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BOOK REVIEWS

Consciousness and the Source of Reality: The PEAR Odyssey by Robert G. Jahn and Brenda J. Dunne. Princeton: ICRL Press, 2011. 398 pp. $19.95. ISBN 9781936033034. Hardcover deluxe limited color edition, $59.95, info@icrl.org.

A few years ago I attended a lecture by a well-known Ivy-League physicist who is quite skilled at presenting basic scientific principles to a lay audience. At the end of his talk, which was intended to communicate the essentials of the way that modern physical theory conceptualizes the world, he was asked a simple and direct question: Have you any opinion of experiments that suggest that consciousness can influence random physical processes?

I was impressed by his reaction to the question. Without being dismissive at all, he leaned on the podium for what seemed an extended time before carefully crafting his answer. It was obvious that he took the question seriously. Speaking quite slowly and deliberately, he unequivocally said that if consciousness could influence random physical events, then everything that he thinks he knows is wrong. Everything. After another long pause, he continued by recalling that one of his respected colleagues told him that "someone" had worked on this problem at he thought perhaps Princeton, but that nothing significant ever came of it.

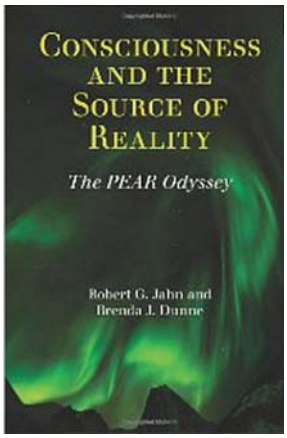
I walked over to the line at the microphone to make a suggestion, but before it was my turn the allotted time was up and the speaker left the stage. What I wanted to suggest was this: If, in your own words, everything you think you know would be wrong if consciousness could influence random physical events, then I think it might be worth a few hours of your time poring over some of the PEAR data. But be careful, I also wanted to say, once you look at the data closely there's no academically safe place to hide. The PEAR data are game changers.

Most readers of this *Journal* will be familiar with at least the outline of the PEAR lab work, as its accomplishments and output have reached almost mythical status. In the late 1970s, Robert Jahn, then Dean of the School of Engineering and Applied Science at Princeton, hired Brenda Dunne to be his laboratory manager, and the rest, as they say, is history. So began an ambitious collaborative program to investigate 1) whether human operators could consciously or unconsciously *influence* the output of random physical systems of various stripes; 2) whether human operators could consciously *extract*

information from the physical environment in ways which would be considered anomalous; and 3) how to construct useful theoretical models which make sense of the experimental data.

These three areas of inquiry roughly translate into the five sections of the book. Section I, *Venues, Vistas, and Vectors,* contains six short chapters which serve as an introduction to the major themes and questions that are discussed at greater length in later sections. There is some history, sociology, and philosophy of science about some grand questions usually discussed only in rarified specialty texts. How does the mind/body problem illustrate the Western science traditional division between the "objective" physical world and the softer "subjective" experience of people? Isn't all "objective" knowledge "subjectively" experienced? In Jahn and Dunne's words, "Mind without matter leaves us with a world of ephemeral abstraction; matter without mind eliminates the essence of life itself."

Section II, *Human/Machine Connections: Thinking Inside the Box,* is the longest section of the book, comprising fifteen chapters, the last of which is entitled "Inconclusive Conclusions." I highlight this last chapter title as an indicator of how careful, thorough, and humble Jahn and Dunne are with their presentation. There is never any overreaching, and when speculative thoughts arise, they are identified as such. These are careful researchers indeed. This section almost overwhelms the reader in its recounting of the scope and depth of inquiry by the PEAR lab. By the end of the section I was intellectually exhausted by exposure to so much data, even as I was titillated and exhilarated by them. The early work with random event generators looked for statistical shifts in the output based on the pre-stated intentions of the operators. Later, so-called field-REGs (portable machines) were taken into a wide variety of locations that were thought to be emotionally "coherent," such as sporting events or musical concerts. Jahn and Dunne give us a statistical primer on interpreting deviations from expected chance that should be comprehensible to the intelligent layperson, so that when they intersperse a selected few graphs and tables it really augments the discussion. Did the results depend on whether the operator was male or female? Do multiple operators add to the effect size? If one operator intends "high" deviations and another "low," do they cancel each other out? Does immediate feedback enhance performance? Does practice improve performance? Does it matter whether the generated random events are "true" or "pseudo"? Does it matter whether the randomness is generated electronically, mechanically, through fluid dynamics? Does distance matter? Time? You get the idea. I don't want to give away the story line, but I do guarantee that you will be swept along with their intellectual playfulness, and you really will care about the results, even as nature keeps hurling surprises at our fledgling attempts to make sense of the world.



Section III, *Remote Perception: Information and Uncertainty*, contains seven chapters on the PEAR "remote perception" work. As in all of their work, Jahn and Dunne decided early on to use "ordinary" volunteers in their experiments rather than specially trained people who claimed a history of producing extraordinary phenomena. Their "operators" were instructed to use whatever subjective techniques that they wanted to either affect the REGs or to gather information from volunteer percipients who were elsewhere, and often not time-synchronized. Some meditated, some closed their eyes, some left them open, some performed a ritual, but all gave the task their own personal stamp. As in the previous section, think of all of the interesting questions that can be addressed: Does distance matter? Does time matter? Does practice improve performance? When the target is correctly perceived, what is the nature of the signal? Again, I don't want to give away the empirical results, because this work reads like a mystery, which in fact it is. To titillate: When their analytical techniques became more sophisticated, the effects weakened. Whew. Most researchers would ignore this as an annoyance or possibly an artifact. Jahn and Dunne unabashedly throw this in the pile of surprises to be thought about.

Section IV, *Thinking Outside the Box*, deals with the mother lode scientific question: How do we make sense of these daunting data? Once again, they face the problem head on. Any scientific model, they write, must deal with a hierarchy of extraordinary features: tiny informational increments riding on random statistical backgrounds; correlations of objective physical evidence with subjective psychological parameters, most notably intention, attitude, meaning, resonance, and uncertainty; time and space independence; oscillatory sequential patterns of anomalous performance; data distribution structures consistent with alterations in the prevailing elemental probabilities; complex and irregular replicability. Whew, again. Their "out of the box" response is to begin with what they call a "Science of the Subjective." In their words:

> . . . any neo-subjective science, while retaining the logical rigor, empirical/theoretical dialogue, and cultural purpose of its rigidly objective predecessor, would have the following requirement: acknowledgment of a proactive role for human consciousness; more explicit and profound use of interdisciplinary metaphors; more generous interpretations of measurability, replicability, and resonance; a reduction of ontological aspirations; and an overarching teleological causality. More importantly, the subjective and objective aspects of

> this holistic science would have to stand in mutually respectful and constructive complementarity to one another if the composite discipline were to fulfill itself and its role in society.

Dare I give one more "whew"? In this section they explore whether quantum metaphors have sufficient power to help us understand their data; whether it is more productive to think of the apparent correlations between the conscious mind and tangible output in a more circuitous route involving unconscious processes (their M^5 model); the place of filters in the communication between consciousness and its Source. Finally, they anticipate the intellectual pushback in the reader reacting to their paradigm-busting presentation. Are the data wrong? Are they real but not important? Should we consider this outside of scientific inquiry? Should we keep working to get back to our safe deterministic models? Should we change the rules of science? Jahn and Dunne, in a masterly essay, recommend the latter. Let's "Change the Rules!"

The final section, *Consolidation and Closure*, is as promised, and presents itself as the most speculative of the sections. As they pose the question of how to distill both their empirical data and theoretical propositions, Jahn and Dunne really let out all of the stops. Again, in their own words:

> . . . these efforts must struggle through the entangling undergrowth of philosophical and functional dogma that has accumulated over eons of endemic human greed, self-serving rationalization, and malicious and inadvertent attentional neglect, to constrain, and often to enslave, our minds, hearts, and souls, and that has brought our species to a precipice of spiritual stagnation that cannot much longer support its survival. Our contributions here cannot be more than puny on the grand scale of such an impending catastrophe . . .

Again, not to give away the punch line, they suggest that traditional science has been focused on the famous equivalence of matter and energy, but they have left information out of their equations. To them, the most facile conceptual language to describe their results is information: in the case of REGs, insertion into the random binary strings; in the case of remote perception, extraction from a global array of possible targets. And returning to the science of the subjective, they implore us to somehow balance the more objective measurements of information quantification with the more subjective sense of personal meaning. Indeed, more attention to such subjective states as "intention," "resonance," "unconscious processing," and more are called for. Imagine "a functionally proactive subjective consciousness . . . added to the arsenal of scientific concepts and tools . . ." Game changer.

This is a beautiful book. I recommend reading it slowly, thoroughly, and reflectively. The prose is rich and is actually aesthetically pleasing. I found

myself reading a chapter, putting it down, reflecting, and then re-reading to find even more nuance. Even consistent readers of the PEAR Lab's more than 150 articles and technical reports (many of which are to be found in the *Journal of Scientific Exploration*) will gain a new perspective as you take in the entire "odyssey" of their work in one publication. The book can also serve as a model of humble, yet relentless, scientific thinking. To dream: Imagine the next generation of scientists reading works like this to balance out the stale textbooks that present knowledge as "finished." Imagine a book that fills you with awe and wonder as it relentlessly presents an incredible challenge to our way of making sense of the world. Imagine the experience of actually having a skeptical, open mind, and coming upon this book. What a gift.

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Aping Mankind: Neuromania, Darwinitis and the Misrepresentation of Humanity by Raymond Tallis. Acumen, 2011. 416 pp. $29.95 (hardcover). ISBN 9781844652723.

What might physician and professor of geriatric medicine Raymond Tallis and actor John Rhys-Davies have in common? In Peter Jackson's epic film *The Lord of the Rings,* Rhys-Davies (as Gimli the dwarf) wields an axe with such consummate skill as to challenge, intimidate, and lend a hand in the defeat of the evil orcs of Mordor; while in *Aping Mankind* Tallis (as philosopher and scientist) with a finely-honed axe of logic takes on perhaps equally formidable foes: those Cognitive Scientists possessed by Neuromania (p. 26) and Evolutionary Biologists obsessed by Darwinitis (p. 40) (called respectively Neuromaniacs and Darwinitics).

An inapt comparison? Orcs are degenerate mutations from a once-benign race, who would destroy or enslave all humankind, while Evolutionary Biologists and Cognitive Scientists are, certainly, benign professionals enriching the store of knowledge for the benefit of all. Yet as Tallis makes abundantly clear, many Cognitive Scientists believe that the mind is the brain, the brain is a computer, and since a computer has no self and does not exist in a world of intentionality, human beings have no selves and do not exist in a world of intentionality (p. 101).[1] Some biologists and psychologists, influenced by the twin premises that the brain is a product of evolution and that the mind is a computer–brain,

reduce mind to a single-purpose biological mechanism programmed only to ensure the survival of the gene pool. The wedding of the mind–brain–computer theory to the Darwinian impulse produces a "grand synthesis of Darwinitis and Neuromania" against which Tallis mounts his argument (p. 145). He is convinced that these views, riddled as he believes they are with faulty logic and bad science, are in fact dangerous.

> The distinctive features of human beings—self-hood, free will, that collective space called the human world, the sense that we lead our lives rather than simply live them as organisms do—are being discarded as illusions by many, even by philosophers. . . . Such views may have consequences that are not merely intellectually derelict but dangerous. (p. 8)

In this densely packed, well-researched, and carefully argued volume of more than 400 pages, Tallis offers penetrating critiques of assumptions prominent in Neuroscience and Evolutionary Biology and lays out what he considers to be their potential negative consequences. The book moves on to a "Defense of the Humanities" and a stimulating though inconclusive effort to provide a solution to the chief problem raised by his analysis of the mind–body relation.

What Is the Danger?

Tallis argues that the conclusions of Neuromaniacs (NMs) and Darwinitics (DTs)[2] have added weight to traditional determinism with its corollary that there is no such thing as personal responsibility (pp. 49–50). Although it is not new to debate the existence of free will, Tallis holds that the incursion of neuroscience into our sense of ourselves as conscious agents is "more up close and personal . . . [and] the personal gives way before the impersonal" (p. 51). Thus he cites the view of neurophysiologist Colin Blakemore:

> The human brain is a machine which alone accounts for all our actions, our most private thoughts, our beliefs. . . . All our actions are products of the activity of our brains. (p. 50)

In referring to private thoughts and beliefs, this does not go far enough; a significant theme in neuroscientific circles is eliminative materialism, which argues that thoughts are merely the flow of physical energies within the computer–brain, and beliefs are illusions of a "folk psychology" eventually to be replaced by a new conceptual framework provided by neuroscience.[3] And since the self is an illusion, the idea of any thought being private is also in error, since there is nothing for a thought to be private *to*. The brain is a machine which has no thoughts and no beliefs. And "you" are "your" brain (but there is no you).

