

# Six Protocols, Neuroscience, and Near Death: An Emerging Paradigm Incorporating Nonlocal Consciousness

| Stephan A. Schwartz |

It has been more than six decades since Gilbert Ryle,<sup>1</sup> Waynflete Professor of Metaphysical Philosophy at Oxford, coined “The Ghost in the Machine,” in his book *The Concept of the Mind*, as a way of criticizing what he saw as Descartes’ absurd mind–body dualism. Since then the nature of consciousness has been largely explored only from the assumption that it was an as yet not understood neurophysiological process entirely resident in the organism. Its inherent physicality became an ironbound axiom. However, a growing body of experimental research now challenges this and a fundamental transition is underway in science. Still a minority position, it is nonetheless the trend direction in a wide range of disciplines, from medicine to biology to physics. Whole new sub-disciplines have emerged driven by the results of this research since Ryle’s dismissive words.

This work is pushing toward a new paradigm, one that is neither dualist nor monist, but rather one that postulates consciousness as the fundamental basis of reality. Max Planck, the father of Quantum Mechanics, framed it very clearly in an interview with the respected British newspaper, *The Observer* in its January 25, 1931 edition. Context is always important, and Planck

understood very well that he was taking a public position, speaking as one of the leading physicists of his generation, through one of Britain’s most important papers. He did not mince words: “I regard consciousness as fundamental. I regard matter as derivative from consciousness. We cannot get behind consciousness. Everything that we talk about, everything that we regard as existing, postulates consciousness.”<sup>2</sup>

Two corollaries flow from Planck’s assertion: first is the existence of nonlocal consciousness. An aspect of consciousness independent of space-time and not resident in an organism’s physiology. Second that all consciousnesses are interdependent and interconnected.

A sign of the power of this trend is that most scientists doing research concerning consciousness tend to cite in their articles only work within their own discipline, or a closely related one. Physicists rarely cite physicians, and physicians rarely cite physicists. As a result separate literatures dealing with consciousness, both local and nonlocal, are developing independent of one another. It is only when seen collectively, however, that the emerging paradigm this research is producing becomes clear. A paradigm incorporating nonlocal consciousness.

The validation of Planck’s perception proceeds on four fronts.

## THE NEUROSCIENCES

A group of disciplines focuses on the local mind: the neuroscience, the physiological mechanics of an organism’s consciousness. These scientists are often not interested in nonlocal consciousness

and, indeed, may believe it could not exist. Yet by pushing forward to the edge of the physical, they have begun to unravel how the nonlocal becomes local in spite of themselves because nonlocal awareness projects itself into the physiology of their consciousness research. Beginning in 2003, and continuing with a shifting list of collaborators, Mark Jung-Beeman has steadily sought to understand the neurobiological process of insight: the aspect of consciousness that solves problems that cannot be worked out with the intellect alone.<sup>3</sup> His studies have yielded many insights, most notably: “We observed two objective neural correlates of insight. Functional magnetic resonance imaging revealed increased activity in the right hemisphere anterior superior temporal gyrus for insight relative to non-insight solutions.”<sup>4</sup>

Radiologist Andrew Newberg at the University of Pennsylvania, using standard imaging technologies, focused on monitoring the brain activity of spiritual practitioners as they exercise their practice, scanning the brains of nuns, Sikhs, and Buddhists. His research detected changes in their brains and reported, “Meditation involves attentional regulation and may lead to increased activity in brain regions associated with attention such as dorsal lateral prefrontal cortex (DLPFC) and anterior cingulate cortex (ACC).”<sup>5</sup> Out of this and other work has arisen the subdiscipline of neurotheology. It has left Newberg with the view “It is important to infuse throughout the principles of neurotheology the notion that neurotheology requires an openness to both the scientific as well as the spiritual perspectives.”<sup>6</sup>

---

*The SchwartzReport tracks emerging trends that will affect the world, particularly the United States. For EXPLORE it focuses on matters of health in the broadest sense of that term, including medical issues, changes in the biosphere, technology, and policy considerations, all of which will shape our culture and our lives.*

And, finally, taking the physiological to its limits and showing consciousness directly affecting material reality at a distance—nonlocal perturbation: Jeanne Achterberg's therapeutic intention studies show changes in the brain of the recipients toward whom a healer has expressed therapeutic intention. "Each healer selected a person with whom they felt a special connection as a recipient for Therapeutic Intention. Each recipient was placed in the MRI scanner and isolated from all forms of sensory contact from the healer. The healers sent forms of (TI) that related to their own healing practices at random 2-minute intervals that were unknown to the recipient. Significant differences between experimental (send) and control (no send) procedures were found ( $P = 0.000127$ ). Areas activated during the experimental procedures included the anterior and middle cingulate area, precuneus, and frontal area. It was concluded that instructions to a healer to make an intentional connection with a sensory isolated person can be correlated to changes in brain function of that individual."<sup>7</sup>

At the Division of Nuclear Medicine, Department of Radiology at the University of Pennsylvania, a team led by JF Peres, and including Newberg, has explored nonlocal perception—the acquisition of information that could not be known by reason of shielding, distance, or time. They "focused on the spiritual experiences involving dissociative states such as mediumship, in which an individual (the medium) claims to be in communication with, or under the control of, the mind of a deceased person," and writes messages."<sup>8</sup> This used to be called automatic writing, a technique involving nonlocal consciousness that has previously produced well thought of novels and poetry,<sup>9</sup> winning chess games,<sup>10,11</sup> and the reconstruction of Glastonbury Abbey.<sup>12</sup>

In the Peres team's protocol they "examined 10 healthy psychographers—five less expert mediums and five with substantial experience, ranging from 15 to 47 years of automatic writing and 2 to 18 psychographies per month—using single-photon emission computed tomography to scan activity as subjects were writing, in both dissociative trance and non-trance states. The complexity of

the original written content they produced was analyzed for each individual and for the sample as a whole. The experienced psychographers showed lower levels of activity in the left culmen, left hippocampus, left inferior occipital gyrus, left anterior cingulate, right superior temporal gyrus, and right precentral gyrus during psychography compared to their normal (non-trance) writing."<sup>8</sup>

### QUANTUM BIOLOGY

Quantum biology, another new subdiscipline, posits the following: life is a molecular process; molecular processes operate under quantum rules. Thus, life must be a quantum process. Experimental evidence is beginning to accumulate that this quantum view of life processes is correct. U.C. Berkeley chemist, Gregory S. Engel, led a team that ingeniously found a way to directly detect and observe quantum-level processes within a cell using high-speed lasers.<sup>13</sup>

In early 2012, a team led by Neill Lambert at the Advanced Science Institute, RIKEN, and Yueh-Nan Chen of the Department of Physics and National Center for Theoretical Sciences, National Cheng Kung University in Taiwan, published a meta-analysis review of the quantum biology literature to that date.

