

Does Paranormal Perception Occur in Near-Death Experiences?

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ABSTRACT: While most near-death researchers have disregarded reports of near-death experiences (NDEs) with hallucinatory features, many have sought cases of veridical paranormal perception during NDEs. But despite more than a quarter century of near-death studies, no compelling evidence that NDErs can obtain information from remote locations during their NDEs has been forthcoming. This paper, Part I of a critique of survivalist interpretations of NDEs, reviews the quality of the evidence for veridical observations during NDEs, and finds the case for veridical paranormal perception during NDEs wanting.

KEY WORDS: out-of-body experiences; near-death experiences; altered states of consciousness; embellishment; anesthesia awareness.

One of the major reasons that near-death experiences (NDEs) have captured the interest of Americans in recent decades has been the assumption that they provide glimpses of an afterlife (Basil, 1991; Serdahely, 1989). And by all indications, the majority of near-death researchers have taken up near-death studies precisely because they believe that NDEs provide evidence for life after death. Consequently, the hallucinatory nature of these experiences has been largely

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neglected, with many near-death researchers seeking out reports implying ostensibly veridical paranormal perception during NDEs. Despite these efforts, to date no researcher has provided compelling evidence for veridical perceptions during NDEs that could have originated only from a paranormal source. In this paper, Part I of a critique of survivalist interpretations of NDEs, I review the quality of the evidence for veridical paranormal perception during NDEs.

Veridical Paranormal Perception During Out-of-Body Experiences?

The majority of near-death researchers are interested in the subject because they believe that NDEs provide evidence for life after death. Thus near-death researchers generally disregard hallucinatory NDEs while searching for cases of veridical paranormal perception. But at the end of the day, we are left with no compelling evidence that NDErs have actually been able to obtain information from remote locations, and we have clear evidence that NDErs sometimes have *false perceptions* of the physical world during their experiences.

Mark Fox (2003) provided a very balanced assessment of the evidential value of near-death experiences. As a research committee member of the Religious Experience Research Centre at the University of Wales, Lampeter, Fox is certainly no enemy of dualism. Yet he concluded that NDE research to date largely *presupposes* some sort of dualism rather than providing evidence for it:

This needs to be spelled out loudly and clearly: twenty-five years after the coining of the actual phrase 'near-death experience', it remains to be established beyond doubt that during such an experience anything actually leaves the body. To date, and claims to the contrary notwithstanding, no researcher has provided evidence for such an assertion of an acceptable standard which would put the matter beyond doubt. (Fox, 2003, p. 340)

In fact, very few cases of “veridical perception” during NDEs have been corroborated. In many cases, details which are said to have been accurate “are not the kind that can easily be checked later” (Blackmore, 1993, p. 114). Even the “founding father” of near-death studies, Raymond Moody, conceded that most cases of alleged veridical perception during NDEs were found well after the fact and were usually attested to only by the NDEr and perhaps a few friends

(Blackmore, 1993). And in one study Carlos Alvarado found that although nearly one-fifth of participants claimed to have made “verifiable observations” during their out-of-body experiences (OBEs), only 3 of the 61 cases even “qualified as potentially veridical when experiencers were asked to provide fuller descriptions” (Alvarado, 2000, p. 187).

Susan Blackmore (1993) and Tillman Rodabough (1985) considered at length how accurate information can be incorporated into realistic out-of-body imagery during NDEs. Both concluded that the primary source of information in the construction of out-of-body imagery was probably hearing. Rodabough noted that patients who appear to be unconscious often repeat earlier comments made by doctors and nurses even without an OBE, and “have even been able to recall operating room conversations under hypnosis” (1985, p. 108). But Blackmore pointed out that other sensory sources of information are also available to patients. She noted that a residual sense of touch during NDEs could explain accurate details about where defibrillator pads were placed or where chest injections were administered (Blackmore, 1993).

Remaining out-of-body imagery is probably derived from imagination and general background knowledge. For example, Rodabough pointed out that childhood socialization trains us to imagine how we appear to others “from the outside”; thus visualizing oneself from a third-person perspective comes naturally (Rodabough, 1985). Blackmore noted that when people were asked to imagine walking down a beach, they usually pictured themselves from above, from a bird’s-eye perspective (Blackmore, 1993). Carol Zaleski suggested that we should expect some NDEs to include OBEs because the most natural way to imagine experiencing one’s death is to imagine looking down on one’s body from above, as people typically do when asked to imagine viewing their own burials:

The people who testify to near-death experience are neither Platonists nor Cartesians, yet they find it natural to speak of leaving their bodies in this way. There simply is no other way for the imagination to dramatize the experience of death: the soul quits the body and yet continues to have a form. (Zaleski, 1996, pp. 62–63)

Background knowledge also surely plays a role. Personal experience and media portrayals make it easy for us to imagine what a hospital scene should look like (Rodabough, 1985). Even specific details about people are fairly predictable in a hospital setting:

When either a person or their roles [*sic*] is well known, it is not difficult to predict dress or behavior. For example, isn’t it easy to

guess that a physician will wear his greens in surgery?... Behavior, particularly where strong emotions are concerned, may be even easier to predict. Mother falls apart and begins to sob hysterically while Dad puts his arms around her in consolation and stoically keeps his anxiety inside.... [Thus] *the probability of an accurate description can be high even without an out-of-body experience.* (Rodabough, 1985, p. 109; emphasis added)

Blackmore ultimately concluded that “prior knowledge, fantasy and lucky guesses and the remaining operating senses of hearing and touch,” plus “the way memory works to recall accurate items and forget the wrong ones” are sufficient to explain out-of-body imagery in NDEs (Blackmore, 1993, p. 115). Cases incorporating out-of-body discrepancies, including those based on misinterpretations of scraps of conversation (Lindley, Bryan, and Conley, 1981), appear to confirm this suggestion.

Our memories are constantly reconstructed as we retell stories about our pasts. When we have an extraordinary story to tell, such as how we found ourselves out of our body, with all that that suggests about the possibility of life after death, the likelihood of exaggeration – even unintentional exaggeration – is obvious. In such cases, ultimately “the version we tell is likely to be just that little bit more interesting or poignant than it might have been” (Blackmore, 1993, p. 115).

In fact, most NDE reports were provided to researchers years after the experience itself. Ultimately, all we have to go on are after-the-fact *reports* of private experiences. The constant reconstruction of memory makes it difficult to know just what NDErs have actually experienced. This problem was clearly recognized by Fox:

[T]he fact that NDErs’ testimonies are indeed retrospectively composed ... arouses a suspicion that what NDErs recall – and hence narrate – about their experiences may in fact be different to what they *actually* experienced during their near-death crises. ... [A]ttempting to ascertain what really happens to NDErs – what the core elements of their experiences actually are in and of themselves – may be nigh on impossible to determine. ... [W]hat is remembered about an experience or situation may not actually accurately correspond to what was experienced *at the time.* (Fox, 2003, p. 197)

Following Zaleski, Fox also wondered to what extent people other than the NDEr play a part in composing an NDE report. Both noted, for example, Moody’s concession that he sometimes used leading questions when interviewing respondents for his 1975 *Life After Life* (Fox, 2003; Zaleski, 1987). Zaleski also pointed out that after urging

his respondents to speak freely, Kenneth Ring would ask specific questions about whether his subjects encountered features of Moody's model of the NDE, such as: "[W]ere you ever aware of *seeing* your physical body?" or "Did you at any time experience a light, glow, or illumination?" (Zaleski, 1987, pp. 105–106). After Sabom allowed his patients to speak freely, he would also "delve for the elements described in *Life After Life*" (Zaleski, 1987, p. 109). One wonders how much similarity would have been found between individual NDE accounts in the West had these early researchers simply asked their respondents to speak freely about their experiences without steering them in a particular direction by probing for Moody's elements.