Surely, though, the vast majority of humanity will just go right on "thinking" that "they" have "beliefs" (even NMs and DTs seem unable to avoid this illusion), so why worry? Tallis's first concern is a perceived potential for fostering human self-hatred. His book begins with a keynote citation from *Straw Dogs* by John Gray, Professor of European Thought at the London School of Economics, in which Gray is reported as saying that the lives of humans, who are rapacious, destructive, predatory animals, are obviously not worth preserving, and have no more meaning than that of a slime mould (p. 1). Thus, Tallis's first concern has to do with psychological consequences: encouragement of despair and inactivity (p. 64).

A second "even more frightening" concern rests on a proposed NM solution to the destructive aspect of the human animal–machine: Legal and governmental decision-making should be determined by neuroscientific understanding of the brain's "system of justice" and of how the brain reacts to conflicts. Although this may appear extreme and even irrational (if the brain is that of a rapacious predatory animal, why should anyone trust its system of justice?), such ideas are in fact being considered (p. 65, citing Zeki & Goodenough, 2006.)

A third concern, characterized by Tallis as sinister, is what may follow from the notion that there is more of the animal in some people than in others. Tallis here cites views from which it would follow that we should treat mentally handicapped human beings as we would animals (p. 68). Tallis does not go so far here as to suggest whether the determination of who, or of what group or population, is handicapped, should be placed in the hands of NMs and DTs, but it is a reasonable question to ask.[4]

One might think such views are of little consequence because they are supported only within relatively small areas of scientific study and academic commentary. Not so: Tallis notes that the idea of neuroscience having dominion over territory that once belonged to the human sciences is fostered not only incessantly in the popular press but in the burgeoning growth of disciplines such as neuro- or evolutionary- jurisprudence, economics, aesthetics, theology, architecture, archaeology, and ethics (p. 58).

Of particular interest to this reader is Tallis's commentary on the incursion of NM/DT assumptions in aesthetics. It would seem reasonable to hold that the existence of the arts testifies most strongly against the notion that human beings are computers driven by neuro-biological programming. What has a machine after all to do with ballet, opera, string quartets, or the Night Café? But Tallis reports a different view.

> The aficionados of neuroaesthetics explain the impact of different kinds of art by referring to what is seen on fMRI scans. . . . The creation of art itself is a neurally mediated activity by which the artist, unknown to himself, behaves in such a way as to promote the replication of his genetic material. (p. 58)

If Vincent van Gogh had understood this explanation of his artistic endeavors, one could readily understand why he sliced off his ear: His entire life's work had no more value than the satisfaction of lusts in copulating animals. (But since he had no knowledge of neuroaesthetics, there must have been something else wrong with his brain.)

A key term here is value. In the purposeless world of material science (and of eliminative materialism), there can be no values, since value rests on beliefs, purposes, goals, satisfactions, and disappointments. Divesting the world of intentionality is divesting it of meaning, and the psychological condition of living in a meaningless world is Nihilism (p. 66). Over a hundred years ago, Nietzsche came to the following conclusion upon considering the rise of science, the desire for supernaturally sanctioned truth, and the relation between value and purpose:

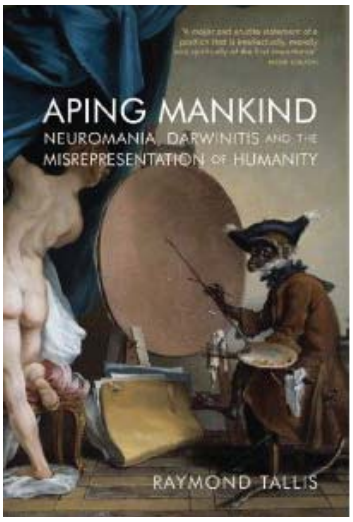
> What I am now going to relate is the history of the next two centuries. I shall describe what will happen, what must necessarily happen: the triumph of Nihilism. . . . What does Nihilism mean? That the highest values are losing their value. There is no bourne. There is no answer to the question: To what purpose? . . . Thorough Nihilism is the conviction that life is absurd. (Nietzsche, 1910, Preface and p. 8)

Seen from the perspective provided by Tallis, one may wonder whether this prediction is well on its way toward fulfillment. Surely it is cavalier, with the presumed authority of science, to divest the world of meaning by intentionally denying the existence of intentionality. But whether the dire result feared by Tallis is avoidable or inevitable would seem to depend on the question of whether the identification of humanity with animality and of the mind with a computer–brain is founded on truth or scientistic confusion.[5]

The Two Towers of Scientism

Of course Tallis is speaking not of Neuroscience or Evolutionary Biology in general, but only of the allied edifices of NM and DT. Tallis devotes Chapters 3 and 4 to a scathing critique of each in turn. There are four primary lines of argument which he raises against NM: argument from methodology and technology, from causality, from the phenomenological description of consciousness, and from logic.

Regarding the first, Tallis describes limitations of fMRI brain scans (p. 74), oversimplified experimental designs (pp. 74–77), evidence for non-modular distribution of brain activity such as memory (p. 80), and other technical and procedural limitations. However, since it can always be argued that such limitations may, with better technology, be overcome, Tallis must take into account other dimensions of the problem.



The first of these is the attribution of the causes of conscious states to specific areas of the brain. Giving a causal status to putative functional modules in the brain raises an acute problem of conceptual confusion among three quite different relations: correlation, causation, and identity. Mere correlation of a particular area of brain activity with some specific mental activity cannot serve as proof that a specific locus of brain activity is the sole cause, or even identical with, the associated mental activity (p. 83). Against the assumption of discrete modules, Tallis points out that when a particular area of the brain becomes active in the presence of some stimulus, much more of the brain is already active (p. 75). Tallis shares this point with other critics who hold that the brain is a necessary but not sufficient condition for consciousness, and that one cannot separate the brain from the nervous system as a whole (e.g., Rockwell 2007, Chemero 2009).

What Tallis adds, however, is a depth of detail and a broadened perspective not usually encountered in similar critiques. Tallis opens up the greater sphere of experience that he posits is systematically neglected in the discussion: the human world. "Even those who locate the roots of consciousness in the brain should still recognize that brains together create a space that cannot be stuffed back into the brain" (p. 235). For example, speaking of studies claiming to have found the location of unconditional love in the brain by recording brain activity while the experimental subjects look at photographs of those with whom they are deeply in love, he says "anyone who is not a Martian" knows that

> Love is not like a response to a simple stimulus such as a picture. It is not even a single enduring state, like being cold. It encompasses many things, including: not feeling in love at that moment; hunger; indifference; delight, wanting to be kind; wanting to impress; worrying over the logistics of meetings; lust; awe; surprise; joy; guilt; anger; jealousy; imagining conversations or events; speculating what the loved one is doing when one is not there; and so on. . . . The more you think about the idea that human life can be parcelled out into discrete functions that are allocated to their own bits of the brain, the more absurd it seems. (pp. 75–80)

In many ways, Tallis's book is an extended, impassioned evocation of this greater world. This is his third argument, that from the phenomenological description of human experience, the explanation of which he says is not even

remotely approached by NMs or DTs. By limiting the concept of experience to an artificially narrow range, simplistic experimental designs and broadly brushed conclusions are made to seem reasonable. Tallis, we might say, is inviting NMs and DTs, like the denizens of Plato's Cave, to come out into the vastly wider realm of truth, fact, belief, error, beauty, love, community, and, in short, intentionality; putting into proper perspective the endeavors and findings of science as these may enrich, rather than impoverish, that world (p. 91 passim).[6]

Logic and Language: A Failed Attempt at Conceptual Judo

Here however we are brought to the fourth of the criticisms mentioned above: logic. The claim that intentionality is an illusion, and that such things as beliefs do not exist, appears to plunge NMs into a morass of self-contradiction: They believe that their beliefs do not exist; that they themselves do not exist. But as Tallis puts it, it is not possible to deny viewpoint (pp. 112, 336–338). Against this, neuroscientists have argued that such seeming contradictions emerge only because we (temporarily) must use the defective language of folk psychology; but just as soon as the neuroscientists provide a linguistic framework reflecting the true reality, such contradictions will simply go away (cf. Churchland, 1986).

This defense is like a move in martial arts: Use your opponent's strength against him. But that move can easily be reversed. The language the NM calls for in fact already exists. It is the language of the physical sciences. Only the purely physical description of the universe is real, and whatever does not fit that framework is an illusion.[7] And that is an example of what philosopher John Dewey long ago termed *the* philosophical fallacy: taking objects of selective preference and converting them into antecedent existence, i.e. into the fundament of reality (Dewey, 1958:25–30). The NM is not asserting a scientific truth but is instead promulgating a metaphysical doctrine.

Although Tallis never cites Dewey (he is not even listed in the 16 small-type pages of references), Tallis's argument from the quality of human experience is strongly reminiscent of Dewey's views. Advocating substitution of the language of the Physical Sciences for the language of intentionality creates a schism between the specialized sciences, with their plethora of abstract theoretical entities, and the world of experience and common sense out of which those sciences grew and to which they are irretrievably related. The allegedly stable, certain, and unchanging law-like character of the physical sciences, in contrast to the unwieldy face of the experienced world, promotes the refined objects of science to a level of selective preference as the pure reality. Then

> The stable ideal meanings which are the fruit of nature are forbidden . . . from dropping seeds in nature to its further fructification. (Dewey, 1958:58)

As I read him, this is the central point of Tallis's deeply felt concern: Instead of running away from the world of common sense and calling it pejorative names such as folk psychology, science should always, no matter how abstract its theory becomes, return to that world and give back with interest what it has taken. The startling degree to which the neuro- and evolutionary-pseudosciences manage to impoverish the world is starkly highlighted in a summary Tallis gives in Chapter 9 (p. 337).

Misplaced Anti-Animality

Tallis to this point has presented a richly detailed and convincingly argued position, and he does this in a highly readable style. But now we come to a less satisfactory discussion. Tallis still must put Evolutionary Biology in its place. Here he commits a large-scale blunder. In order to reject the idea that all human behavior is explained by reference to animal instinct driven exclusively by the mechanism of natural selection, he finds himself having to advocate a yawning gulf between animal life and human experience. The form his argument takes is to mount a wholesale denigration of animal existence. Human behavior is *fundamentally* different (p. 233). He comes close to concatenating animals with insentient matter (p. 232). Animal vision is "programmed response" while that of humans is "the gaze which looks out and sees" (p. 171). Animal life, in contrast to the human shared world, is rather a world of "bumped-into objects and forces," seeming to suggest that animals are little different from billiard balls. Animal emotions are exhausted by the "rapid heart rate and increased respiratory rate of a beast being prepared for fighting, fleeing, feeding, or copulating" (p. 233). It is, he says, bad biology to assimilate animal emotions to human feelings. He does not appear to realize that it is also bad biology to assimilate animal behavior to that of billiard balls.

Animals as he sees them also do not live in any dimension of time. While human experience has temporal depth (p. 250), the behavior of animals such as crows caching food for future use does not indicate any sense of future need but is rather a mechanical hard-wired activity with no relation to a felt need or the existence of a future (p. 134). In such a view, an animal chasing a prey, for example, is not pursuing a goal within a temporal dimension, but is merely reacting mechanically from one instant to the next, with all the composite instances being separate billiard-ball reactions to separate stimuli. There is no telic quality (possibly rudimentary intentionality) to animal behavior, this despite the testimony of biologists such as Edmund Sinnott, who speaks of the "persistent directiveness or goal-seeking that is the essential feature of behavior and thus finally the basis of all mental activity" (Sinnott, 1955:52).

Sinnott is not a DT. He does not reduce human behavior to that of animals. But he posits a continuity in the development of consciousness from animal to

human life. Such continuity works both ways: There is something of the animal in the human, but there is also something of the human in the animal. Tallis is exaggeratedly wary of admitting continuity as it might apply to consciousness because he mistakenly feels that to admit any incremental or significant developmental flow from animal to human is to give in to the DTs. We shall see however that although Tallis repeatedly gives the (sometimes excessively brutal) impression that nonhuman animals have nothing like a conscious existence, he cannot hold firmly to this position, and it causes him trouble when he arrives at his concluding attempts at a remedial theory.