"Before the 20th century," they wrote, "biology and physics rarely crossed paths. Biological systems were often seen as too complex to be penetrable with mathematical methods. After all, how could a set of differential equations or physical principles shed light on something as complex as a living being? In the early twentieth century, with the advent of more powerful microscopes and techniques, researchers began to delve more deeply into possible physical and mathematical descriptions of microscopic biological systems... The pace of progress in this field is now rapid, and many branches of physics and mathematics have found applications in biology; from the statistical methods used in bioinformatics, to the mechanical and factory-like properties observed at the microscale within cells."

Their conclusion: "Recent evidence suggests that a variety of organisms may harness some of the unique features

of quantum mechanics to gain a biological advantage. These features go beyond trivial quantum effects and may include harnessing quantum coherence on physiologically important timescales."<sup>14</sup>

This work is of enormous importance because it is building step-by-step to the most refined quantum physicality. But even its most ardent exponents recognize that it has not given us the fullness of the mind. It has not answered what CU Smith of the Vision Sciences Laboratory at Aston University calls the "hard problem"—the neural correlates of consciousness (NCC). Smith examined the work of prominent modern investigators: J.C. Eccles/Friedrich Beck, Henry Stapp, Stuart Hameroff/Roger Penrose, and David Bohm and their attempts to show where in the brain's microstructure quantum effects could make themselves felt. Smith reluctantly concluded that "none have neurobiological plausibility."

Neuroscientists Jeffrey M. Schwartz and Mario Beauregard working with physicist Henry Stapp have also recognized this:

"Neuropsychological research on the neural basis of behavior generally posits that brain mechanisms will ultimately suffice to explain all psychologically described phenomena. This assumption stems from the idea that the brain is made up entirely of material particles and fields, and that all causal mechanisms relevant to neuroscience can therefore be formulated solely in terms of properties of these elements. Thus, terms having intrinsic mentalistic and/or experiential content (e.g. "feeling," "knowing" and "effort") are not included as primary causal factors. *This theoretical restriction is motivated primarily by ideas about the natural world that have been known to be fundamentally incorrect for more than three-quarters of a century* [emphasis added]."<sup>15</sup>

In a lecture in 1944, near the end of his life looking back, Planck said, "As a man who has devoted his whole life to the most clear headed science, to the study of matter, I can tell you as a result of my research about atoms this much: There is no matter as such. All matter originates and exists only by virtue of a force which brings the particle of an atom to vibration and holds this most

minute solar system of the atom together. We must assume behind this force the existence of a conscious and intelligent mind. This mind is the matrix of all matter."<sup>16</sup>

For Wolfgang Pauli, it was equally straightforward, "It is my personal opinion that in the science of the future reality will neither be 'psychic' nor 'physical' but somehow both and somehow neither."<sup>17</sup>

In the next generation, physicist Oliver Costa de Beauregard observed, "Today's physics allows for the existence of so-called 'paranormal' phenomena.... The whole concept of 'nonlocality' in contemporary physics requires this possibility."<sup>18</sup>

Einstein himself, who understood that every word he said or wrote would be viewed as historic had no problem writing, "A human being is a part of the whole, called by us 'Universe,' a part limited in time and space. He experiences himself, his thoughts and feelings as something separated from the rest a kind of optical delusion of his consciousness. This delusion is a kind of prison for us, restricting us to our personal desires and to affection for a few persons nearest to us. Our task must be to free ourselves from this prison by widening our circle of compassion to embrace all living creatures and the whole of nature in its beauty. Nobody is able to achieve this completely, but the striving for such achievement is in itself a part of the liberation and a foundation for inner security."<sup>19</sup>

Researchers have begun to explicitly consider how the nonlocal becomes local. Frecska and Luna, of the National Institute for Psychiatry and Neurology in Budapest, present a neuro-ontological interpretation of spiritual experiences: the prevailing neuroscientific paradigm considers information processing within the central nervous system as occurring through hierarchically organized and interconnected neural networks. The hierarchy of neural networks does not end at the neuroaxonal level; it incorporates subcellular mechanisms as well. When the size of the hierarchical components reaches the nanometer range and the number of elements exceeds that of the neuroaxonal system, an interface emerges for a possible transition between neurochemical and quantum

physical events. "Signal nonlocality," accessed by means of quantum entanglement, is an essential feature of the quantum physical domain. The presented interface may imply that some manifestations of altered states of consciousness, unconscious/conscious shifts, have quantum origin with significant psychosomatic implications."<sup>20</sup>

## NONLOCAL CONSCIOUSNESS RESEARCH

The third front exploring Planck's assertion is work that explicitly studies nonlocal consciousness through experimentation. These studies fall basically into two categories: nonlocal perception, the acquisition of information that could not be known through psychological sense perception and nonlocal perturbation, consciousness directly affecting matter, including therapeutic intention/healing.

Today there are six stabilized parapsychological protocols used in laboratories around the world exploring these two categories of phenomena. Under rigorous double or triple blind, randomized and tightly controlled conditions, each of these six has independently produced six sigma results; six sigma is one in a billion—1,009,976,678—or the 99.9999990699 percentile.

