

## BOOK REVIEW

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**The Science of Near-Death Experiences**, edited by John C. Hagan III, Columbia, MO: University of Missouri Press, 2017. 169 + xiii pp., \$26.95 hc (ISBN 978-0-8262-2103-2); Kindle ed. \$16.17 e-book.

Just another book on near-death experiences (NDEs)—as if there aren't enough already? A resounding no! With some justification one can speak of this book as a breakthrough. The reason: It is a compilation of a fairly large number of articles that appeared in a high quality medical journal, *Missouri Medicine*, the journal of the Missouri State Medical Association. On a par with journals like *The Lancet* and *The British Medical Journal*, *Missouri Medicine* has an excellent reputation—and its editor, physician John C. Hagan III, dared to publish a series of articles on a subject that many physicians find controversial at the least. Some physicians continue to say, “NDE? Nothing but a hallucination caused by hypoxia” . . . or some other explanation that, in the end, is no explanation at all. Because there is no all-encompassing explanation for NDEs, all that can be done is to tell the public what an NDE is not and why that multitude of explanations does not hold. I think that has been done in an excellent way in this book, thanks to Hagan's true open-mindedness.

In his Introduction, Hagan explained how the two-special-journal-issues-turned-book came about. Prompted by a friend some years ago to read one book about NDEs, he proceeded to read more than a dozen, after which he “concluded [that] a multi-article peer-reviewed scien-

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tific study of NDEs by physicians and other scientists would be a tremendous precedent-setting achievement for medicine in general and *Missouri Medicine* in particular” (p. 3). One of the best decisions he made, I would like to say. For the first time his primary audience—all sorts of physicians—are assured of a series of articles written predominantly by medical peers. As Hagan explained:

The *Missouri Medicine* near-death experiences series republished in this book is the most encyclopedic and up-to-date in the world’s medical literature. We used two criteria when recruiting authors: (1) esteemed physicians or evidence-based scientific researchers in the field of near-death experiences; (2) physicians who themselves had a near-death experience. We preferred physician NDE accounts over non-physician NDE accounts because physicians are objective observers, they have direct understanding of possible physiological interpretations, and their scientific background lends added credibility to their reports. (p. 4)

In particular, criterion 2 is important, especially if the physicians had been highly skeptical of NDEs—until they had their own profound experiences. Indeed, this feature alone adds significant value to their testimonies. In this book three of them relate their accounts in separate chapters: ophthalmologist Jean Hausheer in Chapter 5, orthopedic surgeon Tony Cicoria in Chapter 6, and neurosurgeon Eben Alexander III in Chapters 11 and 13. The latter author’s NDE account is well known, of course, thanks to his book *Proof of Heaven* which, however, raised great turmoil amongst his fellow neurosurgeons as well as diehard skeptics such as Steven Novella and Sam Harris and was followed by a completely unjustified damning article in *Esquire* magazine by “star reporter” Luke Dittrich. Thorough criticisms of the many falsehoods in Dittrich’s article have been published by Robert Mays (2016) and in Chapter 11 of the book *The Self Does Not Die* (Rivas, Dirven, & Smit, 2016).

In Cicoria’s amazing account, his NDE occurred when he was struck by lightning, following which he manifested the aftereffect of an enormous urge to compose and play classical piano music. YouTubes of his performances can be found on the Internet and are very worth listening to. In his chapter, Cicoria not only related his own NDE but also pointed toward some other remarkable NDE stories to bolster the veracity of his own experience (pp. 58–61). He gave a brief but correct account of the famous Pamela Reynolds NDE during brain surgery. In passing he questioned the claims of such skeptics as anesthesiologist Gerald Woerlee, who asserted that Reynolds was conscious during the

operation, which her surgeons Robert Spetzler and his assistant Karl Greene vehemently denied (Rivas et al., 2016).

The accounts of these three physicians show the profoundness of the life-changing effects that near-death experiencers (NDErs) report. For example, Hausheer said:

I was forever changed by this experience. I was thrilled to have felt the wonder and beauty of the amazing love-light source that awaits us beyond life here on Earth. I believe and choose to call this love-light source God. I will never again fear death for myself or others. (p. 53)

The inclusion of these three accounts lends substantial credibility to Hagan's attempt to offer his readers an objective idea of what NDEs are about. The supposed lack of scientific support of these experiences is nicely remedied by the book's other chapters.

