner (2005), for example.

As an aside, I found myself having some problems with the notion that inverse-power laws are ubiquitous, in biomedicine or anywhere else. There is an interesting, if antagonistic, literature on a presumed power law relating metabolic rate and body size, but even the critics of this specific value do not question that there is some power law (which might vary between species, for example). I performed the numerical experiment of generating a standard Normal probability density $p(x)$, and then plotting $\log p(x)$ against $\log(x)$ for extreme values of x . I had no difficulty finding cases which, over a suitably selected range, were exceedingly linear (correlations about 0.999). (Recall that West implies that log-log-linearity in the tails invalidates the Normal distribution approach.) It is thus disturbing how many of the presumed examples of log-log-linearity are based on narrowly selected ranges in the extreme of a distribution, where potentially almost everything might look log-log-linear. This is not, it is to be emphasized, a criticism of West's book, but of the researches upon which it is based.

In the end, I concluded that the book was not appropriate as required reading for students, although given enough available time it could be optional. Despite this, I enjoyed reading it myself, since West is a very good writer, and has the rare ability to make complicated material understandable in language that most of us understand. The book is also filled with the kinds of by-ways and historical references that are too often left to the side.

Finally, I believe that the book is not titled correctly. It should have been something like "What physiology has ignored; discovery of the role of fractal signals." I say this because therapeutic medicine makes virtually no appearance in the book, no evidence is presented that medicine has gone wrong, "rediscovering" complexity implies that it had already been discovered but somehow lost, and the book is about one-dimensional fractal signals, which is not the same as complexity.

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An Encyclopaedia of Flying Saucers by Vernon Bowen. Interpretive material added by Dr. Robert M. Wood. DeHart's Media Services, 2007. 183 pages. No price listed (paperback).

We can thank Robert and Ryan Wood, father and son, for publication of this curiosity, which came to light in the course of their ongoing inquiry into UFO cover-ups. The Woods have focused much of their investigation on deeply controversial documents of disputed provenance, alleging a highly secret government agency, Majestic 12, said to oversee studies of extraterrestrial wreckage and bodies. Most of my ufologist colleagues—I, too—harbor grave doubts, but the authenticity of *An Encyclopaedia of Flying Saucers* is not open to dispute.

Three hundred thirty-three pages of the manuscript arrived in the mail one day in June 1999, the recipient a Bear Lake, California, man, Timothy Cooper, who was also supplying the Woods with numerous supposed MJ-12 documents which he averred had arrived anonymously. The return address on the package indicates that the manuscript was mailed from FREEDOM OF INFORMATION/PRIVACY OFFICE, US ARMY INTELLIGENCE AND SECURITY COMMAND in Fort Meade, Maryland. In subsequent investigation the Woods determined that the listed author, Vernon Bowen, had really existed, though he is now deceased. An advertising writer who worked for a Manhattan agency, Bowen lived in Old Greenwich, Connecticut. His son Patrick provides the introduction to this, the first publication of the book. He confirms that it was put together between 1957 and 1961.

Owing—so one infers from the written evidence—to an unabashedly worshipful view of the military, Bowen submitted the manuscript to the U.S. Air Force for clearance. To the best of anybody's knowledge, the Air Force, presumably out of indifference, kept the manuscript and never got back to Bowen. It showed up decades later, with cryptic annotations (not included here but mentioned by Dr. Wood in an afterword) supposedly composed by cover-up insiders. Fortunately, the version here is as originally written, though several pages of the manuscript are missing. They are not, however, missed.

Books identified as UFO encyclopedias began appearing in the 1970s. The first of any real merit were both issued in 1980, Ronald D. Story's *Encyclopedia of UFOs* and Margaret Sachs's *The UFO Encyclopedia*. Others appeared in later years. My own multivolume *UFO Encyclopedia* went through two editions (the first in three volumes, 1990, 1992, 1996, the second revised and expanded in two volumes, 1998). So Bowen's bears the distinction of being an early attempt, though it's less an encyclopedia than an annotated guide to the public UFO literature up to 1960. In some ways it reminds me, at least broadly, of M. K. Jessup's *The UFO Annual* (1956), notwithstanding obvious differences, one of them that Jessup's book is more readable and entertaining. I suspect that Bowen would have a hard time finding a commercial publisher.