This raises further questions about the extent to which *other* near-death researchers have also used leading interviewing techniques (Fox, 2003). As Bruce Greyson pointed out, how a counselor responds to an NDEr "can have a tremendous influence on *whether the NDE is accepted and becomes a stimulus for psychospiritual growth* or whether it is regarded as a bizarre experience that must not be shared" (Greyson, 2000, p. 328; emphasis added). While some counselors might take a dismissive attitude to such experiences, many are likely to influence NDErs in the opposite direction, and near-death researchers seem particularly likely to reinforce an afterlife interpretation of NDEs. This may be one reason why so many NDErs accept that interpretation. Another may be that widespread belief in an afterlife among the general population has already primed NDErs to interpret unusual experiences on the brink of death in terms of an afterlife. And on top of such outside influences, Fox noted:

[Simply] having an experience which may *appear* to the subject to point to the possibility of immortality – such as an OBE whilst resting or sleeping, leading to the conviction that the soul can function independently of the body – may suffice to instil in him or her an often strong and permanent belief that personal death is not the end. ... And often their experiences are so vivid as to provide, for them, a solid basis for drawing conclusions across a wide range of important, existential issues: including the question of their own immortality and its relationship to the way they live and understand their lives *before* their deaths. (Fox, 2003, p. 287)

Taking an afterlife interpretation largely explains the transformative effects of NDEs on those who have them as well, though to gauge the extent of this, it would be interesting to see if "nonbelievers" had the same transformations as "survivalists" among NDErs.

Rodabough explained how unintentional interviewer feedback can contaminate NDE reports:

[I]f the resuscitated person gives a partially accurate account of some event taking place while he was “out,” the questioner may unintentionally give information which the resuscitated person unknowingly fits into his story. To some degree, we can visualize what we are told and not be sure which occurred first. ... This is likely to occur if the questioner wants to hear things a particular way and nonverbally reinforces the respondent when he hears what he wants. The high enthusiasm of the interviewer may unwittingly entice the respondents to embellish their experiences, and low enthusiasm may influence respondents to remain silent about puzzling or unusual experiences. (Rodabough, 1985, pp. 109–110)

In fact, in recent years a large number of NDE reports have been garnered from NDE support groups. Support group members have almost certainly shaped the content of individual NDE accounts through “biographical reshaping, deepening of commitment, and reinforcement of group belief” (Fox, 2003, p. 201).

British neuropsychiatrist Peter Fenwick asked how an experience as coherent as an NDE could be generated in a disorganized dying brain, and how it could be encoded for vivid recall later:

How is it that this coherent, highly structured experience sometimes occurs during unconsciousness, when it is impossible to postulate an organised sequence of events in a disordered brain? One is forced to the conclusion that either science is missing a fundamental link which would explain how organised experiences can arise in a disorganised brain, or that some forms of experience are transpersonal – that is, they depend on a mind which is not inextricably bound up with the brain. (Fenwick and Fenwick, 1995, pp. 235–236)

But as Gerald Woerlee pointed out, lack of oxygen to the brain blunts a subject’s judgment, creating a false confidence in one’s abilities and a false sense that one’s thinking is particularly keen – a well-known fact exhibited in the statements of clearly impaired drunk drivers. “This,” he argued, “is why people recovering from cardiac resuscitation never say their mental state during a period of consciousness such as an NDE was confused or befuddled” (Woerlee, 2004, p. 246).

Greyson offered a related argument:

[O]rganic brain malfunctions generally produce clouded thinking, irritability, fear, belligerence, and idiosyncratic visions, quite unlike the exceptionally clear thinking, peacefulness, calmness, and pre-

dictable content that typifies the NDE. Visions in patients with delirium are generally of living persons, whereas those of patients with a clear sensorium *as they approached death* are almost invariably of deceased persons. (Greyson, 2000, p. 334; emphasis added)

But in the case of “dreamlets” that occur during acceleration-induced loss of consciousness (G-LOC), pleasurable experiences caused by lack of oxygen to the brain during pilot blackouts, some “organic brain malfunctions” clearly produce hallucinatory experiences characterized by clarity of thought, euphoria, and the “realness” feel of the experience. As James Whinnery has reported, hypoxic G-LOC episodes have some similarities to NDEs, such as floating sensations, OBEs, visions of lights, and “vivid dreamlets of beautiful places that frequently include family members and close friends, pleasurable sensations, euphoria, and some pleasurable memories” (Greyson, 2000, p. 334). The ability to induce these dreamlets consistently in pilot centrifuges should have dispelled the myth that hypoxic hallucinations are nearly always frightening, confused, or disoriented. And the prevalence of visions of the deceased in NDEs is not surprising: patients who merely have delirium are not dying and have no particular expectation of dying. For the same reason, it should not be surprising that G-LOC dreamlets do not share other NDE features. The context of NDEs is much different, as the sensation or expectation of dying is much more likely in near-death contexts. And while Greyson pointed out that NDErs who had hallucinations prior to their NDEs describe their NDE worlds as “‘more real’ than the world of waking hallucinations” (2000, p. 334), the proper comparison is between NDEs and very vivid and realistic hallucinations that follow a loss of consciousness, such as dreams, not waking hallucinations.

In their prospective study of NDEs, Pim van Lommel and colleagues argued that NDE-like hallucinations induced in the laboratory are simply too fragmented to be comparable to NDEs (van Lommel, van Wees, Meyers, and Elfferich, 2001). So why do NDErs recall such vivid experiences, rather than fragments of memories, if NDEs are hallucinations? Fox suggested that the answer does not lie in what is happening to the brain *during* the NDE, but in how NDE reports are reshaped afterward:

[I]t is clearly probable that both the structured story which at least some NDErs tell and its vividness and clarity may both stem from a variety of sources other than the purely private experiences of the NDErs themselves. ... [P]lot and detail may potentially hail from

a wide range of sources, including ... the behaviour of near-death researchers themselves as they attempt to draw out a story along already existing and fixed lines, and the processes which have been seen to exist when the NDEr's story is told and retold before groups (which may themselves interact in the process of composition and reshaping of the original traveller's tale). (Fox, 2003, p. 203)

In fact, the comments of NDErs themselves provide evidence that NDE accounts become more elaborate over time while NDErs' commitment to the reality of their experiences deepens. After 23 years of trying to determine the significance of her NDE, one woman commented: "It was real then. It is more real now" (Zaleski, 1987, p. 150). Another NDEr noted that what he understood and remembered about his NDE had "grown ... through the years of communicating it to others" (Zaleski, 1987, p. 150). In one of the more reliable studies of NDE incidence and transformation, van Lommel and colleagues found that the transformations widely believed to occur after NDEs actually do occur, but that "this process of change after NDE tends to take several years to consolidate" (van Lommel, van Wees, Meyers, and Elfferich, 2001, p. 2043). In other words, the transformative effect of NDEs on NDErs is not immediate, but gradual. This suggests that NDE transformations do not result from the NDE itself, but from reflecting on the meaning of the experience – that is, from the added layers of meaning and interpretation NDErs' place on their NDEs.