These six protocols each has its own literature. The results of all these studies are based on the sessions being double or triple blind and properly randomized, and that a pre-agreed analysis, including statistical evaluation for variance from chance, be part of the process. That is, we do not need to get bogged down in antiquated arguments about sleight-of-hand, secret cuing, and the like, although this remains a staple of nonlocal consciousness research criticism. This kind of criticism stopped being apposite several decades ago. As far back as the mid-1990s, after studying the data from just one of these four protocols, remote viewing, stalwart denier University of Oregon psychology professor Ray Hyman had to grudgingly admit,

"... the experiments [being assessed] were free of the methodological weaknesses that plagued the early ... research ... the ... experiments appear to be free of the more obvious and better known flaws that can invalidate the results of

parapsychological investigations. We agree that the effect sizes reported ... are too large and consistent to be dismissed as statistical flukes."<sup>21</sup>

In each case there is also a large enough body of research from enough different institutions, done by enough researchers that we have some idea of the process and how successful it can be. The studies, as I have noted, break down into two categories: nonlocal perception and nonlocal perturbation.

### Nonlocal Perception

**Remote viewing.** A double or triple blind protocol in which a participant is given a task that can be accomplished only through nonlocal perception, the acquisition of information that could not be known with the normal physiological senses because of shielding by time or space or both. Sitting in a room 2000 miles away, in answer to the question "Please describe the current circumstances and conditions of the target couple," you could not know they were at that moment standing beneath a waterfall in the mountains of Columbia standing next to the water surrounded by greenery, watching two flying parrots. But nonlocal perception can and has provided just such information many thousands of times under conditions that even skeptics have had to acknowledge. <sup>22</sup>

**Ganzfeld.** A protocol similar in intent to remote viewing in which an individual in a state of sensory deprivation provides verifiable information about film clips being shown at another location. <sup>23</sup>

**Presentiment.** A measurable psychophysical response that occurs before actual stimulation, such as the dilation of a participant's pupils while staring at monitor screen before the pictures appears. <sup>24</sup> Or, it is a change in brain function before a noise is heard. <sup>25</sup>

**Retrocognition/precognition.** Many protocols also involve time dislocation to the past or future to be successful. It is routine today to do remote viewing experiments in which the session data are collected and judged against a randomly

chosen target set before the target in that set is randomly selected.

In 2011, Italian experimental psychologist Patrizio Tressoldi, of the University of Padova, a scientist of the next generation too young to be involved with the remote viewing or Ganzfeld work of the 1960s through 2000, went back through all of the nonlocal perception research, both Ganzfeld and remote viewing, as well as anticipatory studies analyzing the data using both classical and Bayesian statistics. He stated explicitly that he accepted the famous phrase “extraordinary claims require extraordinary evidence,” often attributed to Carl Sagan but probably coined by University of Michigan sociologist Marcello Truzzi.<sup>26</sup> Tressoldi said the aim of his study was to “present a quantitative review of the evidence which is: mind may have nonlocal properties, that is, that some of its functions i.e. perceptual abilities may extend beyond its local functions, and beyond the space and time constraints of sensory organs. This quantitative review will be presented using both a classical frequentist and a new Bayesian meta-analytic approach.”<sup>27</sup> His results can be seen in the tables below (Tables 1 and 2).

### Nonlocal Perturbation

**Random event/number generator (REG/RNG) influence.** The REG protocol is actually two major protocols. The first constitutes studies in labs where an individual intends to affect

the performance of a physical system, such as a random number generator.<sup>28</sup>

**Global Consciousness Project.** The second is the Global Consciousness Project (GCP). Psychologist Roger Nelson of the Princeton Engineering Anomalies Research group studied the individual data coming out of the PEAR studies and understood the implication. Looking at the individual results in his lab he asked: Might it be possible that a mass of people having an individual but linked experience, some major highly emotional world event, could collectively produce a nonlocal perturbation effect?

To answer the question he designed and set up a worldwide constantly running coordinated network of computer-linked random number generators (RNGs). If there were indeed non-random patterning he would have a measure of social awareness. Consciousness linked nonlocally expressing itself as social awareness. And watching the data from events like the death of Princess Diana, the Japanese Tsunami, or Nelson Mandela's funeral that's what he saw.

Nelson describes it this way: “Subtle interactions link us with each other and the Earth. When human consciousness becomes coherent and synchronized, the behavior of random systems may change. Quantum event-based random number generators (RNGs) produce completely unpredictable sequences of

zeroes and ones. But when a great event synchronizes the feelings of millions of people, our network of RNGs becomes subtly structured. The probability is less than one in a billion that the effect is due to chance. The evidence suggests an emerging noosphere, or the unifying field of consciousness described by sages in all cultures. Coherent consciousness creates order in the world.”<sup>29,30</sup>

I am giving a slightly expanded description of this project compared with the others because it represents a new stage in nonlocal consciousness research. Whether neuroscience or parapsychology, most protocols address only the functioning of individuals. The Global Consciousness Project extends individual change in consciousness to its nonlocal social level demonstrating its interlinkage and interdependence.

The GCP data is cumulative and publicly available. It lists hundreds of events in which an hypothesis predicting an event has been advanced and the subsequent results are Significant, Predicted Direction, Opposite, and Opposite and Significant. The most recent event was the death of Nelson Mandela. The data record the timeframe, the hypothesis source, the number of REGs recording it, the Z-score, and the probability. For Mandella, they were 20131205, many people hypothesizing,<sup>45</sup> REGs reporting, a Z-score of 2.238, and a probability of 0.013. The write-up in GCP website says

**Table 1.** Meta-Analysis of Studies.

Meta-analysis	No. of studies	No. of participants	Fixed ES (0.95 CI)	Z	Random ES (0.95 CI)	Z	Bayes factor (H1/H0, two-tailed)	File drawer effect
Ganzfeld <sup>a</sup>	108	3650	0.12 (0.11–0.14)	19.36	0.13 (0.09–0.17)	6.39	18861051 <sup>b</sup>	357 <sup>c</sup>
ASC <sup>a</sup>	16	427	0.12 (0.09–0.15)	8.63	0.11 (0.03–0.19)	2.86	0.04764247	13 <sup>c</sup>
Anticipatory responses <sup>d</sup>	26	890	0.21 (0.15–0.27)	8.7	0.21 (0.13–0.29)	5.3	2.891308e <sup>+13</sup>	87 <sup>f</sup>
Normal SC <sup>a</sup> (free response)	14	1026	-0.015 (-0.03 to 0.005)	-1.48	-0.03 (-0.06 to 0.002)	-1.84	0.02924606	–
Normal SC <sup>e</sup> (forced choice)	72	69726	0.007 (0.006–0.007)	16.2	0.011 (0.006–0.015)	4.88	0.003162905 <sup>b</sup>	187 <sup>c</sup>

<sup>a</sup>Storm et al. 2010.