The Wrap-Up: A Stimulating Theory That Stumbles

His first step is to highlight the difficulty which his own argument has created: the acute difference between the human world and its biological and material predecessors. He has concluded that natural selection is a "mindless, pointless process" that has no goal and is thereby in stark contrast to the human world. He believes this, he says, because he is an atheist humanist. In other words, in his view, to believe that evolution has a goal is to believe in a supernatural designing deity (p. 209). It is here that Tallis's penetration begins to weaken. For one thing, the possibility that there might be some degree of directionality, i.e. a telic property within the sweep of evolution but not necessitating a designing deity, does not seem to occur to him (or perhaps he does not think it worthy of consideration). He does not distinguish between the having of goals and the having of one overall *Goal* (my capitalization). Evolution has no *Goal* but humans are able to consciously aim at stated goals, which, he concludes, means that "humans are not a part of nature or not entirely so" (p. 210).

The rather peculiar syllogistic reasoning appears to be this: Evolution is part of nature; evolution has no *Goal*; humans have goals; therefore humans are not part of nature (or not entirely so). The caveat "not entirely so" renders this less fallacious; but in any case the difference between *Goal* and goal is overlooked. The argument might be recovered by the following: Animals have no goals (*sans* capitalization); humans have goals; therefore humans are not animals (or not entirely so?). In order to make this work, however, he must deny that a hawk in search of prey, a titmouse building a nest, or a beaver chewing a branch off a tree for use in constructing a dam, have goals; or if we must say they have goals, we must distinguish between animal goals and human goals. Human goals are conscious, anticipated, explicit. Animal "goals" are so only by misplaced analogy. The animal is without consciousness. It has no existence in time, no past or future, no anticipation. For the animal, nothing is or can be "explicit."

This appears to me to be what Tallis wishes to say when he is attacking Darwinitics. But now a different story arises. If, as he has argued, humans are not a part of nature or not entirely so, the absolutely necessary requirement for

a coherent view is to answer, without appealing to supernatural intervention or alien devices hidden in monoliths, the question: How did humans get to be so different? (p. 210). This Tallis attempts, although tentatively, to answer.

Let us review once again the immensity of the difference as understood by Tallis. It is not the difference between, for example, ordinary chimpanzees and exceptionally gifted chimpanzees (p. 212). It is not a minute incremental step on a ladder of progress responding to some teleological impulse inherent in the processes of life. It is not simply the advent of a larger frontal cortex (p. 213). No. It is a shock, a jolt, the advent of something stunning. And that something, Tallis has it, is the human hand with its opposable thumb, its ability to be used for grasping and pointing, and in particular its placement upon an upright bipedal body that allows it to be seen at a distance from the head but at the same time to be felt as a part of the whole: "The thumb . . . taken in conjunction with the upright position, transformed the primate hand into a proto-tool" (p. 213).

Yet the question remains: What has a better paw got to do with bridging his carefully, painstakingly constructed, immense gulf between unconscious animal life and the world of consciousness inhabited by humans? Tallis engages in an elaborate account of what he considers the reasons that "something so small as the hand . . . should have had such momentous, indeed massive, consequences." It is a clever, stimulating, and interesting demonstration of the functional relationship between the hand, upright posture, the opposable thumb, the extending of the arm, and the visibility to the eye of the hand's actions. And it has a convincing ring to it. But none of it answers the fundamental question as to how something totally unconscious and without any sense of self or existence in time, can come to experience temporal depth, become conscious, and become conscious of itself *as* a self. It is here, at the crucial moment, where Tallis's scenario collapses.

> The hand . . . made the human animal, our hominid ancestor, uniquely aware of its own actively engaged body. This awoke the dim intuition that I *am* this body. (p. 212)

So the key, the turning point, is the "awakening" of a *dim intuition*. But how can an intuitionless being have an intuition? "Intuition" belongs to the language of mind; an intuition can occur only to a self—even if it is "dim" and is occurring to a limited kind of self. Otherwise "dim intuition" is just a couple of words explaining nothing. And calling this intuition *dim* admits of degrees. Something was there, some kind of self-consciousness, as a necessary condition for the having of any intuition whatsoever. And if we grant the possibility of a "dim intuition" there is no way to avoid the possibility of a *dim* anticipation or a *dim* sense of having a goal: a dim, but nevertheless extant, temporal depth.

What he has stumbled upon, driven by the force of his own reasoning, is a theoretical position similar to that of thinkers such as Pierre Teilhard (de Chardin), another profoundly relevant and much-neglected philosopher who is also not within the sphere of Tallis's references.

> Properly observed, even if only in one spot, a phenomenon necessarily has an omnipresent value and roots *by reason of the fundamental unity of the world*. . . . Consciousness is completely evident only in man we are tempted to say, therefore it is an isolated instance of no interest to science. . . . Consciousness is evident in man, we must continue, correcting ourselves, therefore, half-seen in this one flash of light, it . . . is surrounded by an aura of indefinite spatial and temporal extension. In the world, nothing could ever burst forth as final across the different thresholds successively traversed by evolution . . . which has not already existed in an obscure and primordial way. (Teilhard 1961, my italics)

My point here is not to argue for the validity of Teilhard's view, which is nonetheless vastly more accommodating than Tallis's attempt to slip consciousness in where he has previously fought to deny it. The point is that Tallis cannot get out of his dilemma without admitting a prior development of degrees of consciousness within the evolutionary process, thereby arriving at a position close to that of Teilhard.

The real contrast, then, seems to me to be between the closed world empty of consciousness and deprived of selfhood as envisioned by the NMs and DTs sitting huddled with the others in Plato's cave, or an open world of continuity within which human consciousness is a part of nature simply because in one degree or another, the spawning of consciousness is an entirely natural phenomenon and extends somehow to the roots of matter.[8] If the latter is one's choice, and if that choice means a revolution in our understanding of matter and of a healthier relation between science and humanity, so be it. It should be a conclusion with which, however reluctantly, Tallis must agree.

Notes

[1] Intentionality refers essentially to the sphere of meaning, as evidenced in what are called propositional attitudes such as hopes, desires, fears, and, more broadly, beliefs, which are directed at objects . . . or clusters of possibilities that are felt to be other than the subject (p. 101).

[2] These capitalized abbreviations are my own. Since the terms in full have a rhetorical purpose but nevertheless do refer to specific theoretical attitudes, the more or less neutral abbreviations are preferable.

[3] For a description and criticism of these views, see Will Wilkenson, *Churchland Debunked, Commonsense Psychology Vindicated*. http://enlightenment.supersaturated.com/essays/text/willwilkinson/churchlanddebunked.html

[4] Tallis gives a more incisive discussion of this concern in his small volume *Why the*

Mind Is Not a Computer, pointing out how scientistic ideas contributed to oppression of the Jews in Germany and the Kulaks in Soviet Russia (Tallis, 2004:26).

[5] Scientism is "the mistaken belief that the natural sciences . . . can or will give a complete description and explanation of everything" (p. 13).

[6] Tallis' view of a *World* here is reminiscent of John Dewey's concept of "Experience" as a fundamental category of being and the obligation of science to enrich, rather than diminish, it. Dewey's philosophical work has emerged from undeserved obscurity recently as a major influence in critiques of the mind–brain identity theory (Noë, 2009, Chemero, 2009, Rockwell, 2007).

[7] An example of this fallacy outside the realm of neuroscience: "From a quantum world view, we and the things around us are mostly empty space. The way we experience ourselves . . . is really just a 'figment of our imaginations shaped by our senses.'" This from ASU Regents' Professor David Ferry reported at http://www.physorg.com/news197266420.html, July 2, 2010.

[8] Considering matter as an expression of energy, Teilhard proposed a revision of the concept of energy. This involved his hypothesis of the existence of a radial energy, which is the energy leading to organization, specifically the functional organization of matter around a center which he called the within of things (Teilhard, 1961:63ff.). The question of the relation of this concept to standard physics has been discussed at length in O'Manique (1969).

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Consciousness Explained Better: Towards an Integral Understanding of the Multifaceted Nature of Consciousness by Allan Combs. Paragon House, 2009. 196 pp. $19.95 (paperback). ISBN 9781557788832.

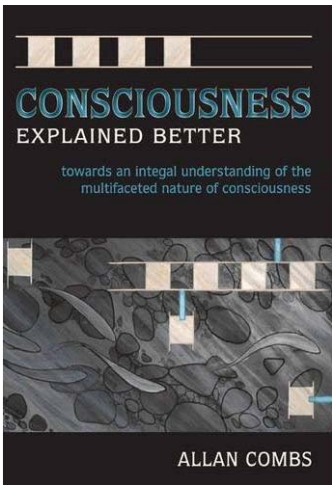
In this accessible book, Allan Combs takes on the daunting task of addressing the subject matter of consciousness. The title, *Consciousness Explained Better*, alludes to the title of Daniel Dennett's book *Consciousness Explained*, in which Dennett gives a reductionist account of consciousness. But the title of Combs's book is misleading in that his book consists of a *description* of the structures of experience and not an *explanation* of consciousness, nor of experience or its structures. However, for those who are unfamiliar with a developmental approach to the structures of experience, this book is a good introduction.

Combs starts by taking the reader back to William James's "world of pure experience," conceptually prior to the splitting of experience into subjective and objective distinctions. His main thesis is that the actual events that occur for us depend upon the structures through which our experience is lived. These structures form a developmental sequence from Jean Piaget's sensorimotor period through his formal operational thinking and then, linking with Ken Wilber's cosmology, to various levels of transpersonal mentation culminating in "nondual awareness" (p. 84), which Combs characterizes as the "*Ever-present ordinary mind; the direct experience of the nondual ground*" (p. 100). For Combs, these stages not only take place within the individual development of people, but can also be seen as giving rise to historical time periods in which they were first expressed. For this, Combs brings in the work of Jean Gebser and provides examples from science and art to illustrate that contention. With reference to the writing of Sri Aurobindo, Combs pays particular attention to the first developmental stage after formal operational thinking, that of "Integral or Vision Logic" (p. 100), where "multiple perspectives" (p. 144) can be held simultaneously. Combs wants this to be more than just "a laundry list of characteristics" and considers the relationship of integral consciousness to "enlightenment" (p. 144).

The main strength of this book, to my mind, is the adoption of such a broad approach to its subject matter that it forces us to reconsider the usual framework within which consciousness is discussed. In particular, according to Combs,

> the distinction we commonly make between our "inner" perspective of thoughts . . . and our "outer" perspective of the external world . . . has not always been with us. (p. 111)

Combs identifies the cleaving of experience into subjective and objective aspects with the cogitations of René Decartes. But such splitting might not



actually tell us anything about the nature of experience, just about the way it manifests for us. I think it is clear that we usually tend to choose some variation on these two aspects for taking an ontological stand, so that we end up with mental monism, materialism, or some form of dualism. In particular, we sometimes try to explain away mental events using neuroscience. Initially, Combs refrains from taking any metaphysical step. He goes on to make distinctions, including distinctions between the inner and the outer, but these are simply reflections of the heuristics humanity has used for parsing experience. It is not until the second half of the book, when he has laid out a multiplicity of ways that experience can be structured, that he revisits metaphysical questions by asking whether

> we create these realms of experience . . . through our own modes of thinking [or whether they are] already part of the Kosmos waiting for us to refine our mental instrument sufficiently to detect and experience them. (p. 91)

Combs leans toward a "perennialist view," and, in the end, asserts that there are "universal dimensions of consciousness that mark us as human beings" (p. 144).

Although Combs's account is largely descriptive, I think that he has discerned the crux of the solution to the problem with consciousness when he elucidates the nature of experience before its evolutionary split into subjective and objective aspects and after its recombination into the nondual state of being for those for whom such transcendent events have occurred. In doing so, Combs's work can reset the course of consciousness studies onto a more productive track. And I would very much like to see him, along with other researchers, develop these ideas in such a way as to explicate the nature of experience and the reasons for its manifestations.

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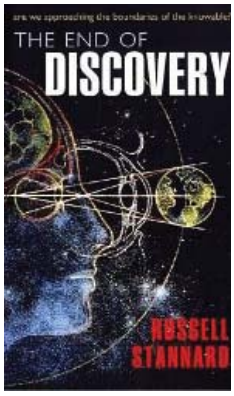
The End of Discovery: Are We Approaching the Boundaries of the Knowable? by Russell Stannard. Oxford/New York: Oxford University Press, 2010. 228 pp. $24.95. ISBN 978-0199585243.