Rense Lange, Greyson, and James Houran have even found suggestive statistical evidence for embellishment. In the process of establishing that the NDE Scale can reliably diagnose and measure the depth of NDEs, these researchers made a curious discovery about their sample of NDErs. Plotting data on when an NDE occurred against when it was reported, they found that "when reported at a later age (50 years or older) NDE[s] appear *more intense* than when reported earlier (49 or younger), and the *intensity of the reported NDE[s] increased with their latency* (shorter vs. longer than 15 years)" (Lange, Greyson, and Houran, 2004, p. 168; emphasis added). In other words, the longer the delay between having the experience and reporting it, the more intense the NDE that was reported. As the authors noted, however, these findings conflict with those of a similar study by Alvarado and Nancy Zingrone, and David Lester found no correlation between NDE depth – as measured by Ring's Weighted Core Experience Index – and length of delay between the NDE and when it was reported (Lange, Greyson, and Houran, 2004). Conse-

quently, the discovery of embellishment in the Lange-Greyson-Houran study may have been peculiar to that particular sample of NDErs, rather than a finding that should be generalized to all NDErs. The authors suggested longitudinal studies to definitively determine the extent of embellishment in NDEs (2004, p. 173).

Further evidence that NDE accounts are continually reshaped over time to make them more coherent and interesting comes from comparisons between the NDEs reported by adults and those reported by children. Childhood NDE reports almost always consist only of memory fragments. Both Fenwick and Melvin Morse found that childhood NDEs tend to be much more fragmentary than those of adults (Fenwick and Fenwick, 1995; Morse, 1994). This makes sense, for children have fewer conceptual resources to draw on and so are much less likely to incorporate unconscious embellishments in their accounts when recalling their NDEs.

Given fragmentary experiences of any sort, the brain will often fill in the gaps with plausible guesses about what happened in the missing intervals in order for an experience to make sense. Human memory relies on plausible after-the-fact reconstructions of events that often incorporate details invented by the subject, details that were never actually experienced. For example, a witness may provide a description of a robber wearing the wrong color of clothing. Since adults have already developed complex ways of making sense of their experiences, while children have comparatively simple thought processes, it would not be surprising for adult NDErs to embellish reports of their experiences unconsciously with after-the-fact interpretations of them. This seems to be the most likely explanation for why adult NDE reports are so vivid and structured, flowing seamlessly from one NDE element to another, while childhood NDEs tend to be fragmentary.

Van Lommel and colleagues opened their discussion of the results of their landmark longitudinal study with an argument against physiological explanations for NDEs:

Our results show that medical factors cannot account for [the] occurrence of [the] NDE; although all [of our] patients had been clinically dead, most did not have [an] NDE. Furthermore, seriousness of the crisis was not related to occurrence or depth of the experience. If purely physiological factors resulting from cerebral anoxia caused [the] NDE, most of our patients should have had this experience. (van Lommel, van Wees, Meyers, and Elfferich, 2001, p. 2043)

One possible answer to this argument was anticipated in Blackmore's model of the NDE: There are different kinds of anoxia, and rate of onset, amount of time before oxygen restoration, and similar factors have to fall within the right ranges before an NDE can take place. Apparently, for the vast majority of cardiac arrest survivors, this does not happen, and so NDEs are rare among them, no matter how close they come to death as measured by some objective criterion. Another possible answer, perhaps complementary to Blackmore's, is suggested by Willoughby Britton and Richard Bootzin's (2004) research: If only a small minority of those who come close to death are physiologically predisposed to have NDEs, the vast majority will experience nothing – and this is exactly what we find.

On the other hand, what of the alternative explanation? If NDEs were really glimpses of an afterlife, why is it that only a fraction, about 10 to 20 percent of those who come close to death (van Lommel, van Wees, Meyers, and Elfferich, 2004), report them? Physiology provides a ready answer: Woerlee has calculated that around 20 to 24 percent of those undergoing cardiopulmonary resuscitation (CPR) have some degree of consciousness restored *during* CPR, a fraction of whom could be having NDEs precisely because the conditions are ripe for an altered state of consciousness (Woerlee, 2004). And why are NDEs not reported nearly 100 percent of the time after the controlled induction of hypothermic cardiac arrest or “standstill,” where patients are clinically dead for up to an hour? The vast majority of those who come as close to death as possible without actually dying experience *nothing at all* (van Lommel, van Wees, Meyers, and Elfferich, 2004). If NDEs are to be understood as glimpses of an afterlife, are we to conclude that 80 percent of individuals cease to exist when they die, while the remaining 20 percent survive bodily death?

While some NDErs claim to see things accurately that they could not possibly see from their bodies, such anecdotes are difficult to corroborate, and it would not be surprising if NDErs consciously or unconsciously exaggerated the accuracy of their descriptions in order to validate their experiences. As we shall see later, many NDErs are already known to exaggerate claims about their psychic abilities after their NDEs; so it would not be surprising for them to exaggerate claims about what they saw during their out-of-body experiences as well.

The near-death literature is filled with anecdotes of NDErs providing accurate details about events that they could not have possibly learned about through normal means. But as I hope to make

clear, claims of unequivocal paranormal perception during NDEs are greatly exaggerated. Let us take a closer look at a few well-known cases widely held to provide such evidence.

Maria's Shoe

In 1984 Kimberly Clark reported a sensational case of apparent veridical paranormal perception during an NDE. Seven years earlier, in April 1977, an out-of-town migrant worker known only as "Maria" was admitted to the coronary care unit of Seattle's Harborview Medical Center after a heart attack. Three days later, Maria had a second heart attack while still hospitalized and was quickly resuscitated. When Clark came to check on Maria's condition later that day, Maria reported an OBE in which she witnessed her resuscitation from above, noting printouts flowing from the machines monitoring her vital signs. Next she reported becoming distracted by something over the area surrounding the emergency room entrance and "willing herself" outside of the hospital. She accurately described the area surrounding the emergency room entrance, which Clark found curious since a canopy over the entrance would have obstructed Maria's view if she had simply looked out of her hospital room window. Maria then became distracted by something on a third-floor window ledge on the far side of the hospital, "willing herself" to this location as well. From this apparent vantage point, she noted a left-foot man's tennis shoe on a third-floor window ledge. She described the shoe as dark blue with a worn-out patch over the little toe and a single shoelace tucked under its heel. To corroborate her story, Maria asked Clark to go look for the shoe (Clark, 1984, pp. 242-243).