In Chapter 1 the "father" of NDE science, philosopher-psychiatrist Raymond Moody, gave an overview of the occurrence of NDEs over the ages, from ancient Greek times to the present day. It was he who coined the term *near-death experience* in his 1975 book *Life After Life*, which over the years has sold millions of copies. In it he compiled many telling accounts of such experiences and also presented a number of characteristics that constitute the prototypical NDE, such as the experience of moving through a dark tunnel towards a bright divine light, a life review, encounter with deceased loved ones, return to the physical body, and subsequent resumption of life on Earth but with profoundly changed attitudes toward life and other people. Most probably his findings formed the basis of all subsequent research into NDEs. But he conceded that "probably we are not much closer to an ultimate explanation of NDEs than were early thinkers like Plato and Democritus. Puzzling cases of NDEs come to light and the ancient debate of about what they mean continues unabated" (p. 17).

Chapter 2, *An Overview of Near-Death Experiences*, is from psychiatrist Bruce Greyson, currently the leading researcher of NDEs (Loseu, Holden, Kinsey, & Christian, 2013). He provided an extensive overview of possible explanatory models of NDEs, including birth memories, altered blood gases, REM intrusion—elaborated on by Kevin Nelson in a later chapter, toxic or metabolic hallucinations, neurochemistry, and neuroanatomy. Greyson explained how, based on four decades of NDE research, each of these models falls short as a plausible comprehensive explanation of NDEs. Next Greyson provided an exposé of the effects NDEs have on the lives of experiencers, asserting that "regardless of their cause, NDEs can permanently and dramatically alter the individual experiencer's attitudes, beliefs, and

values . . . the most commonly reported [being] loss of fear of death; strengthened belief in life after death; a new sense of purpose and mission in life;" and so on (p. 23). Equally important is the longitudinal research finding that such positive effects do not diminish over time. Unfortunately there can also be negative effects, in particular when the experience conflicts with the NDEr's previously held beliefs and attitudes. Then there is also the social response: Close relatives of the NDEr are not always able to handle the NDEr's newly found views on life. Divorce is fairly common among couples in which one of the two partners has gone through an NDE. In addition, some NDErs fear, and sometimes rightly so, they will be ridiculed by relatives, friends, and even health professionals such as psychiatrists who dismiss all NDEs as nothing but hallucinations of compromised brains. Greyson concluded by citing NDE researcher Nancy Evans Bush (1991) who summarized that NDE aftereffects "may include long-term depression, broken relationships, disrupted career, feelings of severe alieation, an inability to function in the world, [and] long years of struggling with the keen sense of altered reality" (p. 24).

Furthermore, Greyson had a clear answer to readers who suspect that NDErs are not sound of mind (As one notorious Dutch skeptic said: They have a screw loose in their heads.): "Retrospective studies of near-death experiencers have shown most of them to be psychologically healthy individuals" (p. 24). That finding does not alleviate the fact that reports of NDEs can be confused with several psychopathological conditions—and no wonder considering the enormous impact an NDE can have. Greyson addressed how NDErs show more symptoms of post-traumatic stress disorder (PTSD) than do survivors of close brushes with death without NDEs but not as many as people with clinical PTSD (p. 25). He closed his chapter by differentiating NDEs from other pathological conditions, by addressing briefly the subject of NDEs in psychiatric patients, and with a section about NDEs and consciousness. He opened that latter section by asserting that

Some of the phenomenological features of NDEs are difficult to explain in terms of our current understanding of psychological or physiological processes. For example, experiencers sometimes report having viewed their bodies from a different point in space and are able to describe accurately what was going on around them while they were ostensibly unconscious, or that they perceived corroborated events occurring at a distance outside the range of their sense organs, including blind individuals who describe accurate visual perceptions during their NDEs. (p. 26)