In 1872 the physiologist Emil du Bois-Reymond surveyed "The Limits of Science" in a keynote address to an annual meeting of his colleagues. Eight years later he returned to the subject in a lecture to the Prussian Academy of Sciences that discussed "Seven Shortcomings" in our understanding of the world. Reprints of both speeches did well: "The Limits of Science" went through eleven editions in German, not counting sales in English, French, Italian, Romanian, Serbian, and Russian. As du Bois-Reymond admitted, he was far from the first to delimit the boundaries of knowledge: Philosophers from Locke to Kant had referred to unanswerable questions, and scientists such as John Tyndall and Thomas Henry Huxley had indicated the failures in their mechanical models of nature. But du Bois-Reymond had a knack for rhetoric, and his audience had expected him to defend the efficacy of reason in overcoming ignorance and superstition. Contemporaries reported that his speech hit them "like the unexpected explosion of a mine," coming as it did from "the center of the center of science," his chair at the University of Berlin, the leading university in the world at the time.



Since then authorities on science have imitated du Bois-Reymond's example. Some, such as John Horgan or John Barrow, have developed the argument of his first lecture, pointing to the essence of matter, the nature of consciousness, and other riddles impervious to the investigations of cosmology and neuroscience. Others, like Roger Penrose and Stephen Hawking, have taken up the theme of his second lecture in reviewing the outstanding problems of their field. Russell Stannard belongs to this second category of scientific popularizers. After a nod to the philosophy of mind, he devotes eleven chapters to the current state of astronomy and physics. His book has the merit of clear exposition and easy style. In terms of originality, however, it is no match for the theses of Penrose and Hawking, and in terms of insight, it pales beside the analyses of Horgan and Barrow. Anyone with any abiding interest in whether science has limits would do better to look at the work of Stannard's peers, if not his predecessors.

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The Kensington Runestone: Approaching a Research Question Holistically by Alice Beck Kehoe. Long Grove, IL: Waveland Press, 2005. 102 pp. (figures, bibliography, index). $14.50 (paperback). ISBN 9781577663713.

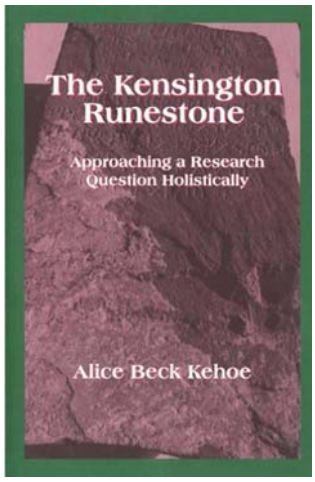
Veteran anthropologist Alice Kehoe has written a small volume using the Kensington Runestone controversy as a cautionary case study illustrating the need for a multidisciplinary approach in assessing antiquities, their contexts, and their implications. In the process, she reveals her own positive conclusions regarding one particular object, which inadequately informed professionals have routinely relegated to the official dustbin for infamous fakes and hoaxes.

The Kensington stone is a yard-long, shaped slab of greywacke on whose surface appears an incised inscription in Scandinavian runic characters and language. The inscription includes a declared carving date of 1362. In her first chapter, Kehoe discusses the initial reports of the finding of the stone, clasped in the roots of a modest-sized aspen tree that was being winched out of the ground on the farm of one Olof Ohman, near Kensington, Minnesota, in 1898. The stone and copies of its text came to be circulated to regional universities as well as in Scandinavia, with inconclusive results. In 1907, avocational historian Hjalmar Holand examined the object, became convinced of its authenticity, and promoted its study, involving, among others, the Minnesota Historical Society.

The Historical Society submitted the text to Scandinavian linguists, all of whom pronounced the inscription to be a modern fake. This conclusion was based partly on the perceived improbability of fourteenth-century Scandinavians being in Minnesota, partly on the flimsily based suspicion that Ohman had faked the stone to promote Swedish pride, and partly on the linguistic and paleographic bases of words, runes, and usages seeming to be anachronistic, without attestation in other fourteenth-century documents.

In 1909, Minnesota's most eminent geologist examined the stone, noted significant patination in the runic incisions, and declared that in his opinion the object was genuinely old. However, in view of the linguistic objections, the Historical Society declined to conclude for or against authenticity.

Over the decades, the debate went on. Various Scandinavian-language specialists—notably UCLA's Erik Wahlgren in 1958—studied the text and the runes rather cursorily and affirmed fakery, and this conclusion became mainline belief. A pro-Runestone book by Romance-languages philologist Robert A. Hall, Jr., published in 1982, was rather technical, and it impressed some linguists but few, if, any, professional archaeologists or historians. The same may be said for the work of American avocational runologist Richard Nielsen, who speaks Danish as well as English. He has demonstrated that essentially all of the



perceived anachronisms and other anomalies in the stone's text are now attested by examples from fourteenth-century Scandinavia—most recognized by scholars only after the discovery of the runestone—and that the language could be specifically assigned to the spoken Bohuslän dialect; a nineteenth-century forger could not have known of forms not yet attested.

In 2000, a Minnesota professional petrographer, Scott Wolter, began an examination of the Kensington stone, and in 2004 issued his report. There were, indeed, root marks on the back that corresponded to Ohman's and others' declarations and drawings. Those runes that had not been subsequently retouched had the same patination as the worked side of the stone, including minute pits where pyrite had weathered away over time. Comparing the degree of weathering of the pyrite in the characters on a runestone known to have been faked in 1985 and which had remained fully exposed to the elements, Wolter concluded that the Kensington stone must have been buried in the ground long before Ohman came on the scene. This view was reinforced by examination of three tombstones in Maine dating from 1805–1815, which showed less weathering than did the Kensington object.

Kehoe notes that although tuberculosis, a disease of Old World origin, is recognized as also having existed here and there in the Americas since quite early times, an epidemic appears to have occurred in the Midwest around A.D. 1000—centuries earlier than the stated date of the Kensington stone but compatible with a Greenlander Norse introduction in or near Newfoundland, with Indians spreading it inland via trade routes (pp. 54–55). She doubts, however, that the Mandan of the Great Plains carried pre-trader Norse or Welsh genes as some have proposed on the basis of historic accounts of some Mandans' manifesting light skin and reddish-to-blond hair (pp. 55–58).

The author makes the point that within Europe, for centuries medieval Scandinavians traveled the rivers as traders, into Russia and to as far from Norden as Turkey. She asks, if this is so why couldn't Norsemen have managed to do likewise once they reached North America, which they are known to have done (in Newfoundland, where the Norse l'Anse aux Meadows site of around A.D. 1000 was discovered in 1960). In fact, might not North America have attracted peripatetic Scandinavians after the Hanse cut off their fur-trade access to Russia around A.D. 1360 (pp. 67–68)?

Concludes Kehoe, the question of the authenticity of the stone is less

important as testimony of a particular historical event than it is in terms of its possible implications for larger questions such as the late-fourteenth-century changes visible in Midwestern archaeology and the fifteenth-century expansion of European voyages of exploration. There is, especially among Americans, psychological resistance to the idea of overseas-originating activity in America before 1492, owing to the myth that America remained in edenic isolation until Columbus discovered that "new world," a discovery that sparked a migrationary response that rapidly led to European settlement and development of this newfound paradise, a paradise that would already have been conquered and populated by Europeans had people of the Old World possessed access to it previously. Thus, "It is a real paradigm shift to believe that the Americas have never been isolated" (p. 83).

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Born on a Blue Day by Daniel Tammet. London: Holder & Stoughton, 2007. 284 pp. £6.99. ISBN 9780340899755.

Embracing the Wide Sky by Daniel Tammet. London: Holder & Stoughton, 2007. 392 pp. £7.99. ISBN 9780340961339.

Readers will be familiar with Asperger's syndrome and autism spectrum disorders due to the success of the film *Rain Man* giving a picture of a so-called autistic savant based mostly on the real life of Kim Peek. It should be emphasized that only about 10 percent of autistic individuals show marked savant talents. Daniel Tammet, the author of the reviewed books, eventually gained a diagnosis of Asperger's syndrome, which is the part of the autism spectrum disorders characterized by usually high functioning individuals with poor motor ability. Daniel Tammet became something of a celebrity when he appeared in a BBC documentary and on the CBS News program *60 Minutes* because of his extraordinary mathematical and linguistic abilities.

Daniel is quite extraordinary and unique. He is not only highly intelligent (with an estimated IQ of 150) but also socially gifted. What is almost unique among savants is Tammet's ability to introspect and share whatever important information he can glean about the nature of his abilities. Allan Snyder, a leading researcher in this area, writes:

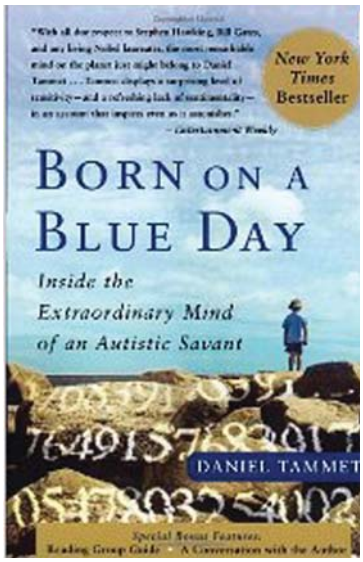
> Savants cannot normally give insight into how they perform their skill and are uncontaminated by learned algorithms. It just comes to them. They just see it. With maturity, the occasionally offered insights are suspect, possibly contaminated by the acquisition of concepts concerning their particular skill. Yet, I have labelled one savant, Daniel Tammet, a Rosetta stone. (Snyder, 2011:3400)

The Introduction to *Born on Blue Day* is written appropriately by Darold Treffert, probably the world's leading authority on Savant syndrome and the advisor for *Rain Ma*n. He has described Daniel Tammet as "articulate, soft-spoken, pleasant, gentle, and modest." I would also add benevolent and caring. Given that Introduction, Daniel can indeed ask "How could I—an otherwise healthy young man with a partner, job, and friends—be considered a 'rain man'?" Simplistic psychiatric diagnoses are at best describing a final common pathway and at worst a means of hiding ignorance and which can become a dangerous means of creating negative expectancies.

Undoubtedly, Daniel did fulfill many of the diagnostic criteria for Asperger's syndrome, and therefore it becomes enlightening and inspiring to follow his biography in this book describing his road toward becoming a socially skilled individual and his achievement in turning his predispositions into positive effects rather than being handicapped by them. Nevertheless, it should be emphasized that Daniel's biological potential may have made him more amenable to the influence of psychological and family factors than would be the case for children with a lower potential. All this is detailed in his first book: *Born on a Blue Day*, which I recommend reading before continuing with the subsequent followup, *Embracing the Sky*.

The latter book is an insightful review of the functioning of Daniel's abilities against the background of what is known as the psychology of cognition and intelligence, and it asks what might savants teach us all about our own minds. But first the book tries to answer the question which we all might want to ask about savants: How do they do it?

What is first evident from Daniel's childhood as related in *Born on a Blue Day*, is that he is not just a case of misdiagnosis or that he merely suffered from a very mild form of Asperger's syndrome. His difficulties appear to have been rather pervasive and typical of Asperger's, including as they did, not only perceptual–motor obsessions, asocial behavior, difficulties in spatial relationships, but also temporal lobe epilepsy. Much of this is a success story, and if we give credit to his story, and I think we should, the above difficulties were ameliorated by the warmth, guidance, and unconditional love of his parents. The parents wanted to avoid the stigma of diagnosis and its self-fulfilling prophecies. His epilepsy clearly did require medication, but this was phased out as soon as possible. Apparently Daniel's seizures originated in the



left hemispheres which fits the known finding of damage to the left hemisphere being a common occurrence in savants. One theory is that since the mathematical and language skills of savants are often associated with the right hemisphere (rather than the left as in normal individuals), then a transfer of function from the left to the right hemisphere may have involved some form of overcompensation (Treffert, 2000).

Rather than as we might expect, excelling as a child in literacy skills, Daniel records how he was actually late in acquiring reading and writing proficiency. His synesthetic ability seems to have first come into being primarily as a basis for his numeracy but later it may also have facilitated his imagery associations concerning words. Eventually this capacity and his own particular drive and interest in words gave fruit so that his language skills became his forte. The access to fantasy meant that in leading a solitary childhood, numbers and letters became his substitute friends. Although some authorities might dispute the generality of this, Daniel writes of this isolation (p. 98): "People with Asperger's syndrome do want to make friends but find it difficult to do so." During his childhood, Daniel was a loner often teased by his peers, and like many such individuals he developed an imaginary playmate. In Daniel's case, the playmate seems to have gained a greater degree of independence and served to give him support and reassurance. Being the first in a line of what were eventually nine children—with parents who were neither rich nor Catholic but simply liked children—actually in Daniel's case became an advantage since his siblings provided him with models and opportunities for finally developing his own social skills. Nevertheless, his parents seem to have treated his peculiar obsessions with the optimal combination of both tolerance and the gentle setting of limits. One obsession even reached a physical limit when his fixation on collecting piles of horse chestnuts finally threatened to cave in the floor of the house and damage the ceiling of those living below.