Unable to see anything from outside the hospital at ground level, Clark reported, she proceeded to search room-to-room on the floor above Maria's room, pressing her face hard against the windows to see their ledges. Eventually she came across the reported shoe on the ledge outside one of the rooms, but insisted that she could not see the worn-out toe facing outward or the tucked-in shoelace from inside the room. Clark then removed the shoe from the ledge. Ring and Madelaine Lawrence hailed this report as one of most convincing cases of veridical paranormal perception during NDEs on record:

[T]he facts of the case seem incontestable. Maria's inexplicable detection of that inexplicable shoe is a strange and strangely beguiling sighting of the sort that has the power to arrest the

skeptic's argument in mid-sentence, if only by virtue of its indisputable improbability. (Ring and Lawrence, 1993, p. 226)

This case has taken on the status of something of an urban legend, allegedly demonstrating that Maria learned things during her OBE that she could not have possibly known about other than by actually leaving her body. But as Hayden Ebborn, Sean Mulligan, and Barry Beyerstein made clear, the details Maria reported were in fact quite accessible to her through ordinary sense perception and inference.

In 1994 Ebborn and Mulligan visited Harborview to survey the sites where the NDE took place and to interview Clark. They were unable to locate "Maria" or anyone who knew her personally and suspected that she was then deceased (Ebborn, Mulligan, and Beyerstein, 1996). They examined each of the details of Clark's report and found the case much less impressive than it had been made out to be. First, after being hospitalized for three days, Maria would have been quite familiar with the equipment monitoring her; so her perception of the printouts during her OBE may have been nothing more than "a visual memory incorporated into the hallucinatory world that is often formed by a sensory-deprived and oxygen-starved brain" (Ebborn, Mulligan, and Beyerstein, 1996, p. 31). Second, her perception of details concerning the area surrounding the emergency room entrance were of details that "common sense would dictate" – such as the fact that the doors opened inward, accommodating paramedics rushing in patients who need immediate attention (Ebborn, Mulligan, and Beyerstein, 1996, p. 31). Moreover, she was brought into the hospital through this very entrance – albeit at night, but the area was well-lit – and could have picked up details about it from normal sensory channels then (Ebborn, Mulligan, and Beyerstein, 1996). The fact that rushing ambulances would traverse a one-way driveway, too, is something anyone could infer from common sense. Finally, Maria's hospital room was just above the emergency room entrance for a full three days before she had her OBE, and "she could have gained some sense of the traffic flow from the sounds of the ambulances coming and going" and from nighttime "reflections of vehicle lights" even if she never left her bed (Ebborn, Mulligan, and Beyerstein, 1996, p. 32).

But what of the most persuasive aspect of her report, her description of the infamous shoe? How difficult would it have been for her to learn these details *without* having left her body? Ebborn and Mulligan set out to determine exactly that:

As part of our investigation, Ebborn and Mulligan visited Harborview Medical Center to determine for themselves just how difficult it would be to see, from outside the hospital, a shoe on one of its third-floor window ledges. They placed a running shoe of their own at the place Clark described and then went outside to observe what was visible from ground level. They were astonished at the ease with which they could see and identify the shoe.

Clark's claim that the shoe would have been invisible from ground level outside the hospital is all the more incredible because the investigators' viewpoint was considerably inferior to what Clark's would have been seventeen years earlier. That is because, in 1994, there was new construction under way beneath the window in question and this forced Ebborn and Mulligan to view the shoe from a much greater distance than would have been necessary for Clark. (Ebborn, Mulligan, and Beyerstein, 1996, p. 32).

As the authors noted, what was a construction area for them in 1994 was a high-traffic parking lot and recreation area back in 1977, providing an even better view of Maria's shoe than the one they saw so easily. Their 1994 "test shoe" was so conspicuous, in fact, that by the time they returned to the hospital one week later, "someone not specifically looking for it" had noticed it and removed it (Ebborn, Mulligan, and Beyerstein, 1996, p. 32). It is quite likely, then, "that anyone who might have noticed the shoe back in 1977 would have commented on it because of the novelty of its location" and Maria could have heard such a conversation and consciously forgotten about it, incorporating it into her out-of-body imagery (Ebborn, Mulligan, and Beyerstein, 1996, p. 32). Moreover, even if no one had seen it from the ground level, Ebborn and Mulligan tested Clark's claim that Maria's shoe was impossible to see from inside the room unless she pressed her face hard against the glass looking for it. This claim was found to be wanting:

They easily placed their running shoe on the ledge from inside one of the rooms and it was clearly visible from various points within the room. There was no need whatsoever for anyone to press his or her face against the glass to see the shoe. In fact, one needed only to take a few steps into the room to be able to see it clearly. To make matters worse for Clark's account, a patient would not even need to strain to see it from his or her bed in the room. So it is apparent that many people inside as well as outside the hospital would have had the opportunity to notice the now-famous shoe, making it even more likely that Maria could have overheard some mention of it. (Ebborn, Mulligan, and Beyerstein, 1996, p. 32)

The authors added that anyone who did press his or her face against the glass to get a closer look at the conspicuous shoe from inside the room could easily have seen the worn-out little toe and tucked shoelace: “we had no difficulty seeing the shoe’s allegedly hidden outer side” (1996, p. 32). They concluded:

[Maria’s shoe] would have been visible, both inside and outside the hospital, to numerous people who could have come into contact with her. It also seems likely that some of them might have mentioned it within earshot. ...

... [And Clark] did not publicly report the details of Maria’s NDE until seven years after it occurred. It is quite possible that during this interval some parts of the story were forgotten and some details may have been interpolated. ... [Moreover], we have no way of knowing what leading questions Maria may have been asked, or what Maria might have “recalled” that did not fit and was dropped from the record. (Ebborn, Mulligan, and Beyerstein, 1996, pp. 32–33)

Furthermore, Clark’s inaccurate account of how difficult the shoe was to see from both inside and out provides evidence that she subconsciously embellished significant details to bolster the apparently veridical nature of the case (Ebborn, Mulligan, and Beyerstein, 1996).

Pam Reynolds

As Michael Sabom recounted in *Light & Death* (Sabom, 1998), in August 1991 a then 35-year-old woman he called “Pam Reynolds” (a pseudonym) underwent an innovative procedure to remove a brain aneurysm. The procedure, inducing hypothermic cardiac arrest or “standstill,” involved lowering Reynolds’s body temperature to 60°F, stopping her heart and breathing, and draining the blood from her brain to cool it and then reintroduce it. When her body temperature had reached 60°F and she had no electrical activity in her brain, her aneurysm was removed. About 2 hours after awaking from general anesthesia, Reynolds was moved into the recovery room still intubated (Sabom, 1998). At some point after that, the tube was removed from her trachea and she was able to speak. She reported a classic NDE with a vivid OBE, moving through a “tunnel vortex” toward a “pinpoint of light” that continually grew larger, hearing her deceased grandmother’s voice, encountering figures in a bright light, encountering deceased relatives who gave her “something sparkly” to eat, and being “returned” to her body by her deceased uncle (Sabom, 1998, pp. 42–46).