<sup>b</sup>A study excluded because N participants = 1.

<sup>c</sup>Darlington and Hayes's (2000) formula.

<sup>d</sup>Mossbridge et al. 2012.

<sup>e</sup>Storm et al. 2012.

<sup>f</sup>Orwin's (1983) fail-safe *n*.

Adapted with permission from Tressoldi.<sup>22</sup>



**Table 2.** Meta-Analysis of Studies.

Meta-analysis	No. of studies	No. of participants	Fixed ES (0.95 CI)	Z <sup>a</sup>	Bayes factor (H1/H0, two-tailed)	File drawer effect
Dunne and Jahn (2003)	Not defined	366	0.34 (0.19–0.49)	6.3	25424503838	849 <sup>b</sup>
Milton (1997)	78	1158	0.16 (0.10–0.22)	5.7		866 <sup>b</sup>

<sup>a</sup>Stouffer Z =  $\sum z / \sqrt{\text{Number of studies}}$ .

<sup>b</sup>Rosenthal's fail-safe *n*.

Adapted with permission from Tressoldi.<sup>22</sup>

“The two following figures represent the history of our formal hypothesis testing. The first shows the Z-scores for more than 425 formally specified events in an ordinary scatterplot. While there is a noticeable positive bias, it is not easy to see its significance. Yet the odds against chance of this meanshift over a database this size are about a 100 billion to one (Figure 1).

The second figure displays the same data as a cumulative deviation from chance expectation (shown as the horizontal black line at 0 deviation). Truly random data would produce a jagged curve with no slope, wandering up and down around the horizontal. The dotted smooth curves show the 0.05 and 0.001 and 0.000001 probability envelopes that indicate significant versus chance excursions. This figure can be compared with a “control distribution” using simulations of the event series.

The jagged red line shows the accumulating excess of the empirically normalized Z-scores relative to expectation for the complete dataset of rigorously defined events. The overall result is highly significant. The odds against

chance are much greater than a million to one”<sup>31</sup> (Figure 2).

A seventh protocol has also reached this level, although the results, at this stage, are still subject to differing interpretations:

**Staring.** A physiological response evoked by being the target of focused awareness.<sup>32</sup>

Since these protocols have the same fundamental methodology and collectively seek to study nonlocal consciousness, I believe they are best understood as one body of research.

To give some context, the six sigma effect of each of these protocols has demonstrated is considerably more powerful than that of 81 milligram aspirin regimes that constitute a foundation of hypertensive disease treatment. If you are middle-aged, or older, and particularly if you are a man, you may well be taking an 81-mg tablet every day—one of more than<sup>40</sup> million Americans. Jessica Utts, Chairman and professor of statistics at University of California, Irvine, decided to explore just exactly what the difference was between the “aspirin” effect and that

achieved in nonlocal research. Her study compared databases from two protocols, remote viewing and Ganzfeld, against the aspirin database. Writing in the *Journal of Scientific Exploration* she said

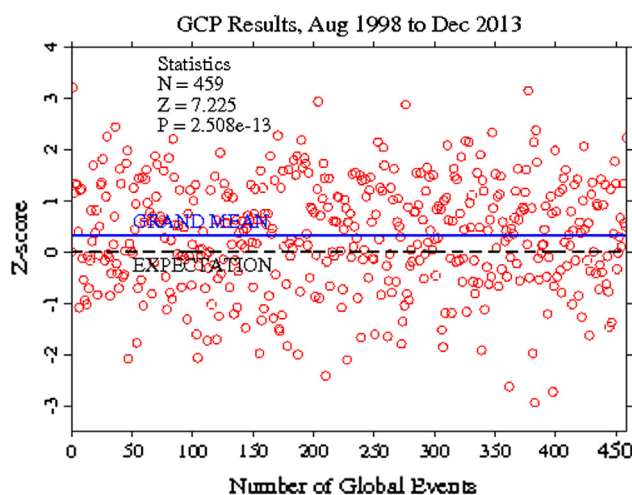
“In summary, how are the remote viewing and Ganzfeld results different from the antiplatelet and vascular disease conclusions?

- The psi experiments produced stronger results than the antiplatelet experiments, in terms of the magnitude of the effect. There is a 36% increase in the probability of a (result) over chance, from 25% to 34%. There is a 25% reduction in the probability of a vascular problem after taking antiplatelets.
- The antiplatelet studies had more opportunity for fraud and experimenter effects than did the psi experiments.
- The antiplatelet studies were at least as likely to be funded and conducted by those with a vested interest in the outcome as were the psi experiments.
- In both cases, the experiments were heterogeneous in terms of experimental methods and characteristics of the participants.