Quite so! In this regard, another book published shortly before *The Science of Near-Death Experiences* provided further corroboration of Greyson's assertion, the aforementioned *The Self Does Not Die* (Rivas, Dirven, & Smit, 2016), wherein my co-authors and I exhibited over 100 cases in which NDErs' paranormal perceptions were confirmed by independent third parties. Due to their volume, such cases cannot be simply dismissed as hoaxes, as collusions between the NDEr and a third person, or as other forms of fraud. But of course, a certain type of skeptic has resorted to such outlandish claims, only because they live by their adage, "It cannot be, therefore it isn't." But the only viable conclusion, for want of a better one, is that indeed the mind seems to be able to separate from the body while being capable of observations on its own. That, however, is my view; Greyson refrained from such a conclusion, stating more conservatively that the cumulative evidence "challenge[s] the common assumption in neuroscience that consciousness is solely the product of brain processes, or that the mind is merely the subjective concomitant of neurological events" (p. 27).

Chapter 3 was written by Dean Radin, one of the foremost researchers into the paranormal. Although I found this chapter very interesting, it somehow seemed 'the odd man out' compared to the other contents of the book. Titled *Out of One's Mind or Beyond the Brain? The Challenge of Interpreting Near-Death Experiences*, the chapter summarized a history of experimental parapsychology, the purpose of which escaped me. It seems that Radin still entertained the idea that NDEs might be brain-based hallucinations, dream-like images, or whatever. But, he quite nicely nullified this somewhat philosophically materialist approach by pointing towards the strong veridical nature of some NDEs:

If NDEs exclusively consisted of dream-like images, however vivid, convincing, or unusual as they may seem, then brain-oriented explanations would be plausible. But hallucinations do not cover the full phenomenology. Some NDEs also include perceptions reportedly from outside the body that could not have been inferred from information received through the ordinary senses, and that are verifiably correct. This does not happen very often, but that it happens at all challenges the assumptions that NDEs must be figments of the imagination, or that those reporting these experiences were discombobulated and, in a sense, going out of their minds. (p. 30)

I could not agree more.

In Chapter 4 cardiologist Pim van Lommel reported about the Dutch *Prospective Research on Near-Death Experiences During Car-*

*diac Arrest* study conducted between 1988 and 2001 when the results were published in *The Lancet*, the prominent British medical science journal. This multi-hospital study was the first and largest of its kind and was conducted under the auspices of Merkawah Foundation, now NetwerkNDE, the Netherlands affiliate of the International Association for Near-Death Studies, which was specially formed to conduct the study. Van Lommel was one of its five founding members.

I wish to point to the word *prospective*, which is accurately defined on the Internet:

A prospective study (sometimes called a prospective cohort study) is a type of cohort study, or group study, where participants are enrolled into the study before they develop the disease or outcome in question. The opposite is a retrospective study, where researchers enroll people who already have the disease/condition. Prospective studies typically last a few years, with some lasting for decades. (Statistics How To, 2017)

Indeed, up to the time of the Dutch study, most research had been retrospective, whereby researchers collected as many NDE cases as they could obtain and then analyzed the cases for possible commonalities. They did find commonalities, but such studies are flawed by difficulty in controlling a variety of factors. This in contrast to prospective studies wherein many more factors are under control. Among the very few previous prospective investigations was Sabom's (1981) landmark study. The Dutch study achieved this research design so well that some researchers, even more skeptical ones, dared to declare it the gold standard for research into NDEs.

Over a period of 12 years, van Lommel and his fellow-researchers Ruud van Wees, Vincent Meyers, and Ingrid Elfferich, with the assistance of numerous volunteers recruited by Merkawah Foundation, interviewed 344 survivors of cardiac arrest and found that 62 of them had undergone a more or less deep NDE. Moreover, these people were interviewed again after two and eight years to find out how much these experiences had stuck in their minds. It was established that their memories of the event had remained extremely vivid over the years, that there was no embellishment, and, moreover, that a substantial change of personality ensued and sustained after the experiences. It was also interesting to see that shortly after their experiences their fear of death had substantially diminished but even more so over time. This, by the way, is a major hallmark of NDEs: Very many experiencers have become convinced that there is no such thing as death but that instead there is only a separation of the consciousness Self—or

“soul”—from the body and that this soul continues to exist in another dimension—call it Heaven. Of course, neither the above summary nor van Lommel’s more detailed chapter include all the rich findings of the Dutch study. Interested readers are advised to look up the original *The Lancet* article, which is still available on the Internet (van Lommel, van Wees, Meyers, & Elfferich, 2001).