The case soon became infamous because of the lack of synaptic activity within the procedure and Reynolds's report of an apparently veridical OBE at some point during the operation. But it has been sensationalized at the expense of the facts, facts that have been continually misrepresented by some parapsychologists and near-death researchers. Although hailed by some as "the most compelling case to date of veridical perception during an NDE" (Corcoran, Holden, and James, 2005), and "the single best instance we now have in the literature on NDEs to confound the skeptics" (Ring, 2000, p. 218), it is in fact best understood in terms of normal perception operating during an entirely nonthreatening physiological state.

Two mischaracterizations of this case are particularly noteworthy, as their errors of fact greatly exaggerate the force of this NDE as evidence for survival after death. First, in their write-up of their prospective study of NDEs, van Lommel and colleagues wrote:

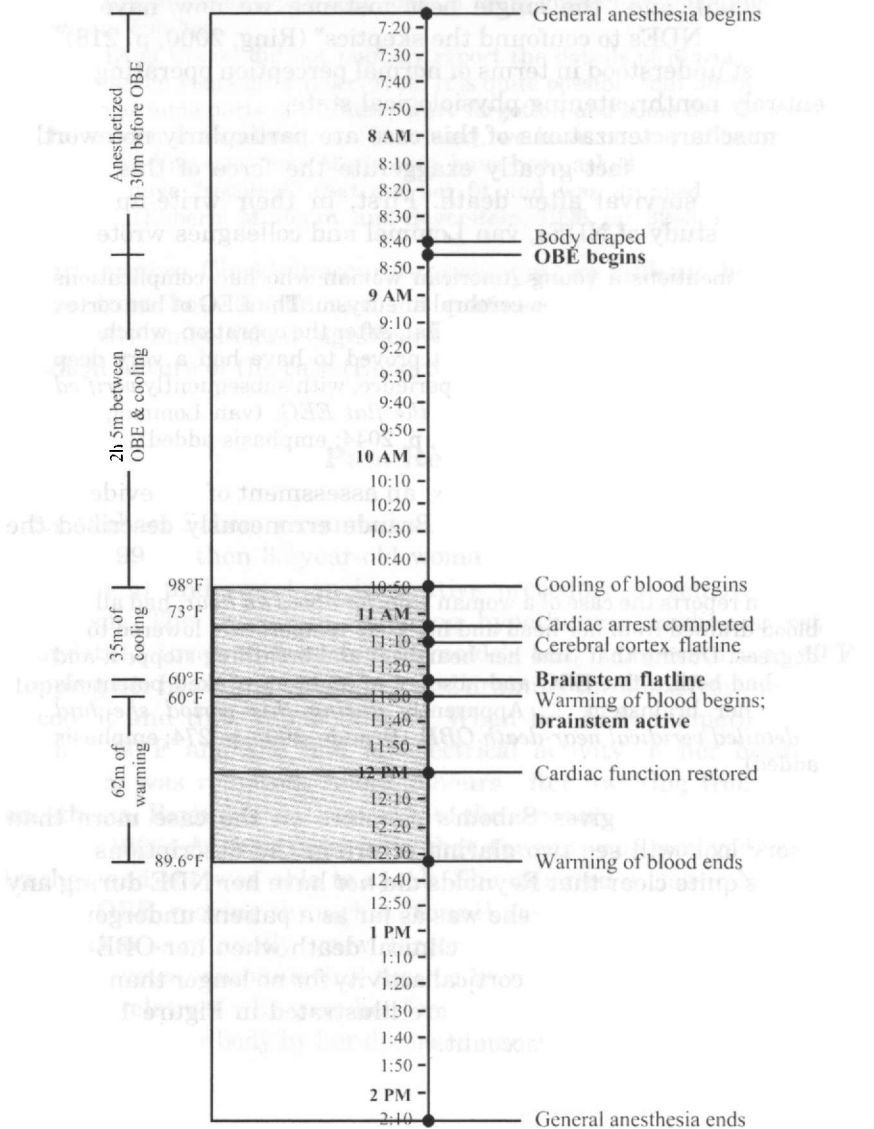
Sabom mentions a young American woman who had complications during brain surgery for a cerebral aneurysm. The EEG of her cortex and brainstem had become totally flat. After the operation, which was eventually successful, this patient proved to have had a very deep NDE, including an out-of-body experience, with subsequently *verified observations during the period of the flat EEG*. (van Lommel, van Wees, Meyers, and Elfferich, 2001, p. 2044; emphasis added)

Second, in his *Immortal Remains*, an assessment of the evidence for survival of bodily death, Stephen Braude erroneously described the case as follows:

Sabom reports the case of a woman who, *for about an hour*, had all the blood drained from her head and her body temperature lowered to 60 degrees. During that time her heartbeat and breathing stopped, and she had both a flat EEG and absence of auditory evoked potentials from her brainstem. ... *Apparently during this period she had a detailed veridical near-death OBE*. (Braude, 2003, p. 274; emphasis added)

But anyone who gives Sabom's chapters on the case more than a cursory look will see two glaring errors in the descriptions above. First, it is quite clear that Reynolds did *not* have her NDE during any period of flat EEG. Indeed, she was as far as a patient undergoing her operation could possibly be from clinical death when her OBE began. Second, she had no cerebral cortical activity for no longer than roughly half an hour. Both of these facts are illustrated in Figure 1, which I constructed from Sabom's account.

Figure 1
Timeline of Pam Reynolds's general anesthesia. The shaded area represents the period during the procedure when Reynolds' body temperature was regulated mechanically. Most times marking events or temperatures are derived from Michael Sabom's account of Reynolds's procedure provided in Chapters 3 and 10 of *Light & Death* (Sabom, 1998).



Despite accurately reporting the facts, Sabom himself encouraged these misrepresentations. Though he informed the reader that Reynolds's experience began well before standstill, he revealed this incidentally, so that a careful reading of the text is required to discern the point. For instance, just after describing Reynolds's recollections of an operating room conversation, he noted, almost as an afterthought, that "[h]ypothermic cardiac arrest *would* definitely be needed" [emphasis mine] (Sabom, 1998, p. 42). He then went on to assert that the very features of her experience that cannot be timed happened *during* standstill. At first, Sabom only *implied* this by describing the cooling of blood leading to standstill *prior* to describing the remainder of Reynolds's near-death experience. Then Sabom turned to a discussion of whether Reynolds was "really" dead during her standstill state:

But during "standstill," Pam's brain was found "dead" by all three clinical tests – her electroencephalogram was silent, her brain-stem response was absent, and no blood flowed through her brain. Interestingly, *while in this state*, she encountered the "deepest" near-death experience of all Atlanta Study participants. ...

With this information, *can we now scientifically assert that Pam was either dead or alive during her near-death experience?* Unfortunately, no. Even if all medical tests certify her death, we would still have to wait to see if life was restored. (Sabom, 1998, p. 49; emphasis added)

The issue of whether Reynolds was "really" dead during standstill was an extraordinarily misleading red herring in this context. And it was inaccurate for Sabom to write explicitly that her NDE occurred "while in this state." As Sabom's own account revealed, her standstill condition had absolutely nothing to do with the time when we *know* that her near-death OBE began: a full two hours and five minutes before the medical staff even began to cool her blood, during perfectly normal body temperature (see Figure 1)!