All of this leads to one interesting question: Why are millions of heart attack and stroke patients consuming antiplatelets on a regular basis, while the results of the psi experiments are only marginally known and acknowledged by the scientific community? The answer may have many aspects, but surely it does not lie in the statistical methods.”<sup>33</sup>

**NEAR DEATH EXPERIENCE RESEARCH**

The fourth research area is the study of Near Death Experiences (NDEs). These



**Figure 1**

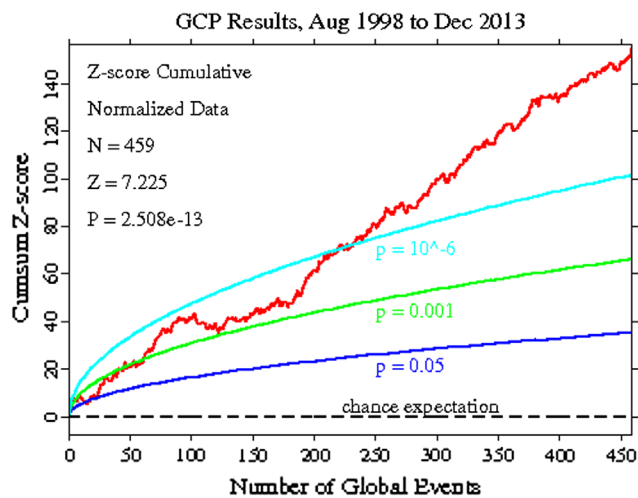


Figure 2

often deeply moving experiences have emerged as a field of study incorporating both neuroscience and laboratory clinical protocols.

NDEs have been explicitly reported—no interpretive analysis required—at least as far back as the fourth century BCE. In the 10th book of his *Republic*, Plato tells the story of:

“Er the son of Armenius, a Pamphylian by birth. He was slain in battle, and ten days afterwards, when the bodies of the dead were taken up already in a state of corruption, his body was found unaffected by decay, and carried away home to be buried. And on the twelfth day, as he was lying on the funeral pile, he returned to life and told them what he had seen in the other world. He said that when his soul left the body he went on a journey with a great company...”<sup>34</sup>

Since Er, there have been so many published accounts of Near Death Experiences that they constitute an independent literature numbering into the thousands of titles. But as large as that number has become, it is just the medical literature manifestation of a deeper point: recent well-conducted studies reveal that about 4.2% of the American public has reported a Near Death Experience. The population in the U.S. is a bit more than 315 million. So over 13 million people have reported having an NDE. To give that context, it is equivalent to all the Jewish people, all the Mormons, and Muslims as well, and most of the Buddhists. And that is but a

fraction of it. The near death experienter population is almost certainly much larger than 13 million because research has also revealed that many people do not immediately report experiences. Often they do not speak of it at all until years or decades later, which is a problem for researchers, and why prospective studies, such as that of Dutch cardiologist Pim van Lommel,<sup>35</sup> published in the *Lancet* 2001, are so important.

Experienters initially often keep quiet for fear of being ridiculed or embarrassed. As one experienter noted, “I couldn’t talk about it, or I would have been committed to an institution.”<sup>36</sup> Cherie Sutherland, a visiting research fellow in the School of Sociology at the University of New South Wales, a near death experienter herself, did a study, which showed that, “when people tried to discuss the NDE, 50 per cent of the relatives and 25 per cent of friends rejected the NDE, and 30 per cent of nursing staff, 85 per cent of doctors, and 50 per cent of psychiatrists reacted negatively.”<sup>37</sup>

Van Lommel tells this wonderful story to illustrate the dynamics in play: at an academic conference on NDEs a few years ago a respected cardiologist stood up and said, “I’ve worked as a cardiologist for 25 years now, and I’ve never come across such absurd stories in my practice. I think this is complete nonsense; I don’t believe a word of it.”

Whereupon, another man stood up and said, “I’m one of your patients. A couple of years ago I survived a cardiac arrest and had an NDE, and you would be the last person I’d ever tell.”<sup>38</sup>

Even when they do speak, experienters often do not quite know what to say. Based on hundreds of reports, it is easy to see that the experience is so powerful and often so foreign to the experienter’s view of reality that it takes many years of inner processing to fully come to terms with what happens to them. “It had such a profound effect on the rest of my life: the timelessness that I experienced; the knowledge that my consciousness will survive outside my body. It was enough to destabilize my life.”<sup>39</sup>

Two things have happened in medicine that make it clear that this area of research is going to grow. First, clinical practice in hospitals around the world has been sensitized to Near Death Experiences so more are being recorded. Second, near death experienters will increase in number thanks to increasingly sophisticated acute care medicine and cardiopulmonary resuscitation. And the growing number of survivors will produce social pressure to understand what death is. This is already what makes books on the subject bestsellers.

University of Virginia Division of Perceptual Studies researchers, Ed and Emily Kelly sum it up this way:

“... the central challenge of NDEs lies in asking how these complex states of consciousness, including vivid mentation, sensory perception, and memory, can occur under conditions in which current neurophysiological models of the production of mind by brain deem such states impossible. This conflict between current neuroscientific orthodoxy and the occurrence of NDEs under conditions of general anesthesia and/or cardiac arrest is head-on, profound, and inescapable. In our opinion, no further scientific or philosophic discussion of the mind-brain problem can be fully responsible, intellectually, without taking these challenging data into account.”<sup>40</sup>

The Director of Perceptual Studies, Bruce Greyson, who is also the Carlson Professor of Psychiatry and Neurobehavioral Sciences, has been researching NDEs for decades, and it has left him with this:

"A close examination of NDE research trends strongly suggests, as I have noted, that near death experiencers are growing in number thanks to evermore sophisticated acute care medicine and cardiopulmonary resuscitation; and that with medical staffs in hospitals around the world increasingly sensitized to NDEs, more are being recorded; and, more are occurring under highly controlled and monitored circumstances. One would assume that if NDEs were just a neurophysiological phenomenon this close control and scrutiny would result in the emergence of an explanatory materialistic model of these events incorporating, as Greyson et al. noted, "all relevant data, not just data supporting the a priori assumption that NDEs must be reducible to known neurophysiology."<sup>41</sup> Such has not been the case.

NDEs are not double-blind randomized experiments in the same way a remote viewing experiment or a presentiment study is, although they can be prospective. They have, however, something very important to say that extends our understanding of the nonlocal domain. If NDEs cannot be explained entirely by physiology because the brain is not functioning at all, or sufficiently to account for the sensorial and cognitive awareness that occurs, then it explicitly requires nonlocal consciousness. What is the source of the information experiencers bring back? What accesses it? Both the six protocols and NDEs invoke nonlocal consciousness, but only NDEs do so with a clinically dead brain. Treating both streams of research collectively enriches both, and allows the nature of the NDEs to be assessed in the context of, and benefiting from, the insights derived from the six sigma laboratory protocols I have already described.