Nobody seems to know why Bowen, author of several children's books,

elected to devote so much attention and labor to this manuscript. To the outsider, a mountain's worth of effort may look like a molehill's worth of results, at least from a strictly critical point of view. Still, it is a genuine oddity, not least because of Bowen's apparent love-hate relationship to his subject, evident throughout but expressed explicitly in a blizzard of distance-establishing scare quotes at the commencement of the foreword:

I have never seen a "flying saucer." I don't know *anything* about "flying saucers." I am not a "flying saucer" expert. I am not a member of any "flying saucer" club. Furthermore, I do not intend to be. I have never gone to a "flying saucer fan" convention. I don't intend to. I am not a "flying saucer" *fan*. I don't intend to be.

In the unlikely event that the reader has missed the point, Bowen goes on in that vein for yet more sentences. It soon becomes apparent that this book might have been a better one if Bowen *had* immersed himself in the UFO subculture of the 1950s. He gets no closer to it than *Fate* magazine. Beyond that, his sources are the New York City metropolitan newspapers and popular magazines.

At some point I realized that I had read nearly every item he cites as I was researching my own UFO encyclopedia. The material is not without interest or significance as a measure of how the idea of flying saucers was passing through the culture. Unfortunately, Bowen, no intellectual, not even a notably thoughtful lay observer, has little if anything of consequence to pronounce about such matters. Coverage of both UFO sightings and the emerging UFO subculture in mainstream publications was hit and miss, consistently superficial. To understand what was going on in those days (at least in America), one needs to read, on one side, *C.S.I. Bulletin*, *The U.F.O. Investigator*, and *The A.P.R.O. Bulletin*, where sightings were investigated and analyzed, and on the other, *Saucer News* and *The Saucerian Bulletin*, which chronicled the outlandish, mystical-religious aspects of the movement.

By the end Bowen has persuaded himself that UFOs are top-secret aircraft, a notion that more informed students of the phenomenon had abandoned years earlier and which practically nobody has revived since.

If not much in itself, *Encyclopaedia* will be welcomed by scholars seeking to document the UFO phenomenon's social history, to which the book is a small footnote. An additional item of curiosity, of course, is the circumstance under which it surfaced.

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FURTHER BOOKS OF NOTE

A Mind for Murder: The Real-Life Files of a Psychic Investigator, by Noreen Renier. Charlottesville, VA: Hampton Roads Publishing, 2008. 250 pp. \$16.95 (paper). ISBN 978-1-57174-573-6.

This is a revised edition with two new chapters of a book with a similar title by Noreen Renier with Naomi Lucks, published by Berkley Books/Penguin, 2005, which I reviewed in *JSE 20*, no. 1, Spring 2006, pp. 135–141.

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ARTICLES OF INTEREST

“Quantum Physics Gets ‘Spooky’” by Phil Berardelli. *ScienceNOW Daily News*, 13 August 2008.

Suppose our world were exactly as it actually is today, except that every person in the world, with very few exceptions, believed the Earth to be flat. I don’t mean that people had debated it, and had decided that the Earth is flat; I mean that they believed it so deeply that the question could not arise: that anyone who raised any alternative seemed a nut.

In such a world you would no doubt, every so often, see a *ScienceNOW Daily News* article entitled something like, “Airline Fuel Tables Get Spooky,” describing how a new audit of airline records, once again, for the *n*th time, revealed the “spooky” fact that the using of Zweistein’s famous equations in setting airline routes had verified that going a much *longer* distance resulted in *less* fuel use; and, even spookier, took *less* time than going the shorter direct route across (flat) Earth. (Of course the word flat would be absent from the report, for that went without either saying or thinking.)

And suppose you were one of the few people who had awakened to the fact that the Earth is *not* flat, and that Zweistein’s famous equations are merely trivial spherical trigonometry? And then, suppose that you were invited to write an Articles of Interest piece on “Airline Fuel Tables Get Spooky”—what would you do?

That is precisely the position that I find myself in. In that mythical alternative world, the problem was that almost everyone adhered to a fundamental view of the nature of the world that was simply wrong. The problem in *our actual* world is exactly the same: the overwhelming majority of people, including, I fear, the

overwhelming majority of PhD physicists, adhere to a fundamental view of the nature of our world that is simply wrong.