In Chapter 7, *NDEs and the Evidence for Their Reality*, oncologist Jeffrey Long provided a concise summary of his 2010 book describing his large-scale retrospective study of NDEs. Together with his wife, Jody Long, he has run the Near-Death Experience Research Foundation (NDERF) website ([www.nderf.org](http://www.nderf.org)). Over many years they have received over 3,700 NDE reports, which, he said, is by far the largest collection of publicly accessible accounts in the world, a claim I certainly cannot dispute. The main quality of this website is that any NDE account that qualifies according to a number of criteria can be posted and then studied. The site provides a form on which NDErs can share a detailed narrative of their experiences and includes a detailed questionnaire. Based on all these reports, Long found support for nine lines of evidence substantiating the reality of NDEs: (a) lucid organized experience while unconscious, comatose, or clinically dead; (b) seeing ongoing events from a location apart from the physical body while physically unconscious; (c) NDEs involving vision in the blind and supernormal vision; (d) NDEs that occur while under general anesthesia; (f) life reviews during NDEs; (g) encountering deceased loved ones during NDEs; (h) NDEs of young children; (i) cross-cultural NDEs; and (j) NDE aftereffects.

For each of these lines of evidence, Long provided both elaboration and verbal illustrations. For example, under point (d) he quoted an NDEr:

During my surgery I felt myself lift from my body and go above the operating table. The doctor told me later that they had kept my heart open and stopped for a long time, and they had a great amount of difficulty getting my heart started again. That must have been when I left my body because I could see the doctors nervously trying to get my heart going. It was strange to be so detached from my physical body. I was curious about what they were doing but not concerned. Then, as I drifted farther away, I saw my father at the head of the table. He looked up at me, which did give me a surprise because he had been dead for almost a year. (p. 69)

I found this chapter very informative. It concluded with an NDERF survey of 1,122 NDErs who were asked: *How do you currently view the*

*reality of your experience?* They responded: Experience was definitely real, 962 (95.6%); Experience was probably real, 40 (4.0%); Experience was probably not real, 3 (0.3%); Experience was definitely not real, 1 (0.1%). Long summarized:

The combination of the preceding lines of evidence converges on the conclusion that NDEs are medically inexplicable. Any one of several of the nine lines of evidence would likely be reasonably convincing for many scientists, but the combination of the presented nine lines of evidence provides evidence that NDEs are, in a word, real. (p. 77)

I agree. The problem, however is, that even the powerful evidence presented in this long and detailed 14-page chapter cannot persuade diehard skeptics who continue to insist that NDEs are nothing but elaborate hallucinations. Considering Long's evidence, I found such skepticism—actually, cynicism—to be untenable.

Chapter 8 is about Janice Miner Holden's study, *Apparently Non-Physical Veridical Perception in Near-Death Experiences*. I consider this study to be truly important because it highlights a relatively inconspicuous and rare aspect of some NDEs: perceived observations from beyond the physical body that are later verified as accurate, often by third parties. I and other authors have noted how, despite the strong evidential value of this phenomenon, critics have either willfully ignored or ridiculed it.