### CONCLUSION—TWO MODELS

At present, models of consciousness can essentially be subdivided into two distinct broad categories. Models of the first type: physicalist models holding all consciousness as being contained within an organism's neuroanatomy. Models of the second type: nonlocal models—historically conceived of as esoteric/spiritual/or religious, and distinguished by the assumption that a significant aspect

of consciousness is not limited to the neuroanatomy, hence nonlocal.

Physicalist models assume the causality principle, use standard logic, and are based on high-quality reproducible experimental data. These models typically offer a plausible mechanism to account for the data. They basically follow the Cartesian analytic method and hold the view that science is deconstructing and analyzing a problem into simple parts that can be considered individually and, then, re-assembling to yield an understanding of the integrated whole. In essence, this mechanistic approach implies that consciousness is nothing but biological processes. Obviously all of this lies within the space-time domain.

The models of the second type, universal to almost all human cultures, are by their nature holistic and non-reductionist. They all include the idea that the whole is more than the sum of its physical parts, and that consciousness encompasses more than what can be explained by space-time. These models also universally recognize that understanding this aspect of consciousness requires both analysis and direct experience. In describing their experiences individuals persistently talk about "timeless-time" and "spaceless-space" in describing their experiences.

When we look at *both* classes of models a number of salient questions arise:

- Is there a reality behind each of these two classes of models of consciousness?
- Are these two realities distinct and separate from each other or do they overlap?
- Is it possible to use our standard scientific method to develop models that account for the second "non-scientific" transcendent reality as well?
- What would be an appropriate scientific methodology that would allow one to start developing such a unified theoretical model?

Kuhn, who coined the term paradigm recognized that paradigms can and should change because eventually they simply fail to explain observed phenomena. Eventually anomalies accumulate that the paradigm cannot encompass,

and these inadequacies force the paradigm into crisis. Kuhn saw this process of change as revolutionary not evolutionary, saying "Successive transition from one paradigm to another via revolution is the usual developmental pattern of mature science."<sup>42</sup>

In fact, he saw it changing for precisely the reasons I have discussed. He notes, "No ordinary sense of the term 'interpretation' fits these flashes of intuition through which a new paradigm is born. *Though such intuitions depend upon the experience, both anomalous and congruent, gained with the old paradigm, they are not logically or piecemeal linked to particular items of that experience as an interpretation would be* [emphasis added]."<sup>43</sup>

He goes on to say, "Scientists then often speak of the 'scales calling from the eyes' or of the 'lightning flash.'"<sup>44</sup>

It is one of the great ironies of science that its heroes are not revolutionaries just because of the quality of their insights. They are also revolutionaries because of the source, mechanism unknown, from which their information derives. At the deepest level, the process by which the information is obtained is as revolutionary as the information itself.

John Mihalasky<sup>45</sup> invokes intuition as an overt explanation, but tentatively, and Kuhn notes that it represents only a change in gestalt, a change in "beingness." "Normal science," he says, "ultimately leads only to the recognition of anomalies and to crises. And these are terminated not by deliberation and interpretation, but by a relatively sudden and unstructured event like a gestalt switch." Scientists, Kuhn states, then often speak of the "scales falling from my eyes" or of the "lightning flash" that "inundates" a previously obscure puzzle, enabling its components to be seen in a new way that for the first time permits its solution."<sup>7</sup> To someone interested in the field of nonlocal informational interactions this wording is virtually identical to that used by healers, remote viewers, spiritual pilgrims, and great artists.<sup>12</sup>

It is not easy to become a world historical person, even Presidents and Popes get lost in time. A notable percentage of the singular people who do reach this plateau describe their contribution as deriving from an experience of

an altered state of consciousness. One of the hallmarks is a sense of connection with a greater whole and a timeless spaceless awareness.

The Indian mathematician Srinivasa Ramanujan who, with almost no formal training, produced insights into the nature of numbers of such profundity that pure mathematicians still work to understand them nearly a century after his death. These moments of genius, came to him as Robert Kanigel explains, "It was the goddess Namagiri, he would tell friends, to whom he owed his mathematical gifts. Namagiri would write the equations on his tongue. Namagiri would bestow mathematical insights in his dreams."<sup>46</sup>

Perhaps the most ironic example of dreams as a part of the pattern is the account of René Descartes. On Saint Martin's eve (November 10) 1619, in Neuberg, Germany, he had an experience which led to what he called "a wonderful discovery."<sup>47</sup> From it he formulated "a marvelous science," a world view whose hallmark was its commitment to the primacy of the intellect, a view that has dominated how technological cultures have thought about the world ever since. What was this wondrous experience? It was that most non-intellectual of events: a series of three dreams.

And here is Johannes Brahms speaking of his state of consciousness while composing: "...in this exalted state I see clearly what is obscure in my ordinary moods; then I feel capable of drawing inspiration from above as Beethoven did.... Those vibrations assume the form of distinct mental images.... Straightaway the ideas flow in upon me... and not only do I see distinct themes in the mind's eye, but they are clothed in the right forms, harmonies, and orchestration. Measure by measure the finished product is revealed to me when I am in those rare inspired moods.... I have to be in a semi-trance condition to get such results—a condition when the conscious mind is in temporary abeyance, and the subconscious is in control, for it is through the subconscious mind, which is part of the Omnipotence, that the inspiration comes."<sup>48</sup>

Compare that with the autobiographies and biographies of saints such as St. John, St. Francis, and St. Teresa. They are filled with passages that sound

much like Brahms or the experiences of remote viewers. Often, as in the case of the Virgin Eustochium of Padua (1469 CE), the linkage with the nonlocal is explicit: "She ..showed in her childhood signs of being beset by certain influences of a strongly poltergeist type...."<sup>49</sup> And like the reports from geniuses and remote viewers, the accounts of saints again stress a sense of connection with something other than oneself. Of Beatrice of Ornacieu ( $\approx$  1309 CE) it was reported: "As we are accustomed to find in mystics who have many visions and other sensible communications with the unseen...."<sup>50</sup>

One can see the obvious similarities in these descriptions. We know them as moments of genius, religious epiphany, psychic insight, or Near Death Experiences. Many are the sources of historic change. And they have a fundamental unity: the experience of nonlocal consciousness, modulated by intention and context. Reductive materialism of 200 years has failed to explain them. They do, however, become comprehensible once nonlocal consciousness is recognized.