The difficulty is reality. Almost everyone thinks that the world is real. But we *know* that the world is *not* real. While science cannot establish that something is true, science *can* establish that something is *not* true. In fact, that is the *essence* of science—that hypotheses are falsifiable. Note: not verifiable. *falsifiable!* And it is a matter of *fact* that we *have* verified that the possibility that what you are observing is a real world, can, and must, be rejected. Sir Arthur Eddington and Sir James Jeans recognized this immediately when quantum mechanics was discovered in 1925. Einstein realized it too, but feeling that it could not be true, he spent the rest of his life trying to break quantum mechanics, with complete lack of success. Anton Zeilinger and his colleagues have recently experimentally demonstrated that reality can be ruled out (*Nature* 446, 871, 2007).

I have created an illustration of the famous John Wheeler delayed choice experiment (<http://henry.pha.jhu.edu/unreal.html>). What this experiment shows, is that Schrödinger's cat's *history* is determined *by your observation*: "If you find a dead cat, an examination by a veterinary forensic pathologist would determine the cat to have died eight hours ago. Your observation not only creates a current reality, it also creates the history appropriate to that reality" (Rosenblum and Kuttner, *Quantum Enigma*, Oxford, 2006). This is where evolution comes from! The most recent *experimental verification* of the delayed-choice result is by V. Jacques et al. (*Science*, 315, 966, 2007).

Quantum mechanics is *not* spooky, and is not even *slightly* mysterious. No more than spherical trigonometry! Newton's $F = ma$ follows very simply from Schrödinger's equation, which, in turn, can be derived assuming simple symmetries (Henry, R. C., 1990, *Am. J. Phys.* 58, 1087; Shapiro, M., 2008, *J. Phys. A: Math. Theor.* 41, 175303).

What *is* spooky, of course, inconceivably spooky, is our own existence (that is, our *minds'* existence) and the fact that we make observations. Physics does not even address these questions. The universe being purely *mental* begs the question of *other* minds—I resolve it, now, by belief in God—I dropped my atheism in 2004; not easily, but decisively.

It is *also* spooky that Galileo was able to educate the world to understand that the Earth goes around the Sun (and what could be spookier than that?), yet physicists today have utterly failed to inform the public to understanding the purely mental nature of the universe, with all that that implies for the meaning of human existence. That is a tragedy, and it should be rectified. I wish I knew how.

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JOURNAL REVIEW

Pulse of the Planet edited by James DeMeo. 272 pp.

Wilhelm Reich, the physician, psychoanalyst, and scientist, was an extremely original and prolific investigator of a variety of scientific disciplines all bearing on the nature of emotions, and a mass-free “energetic” substrate in humans, the atmosphere, and the cosmos that Reich called “orgone energy”. During his 60 years of life he published over a dozen books and numerous articles describing his discoveries mostly in his own press. After Reich’s death in 1957 articles on orgonomy, mostly of a clinical nature, were published in the *Journal of Orgonomy*, the organ of the American College of Orgonomy and Annals of the Institute of Orgonomic Science. Since 1989 James DeMeo’s *Pulse of the Planet* is the only journal devoted almost exclusively to articles on orgonomic science and allied scientific findings rather than clinical articles. *Pulse* is published sporadically, there being five issues published to date. The last, *Heretic’s Notebook*, was released in 2002. The journals are described as the literary organ of DeMeo’s Orgone Biophysical Research Laboratory in Ashland, OR. Anyone with an interest in Reich’s work and/or our environment will find the entire set well worth study.

James DeMeo received his doctorate in geography from the University of Kansas. His doctoral dissertation title “On the Origins and Diffusion of Patrism: the Sharasian Connection”, based on Reich’s observations on desert formation, was published in 1999 as *Saharasia: The 4000 BCE Origins of Child Abuse, Sex Repression, Warfare and Social Violence, in the Deserts of the World*. Since then DeMeo has focused his considerable talents of observation, experimentation, and analysis to the replication of the scientific findings of Reich, informing others about them through *Pulse*, conducting workshops at his laboratory in Oregon and giving public lectures on Reich’s and his own work in the U.S. and abroad. DeMeo is one of a handful of responsible scientists in the world investigating Reich’s non-clinical work and utilizing Reich’s invention, the “cloudbuster” to modify the weather, which he has done, often in collaboration with others, in varied locales in the U.S., Europe, and Africa. In the various issues of *Pulse* he informs us of the results of these many activities.