The chapter begins with this brief statement: "Apparently non-physical veridical perception has been documented in many cases, including as a result of prospective hospital studies of psychological experiences during cardiac arrest, but has so far eluded documentation under controlled hospital study conditions" (p. 79). And so it is, primarily because (a) cases of such perception are extremely rare, and (b) they happen spontaneously and, thus, cannot be anticipated and planned for. What remains are retrospectively reported cases from reliable sources, such as the following shorter version of which Holden cited a longer version (p. 82) from the source documentary that quite unfortunately is no longer available on the Internet:

Jean-Jacques Charbonier, a French anesthetist-ICU doctor at the Capio Clinique Saint-Jean Languedoc in Toulouse, France, became known for his work in the area of NDEs and life after death. In the documentary *Untimely Departure: Near-Death Experience* (a translation of the French-language documentary *Faux Départ—Enquête sur les EMI/NDE*), he mentioned a relevant case of a patient of his:

I operated on a woman under general anesthetic. And when she woke up, she described her operation as if she had been on the



ceiling. Not only that, she also described the operation that took place in the next theater, the amputation of a leg. She saw the leg; she saw them put the leg in a yellow bag. She couldn't possibly have invented that and she described it as soon as she woke up. I checked afterwards and the operation had indeed taken place in the next theater. A leg had been amputated at the very same time that she was under anesthetic, and thus totally disconnected from the world. (Rivas et al., 2016, p. 38).

One can safely accept that this account is true, and that credibility applies equally to many other cases that were confirmed by independent third parties. Holden said that cases like these “vary in evidential value, and even the most evidential have been the subject of heated debate in the professional literature” (p. 83). Therefore studies under controlled conditions are called for. Such studies have been based on the principle that patients who have a cardiac arrest on the operating table and then proceed to a material NDE—the aspect in which they perceive the material environment, usually from a position above the physical body—can identify an object high up in the operating room and facing the ceiling but not visible from below. To date, none of six of these studies, which were carefully planned, conducted by various researchers, and often proceeded over long periods of time, “captured” a case of an NDEr accurately describing a visual target. Returning again to the remaining evidence from documented cases of NDEs, Holden closed her chapter by referencing Rivas et al. (2016) that contains numerous cases of this type.

The next Chapter 9, *Through the Eyes of a Child—Near-Death Experiences in the Young* by PhD-level nurse Penny Sartori, is relatively brief. Her premise was that children's NDEs, including those they recall having occurred at their births, are particularly credible. Although skeptics claim that little children cannot have memories as early as their birth, credible people do report them. For example, I learned about the NDE of a baby during pregnancy. The woman who reported this NDE was traumatized throughout her life as she vividly recalled how she had seen from outside her mother's body how her angry father had kicked his wife in her belly to provoke a miscarriage. Although he failed and a normal delivery ensued, the evil deed of her father had been premanently imprinted in her mind. When she was older she questioned her mother, who could only confirm the accuracy of her memory.

As there are indeed relatively many NDE-reports from very young children that make sense, I have little reason to doubt the story of the aforementioned woman. Moreover, these stories have much in com-

mon with NDEs of adults. Children also experience OBEs, tunnels, divine light, and so on, but a distinctive feature seems to be that they are also often accompanied by a being that literally takes them by the hand. It is also remarkable that little ones can relate their NDEs quite coherently. Take this example from Sartori:

A four-year old boy experienced a cardiac arrest during surgery. A few months later following his recovery his father asked him what he would like to do for the day. The child replied that he wanted to go to the park. Puzzled by this request, his father asked which park he meant. They had never visited a park where they were living then (an army camp in Berlin). His son replied: "The one through the tunnel . . . The one I went to when I was in the hospital. There was a park with lots of children and swings and things, with a white fence around it. I tried to climb over the fence but this man stopped me and said that I wasn't to come yet and he sent me back down the tunnel and I was back in the hospital again." Astounded his father commented, "As he was only four at the time I cannot believe that he could make this story up." (p. 89)

I join the father in believing that a child of this age is relating truthfully what he experienced. Following their NDEs, some children's psyches are greatly impacted, whereas others accept the event and put it away in the back of their minds. The latter was the case with me. When I was six years of age I underwent an apparently difficult tonsillectomy. During that short operation I went through a tunnel, accompanied by a terrific sound, to a bright light at the end of the tunnel. But then I was suddenly back again in the operating room. But there was so much blood and pain that I almost collapsed. I had to stay home for three weeks before I could go to school again. The physical experience was so traumatic that I hid it in the deepest recesses of my mind. But 60 years later, when I was reading in van Lommel's (2007, Chapter 4) book about the connection between tonsillectomy and children's NDEs, the memory came flooding back. So because of my repression of my NDE I was not traumatized by it. However, Sartori told the story of a 49-year-old man, Jeffrey, who at age 12 was shot in the abdomen and experienced a distressing NDE. He became convinced death is inexorably unpleasant. Never fully understanding the experience or its aftereffects, more than 37 years later he was still trying to reconcile it—a process not uncommon among distressing NDErs.