Based on the research being carried out across the spectrum of the sciences, I believe there are four relevant descriptors helping to define what the new paradigm might look like. They are as follows: (1) Only certain aspects of the mind are the result of physiologic processes. (2) Consciousness is causal, and physical reality is its manifestation. (3) All consciousnesses, regardless of their physical manifestations, are part of a network of life, which they both inform and influence and are informed and influenced by; there is a passage back and forth between the individual and the collective. (4) Some aspects of consciousness are not limited by the space time continuum, and do not originate entirely within an organism's neuroanatomy.

Two papers from the European Organization for Nuclear Research (CERN), one of the world's largest and most respected centers for scientific research, have just been published. Each is roughly 30 pages in length. Of those pages 19 have the single-spaced list of approximately 6000 names—the researchers who support the findings of the CERN experiments. The papers conclude there is a one-in-300-million chance that the Higgs Boson does

not exist, thereby validating the theory on why elementary particles have mass. It is by this collective assessment that the elusive Higgs Boson has been recognized as real.

Given the levels of evidence, how is this disparity possible between the reception of the Higgs Boson discovery compared with nonlocal consciousness research? The short answer, I think, is that we are seeing a demonstration of how culturally mediated science is. The Higgs Boson discovery is based on a less than a six sigma result; yet, because it confirms a theoretical prediction and pretty seamlessly fits into established physics it is accepted. In contrast the nonlocal consciousness research with results better than six sigma, because we do not yet have a satisfactory explanation as to how these phenomena happen, is not. The objection is fundamentally cultural, not scientific. For all that the data will not be denied forever, and a new paradigm is emerging.

## REFERENCES

1. Ryle G. *The Concept of the Mind*. Oxford: Hutchinson Edition. Oxford University Press; 1963.
2. Interview with Max Planck. The observer. January 25, 1931.
3. Bowden EM, Jung-Beeman M. Aha! Insight experience correlates with solution activation in the right hemisphere. *Psychon Bull Rev*. 2003;10(3):730–737 [PMID: 14620371].
4. Jung-Beeman M, Bowden EM, Haberman J, et al. Free in PMC Neural activity when people solve verbal problems with insight. *PLoS Biol*. 2004;2(4):E97 [Epub 2004 Apr 13].
5. Baron Short E, Kose S, Mu Q, et al. Regional brain activation during meditation shows time and practice effects: an exploratory fMRI study. *Evid Based Complement Alternat Med*. 2010;7(1):121–127. <http://dx.doi.org/10.1093/ecam/nem163> [Epub 2007 Dec 27].
6. Newberg A. *Principles of Neurotheology*. Burlington, VT: Ashgate; 2010.
7. Achterberg J, Cooke K, Richards T, Standish LJ, Kozak L, Lake J. Evidence for correlations between distant intentionality and brain function in recipients: a functional magnetic resonance imaging analysis. *J Altern Complement Med*. 2005;11(6):965–971 [PMID:16398587].
8. Peres JF, Moreira-Almeida A, Caixeta L, Leao F, Newberg A. Neuroimaging during trance state: a contribution to the study of dissociation. *PLoS One*. 2012;7(11):e49360.