Each issue of *Pulse* consists of formal, scholarly articles replete with extensive bibliographies and of briefer personal notations on changes in the climate, eco-systems throughout the world and advances in science. Volume 1:1 published in 1989, for example, has four major articles, “Cloudbusting”, “New Approach to Drought”, “Response to Martin Gardner’s Attack on Reich and Orgone Research in the Skeptical Inquirer”, and “Postscript on the Food and Drug Administration’s Evidence against Wilhelm Reich”, all by DeMeo, and an original article by Yoshio Kato, Head of the Department of Aerospace Science at Tokai University, Japan on “Recent Abnormal Phenomena on Earth and Atomic Power Tests”. There is also an extensive section on planetary climate

features and unusual phenomena, and briefer research reports, including DeMeo's work in weather modification.

Volume #4, published in 1993, is dedicated to Reich and Reich's early work. It contains three classic articles on orgonomy by Reich, translated by Barbara Koopman, M.D. Ph.D. These are: "The Basic Antithesis of Vegetative Life Functions", "The Orgasm as an Electrophysiological Discharge", and "Experimental Investigation of the Electrical Function of Sexuality and Anxiety". These are the basic experiments and theoretical constructs that eventuated in Reich's later discovery of orgone energy, not to be missed by anyone seriously interested in this subject. While these papers have since been reprinted in other formats, the wonderful paper by Ellen Siersted, "Wilhelm Reich in Denmark", has not. Siersted was a patient and student of Reich and well documents this time when Reich was separating himself out from psychoanalysis, discovered muscular armoring, and was beginning his experimental investigations in the bioenergetic basis of the emotions. There are many photographs of Reich with his colleagues, his girlfriend, Elsa Lindenberg, and his children, Lore and Eva.

Other authors in this issue are Lois Wyvell, who did organizational and secretarial work for Reich; R. D. Laing, the British psychologist; Mitsuru Katagiri, Dean of Academic Affairs, Kyoto Seika University; Aileen Smith; and Matthew Appleton, a houseparent at the Summerhill School, Suffolk, England. Wyvell writes on "The Jailing of a Great Scientist in the U.S.A., 1956"; Laing writes on "Why is Reich Never Mentioned?"; Katagiri and Smith on "Three Mile Island Revisited", reprinted from *Kyoto Review*; and Appleton writes on "Summerhill at 70". Summerhill is the radical school devoted to self-regulation, founded by the educator, A. S. Niell, who was one of Reich's best friends. These are all informative well-written articles having in common serious critiques of how society constrains the spontaneity and creativity of its finest minds and pollutes its own nest.

Heretic's Notebook, volume 5 of *Pulse*, from here forward referred to as *notebook*, is a thicker version of the usual *Pulse*, and features many more articles by different authors than the usual *Pulse*. The articles are a varied lot, ranging over the entire spectrum of orgonomic thought and work. They include Eva Reich's (Reich's daughter) work on infants and children; DeMeo's update of his original research on the origin of patriarchy in Saharasia; a lecture on orgonomic functionalism given in Berlin by Myron Sharaf, the author of *Fury on Earth*, an excellent biography of Reich, and the editor of some of Reich's journals; "CSICOP, Time Magazine, and Wilhelm Reich" by John Wilder; "Childbirth as a Sexual Process" by Matthew Appleton; and "Giordano Bruno's Philosophy" by Carlo Albini.

Articles on bions (primitive non-living microscopic vesicles with many of the qualities of life) and biogenesis include Professor Bernard Grad's (a former professor of biology at McGill University and research associate of Reich) "Studies on the Origin of Life: The Preparation of Primordial Cell-Like Forms",

“Some Observations on Reich’s Experiment XX” by Maxwell Snyder, “The Sanal Theory of Bong Han Kim: Bion-like Processes in Acupuncture in Biology” by Dong Chul Kong and Hyun-Wong Kim, and “Bion-Biogenesis Research and Seminars at OBRL—Progress Report”.