Unlike the other elements of her NDE, we can precisely time when Reynolds's OBE began because she *did* accurately describe an operating room conversation. Namely, she accurately recalled comments made by her cardiothoracic surgeon, "Dr. Murray," about her "veins and arteries being very small" (Reynolds's words) (Sabom, 1998, p. 42). Two operative reports allow us to time this observation. First, in the head surgeon's report, Robert Spetzler noted that when he was cutting open Reynolds's skull, "Dr. Murray performed bilateral femoral cut-downs for cannulation for cardiac bypass" (Sabom, 1998, p. 185). So at about the same time that Spetzler was opening

Reynolds's skull, Murray began accessing Reynolds's blood vessels so that they could be hooked up to the bypass machine that would cool her blood and ultimately bring her to standstill. Second, Murray's operative report noted that "the right common femoral artery was quite small" and thus could not be hooked up to the bypass machine. Consequently, Murray's report continued, "bilateral groin cannulation would be necessary. This was discussed with Neurosurgery, as it would affect angio access postoperatively for arteriography" (Sabom, 1998, p. 185). And although Reynolds's mother was given a copy of *the head surgeon's* operative report (which she said Reynolds did not read), the report did *not* say anything about any of Reynolds's arteries being too small (Sabom, 2003).

Many have argued that Reynolds's accurate recall of an operating room conversation was strong evidence that she really did leave her body during the procedure. But there is at least one peculiar fact about Reynolds's recollections, in addition to the timing of her experience, that makes a physiological explanation of her OBE much more likely.

General anesthesia is the result of administering three types of drugs: sedatives to induce sleep or prevent memory formation, muscle relaxants to ensure full-body paralysis, and painkillers. Inadequate sedation alone results in anesthesia awareness. Additionally, if insufficient concentrations of muscle relaxants are administered, a patient will be able to move; and if an inadequate amount of painkillers is administered, a patient will be able to feel pain (Woerlee, 2005, p. 16). During a typical surgical procedure, an anesthesiologist must regularly administer this combination of drugs throughout the operation. But just prior to standstill, anesthetic drugs are no longer administered, as deep hypothermia is sufficient to maintain unconsciousness. The effects of any remaining anesthetics wear off during the warming of blood following standstill (G. Woerlee, personal communication, November 8, 2005).

About one or two in a thousand patients undergoing general anesthesia report some form of anesthesia awareness. That represents between 20,000 and 40,000 patients a year within the United States alone. A full 48 percent of these patients report auditory recollections postoperatively, while only 28 percent report feeling pain during the experience (Joint Commission on Accreditation of Healthcare Organizations, 2004). Moreover, "higher incidences of awareness have been reported for caesarean section (0.4%), cardiac surgery (1.5%), and surgical treatment for trauma (11–43%)" (Bünning and Blanke, 2005,

p. 343). Such instances must at least give us pause about attributing Reynolds's intraoperative recollections to some form of out-of-body paranormal perception. Moreover, sedative anesthetics such as nitrous oxide have been known for decades to trigger OBEs.

Sometime after 7:15 AM that morning, general anesthesia was administered to Reynolds. Subsequently, her arms and legs were tied down to the operating table, her eyes were lubricated and taped shut, and she was instrumented in various other ways. A standard electroencephalogram (EEG) was used to record activity in her cerebral cortex, while small earphones continuously played clicks into her ears to elicit auditory evoked potentials (AEPs), a measure of activity in the brain stem (Sabom, 1998).

Sabom considered whether conscious or semiconscious auditory perceptions were incorporated into Reynolds's OBE imagery during a period of anesthesia awareness, but dismissed the possibility all too hastily:

Could Pam have heard the intraoperative conversation and then used this to reconstruct an out-of-body experience? At the beginning of the procedure, molded ear speakers were placed in each ear as a test for auditory and brain-stem reflexes. These speakers occlude the ear canals and altogether eliminate the possibility of physical hearing. (Sabom, 1998, p. 184)

But is this last claim really true? Since Sabom merely asserted this, and had an obvious stake in it being true, we are justified in questioning the basis for his assertion on such a crucial point. Did he have any objective evidence that the earphones used to measure AEPs completely cut off sounds from the external environment?

Since Sabom did not back up this claim, I did a little research on the matter. According to the National Institute of Neurological Disorders and Stroke, *as a matter of procedure*, a patient who is monitored by the very same equipment to detect acoustic neuromas (benign brain tumors) "sits in a soundproof room and wears headphones" (National Institute of Neurological Disorders and Stroke, 2005). But a soundproof room would be unnecessary if the earphones used to measure AEPs "occlude the ear canals and altogether eliminate the possibility of physical hearing." It is theoretically possible that the earphones used in 1991 made physical hearing impossible, whereas the earphones used today do not. However, that would be highly unlikely because it would be far cheaper for medical institutions to continue to invest in the imagined sound-eliminating earphones, rather than

soundproofing entire rooms to eliminate external sounds. As Gerald Woerlee pointed out, "earplugs do not totally exclude all external sounds, they only considerably reduce the *intensity* of external sounds," as demonstrated by "enormous numbers of people ... listening to loud music played through earplugs, while at the same time able to hear and understand all that happens in their surroundings" (www.mortalminds.org).

After being prepped for surgery, Reynolds's head was secured by a clamp. By 8:40 AM, her entire body was draped except for her head (the site of the main procedure) and her groin (where blood vessels would be hooked up to the bypass machine to cool her blood). In the five minutes or so to follow, Spetzler opened her scalp with a curved blade, folded back her scalp, then began cutting into her skull with a Midas Rex bone saw. At this point, about an hour and a half after being anesthetized, Reynolds's OBE began. She reported being awoken by the sound of a natural D, then being "pulled" out of the top of her head by the sound (Sabom, 1998).

"But," Sabom asked, "was Pam's *visual* recollection from her out-of-body experience accurate?" (1998, p. 186). That is indeed *the* question to ask regarding the veridicality of her report.

Reynolds reported that during her OBE she was able to view the operating room from above the head surgeon's shoulder, describing her out-of-body vision as "brighter and more focused and clearer than normal vision" (Sabom, 1998, p. 41). In her report of the experience, she offered three verifiable visual observations. First, she said that "the way they had my head shaved was very peculiar. I expected them to take all of the hair, but they did not." Second, she reported that the bone saw "looked like an electric toothbrush and it had a dent in it, a groove at the top where the saw appeared to go into the handle, but it didn't." Finally, she noted that "the saw had interchangeable blades ... in what looked like a socket wrench case" (Sabom, 1998, p. 41). Subsequently, she reported only auditory observations: hearing the bone saw "crank up" and "being used on something" (Sabom, 1998, p. 41), and most notably the operating room conversation initiated by Murray.

Given such vivid "perceptual capabilities" during her OBE, we would expect there to be no confusion about what Reynolds saw during the experience. So her visual observations provide an interesting test of the notion that she left her body while under general anesthesia during normal body temperature. Let us look at each of these in turn.