Born on a Blue Day gives a very insightful account of the demands on childhood development which most of us easily overcome but which for many children with Asperger's become persistent and dire problems—such as learning to ride a bicycle, understanding the importance of personal space, distinguishing left from right, developing a sense of direction, understanding metaphors, and

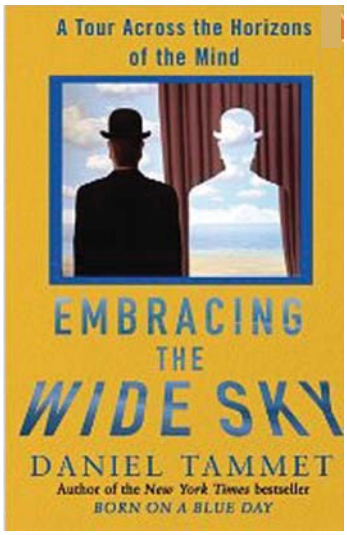
following complex instructions. Yet with the crucial help of friends, Daniel was even able to master what even ordinary people can find daunting: traveling on the London underground. Also vital seems to have been the support of parents and others in enabling him to spend a year doing voluntary service in Lithuania. This experience was evidently crucial to the building of his self-confidence and to the furthering of his fascination for languages. Shortly afterward, the advent of computers and the Internet enabled his world of social relationship to be greatly extended and eventually led to a lasting love relationship. The final confirmation of the consistent parental support given to Daniel, came with his parents' acceptance of his declaration of being gay (which he had realized from the age of eleven).

The book gives some insight into the feat which first brought Daniel to the attention of the mass media: his success at winning the British and European record for reciting pi. Daniel recited 22,514 digits in the course of more than five hours. This was not as spontaneous as might appear from the videorecording but required three months of practice. What is most distinctive in his various numerical performances is the recall of digits in the form of touchable landscapes. It is this aspect of synesthetic experience which is the truly remarkable. The synesthetic ability is augmented by his extraordinary memory span which has been established at 10–12 digits (compared to the normal range of 5–7 digits).

The attention given to his success at winning this record led to the BBC film, a documentary that included a journey to meet the real "rain man," the recently deceased Kim Peek. As part of the program, Daniel was willing to take part in research to which he clearly has a positive attitude. While not all researchers might prove worthy of this confidence, BBC's choice of Vilayanur Ramachandran and his assistants at the Center for Brain and Cognition proved to be an appropriate one. It was with interest concerning the fruits of this cooperation that I turned to the sequel book.

The title of this, *Embracing the Wide Sky*, is inspired from an Emily Dickinson poem and serves to emphasize one of Daniel's personal insights in life. Despite his intellectual prowess, he is able to reach a state of consciousness transcending this, and this transcendence means for him that he has a Christian religious belief. The book begins as a primer of contemporary findings in cognitive and neuropsychology before focusing on what Daniel Tammet has learned from his own experience and from his now considerable knowledge of the neuroscience literature.

One of the ready explanations for savant ability is what he calls "the drudge theory," by which he means that the spectacular performances are due to repetitious and even obsessional hard work in the use of rote memory. Clearly in most cases hard work is a prerequisite. Daniel Tammet succeeded



at speaking Icelandic after less than a week's effort but it was a week of intensive learning. Obviously this explanation is not enough. What is revealing is how Daniel makes use of his extraordinary gifts of seeing connections between words in different languages and between sounds and words. The account of Daniel's meeting with Kim Peeks reinforces this conclusion. He writes: "Kim remembers his vast repository of factual information by weaving the facts he learns together with a mental network of many thousands of different associations and interconnections" (p. 79). Daniel thereby agrees with what most psychologists conclude: that photographic memory is also a myth as an explanation and savants learn mainly what they have a biological predilection for and what they have the motivation to develop. In the case of Daniel, a study of him by Simon Baron-Cohen of the Cambridge Autism Research Center suggested the ability concerning numbers and his fascination with them might be due to the area for facial recognition having been taken over by digit recognition.

But there is much more to Daniel Tammet's abilities. The truly defining feature giving insight into his ability may be Daniel's synesthesia. In chapter 5, The Number Instinct, Daniel describes how synesthesia enables him to see numbers as meaningful relationships with recognizable visual and tactile shapes. But this is still no worthy explanation since why do we not all do this? His own theory, and it is one supported by Snyder and Ramachandran, concerns *disinhibition*. Disinhibition is the principle in neurophysiology that the functioning of the more primitive areas are held in check by areas expressing the higher cortical functions. When the latter areas are disinhibited, automatisms beyond normal consciousness awareness come in to play. Well-known examples of this are alien hand syndrome, but somnambulism and partial complex epilepsy, and even the mediumistic automatisms, may also be due to forms of disinhibition.

In the case of his numerical ability, Daniel notes that normally it is the left temporal lobe which inhibits the expression of synesthesia located as it usually is in the right temporal lobe. In his own case, the left hemisphere may have been damaged and this damage led to the disinhibition or activation of the right temporal lobe. That Kim Peek lacked a corpus callosum to coordinate hemispherical functions, he sees as consistent with this hypothesis. The

hypothesis is developed even further by maintaining that this disinhibition can occur even in schizophrenia and is a source of creativity in savants. Whereas certainly argument can be made for a link between psychotic states and creativity, it is nevertheless disputed whether most high-functioning Asperger savants are more creative than other individuals (Treffert, 2000:300–301).

Regrettably, in the final analysis, not even Daniel Tammet can give much deeper insight into the nature of his own calculating abilities. A rather similar limit is reached with the insight given into his language abilities (Chapter 4, A World of Words). He shares with the reader his many tips and suggestions for the learning of foreign languages, and it obvious that he is fascinated by words and enjoys playing with them. However, even applying these tips, it is still clearly beyond the ability of nearly every non-Scandinavian to learn Icelandic in a week in order to give a television interview in the language.

Because of this lack of insight, research on savants has rather reached an impasse. What it has shown is that sometimes they use memory and sometimes even elaborate numerical or language rules but most often without any form of awareness of them and without import into other areas of functioning. Yet there are some experimental findings that may give some support for the above theory. Neuropsychiatrist Darold Treffert describes in his book (Treffert, 2000:77–78) how a graduate student, Benj Langdon, tried day and night to practice the calendar-calculating skills of two savant brothers. After spending an enormous length of time at it, he still failed to match their performance. Then when apparently he had given up, it suddenly came, and he no longer consciously had to go through the operations. Like for many savants, the answers came intuitively and non-consciously.

But what does this actually mean? Allen Snyder, director of the Centre for the Mind in Australia, argued that “savants have privileged access to lower-level, less-processed information, before it is packaged into holistic concepts and labels—savants tap into or read off information that exists in all our brains, but this information is normally beyond conscious awareness owing to top-down inhibition” (Snyder, 2009:1399). Accordingly, Snyder and his co-workers have developed an experimental means of disinhibiting the left temporal lobe (Snyder, 2009, 2011). The method involves giving repetitive transcranial magnetic stimulation to the lateral anterior temporal lobe of right-handed normal individuals. Having done this, it was found compared to those receiving a sham stimulation, there appeared to occur changes in drawing, in accuracy of proofreading skills, and in numerosity—and also a reduction in false memories. Snyder believes that some cortical areas may be responsible for the top-down processes that create our holistic and meaningful interpretations. To do so may require an inhibition of those areas, presumably in the right hemisphere, concerned with perceiving details.

Furthermore, this theory is promising because it will work as a general theory of autism since an autistic person, being stuck in the perception of details, thereby lacks the ability to build whole concepts such as a "theory of mind" and a workable theory of how to form relationships.

The explanation is simple and yet elegant. Treffert and Snyder along with Daniel Tammet see it as having important implications for the existence of an enormous reserve of untapped human potential in so-called normal individuals.

Even so there are some incongruities. Daniel Tammet's major message is actually contrary to the above, since he explains that the key to his abilities is seeking meaningful and contextual relationships, and it is this ability to see the whole myriad of relationships that he believes enables his success at languages and calculating. Moreover, there is as yet no firm evidence that individuals with synesthetic ability are poorer at personal relationships and are more creative. But what surely remains enigmatic concerns the acquisition of complex savant skills of speaking languages or playing music. These would seem to be more than access to mechanical rote learning or associations, but some form of integrative ability for understanding the rules governing what goes together. Indeed the leading authority in the area, Darold Treffert, after reviewing the 35 years of research, doubts that brain damage or practice alone could account for the access to the rules of music, mathematics, and art that is innate in these individuals. He argues that we may be born with this "soft ware" already encoded as genetic transmission (Treffert, 2000).

Yet if we critically analyze the reason for proposing such a nearly all-encompassing mechanism, then the real enigma of some savants becomes undeniably apparent. As Keith Chandler (2004) pointed out in his provocative paper, while we might explain the performances of Daniel Tammet and Kim Peeks as a mixture of motivation, mindless learning, and synesthetic associations, the explanation is just not all-encompassing enough. He asks how does this explain the cases of prodigy savants (Treffert & Wallace, 2002) where complex skills are required and there is no apparent possibility of acquiring these skills? If the information we are told about their backgrounds is correct, then neither chromosomes nor software could not contain the necessary *specific cultural information for these skills to suddenly appear.* For instance, in the case of Leslie Lemke (Chandler, 2004) the prodigious talent for playing music appeared in its completeness literally in the middle of the night after hearing on television Tchaikovsky's Piano Concerto No 1. Chandler writes: "It is something he clearly remembers how to do but it is a remembered skill that he was never taught and being blind one that he could never have seen anyone else perform."

There is now an extensive literature on savants, and it should be of interest to make a critical research review of what actual opportunities prodigy savants

have had for learning such complex skills. The above books are now a very important contribution to this literature. Given that Daniel Tammet has access to this reservoir of semantic relationships that we are not normally conscious of and seldom use, it is just possible that he is far more unique than we have realized. We can be thankful that he has such a positive and generous attitude to research.

There is only one quip which I am almost reluctant to mention given Daniel's confessed obsessive attention to detail. The books show how well read he is, but *Born on a Blue Day* lacks references and *Embracing the Wide Sky* lacks many of those quoted in the text.

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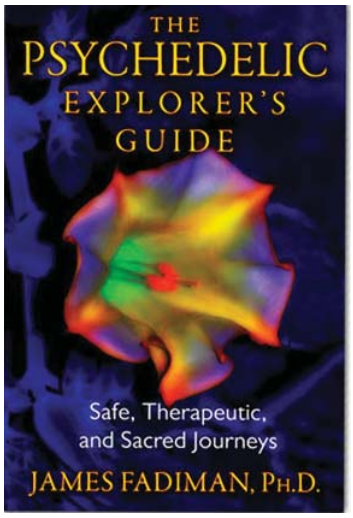
The Psychedelic Explorer's Guide: Safe, Therapeutic, and Sacred Journeys by James Fadiman. Rochester, VT: Park Street Press, 2011. 352 pp. $18.95. ISBN 978-1594774027.

Drawing upon more than four decades of professional and personal experience in the arena, James Fadiman has written a practical, informed, and entertaining handbook for people who desire to embark on an encounter with LSD, mescaline, peyote, psilocybin mushrooms, or the dozens of other natural and synthetic substances that fall under the psychedelic umbrella. Similar guidebooks have been written over the years, but none of them approach the authority, credibility, or utility of *The Psychedelic Explorer's Guide.*

Fadiman is a faculty member of the Institute of Transpersonal Psychology, a graduate school that he helped to found in 1975. He possesses considerable *gravitas* on this topic, having conducted research with psychedelics when



the substances were still legal. His book is extremely timely now that investigations are undergoing a Renaissance, and that several articles have been published in high-level psychological, psychiatric, and medical journals. These investigators need to read this book because it will provide important considerations with regard to the six factors that are described by Fadiman: set, setting, substance, sitter, session, and situation.