The section on Orgone Biophysics includes several articles on Dayton Miller’s ether-drift experiments, “A Fresh Look” and “Reconciling Miller’s Ether Drift with Reich’s Dynamic Orgone” by DeMeo and “The Experiments of Dayton C. Miller and the Theory of Relativity” by Maurice Allais. Courtney Baker, a physician and physicist, describes his invention, a new method of objectifying mass-free orgone manifestations in the atmosphere using his variation of an electroscope, in an article entitled, “Orgonometry: A New Detector”. He clearly obtains anomalous results in testing the device in different energetic situations and terrains. My own article, “The Implications of Current Consciousness Research on Orgonomic Theory” describes results of my experiment using a Random Event Generator (REG) while patients in Reichian (orgone) psychotherapy were strongly emoting. There, as reported previously in *JSE*, I found striking correlations between the kind of emotional expression, sorrow, anxiety, anger, and the direction of REG output, and I ask the reader to entertain hypotheses on possible causal mechanisms for this phenomenon, including Reich’s mass-free orgone energy theory and Robert Jahn and Brenda Dunne’s views on resonance in living systems. Nicolas Nikolaidis describes the use of L-rod dowsing rods in establishing the size and strength of the orgone energy charge around accumulators and other orgone devices. This technique in skilled hands holds much promise for those wishing to objectify orgone fields. Using scintillation chambers Dave Marett measured the directionality and intensity of muon (secondary cosmic radiation) flux. He found a west-east asymmetry, a wave function, peaking at sunrise and sunset, and a diurnal flux. He offers an orgonotic explanation for these anomalous findings, suggesting, in accord with Reich, that a component of cosmic radiation may have a terrestrial origin. In a well-controlled experiment DeMeo studied the effect of an orgone energy accumulator on the growth of mung beans in Pyrex dishes. The orgone-charged beans showed highly significant 34% increase in sprout-length albeit with what appears to be a lower sugar content. Victor Milian, a physicist working with others at the Chemical and Nuclear Engineering Department at the Polytechnic University of Valencia, Spain, found decidedly anomalous changes in electronic temperature sensors exposed to a radioactively excited orgone energy accumulator, anomalous decreases in radioactive decay of RA-226 and Cs-137 when placed inside an orgone accumulator, confirming in many respects observations made by Reich in his original oranur experiment.

On the basis of his work using his invention, the “cloudbuster”, to modify the weather, Reich developed the discipline “cosmic orgone engineering”. This section of notebooks on cosmic orgone engineering contains six articles by DeMeo. DeMeo, who has a Ph.D. in Geography from the U.K., obtained his master’s degree on the basis of his controlled studies of the use of the

cloudbuster in generating rain in Kansas. He reports in *notebook* on a “5-year Desert Greening Experiment in the East African Sahara-Sahel”, “The Origin of the Tropical Easterlies: An Orgone-Energetic Perspective”: The Orgone Energy Motor”, “The Earth-Atmosphere Electrical Potential as a Possible Source of Energy”, Renewable, ‘Free’ Energy from Nature: Personal Experiences and Net-Energy Analysis, “Satellites or Silent Glowing Spacecraft? Are Some assumed “Satellites“ Extraterrestrial?”, and “My UFO Observations”.

There is also a report on the analysis of unusual objects alleged to be in the atmosphere recorded on infrared film during cloudbusting. The use of stereophotography revealed the forms not to be in the atmosphere, but in the camera. The issue closes with brief progress reports of ongoing work at DeMeo’s laboratory and book reviews of DeMeo’s book, noted above, *Sahasia*, of James Martin’s *Wilhelm Reich and the Cold War*, and of Peter Robbins’ *Left at East Gate, A First-Hand Account of the Bentwaters-Woodbridge UFO Incident, its Cover-Up, and Investigation*. The section on “In Memoriam” honors the passing of therapist Robert D. Morris, therapist Michael B. Rothenberg, sociologist Louis Hochberg, and sociologist, educator, and biographer of Reich, Myron Sharaf.

There are very few of us carrying on Reich’s experimental research in life energy. On behalf of my colleagues I thank James DeMeo not only for his excellent work in the field, but for making available to us and the public such a fine literary organ where we can publish and our work be available to colleagues and others interested in orgonomy. I know it is created with much personal and financial sacrifice and this makes the effort so much more worthwhile.

RICHARD A. BLASBAND

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.