First, there was the observation that only part of her head was shaved. Perhaps she could have guessed this at the time of her experience, but there is no need even for that assumption in order to account for the reported observation. Surely Reynolds would have noticed this soon after awaking from general anesthesia, by seeing her reflection, feeling her hair, or being asked about it by visitors. And she certainly would have known about it, one way or the other, by the time she was released from the hospital. Indeed, if her hair had been shaved before surgery, or at any time prior to her general anesthesia, she would have known about it well *before* her OBE. And patients undergoing such a risky procedure are standardly given a consent briefing in which even the cosmetic effects of surgery are outlined, if not explicitly in a doctor's explanation, then at least incidentally in any photographs, diagrams, or other sources illustrating what the procedure entails. So Reynolds may have learned (to her surprise) that her head would be only partially shaved in a consent briefing *prior to* her experience, but "filed away" and consciously forgot about that information, given so many other more pressing concerns on her mind at the time. That would be exactly the sort of mundane, subconscious fact that we would expect a person to recall later during an altered state of consciousness. And although he did not give the exact date of the operation, Sabom reported that the procedure took place in August 1991. He later told us that he interviewed Reynolds for the first time on November 11, 1994 (Sabom, 1998). That left more than three years between the dates of Reynolds's NDE and Sabom's interview, plenty of time for memory distortions to have played a role in her report of the experience. So there is nothing remarkable about this particular observation.

Second, there was her description of the bone saw. But the very observation that provided the greatest potential for supporting the notion that she actually left her body during her OBE actually tended to count against that hypothesis. As Sabom recounted,

Pam's description of the bone saw having a "groove at the top where the saw appeared to go into the handle" was a bit puzzling. ... [T]he end of the bone saw has an overhanging edge that [viewed sideways] looks somewhat like a groove. However, it was not located "where the saw appeared to go into the handle" but at the other end.

Why had this apparent discrepancy arisen in Pam's description? Of course, the first explanation is that she did not "see" the saw at all, but was describing it from her own best guess of what it would look and sound like. (1998, p. 187)

This is precisely my point, except that, of course, Reynolds did not need to *guess* what the bone saw sounded like, because she probably heard it as anesthesia failed. An out-of-body discrepancy within Reynolds's NDE on the face of it implies the operation of normal perception and imagination within an altered state of consciousness. Indeed, this explanation is so straightforward that Sabom considered it before all others. And it is telling that the one visual observation that Reynolds (almost) could not have known about other than by leaving her body was the very detail that was *not* accurate.

Let us turn to the report of Reynolds's final visual observation during her OBE, her comment that the bone saw used "interchangeable blades" placed inside something "like a socket wrench case." This detail was also accurate; however, one need not invoke paranormal perceptual capabilities to explain it. As Woerlee noted,

[S]he knew no-one would use a large chain saw or industrial angle cutter to cut the bones of her skull open. ... Pneumatic dental drills with the same shapes, and making similar sounds as the pneumatic saw used to cut her skull open, were in common use during the late 1970s and 1980s. Because she was born in 1956, a generation whose members almost invariably have many fillings, Pam Reynolds almost certainly had fillings or other dental work, and would have been very familiar with the dental drills. So the high frequency sound of the idling, air-driven motor of the pneumatic saw, together with the subsequent sensations of her skull being sawn open, would certainly have aroused imagery of apparatus similar to dental-drills in her mind when she finally recounted her remembered sensations. There is another aspect to her remembered sensations – Pam Reynolds may have seen, or heard of, these things before her operation. All these things indicate how she could give a reasonable description of the pneumatic saw after awakening and recovering the ability to speak. (Woerlee, 2005, p. 18)

And, predictably enough, the dental drills in question also used interchangeable burs stored in their own socket-wrench-like cases.

During anesthesia awareness, and as far from standstill as a person under general anesthesia can be, Reynolds could have heard her surroundings but not seen them, since her eyes were taped shut. And the facts of her case strongly suggest that this was exactly what happened. Information that she could have obtained by hearing was highly accurate; at the same time, information that was unavailable to her through normal vision was the very information which was inaccurate. More precisely, her visual descriptions were only partially accurate: accurate on details she could have plausibly guessed or

easily learned about subsequent to her experience, and inaccurate on details that it would be difficult to guess correctly.

In other words, OBE imagery derived from hearing and background knowledge, perhaps coupled with the reconstruction of memory, fully accounts for the most interesting details of Reynolds's NDE report. After being awakened from inadequate anesthesia by the sound of the bone saw revving up, her mind generated a plausible image of what the bone saw used during her operation looked like, rendered from her prior knowledge of similar-sounding dental drills. But her best guess about the appearance of the bone saw was inaccurate regarding the features of the bone saw that only true vision could discern: whether there was a true groove in the instrument, and where it was located.

Moreover, the fact that Reynolds's NDE began during an entirely nonthreatening physiological condition, under general anesthesia at normal body temperature, implies that there was no particular physiological trigger for the experience such as anoxia or hypoxia. Rather, it appears that her NDE was entirely expectation-driven. Before going into surgery, Reynolds was fully aware that she would be taken to the brink of death while in the standstill state. Being awakened from general anesthesia by the sound of the bone saw appears to have induced a fear response, which in turn caused Reynolds to dissociate and have a classic NDE. Indeed, this makes sense of her otherwise odd report of being pulled out of the top of her head by the sound of the saw itself.

At least five separate studies (Floyd, 1996; Gabbard and Twemlow, 1991; Gabbard, Twemlow, and Jones, 1981; Serdahely, 1995; Stevenson, Cook, and McClean-Rice, 1989–1990) have documented cases in which fear alone triggered an NDE. As Ian Stevenson, Emily Cook, and Nicholas McClean-Rice concluded, “an important precipitator of the ‘near-death experience’ is the belief that one is dying – whether or not one is in fact close to death” (1989–1990, p. 45). They went on to label those (otherwise indistinguishable) NDEs precipitated by fear of death alone “fear-death experiences.” Physiologically, such NDEs might be mediated by a fight-or-flight response in the absence of an actual medical crisis. In a case reported by Glen Gabbard and Stuart Twemlow, an NDER dislodged the pin of a dummy grenade that he thought was a live one, producing a classic NDE similar to the one Reynolds experienced:

A marine sergeant was instructing a class of young recruits at boot camp. He stood in front of a classroom holding a hand grenade as he

explained the mechanism of pulling the pin to detonate the weapon. After commenting on the considerable weight of the grenade, he thought it would be useful for each of the recruits to get a "hands-on" feeling for its actual mass. As the grenade was passed from private to private, one 18-year-old recruit nervously dropped the grenade as it was handed him. Much to his horror, he watched the pin become dislodged as the grenade hit the ground. He knew he only had seconds to act, but he stood frozen, paralyzed with fear. The next thing he knew, he found himself traveling up through the top of his head toward the ceiling as the ground beneath him grew farther and farther away. He effortlessly passed through the ceiling and found himself entering a tunnel with the sound of wind whistling through it. As he approached the end of this lengthy tunnel, he encountered a light that shone with a special brilliance, the likes of which he had never seen before. A figure beckoned to him from the light, and he felt a profound sense of love emanating from the figure. His life flashed before his eyes in what seemed like a split-second. In midst of this transcendent experience, he suddenly realized that grenade had not exploded. He felt immediately "sucked" back into his body. (Gabbard and Twemlow, 1991, p. 42)

Gabbard and Twemlow concluded that "*thinking* one is about to die is sufficient to trigger the classical NDE" (Gabbard and Twemlow, 1991, p. 42). After comparing experiences that occurred in non-threatening conditions with those where subjects were actually close to death, they also concluded that no particular elements were "exclusive to near-death situations," but "several features of the experiences were significantly more likely to occur when the individual *felt* that death was close at hand" (Gabbard and Twemlow, 1991, p. 42; emphasis added). That expectation alone can trigger NDEs in certain individuals, then, is well-documented.