However, there are other potential readers who are conducting what is euphemistically referred to as "self-experimentation." These are seekers for what Fadiman calls their "birthright" to become "more aware." Fadiman presents data indicating that these intrepid explorers refer to their session as "the greatest experience of my life." The book's first two chapters provide guidelines for one's "trip." The next two chapters review the contributions of several major figures in this field who review what they have learned from their sessions, ranging from Albert Hofmann and Aldous Huxley to Alan Watts and Stanislav Grof. Letters to and from Humphry Osmond, Timothy Leary, and others are cited, as are passages from books by such icons as Alexander Shulgin, Ralph Metzner, Huston Smith, Rabbi Zalman Schachter-Shalomi, Richard Alpert (Ram Dass), and Frances Vaughan (the lone female in this collection of white males).

The next four chapters focus on self-exploration; one of them was written by Neal Goldsmith, a psychologist and psychotherapist, and is aptly titled, "Things Can Go Wrong." Neither Fadiman nor Goldsmith guarantee their readers a risk-free psychedelic journey, and Goldsmith offers 18 helpful suggestions ranging from regulated breathing to having a warm blanket on hand for emergencies. The next chapter brings up the topic of adulterants such as methamphetamine. However, the U.S. Drug Enforcement Administration's 1991 claim that strychnine is a common adulterant is examined and found wanting. The case can be made that adulterants have become less problematic in recent years, certainly since I published a short research article on this topic in the journal *Science* in 1970. Nonetheless, Fadiman merely tells his readers to obtain their supplies "from a trusted source" (p. 262). Perhaps this is all he can say without running afoul of the law, but an expansion of this guideline would have been useful.

The following six chapters provide a detailed description of Fadiman's pioneering investigations at San Francisco State University's Institute for

Psychedelic Research, a project abruptly terminated in 1966 by the U.S. Food and Drug Administration, along with similar projects across the country. Improvement of cognitive enhancement, especially creativity, was observed among these two dozen participants, and Fadiman provides both test data and subjective reports that illustrate these results. A few extensive case studies provide valuable accounts of how the psychedelic experience was put into practice once the session was over.

These accounts lead to four chapters outlining "new horizons" for psychedelic research; including the use of: "micro-doses" for specific purposes, much as indigenous shamans have used small amounts of mind-altering morning glory seeds, mushrooms, and the like to assist their service to their communities. Future medical and psychotherapeutic uses include expanding the pilot studies indicating psychedelics' value in treating cluster headaches and PTSD and for spiritual enhancement. This latter direction has led to what I consider the overuse of the term "entheogen" as a synonym for "psychedelic"; not every session is designed to find "the God within," and the term "potential entheogen" would be a more appropriate descriptor. "Psychedelic or "mind-manifesting" is far better than the negatively toned "psychotomimetic" and "hallucinogenic" descriptors. I have long favored the term "phantasticant," but it never caught on.

The final four chapters bring the reader up to date on the Amazonian brew ayahuasca. They consist of three well-written first person reports, but omit the research studies conducted by the psychiatrist Charles Grob and his team whose data found several long-lasting beneficial effects of ayahuasca imbibed in a religious setting, and no long-term negative effects. However, Fadiman provides an excellent account of the behavior changes that followed LSD and mescaline sessions with 67 participants at the International Foundation for Advanced Study in Menlo Park, California, in 1962 and 1963. The effects upon marriage, sexual performance, job satisfaction, and nighttime dreams have never been presented in such detail. Questionnaire data from 113 participants at the same institute are also included. It is a tribute to Fadiman's writing skills that these data do not bog down the book or drain the reader's attention, but add texture and richness to what could have been a superficial cookbook on how to run an LSD session.

Fadiman's autobiographical material is an important part of this book; he calls himself an "inadvertent pioneer" and describes how he fell into his role due to serendipitous meetings with Willis Harman, Myron Stolaroff, Charles Savage, and—of course—Timothy Leary and Richard Alpert, the future Ram Dass. When Harvard University terminated the services of Leary and Alpert, Fadiman knew that his own career was at risk. As he put it, "I really stepped back at that point," and his segue into the new field of transpersonal psychology was a wise

career move. He helped develop the *Journal of Transpersonal Psychology* and the Association for Transpersonal Psychology, which Fadiman misnames the "Transpersonal Psychology Association" (p. 235). He also employs the "genie out of the bottle" metaphor too often; that genie should be content to emerge from the proverbial bottle once and be on his way. Some seminal books remain unmentioned, most notably *The Varieties of Psychedelic Experience* (Masters & Houston, 1966), which I consider the best phenomenological account of these internal voyages.

But these are minor flaws in a magnificent tapestry. Fadiman does not proselytize, he simply provides useful information. He concludes by stating, "If you're going to use psychedelics, do it with someone you love, and hopefully someone who has been there before you, and be aware that the world is better than you have ever thought" (p. 238). I would rephrase the beginning of this advice to ". . . do it with someone who has been there before you, and hopefully someone you love." But the last phrase makes sense not only for those who want to embark on a psychedelic excursion but to those who prefer meditation, prayer, Nature walks, falling in love, or any of countless other ways to secure their birthright of becoming more aware.

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Wonders in the Sky: Unexplained Aerial Objects from Antiquity to Modern Times and Their Impact on Human Culture, History, and Beliefs by Jacques Vallee and Chris Aubeck. New York: Jeremy P. Tarcher/Penguin, 2009. 508 pp. $22.95. ISBN 978-1585428205.

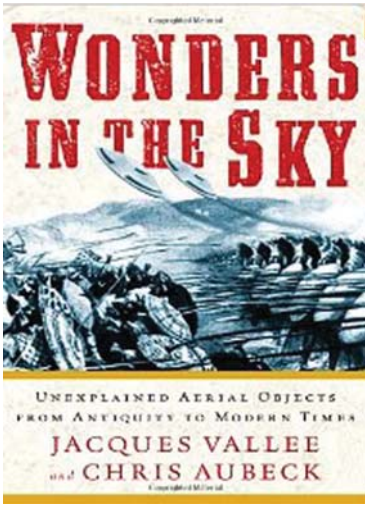
Ufology is a historical enterprise deep down in its heart. For all their scientific aspirations, ufologists spend most of their time collecting and collating cases, looking for connections over time, searching for patterns of meaning amid a welter of details—in short, the very sort of thing historians do to chronicle the lives of Roman emperors or events of the Civil War. One key date is June 24, 1947, and anyone familiar with UFOs recognizes it as the day when the

"first" flying saucers appeared; but no sooner had Kenneth Arnold reported his sighting than reports of antecedents called the uniqueness of this event into question. The Arnold incident holds benchmark importance, a beginning of the modern era when saucers began to fly thick and fast as they quickly established themselves as a cultural fixture and a mystery to reckon with, but historical awareness sets this event in a wider perspective: Arnold did not see the first UFO, just one more in an unbroken line that stretches back to the 19th century in some opinions; in others, to antiquity or even remote prehistory.

Early cases entered into UFO discourse almost from the start. In a sense this prior history was ready and waiting for the flying saucers to arrive through the writings of American author Charles Fort, who spent much of his life combing newspapers and scientific publications of the 19th and early 20th centuries for reports of strange phenomena damned to exclusion by official science. His four books and the still-active Fortean Society provided the new phenomenon with a robust lineage of suggestive observations. A segment on old sightings became standard in most UFO books of the 1950s. Ufologists have embraced old reports as stout supports for the extraterrestrial hypothesis, since skeptics' arguments that airplanes or satellites are responsible for many UFO reports hardly apply in ages when no man-made flying machine had yet left the ground. Proponents took a vested interest in finding modern UFOs flying over Roman legions and crusader castles, because if such reports existed, they had to describe alien vehicles. By simple elimination, no other explanation would work.

If ufologists have good reason to value history, they have not necessarily shown a very discriminating knowledge of it. The examples in the 1950s literature were haphazard and, when derived from sources other than Fort, often inaccurate, distorted, even rewritten to confirm a proponent's wishes. By the 1960s and 1970s historical research divided between two contrasting pathways: One led to systematic explorations of the phantom airship waves of the 1890s and early 1900s, and to Jacques Vallee's seminal *Passport to Magonia* (1969), which related UFO experiences to fairy and demonic lore with the suggestion that some broader mystery might underlie a multitude of anomalous phenomena. Along the other path, "ancient astronauts" theories ran rampant as every ancient myth and monument became evidence for alien visitation and intervention in human history. Hoaxes and wild speculations multiplied to the discredit of ufology and to the confusion of whatever message the historic reports carried for the UFO mystery as a whole.

Now at last a book has come along that intends to set the study of historical UFOs on a sound footing. *Wonders in the Sky* is authored by Jacques Vallee, one of the most respected names in UFO research, and Chris Aubeck, who has made a distinguished name for himself among serious historical researchers over the past eight years. In 2003 Aubeck organized the Magoniax project to link a



select few active UFO historians through the Internet, for the purpose of exchanging and compiling reliable accounts of anomalous phenomena prior to 1947. This book represents the first study to grow out of the Magoniax project.

The heart of the book, more than 300 pages long, consists of a chronological collection of 500 cases of "wonders" starting in 1460 B.C. and ending in 1879 A.D. Most of the accounts describe aerial lights or objects; some treat UFO-related phenomena like abductions, entities, and mysterious communications. Each entry provides a substantial summary of events, along with date, place, and source, and sometimes concludes with a brief commentary. The authors have screened an extensive body of records to eliminate the obvious comets, meteors, sundogs, hoaxes, and other identifiable causes, leaving readers with a genuinely puzzling residuum of aerial events from across the centuries. A decision to close this chronicle with 1879 was both practical and theoretical. The running understanding of aerial wonders from earliest times through the 17th century assumed a supernatural source, such as gods, angels, demons, or witches. Most educated writers from the 18th century onward favored naturalistic origins for strange sights in the sky, like meteors or weather phenomena. By the latter quarter of the 19th century expectations of man-made aircraft spilled over into the observational record as people began to describe phantom balloons and airships, with the reports becoming epidemic by the 1890s. Faced with this shift of concept and escalating numbers, the authors wisely chose to call a halt just before technological wonders began to dominate.

Among the more interesting cases is a Roman account from 91 B.C. of a fireball that descended to earth, then rose from the ground and was large enough to blot out the sun. A Chinese record from about 1059 tells of an object like a giant pearl that frequented a lake for some ten years. The object emitted such intense light that the shadows of trees miles away became visible. Solitary English travelers sometimes had to contend with a fiery wheel- or barrel-shaped object that would follow them at nights during the winter of 1394. In 1520 a beam of fire descended from the sky and burned many things on the ground before it ascended again and changed its shape into a circle of fire. A report to a London newspaper in 1794 describes a meteor over India that made frequent pauses before it descended behind some hills. Two minutes later the light

rose above the hills, illuminating them before it sank again and repeating this behavior twice more before vanishing. My favorite case is the Robozero Marvel of 1663, when residents of a Russian village watched a ball of fire with the diameter of a 14-story building pass back and forth overhead three times before hovering close over the surface of a lake for 45 minutes then finally flying away. If the nature of the objects in this chapter remains open to contention, their puzzling and uncharacteristic qualities are undeniable.

A second extensive section, titled Myths, Legends, and Chariots of the Gods, provides the authors with an opportunity to discuss some questionable stories taken as evidence for extraterrestrial visitation in the UFO literature. The entries include hoaxes like the "Dropa Stones," supposedly artifacts left by a group of aliens marooned on earth thousands of years ago, or the "silver shields" that flew over Alexander the Great's army though only in the imagination of some modern writer. Other instances exemplify an abundance of speculation applied to texts, so that the vimanas of ancient Indian epics become spaceships or the Star of Bethlehem acquires an extraterrestrial identity. Meteors, auroras, halos, and other conventional phenomena clearly explain some appearances that amazed witnesses in the past. Common folk beliefs contribute to stories of ships in the sky and to accounts that associate lights and entities with fairies, though traditional beliefs do not necessarily exhaust the strangeness of some reports. By treating these reports in a separate section, the authors can satisfy readers' curiosity about claims often associated with UFOs and at the same time distinguish the doubtful evidence from the sound.

The book consists mainly of cases, but it also provides orientation, connecting material, and some basic analysis. Considerable care goes into explaining the sources used and the criteria for selecting cases. A preference for the most original sources available—the medieval chronicles or scientific journals or the literature of prodigies and wonders like the 1557 *Prodigiorum ac Ostentorum Chronicon* of Conrad Lycosthenes—sets this collection apart from the usual derivative materials found in the UFO literature and on the Internet. The inherent strangeness of the case rather than interpretations imposed on it or suggested by current agendas qualifies an account for inclusion, so that even as tempting a report as a flying shield does not automatically mean a flying saucer, but only that an ancient historian drew a conventional comparison to describe a meteor. Scattered through the extensive chronicle of cases are pauses to update readers on the historical context of the reports, such as changes in religious beliefs, social conditions, and technological developments that contributed to the shape, dissemination, and interest in prodigious occurrences at a given time.