Hence, Sartori admonished, parents and other caregivers of childhood NDErs should handle these experiencers with appropriate care and understanding. She finished her chapter thusly:

NDEs cannot be explained within the current reductionist belief system of consciousness as a byproduct of the brain. The results of prospective research have also ensured that NDEs can no longer be explained away but have to be taken seriously in order to provide essential aspects of patient care. The cases of very young children demonstrate that NDEs can occur when the brain is not fully developed, which also suggests that the NDE can occur independently of a functioning and/or mature brain. This leads to the conclusion that it would be logical to revise the dated concept of consciousness being produced by the brain and explore consciousness from alternative perspectives. Universal acceptance and recognition of NDEs is especially important in children whose developmental process may even be enhanced and have greater stability in adult life if their NDE is acknowledged at the time it is reported. (p. 92)

Wise counsel indeed!

In Chapter 10, *Distressing Near-Death Experiences—The Basics*, Nancy Evans Bush and Greyson dealt with perhaps the most contentious type of NDEs that has been reported over the years. Distress occurs in degrees, and for some NDErs their experiences were horrific. Research has established that such NDEs happen, but their frequency is uncertain because it is supposed that many experiencers who suffered from such horrendous NDEs have been reluctant to report them. Currently, it is thought that perhaps 20% of NDEs are of the distressing type, with three subtypes, for each of which Bush and Greyson offered detailed descriptions and examples: (a) the inverse NDE: Most commonly reported among distressing NDEs, these have the same characteristics as pleasurable NDEs but are perceived as hostile or threatening; (b) the void NDE: In this second-most-reported subtype, the NDEr finds oneself in an absolute, eternal void—hyperaware of being totally alone forever; and (c) the hellish NDE: In this least-reported and, of course, most terrifying type, the NDEr suffers some form of torment.

Mental health professionals are challenged to deal with experiences such as these, in particular when they have little or no knowledge of NDE phenomena. People who experienced this traumatic type of NDE seem to know this, too, so they tend to keep the experience to themselves and develop coping strategies, of which Bush and Greyson identified three. In the turnaround, the NDEr concludes, “I needed that experience” as a kind of warning and impetus to change their lives. As a response, some turn to orthodox Christianity, illustrated in the example of “an atheistic professor who during his NDE experienced

being maliciously pinched, then torn apart by malevolent beings, and subsequently left his university and attended seminary” (p. 96).

In the second coping pattern, the NDER explains (away) everything in physicalist, reductionistic terms. Examples: “There are rational explanations for what I experienced. . . . The brain under stress releases natural opiates that stop pain and fear. . . . Lack of oxygen disrupts the normal activity of the visual cortex. . . .” (p. 96). A confounding factor is that such an explanation may be right to some extent. After all, there is also the phenomenon of NDE-like experiences—those that occur outside the context of a real or feared close brush with death and that research has shown to be indistinguishable in contents and aftereffects from NDEs.

In the third coping pattern, the long haul, the NDER asks, “What did I do?”—that is, what did I do wrong to deserve this? This nagging question often pursues such NDERs for the rest their lives, as some of the citations in this chapter make abundantly clear. Often religion is involved in their ongoing torment, as seen, for example, in this exclamation: “I expected the Lord to be there, but He wasn’t . . . I called on God and He was not there. That’s what scared me” (p. 98).

However, the chapter authors asserted, there is hope. Under the heading “Posttraumatic Growth,” they offered a perspective whereby these seemingly horrific experiences result in psychospiritual development, especially if health professionals know how to take this perspective with NDER patients and clients.