- <http://dx.doi.org/10.1371/journal.pone.0049360> [Epub 2012 Nov 16].
9. Braude S. *Immortal remains : the evidence for life after death*. Lanham, MD: Rowman & Littlefield; 2003.
  10. Neppe VM. A detailed analysis of an important chess game: revisiting 'Maróczy versus Korchnoi'. *J Soc Psychical Res*. 2007;71(3):129–147.
  11. Eisenbeiss W, Hassler D. An assessment of ostensible communications with a grandmaster as evidence for survival. *J Soc Psychical Res*. 2006;70(2):129–147.
  12. Schwartz S. *The Secret Vaults of Time*. New York: Grosset; 1978;1–56.
  13. Panitchayangkoon G, Hayes D, Fransted KA, et al. Long-lived coherence in photosynthetic complexes at physiological temperature. *Proc Natl Acad Sci U S A*. 2010;107(29):12766–12770. <http://dx.doi.org/10.1073/pnas.1005484107> [Epub 2010 Jul 6].
  14. Lambert N, Chen YN, Cheng YC, Li CM, Chen GY, Nori F. Quantum biology. *Nat Phys*. 2013;9:10–18. <http://dx.doi.org/10.1038/nphys2474> [09 December 2012].
  15. Schwartz JM, Stapp HP, Beauregard M. Quantum physics in neuroscience and psychology: a neurophysical model of mind-brain interaction. *Philos Trans R Soc Lond B Biol Sci*. 2005;360(1458):1309–1327.
  16. Planck M. 'Das Wesen der Materie' Florence, Italy (1944). Archiv zur Geschichte der Max-Planck-Gesellschaft, Abt. Va, Rep. 11 Planck, Nr. 1797.
  17. Pais A, Pauli WE. *The Genius of Science*. Oxford, England: Oxford University Press; 2000.
  18. De Beauregard OC. The paranormal is not excluded from physics. *J Sci Exploration*. 1998;12:315–320.
  19. Einstein A. Letter dated 1950. In: Eves H, editor. *Mathematical Circles Adieu*. Boston: Prindle, Weber and Schmidt; 1977.
  20. Freska E, Luna LE. Neuro-ontological interpretation of spiritual experiences. *Neuropsychopharmacol Hung*. 2006;8(3):143–153.
  21. Hyman R. Evaluation of program on "anomalous mental phenomena". In: Mumford MD, Rose AM, Goslin DA, eds. *An Evaluation of Remote Viewing: Research and Applications*. Washington, DC: The American Institutes for Research (AIR); 1995; C62–96. [www.lfr.org/LFR/csl/library/AirReport.pdf](http://www.lfr.org/LFR/csl/library/AirReport.pdf). Accessed 10.08.12
  22. Tressoldi PE. Extraordinary claims require extraordinary evidence: the case of non-local perception, a classical and Bayesian review of evidences. *Front Psychol*. 2011;2:117. <http://dx.doi.org/10.3389/fpsyg.2011.00117>.
  23. Williams BJ. Revisiting the Ganzfeld ESP Debate: a basic review and assessment. *J Sci Exploration*. 2011;25(4):639–661.
  24. Radin D. Electrodermal presentiments of future emotions. *J Sci Exploration*. 2004;18(2):253–273.
  25. Mossbridge J, Tressoldi PE, Utts J. Predictive physiological anticipation preceding seemingly unpredictable stimuli: a meta-analysis. *Front Psychol*. 2012;3:390. <http://dx.doi.org/10.3389/fpsyg.2012.00390>.
  26. Truzzi M. An extraordinary claim requires extraordinary proof. On the extraordinary: an attempt at clarification. *Zetetic Scholar*. 1978;1(1):11.
  27. Tressoldi P. Extraordinary claims require extraordinary evidence: the case of non local perception, a classical and bayesian review of evidences. *Front Psychol* 2011 <http://dx.doi.org/10.3389/fpsyg.2011.00117>.
  28. Bosch H, Steinkamp F, Boller E. Examining psychokinesis: the interaction of human intention with random number generators—a meta-analysis. *Psychol Bull*. 2006;132:497–523.
  29. Nelson RD, Radin DI, Shoup R, Bancel PA. Correlations of continuous random data with major world events. *Found Phys Lett*. 2002;15:537–550.
  30. Nelson R, Bancel P. Effects of mass consciousness: changes in random data during global events. *Explore*. 2011;7:373–383.
  31. *Global Consciousness Project*. Formal results: testing the GCP hypothesis. (<http://teihard.global-mind.org/results.html#ldata>). Accessed 27.12.13.
  32. Schmidt S, Schneider R, Utts JM, et al. Distant intentionality and the feeling of being stared at: two meta-analyses. *Br J Psychol*. 2004;95:235–247.
  33. Utts J. The significance of statistics in mind-matter research. *J Sci Exploration*. 1999;13(4):615–638.
  34. Plato. Republic X,614 b,c,d <http://www.perseus.tufts.edu/hopper/text?doc=Perseus%3Atext%3A1999.01.0168%3Abook%3D10%3Asection%3D614b>. Accessed 28.05.2015.
  35. van Lommel P, van Wees R, Meyers V, Elfferich I. Near-death experience in survivors of cardiac arrest: a prospective study in the Netherlands. *Lancet*. 2001;358:2039–2045 [See Commentary page 2010].
  36. van Lommel P, van Wees R, Meyers V, Elfferich I. Near-death experience in survivors of cardiac arrest: a prospective study in the Netherlands. *Lancet*. 2001;358:62 [See Commentary page 2010].
  37. Sutherland, C. Transformed by the Light: Life after a near death experiences. Random House Australia.
  38. van Lommel P, van Wees R, Meyers V, Elfferich I. Near-death experience in survivors of cardiac arrest: a prospective study in the Netherlands. *Lancet*. 2001;358(9298):2039–2045. <http://www.ncbi.nlm.nih.gov/pubmed/11755611>. [See Commentary page 2010].
  39. van Lommel P, van Wees R, Meyers V, Elfferich I. Near-death experience in survivors of cardiac arrest: a prospective study in the Netherlands. *Lancet*. 2001;358:47 [See Commentary page 2010].
  40. Kelly E, Kelly E, Crabtree A, Gauld A, Grosso M, Greyson B. *Irreducible Mind*. USA & UK: Rowman & Littlefield; 2007.
  41. Greyson B. The psychology of near-death experiences and spirituality. In: Miller L, editor. *The Oxford Handbook of Psychology and Spirituality*. Oxford: Oxford U Press; 2012;514–527 [chapter 33].
  42. Kuhn T. The structure of scientific revolutions. University of Chicago: Chicago, 1962, p. 12.
  43. Kuhn T. The structure of scientific revolutions. University of Chicago: Chicago, 1962, p. 122.
  44. Kuhn T. The structure of scientific revolutions. University of Chicago: Chicago, 1962, p. 121.
  45. Mihalasky J. ESP: can it play a role in idea-generation? American Society of Mechanical Engineers Publication No. 72-DE-5, *Mech Eng* 1972.
  46. Kanigel R. *The Man Who Knew Infinity*. New York: Washington Square Press; 1992;36.
  47. Adams C, Tannery P. Oeuvres de Descartes (Vie de Descartes. vol. XII).
  48. Abell AM. Talks with the great composers. *Garmisch-Parten-Kirchen* 1964:19–21.
  49. Butler's Lives of the Saints. ed. Herbert Thurston. Christian Classics: Westminster, MD, 1990 p.325.
  50. Butler's Lives of the Saints. ed. Herbert Thurston. Christian Classics: Westminster, MD, 1990 p.324.

**Stephan A. Schwartz** is the editor of the daily web publication *The Schwartz-report* (<http://www.schwartzreport.net>), which concentrates on trends that will shape the future, an area of research he has been working in since the mid-1960s. He was previously the Senior Samuelli Fellow in Brain, Mind, and Healing at the Samuelli Institute. For over 35 years Schwartz has also been an active experimentalist doing research on the nature of consciousness, particularly remote viewing, healing, creativity, religious ecstasy, and meditation. He is the author of several books and numerous papers, technical reports, and general audience articles on these topics.