Issues of interpretation do not arise in this book. The authors are satisfied to establish the existence of unknown aerial appearances and not jump to the conclusion that alien visitation or any other particular cause was responsible. At

the same time they do not leave readers entirely adrift. In a Foreword by David Hufford, this noted scholar of anomalies reminds readers that beliefs often originate in experience, and a study of claims about strange phenomena stands to profit from an experience-centered approach. The authors' Introduction cites four conclusions—that unknown phenomena have appeared throughout history, that interpretations change from epoch to epoch, that these phenomena have had an influence on human civilization, and that historical cases teach lessons applicable to modern aerial manifestations. A final chapter returns to these conclusions and summarizes the case files to argue that similar phenomena have recurred down the centuries all over the world, while the phenomenology of past events anticipates the reported experiences of UFO witnesses today. Human interests and explanations vary according to time and place but the underlying appearances show a consistency worthy of further study. These measured and cautious proposals grow out of the historical materials as fully justified and free of the jarring leaps of faith so common in relating UFOs to their supposed antecedents.

This admirable study fulfills its goals and leaves little cause for complaint. Some of the case summaries would benefit from more complete information. Historical records of aerial anomalies are often frustrating in their brevity, while equally frustrating copyright restrictions hinder direct quotations and raise barriers that are especially onerous for such a wide-ranging project as this one. Still, a case like no. 473 appears almost devoid of details to indicate why it was included at all, even though it is familiar from Charles Fort and intriguing only because of the omitted descriptions. Other cases almost certainly have conventional explanations, like no. 482, wherein an astronomer watched the slow progression of a red "bolide" over Marseille in 1871. While the object certainly was not meteoric in its actions, its characteristics well suit the behavior of a fire balloon. While high standards govern the selection of cases and secondary sources are usually reputable, the authors draw on the UFO literature now and then. These lapses allow inclusion of Japanese and Chinese reports not otherwise available, but in rare instances the sources are doubtful, at least in details, yet included anyway (e.g., case no. 49 and case no. 188).

The authors are well aware that the written record tells a cultural truth that is not always the same thing as historical truth. Prodigies became tools of propaganda in the Reformation era, with some entries in the *Mirabilis Annus* collection so slanted toward the Puritan cause in 1660s England that royalist authorities sought to apprehend the author. Newspapers in the 19th century shamelessly resorted to bogus stories of extraordinary events to provide a form of journalistic entertainment known as "nature faking." These pitfalls are familiar enough, but the literature of signs and wonders twists and turns in a labyrinth of motives and customs wherein no amount of caution is ever quite enough. The

garrulous monk William of Newburgh seems never to have met a strange story he didn't like, but he simply represents one of the most visible examples of a credulous medieval writer. Others have idiosyncrasies of their own and even the most disciplined sometimes waive their sound judgment where anomalies are concerned. The written accounts cannot be taken entirely at face value and as a result cases cited in *Wonders in the Sky* provide an "enriched" sample of unknowns rather than a "pure" sample.

Another possible source of error is the stereotypical elements of some accounts. A "saints' lives" literature stands by itself but also infiltrates many mainstream medieval chronicles with recurrent motifs of luminous phenomena accompanying the birth, death, and miraculous activities of saints. These obligatory elements serve more to validate the sanctity of a historical personage in a biographical genre than to record literal history. Folkloric motifs intrude in some accounts, one example perhaps being the fiery object that followed travelers in 1394. This account bears similarities to the will-o'the-wisp or the fairy lantern that leads wayfarers astray, and even if the experience was real the description may have taken its shape from popular belief.

The brevity of the book's forays into the historical and intellectual contexts of its subject matter calls for expansion, as does the database itself and analysis of the findings. But these jobs are work for another day. What we have in hand is a book worthy of celebration in itself. The authors replace the faith and phonies too often characteristic of historical UFO research with a solid basis, both an extensive collection of genuinely interesting anomalies from original or creditable international sources, and the provision of a framework for understanding these reports and for building on this foundation in the future. Whatever opinion the reader may hold about the nature of these accounts, the factual matter of the case, the fundamental cause for wonder, stands out with unprecedented clarity and sets bounds on the speculative impulse. We can thank the authors for this important step toward the truth, whatever form it ultimately takes, and look forward to further scholarship at the same high standards.

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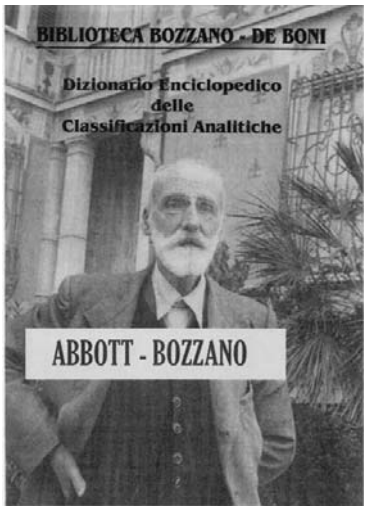
Dizionario Enciclopedico delle Classificazioni Analitiche della Biblioteca Bozzano–De Boni [Encyclopedic Dictionary of the Analytical Classification of the Bozzano–De Boni Library] edited by Silvio Ravaldini and Giulio Caratelli. Bologna, Italy, 2011. Eight volumes.

More than 2,200 *entries*—excluding those referring to terms and expressions—most of them containing bibliographic references, 2,800 pages in eight volumes. In the last volume, there are more than 50 pages of *Contents*, describing which entries and themes are present and where they are dealt with. These are the main features of a new "tool" of the Bozzano–De Boni Library, a *Cumulative Index* published at the very beginning of 2011 as the result of a work started a long time ago.

Ernesto Bozzano was the first one who had the idea of creating a reference list, an *Index* of publications concerning mediumship and spiritism. At the beginning of the 20th century he was committed to reading extensively about spiritism and psychical research, becoming a "supporter and promoter" of spiritism. He was a tireless reader of everything that was published—and everything he could obtain—on metapsychics, mediumship, spiritism, and related issues. While thoroughly examining the texts, he would annotate what he found interesting, from the most general and evident elements (i.e. theories, argumentations, original experience reports) to minor details that a superficial reader may fail to notice, such as private stories, referrals to persons and experts in the field, anecdotes, observations, and so on. Perhaps without him being aware of it, Bozzano's work led to the creation of *analysis sheets* for each book and review he read, containing detailed references on various themes (page numbers and referrals to other publications), which allow the reader to easily get to the materials. Those sheets were essential to him, since his monographs were composed of the systematic and logical combination of examples leading the reader to his own "inescapable" conclusions. Each example was specifically discussed, and the more numerous the cases reported, the more his thesis was strengthened and supported (Biondi, 1984, Ravaldini, 2011). This is the reason why he considered working with indexes extremely useful, and perseveringly continued his task for more than forty years.

After Bozzano's death, all his papers and documents were inherited by Gastone De Boni, who added other book analyses by following the same criteria. Some decades after, the entire work reached the hands of Silvio Ravaldini, who also gathered publications, personal documents, and materials of Bozzano, De Boni, and other prominent scholars of spiritism and psychical research. Once books, reviews, and other materials were ordered in a purpose-specific *Library*, he had to decide how to use the hundreds of *analysis sheets* that had



been collected, some of them dating back to the previous century but which still had remarkable information potential. Ravaldini continued that analysis work, at first on his own and then supported by Silvana Pagnotta. While he was ordering, verifying, and computer typing the old classifications of Bozzano and De Boni, a small work team, composed of Claudia and Cecilia Magnanensi, and Giulio Caratelli, carried on other parts of the work (Caratelli, 2011). Their commitment turned into a *project* aimed at indexing by 2000 all the most prominent journals and books kept in the Bozzano–De Boni Library at Bologna. The *Index* was concluded by the deadline, but it took another ten years to organize and structure the written texts, which have today the above-described characteristics.

The *Index* is essential for anyone who looks for solid documentary bases for supporting historical, experimental, or theoretical works. Publications on spiritism and parapsychology constitute a minor and marginal part of the contemporary culture, but are extremely numerous and it is difficult to find direction through them. Furthermore, the modern approach often ignores the historical perspective, and the wide variety of texts on the Web makes it impossible to have adequate control of the countless available "rough" materials. This is why a guide indicating if and where references can be found, not to mention discussions of specific issues, and the way an author dealt with a theme, is a very valuable tool for all who want to study this field, fill in some knowledge gaps, or simply satisfy their curiosity.

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War and Shadows: The Haunting of Vietnam by Mai Lan Gustafsson. Ithaca and London: Cornell University Press, 2009. 206 pp. $19.95, ISBN 9780801475016.

This book is an anthropological study of spirit possession in postwar Vietnam. The author knows that the notion of spirit possession is widely rejected by most modern scholars. She has, however, chosen to record her observations from the viewpoint of her informants, trying not to impose any reductive assumptions on her narrative. Her object is to describe a complex human experience, not "explain" away any part of it that seems dubious according to mainstream bias. The big idea behind this book forces us to think about new dimensions of suffering caused by war, especially by modern war in which the physical obliteration of victims is more likely, thanks to more destructive technologies.

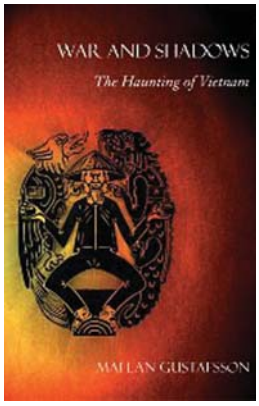
Dr. Gustafsson has collected 190 case histories of people mainly from Hanoi and nearby: individuals who have been possessed, assaulted, and haunted by "angry ghosts" (*con ma*). These are victims still living in the vast psychic wake of a war that officially ended in 1975 and began with the French colonialists returning to Saigon in 1946 after the Second World War. The encounter with these angry ghosts runs to epidemic proportions; so much so that the Communist (spirit-disbelieving) government a) has been forced to acknowledge the devastating economic reality of the problem, pronouncing it a "public health menace," and b) permits, despite ideological reluctance, the practice of spiritistic folk medicine; for it is the local mediums, sensitives, and diviners who seem to know what's going on and, often at great financial cost to the victim, can perform salutary rites and provide useful counsel for palliating the rage of the spirits. This may consist of something as simple as putting a nice frame around a dead uncle's photo. Something strange is undoubtedly happening in the Vietnam that America tried famously "to bomb back to the stone age." To understand what this is, at least two premises from the author's narrative must be underscored.

The first has to do with the all-important Confucian element in Vietnamese burial practices, and their significance for the psychic integrity of the entire community. The picture one gets from Gustafsson's account of these practices, which are taken very seriously, points to something probably pretty strange for most Western individualists. According to the Confucian *li*—the rites, duties, performances—proper burial is absolutely essential to the well-being of the deceased. The rites are offerings, acts of respect, love, honor, and recognition directed toward the dead; when done properly, the departed become guardian spirits (*lo tien*), sources of guidance and well-being for the living family. The Confucian roots of this points to the fact that the family is the basic religious

institution (Smith, 1994). The stability of society seems here to depend on ritual rapport with the dead. Anything that prevents that ritual rapport must corrode basic social bonds.

This leads to the second premise essential for understanding. What in fact was deeply antithetical to traditional Vietnam burial customs? Answer: The Vietnam War. For proper ritual burial you have to have a body. Without an intact body—a head or a limb won't do—the *li* cannot be performed. The Vietnamese believe that rite-deprived souls cannot handle their fate on their own in the next world. Facing what is perceived as insurmountable frustration of their support, they become angry ghosts. But before we sketch a picture of the angry ghost and the kind of havoc it is alleged to inflict on Gustafsson's informants, we need to comprehend the enormity of the war's cost, part of which seems to have involved denizens of the "other world" as well as living survivors. On page 125 we find that the American losers of this war still managed to inflict the following on the Vietnamese people: more than 5 million dead; 300,000 missing; 300,000 orphans; 64,000 injured, and 40,000 killed by landmines and unexploded ordnance, since the end of the war in 1975; nor should we omit the 250,000 boat people who died during attempts to escape nor the 10 million refugees, said to be a conservative number. The number of key importance to the angry ghost question is the 300,000 missing but no-doubt-dead bodies. According to the belief system, that means 300,000 angry ghosts are out there wandering about looking for ways to vent their fury. Suppose the invisible afterworld corridors do indeed swarm with such agents of ill will—truly horrifying is the belief that there is no hope of relief for them, no prospect of ever escaping from this anarchic psychic inferno. The author keeps hammering home this picture of hopelessness; it's a hellishly narrow place to be trapped in, dependent on the kindness and remembrance of the living, forever trying to be noticed, if necessary by means of cruel and spiteful actions.