The authors concluded their chapter with “seven things to know about distressing near-death experiences” (p. 99)—all well worth considering. However, there is still no answer to the nagging question why some people do have such sometimes horrible distressing NDEs in contrast to the seemingly great majority who experience pleasurable ones. It has nothing to do with someone’s character and position in society. Some people whom others have considered ‘good’ have had distressing NDEs, whereas some people whom others have considered ‘bad’ have had pleasurable NDEs. No matter what kind of NDE, researchers still have no idea what causes them. In the last paragraph of their summary, the authors stated: “In the absence of clear-cut clinical data and universal cultural views, physicians are advised that neutrality of opinion and careful listening are likely to constitute best professional practice for addressing these difficult, distressing near-death experiences” (p. 101).

The next Chapter 11, *Near-Death Experiences—The Mind-Body Debate & the Nature of Reality* by Alexander, is for a great part devoted to his own much-buzzed-about NDE. I alluded to this chapter at the beginning of this review. It is worth noting that Alexander sought a synthesis of science and spirituality. He finished his chapter as follows:

Thus, the ongoing interpretation of my deep coma experience, and of tens of thousands similar spiritually transformative experiences over millennia and across the globe, opens the door to a far richer understanding of the nature of reality. The non-locality of consciousness, i.e., that we can know things beyond the ken of our physical senses, is fundamental in the evolving science. Many top-tier scientists are already pursuing this version of truth, one far grander than anything offered by the simplistic materialistic science that fails to answer the most basic questions about consciousness or approach the enigma around the phenomena addressed through quantum physics (specifically the measurement problem).

The near-death experience community, as well as related spiritually-transformative experiences of all stripes, provides compelling evidence that consciousness is fundamental in the Universe. Spiritually and science strengthen each other greatly. Global awakening to this grand concept, not just among scientists but among all of us, is beginning even now. (p. 110)

And then there is Chapter 12, *Neuroscience Perspectives on Near-Death Experiences* by neurologist Kevin Nelson. It is my impression that Editor Hagan included this chapter with the sole aim of bringing some balance to the perspective that characterized the remainder of the book: that due to their very special nature, NDEs are medically unexplainable and, thus, one has to seriously consider the option of consciousness being a separate entity that is not caused by the brain and even can manifest itself apart from the brain. Nelson voiced a different view: that NDEs are entirely explainable in physicalistic terms. Moreover, he asserted that NDEs are somehow caused by or in some way connected to the phenomenon of REM intrusion whereby rapid eye movement (REM) dream imagery intrudes into consciousness, usually during the few moments of awakening from sleep, often accompanied by temporary physical paralysis. He had already verbalized this theory in a fairly thick book entitled *The Spiritual Doorway in the Brain: A Neurologist's Search for the God Experience* (Nelson, 2011). Actually, this chapter is an elaborate summary of that book. I think that his chapter will be a feast for those physicians who, attached as they are to the physicalist view that NDEs are nothing but elaborate hallucinations produced by the brain, find all the other chapters unac-

ceptable. For them the dualistic view of a physical brain and a mind or consciousness that somehow interact closely during life but under special circumstances, such as NDEs, can separate, is unthinkable if not ridiculous. Based on the various commentaries I have seen about NDEs issued by such physicalists, I have the impression that they also tend to have a dim view of NDErs and treat them accordingly, that is, not taking them seriously. This attitude does not, however, apply to Nelson; throughout both his previous book and this more recent chapter, he treated NDErs with respect.

But as for his treatment of the phenomenon, Titus Rivas and I offered our critique of Nelson's book in a review published in this *Journal* (Rivas & Smit, 2011). Greyson and Long (2006) also published a critique in their letter to *Neurology*. Amongst other things, Nelson saw a connection between REM intrusion and NDEs because, as he and his research team found, NDErs were 2.7 times more likely to report symptoms of REM intrusion than were subjects who had not experienced an NDE. Among my responses: That may be so, but correlation does not mean causation.