The author provides an Appendix (I), titled "Table of Suffering" (pp. 147–167), summarizing what she learned from her 190 victims of otherworldly aggression. They cover all types, genders, ages. Besides basic facts about the informants, we learn of their symptoms, their diagnoses, and their treatments. The book also covers individual cases in greater detail. The possession experience presents a roster of symptoms. The drift of them suggest the displacement of the normal personality and something else forcing its way in, and in no gentle or kindly manner. Some symptoms are mainly physical and may indicate the resistance and discomfort in being displaced; for example, pains, tremors, shaking, convulsions, skin disorders, listlessness, and unexplained illnesses. (The author repeatedly underscores the failure of physicians to account for most of these symptoms.) Other symptoms show the outline of the invading personality itself: voices, obsessive thoughts, inability to concentrate, amnesia,



nightmares, violent behavior, sleepwalking, and the often-mentioned out-of-character behaviors.

The third item is *diagnosis*. What to make of the these unexplained symptoms and who provides the diagnosis? First of all, the diagnoses are intuitive, not definitive or rigorous in a quantitative way. The responses show a handful of popular sources of diagnosis, beginning with the victim's own self-diagnosis. Besides oneself, mediums, fortunetellers, and family members may confirm that one is possessed and by whom: often family members (from greatgrandmothers to sons), friends, strangers, and lots of ghouls. (The only kind of ghoul that fits the role here is the Arabian desert ghoul said to prey on travelers.)

Finally, we are given information about the treatment in each case and its success or failure. For example, in one case, "Symptoms stop after installing dead comrade's memory in pagoda, becomes 'no problem' after funeral service in Cambodia (per medium's advice)" (p. 149). But then in another case, "Symptoms persist, even after victim confesses to family that he stole offerings of food and money meant for these spirits" (p. 151). Generally, the symptoms stop or lessen when the possessed person follows the recommendations of the medium or other advisors. In the cases where the symptoms persist, despite the victim following instructions, the failure is attributed to lack of sincerity or responsibility. And then there are cases like the man diagnosed as possessed by his dead wife. Effects of the treatment were unclear: "Victim must renounce sex with prostitutes, per medium's instructions: status of symptoms unknown" (p. 159).

Often partly or with great difficulty, the angry ghosts can be laid to rest, or at least pacified. What does it take? These wretched spirits need to be recognized, remembered, memorialized, celebrated, and honored. In this thought-world, when the living adopt the right attitude and behavior toward the dead, the dead become gods, guides, guardians to the living. This is the basis of Confucian ancestor worship. When the living ungenerously isolate themselves from the dead, and fail for whatever reason to pay their respects, there is war between the living and the dead. By creating 300,000 possible angry ghosts, modern body-annihilating military technology vastly multiplies pain and suffering for possible afterlife survivors, and certainly for the haunted victims. The war has made Hell Day a popular holiday in Vietnam when people go out of their festive way to honor and make offerings and hope to placate the swarms of angry ghosts out there.

Are we afforded any evidence that there really are such conscious angry ghosts? Dr. Gustafsson abstains from making any explicit claims, and was not

aiming to produce proof in the manner of a parapsychologist, but I felt she was quietly persuaded that the touted ghosts were objectively real. I first heard her on public radio describe the case of an American who upon returning to Vietnam for a visit had symptoms of possession; the American, normally very even-tempered, began to have nightmares and shouted in his sleep furious outbursts in perfectly grammatical Vietnamese. His girlfriend was witness to these displays, and vouched for their grammatic excellence. This story would pack a wallop if the American knew no Vietnamese; but he had moved to Vietnam and did have a working knowledge of the language. What was impressive to witnesses was the fluency and idiomatic style of his execrations.

There is a broad argument meant to support, or at least suggest, the hypothesis that ghostly survival is the best explanation of the symptoms experienced by the author's informants. If the ritual recognition of the angry ghosts is effective, the symptoms do ease off or completely vanish; in short, it looks as if the ghosts are responding to the ritual treatment. The trouble is that the links in the chain of the argument are too fuzzy. We have at best a very sketchy medical knowledge of the symptoms. There is another crucial question. How did the angry ghost get identified as the culprit? Here again we're in what looks like a cloudy realm to the outside observer. And finally, the doubter might think: Couldn't all the beneficial effects from the treatments be explained by a powerful placebo effect and a highly active and culturally primed imagination? Perhaps the angry ghosts are really the guilty unconscious of the survivors punishing themselves and trying to make amends. In short, counterexplanations could be advanced to explain the angry ghost phenomenon; but they're not likely to persuade victims.

In my opinion, this very well-written and courageous book merits our attention for at least two reasons. First, it points to an area of research that may be of interest to investigators of postmortem survival. As it turns out, much survival evidence is found to relate to violent situations and mortal crisis: most obviously, near-death experiences; also many reincarnation memories, behaviors, and bodily marks; and many hauntings that involve violent death and violent emotion. The hauntings and possessions of angry, aggressive ghosts reported by Dr. Gustafsson may be included here, exacerbated by body-vaporizing warfare, and the special problems that result from lack of proper burial. If there is a transition to a next world, the how of the transition must make a difference. The ideal Vietnamese death is peaceful and harmonious with the surviving family. The purpose of this harmonious death is to establish a link with the invisible world and be led by the wisdom and virtual godlikeness of benevolent ancestors. On the other hand, being instantly blown to smithereens by a bomb might indeed, as the Vietnamese believe, transform a human soul into a permanent agent of festering ill will.

The second valuable point is that *War and Shadows* enlarges our understanding of the scope of human suffering. On any interpretation of the material recounted, war is costly in ways most of us can barely conceive. In the undoubtedly profitable business of war, the profound hell of hatred and misery that we create, not just for survivors but for possible afterdeath victims, is something we need to reckon with as part of the collateral damage.

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Reference

Smith, H. (1994). *The Illustrated Guide to the World's Religions.* Harper SanFrancisco. p. 120.

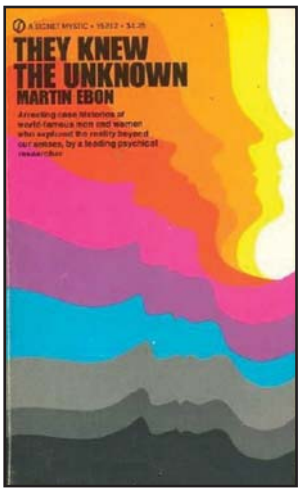
Further Book of Note

They Knew The Unknown by Martin Ebon. The World Publishing Company, 1972. 253 pp. $2.41 (used). ASIN: B00371827C.

Thanks to Amazon and Google, old books don't die. They're available online in near perpetuity. Some end up like those lonely paperbacks left behind on the bookshelf of a summer beach rental—worth but a bored afternoon when it's raining outside. Others are worth saving and savoring.

Martin Ebon's book, written in 1972, is the latter. It's a keeper. A professional writer, Ebon served as managing editor of Eileen Garrett's *International Journal of Parapsychology* and as a consultant to ESP studies pioneer Dr. J. B. Rhine, deeply exposing him to their body of work. But he honed his wordsmithing as a book editor with the New American Library and Playboy Press. Ebon deploys erudite writing: intelligent, sophisticated, with historical references, and touches of humor to drive home his key point—biographers of famous persons routinely sanitize their subjects' lives, glossing over or removing entirely any references to their psychic experiences or beliefs.

Ebon's richly woven tapestry of illustrious scientists, authors, politicians, and philosophers who wrestled with the unknown is extensive and delicious:



Socrates, Swedenborg, Kant, Schopenhauer, and America's own intellectual explorer of the survival of consciousness C. J. Ducasse; Shakespeare, Shelley, Hugo, Twain, Doyle, Browning, Dickens, Yeats, Thomas Mann, Aldous Huxley, and Upton Sinclair; President Lincoln and his publicly known participation in Spiritualist séances contrasted with Canadian Prime Minister W. L. Mackenzie King (1874–1950) and his concealed lifetime of consulting mediums; Strindberg's telepathic delusions; Thomas Edison's musings on how to contact the dead; Alfred Russel Wallace, co-founder with Darwin of the theory of evolution, sharing with a San Francisco audience in 1887 the séance experience which confirmed for Wallace the existence of an afterlife.

And then there's that iconic trinity of psychiatrists: James, Jung, and Freud. Ebon recounts the struggle between Freud and Jung over the nature, meaning, and interpretation of psychic experiences which sealed the fate of these quirky phenomena in psychology's infancy. Had Jung and his intellectual ally William James won, parapsychology today would simply be psychology. Unfortunately, a timid, intellectually dishonest Freud punted; consequently, a class of experiences persistently recorded throughout human history were stigmatized and marginalized to the ultimate detriment of humanity.

You can pick up a used paperback copy of Ebon's hidden history of these psychic explorers for 75 cents. In terms of education and entertainment, that's one heck of a bargain.

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Articles of Interest

The Alchemical Revolution by Sara Reardon, *Science*, *332* (20 May 2011), 914–915.

Some historians of science are trying to replicate experiments done by alchemists, and they are finding clues to why the alchemists might have reasonably concluded, for example from color changes, that it might indeed be feasible to transmute less noble metals into gold. This article exemplifies how culturally ingrained is the view of alchemy as magic, superstition, religion, in contrast to science, pragmatism, objectivity.

Thirty years ago I had been taken aback to hear Isaac Newton's biographer, the well-known historian Richard Westfall (http://en.wikipedia.org/wiki/Richard_S._Westfall), say that his problem had been to reconcile the Newton of scientific genius with the Newton who spent more time on biblical exegesis and alchemical experiments than on his mathematics and science. Westfall was committing a fallacy that some other historians have long recognized, taking what they call a Whiggish view: presuming that there has been steady progress from ignorance to knowledge, and judging the past by the standards of later understanding. Surely Newton was, like other humans, an individual who will have felt no puzzling clash between his various interests, in Newton's case no incongruity in his pursuit of understanding by looking into alchemical claims, biblical claims, observational data, and better ways to calculate. Whigs of future centuries will find plenty of reasons to wonder how they could reconcile various aspects of some of the most prominent achievers of our times, say those present-day religious believers who are also scientists. Journalist Reardon doesn't fully understand this when she reports that "alchemy is certainly a thorn in the side of historians: an unwelcome reminder of science's foray into magic." A few years ago, my *Sydney Alumni Magazine* (University of Sydney) had a piece about an historian studying the doings of alchemists, and several later Letters to the Editor expressed dismay that people would spend time delving into superstition.

Mistaken views and approaches can take a long time to die off, among the media and the general public even more than among academics.

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Is "Alien Abduction" Extraterrestrial Visitation? Developing Prospective Study Designs to Gather Physical Evidence of Alleged "Alien Abduction" by Martin Hensher. *Journal of the British Interplanetary Society, 63* (2010), 307–315.

The alien abduction phenomenon remains a mystery, one primarily investigated either by UFO researchers or, in the academy, by psychologists. The former group has mainly recorded witness testimony, often with hypnosis; the latter crowd has proposed various mechanisms that might cause a person to report abduction experiences although no such thing had really occurred. Very few investigators have attempted to penetrate to the heart of the mystery and gather physical evidence that might conclusively demonstrate that something unusual is occurring, or alternatively reveal that nothing out-of-the-ordinary happens during a purported abduction.

Such a study is at least conceivable, if barely feasible, because abductions are said to happen routinely to some individuals, often in their homes or in other familiar settings. In this paper, Hensher brings to bear his expertise in epidemiological methods to investigate the key design and statistical issues of a potential cohort study that would use physical instrumentation for continual monitoring of abductees. He lays out the various factors, including abductees with and without memories of their experience, various event frequencies, study periods, drop-out rates, and so forth, and then conducts simulation studies to calculate sample sizes at various levels of statistical power. What soon becomes evident is that, if some, but not all, abductions are real, hundreds of abductees would need to be included in a study to obtain reasonable power (and thereby avoid a Type II error of concluding there is no physical evidence).

These calculations illustrate the difficulty faced by any concerted attempt to study abductees systematically and obtain objective evidence, especially given the lack of current funding in ufology for anything but small-scale efforts.

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