Other than that, Nelson offered several arguments advocating for the physicalist explanations. My biggest criticism of this chapter is that Nelson reiterated these previously-asserted arguments without responding to the critiques that were published subsequent to them. Particularity inexcusable, in my view, was his complete failure to address NDEs involving veridical perception verified by credible third parties. These extraordinary phenomena cannot possibly be accounted for by the standard physicalist explanations, let alone REM intrusion. Nelson appeared to pick out the evidence that supported his physicalistic views—but in science, that is not how it should be. Rather, one must consider ALL the evidence, not only the evidence that fits one's own ideas.

What I also found disturbing was Nelson's strong criticism of Alexander's approach toward his own NDE. It was the usual critique: that Alexander had discredited himself as a scientist by adopting the spiritualist explanation of his experience instead of the physicalist one. Considering the number of physician NDErs who have come forward and denounced physicalist interpretations—including not only those featured in this book but also Pam Kircher, Bob Brumblay, Rajiv Parti, and orthopedist Mary Neal—one wonders how many it would take—colleagues who have actually "been there," unlike Nelson who theorized from the proverbial armchair—for Nelson to acknowledge the unlikelihood that so many colleagues are all deluded.

But in Chapter 13, *Near-Death Experiences and the Emerging Scientific Views of Consciousness*, Alexander had the final word. After he had seen Nelson's article in *Missouri Medicine*, he felt compelled to respond, and rightly so, not least because many of Nelson's claims about Alexander were either downright false or misleading in other ways. I won't expand on that: Just read his chapter. But a few citations will do.

For example, Nelson said that a famous predecessor was implicitly in agreement with him. Alexander responded:

Nelson also claims this neurosurgeon [i.e. me EA] to be 'anti-scientific,' then erroneously pits me against the 'sage words of a brilliant Canadian neurosurgeon from the mid-twentieth century,' Wilder Penfield, MD. Dr. Nelson appears to have also completely misinterpreted Dr. Penfield's book and message, which, in fact, are closely aligned with my own view that the brain does not create the mind. (p. 134)

Alexander then went on to cite eight quotations from Penfield's book that unequivocally proved his point. I cite one of them:

It is an observation relevant to any inquiry into the nature of man's being, and in conformity with the proposition that the mind has a separate existence. It might even be taken as an argument for the feasibility and the possibility of immortality! (Penfield, 1975, p. 87).

Adding to this the other seven citations showed Nelson's interpretation of Penfield's perspective to have been a misrepresentation of it.

Let me close this entire review with a famous quote that opens this chapter of 14 pages: that of neurophysiologist and 1963 winner of the Nobel Prize in Medicine and Physiology, Sir John C. Eccles (1903–1997):

I maintain that the human mystery is incredibly demeaned by scientific reductionism with its claim in promissory materialism to account eventually for all of the spiritual world in terms of patterns of neuronal activity. This belief must be classed as superstition . . . we have to recognize that we are spiritual beings with souls existing in a spiritual world as well as material beings with bodies and brains existing in a material world. (Eccles, 1989, p. 249)

I consider this assertion to be a truly great vision from a great mind.

## Conclusion

Hagan wrote to me that “the goal [of this book] is to have medical schools and post-graduate programs give lectures on NDEs and medical staffs develop protocols for inquiry and treatment of people who have had NDEs” (J. Hagan, personal communication, July 5, 2017). He also said that he had received very few negative reactions, so it seems the book is successful. Even more so if physicians take heed of Raymond Moody’s advice to listen to and reassure patients who report NDEs (p. 16).

Indeed, this book may be influential among not only physicians but also other healthcare providers and the general public. Gallup (2016) polls indicate that, at least among Americans, physicians are consistently among the most trusted professionals. A book that was written primarily by physician researchers and NDErs and that represented a predominantly non-reductionistic perspective on NDEs holds the potential to increase credibility of NDEs among the general public, to promote appropriate treatment of NDErs by health professionals, and to advance the field of near-death studies by substantiating the validity of ongoing research on NDEs.

In short, I consider this a wonderful book that breaks new ground through its strong connection to the medical profession. I include it in the same league as other groundbreaking books on near-death and related phenomena, such as *The Handbook of Near-Death Experiences* (Holden, Greyson, & James, 2009) and *Irreducible Mind* (Kelly, Kelly, Crabtree, Gauld, Grosso, & Greyson, 2007).

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