If Reynolds had truly been out of her body and perceiving, both her auditory and visual sensations should have been accurate; but when it came to details that could not have been guessed or plausibly learned after the fact, only her auditory information was accurate. Moreover, it is significant that as her narrative continued beyond the three visual observations outlined above, the remainder of her reported out-of-body perceptions were *exclusively* auditory. Finally, it is interesting that Reynolds reported uncertainly about the identity of the voice she heard when her OBE began: "I believe it was a female voice and that it was Dr. Murray, but I'm not sure" (Sabom, 1998, p. 42).

These facts strongly imply anesthesia awareness, and tend to count against the idea that Reynolds left her body during the operation. If

she had left her body, the fact that her account contained out-of-body discrepancies does not make much sense. But it makes perfect sense if she experienced anesthesia awareness, particularly when one looks at which sorts of information that she provided were accurate and which were not. Reynolds did not report anything that she could not have learned about through normal perception, and that is *exactly* what we would expect if normal perception alone was operating during her OBE. It is little wonder that Fox concluded that “the jury is still very much out over this case” (Fox, 2003, p. 210).

NDEs in the Blind?

As Blackmore reported in *Dying to Live*, as of 1993, even Ring conceded (in his own words) that there had not been a single “case of a blind NDEr reported in the literature where there was clear-cut or documented evidence of accurate visual perception during an alleged OBE” (Blackmore, 1993, p. 133). But Blackmore’s unsuccessful search for such cases prompted Ring and a doctoral student, Sharon Cooper, to endeavor upon a search of their own.

The results of their search were published first in their article in this Journal (1998) and in greater detail in their 1999 book *Mindsight: Near-Death and Out-of-Body Experiences in the Blind*. There they documented 31 cases of blind persons who had NDEs or OBEs, 10 of whom were not medically close to death at the time of their experiences. These cases were garnered from responses to an advertisement in the International Association for Near-Death Studies (IANDS) Newsletter *Vital Signs*, as well as from contacts in 11 different organizations for the blind. Of the 31 persons in the sample, 14 were born blind, 11 lost their sight after they were five years old, and six were highly visually impaired. Of these 31 persons, 25 reported visual sensations during their experiences, as did nine of the 14 persons blind from birth. The most startling claim made in *Mindsight* was not simply that some blind NDErs testified to gaining knowledge of facts that they could only have learned through a faculty like vision, but that relevant eyewitnesses could corroborate their testimony.

But was there actually strong evidence of veridical paranormal perception in Ring and Cooper’s sample of blind NDErs? One reason Fox questioned the significance of this study is that those known to acquire sight for the first time, or reacquire it after a very long time,

have difficulty making sense of their visual sensations. He noted the case of a 52-year-old man who, after receiving corneal grafts, could not identify by sight a lathe that he was otherwise well-acquainted with by touch unless he was given the opportunity to touch it. Continually frustrated at his inability to interpret his visual sensations, he eventually took his own life a full two years after the operation (Fox, 2003, pp. 225–226). By contrast, Ring and Cooper's blind NDErs "appeared virtually immediately to gain the ability to perceive accurately just such things as hospitals and streetlights with virtually no difficulty whatsoever" (Fox, 2003, p. 226). While Ring and Cooper interpreted this as evidence of a previously unknown sort of synesthetic perception "transcending" normal human vision, Fox pointed out that more mundane sources, such as learning from mass media or NDE researchers that OBEs, tunnels, and lights are to be expected during near-death crises, might more satisfactorily explain the blind NDErs' testimonies (Fox, 2003). Harvey Irwin noted similar possibilities:

[These cases] may be inspired by accounts of other people's NDEs that have been widely disseminated in various forms of the media. That is, might a blind person have heard that people *see* certain things in a near-death encounter and unconsciously generated a fantasy that conformed to this belief? ... [Blind NDErs might also] learn about what to expect in an afterlife from diverse sociocultural sources, and they may rely extensively on these expectations in generating a near-death fantasy. ... Thus, the blind may commonly have a belief that they will suffer no visual affliction in an afterlife, and this belief may influence the content of NDEs in the blind. (Irwin, 2000, p. 111)

Fox added that Ring and Cooper's two most impressive cases were suspect as evidence for paranormal perception in the blind. In one of these cases, for instance, though an NDEr was said to have superior perceptual capabilities, such as "omnidirectional awareness" of the environment, her out-of-body "perceptions" were colorblind. But surely, Fox interjected, "we should expect in such a situation to see in colour. Indeed, we might reasonably expect to appreciate more, deeper and greater colour in such a condition, not less colour or none at all" (Fox, 2003, p. 232).

In the other case, a 33-year-old man reported an NDE when he was 8 years old. But, Fox added, one "might seriously question whether the testimony, twenty-five years after the event, of an episode that occurred to an 8-year-old boy, should qualify as one of their two most impressive cases" (Fox, 2003, p. 231). Most significantly, though, Fox

noted the statistical improbability of NDE researchers finding *any* genuine cases of NDEs in the blind:

Further, the reader may wonder at the statistical improbability of some of the events that Ring and Cooper present. NDEs seem quite rare, despite the recent publicity that has surrounded them. In this context, for example, it is worth noting that a recent study organized by British theologian Paul Badham and neuroscientist Peter Fenwick, which attempted to gain empirical support for the hypothesis that something leaves the body during an NDE, foundered because of a paucity of cases in the hospital chosen for the study. To find NDEs in the *blind*, therefore, would seem to be an incredibly difficult task. That Ring and Cooper found twenty-one [*sic*] such cases is an extraordinary achievement. That one of their two best cases [the colorblind one] was referred by the same social worker [Clark] as was involved in the celebrated 'tennis shoe' case, and indeed came from the *same hospital*, seems most striking – and incredibly statistically improbable. (Fox, 2003, p. 232)

But Fox's analysis did not end there. What of the alleged cases of veridical paranormal perceptions in these blind NDErs? While Ring and Cooper recognized the need for corroboration from others of the events NDErs report, and indeed presented cases claiming exactly that, Fox noted that "a critical reading of the quality of the data presented reveals the need for caution in accepting them unreservedly" (Fox, 2003, p. 232). He pointed out, for instance, that in one case passed on to Ring and Cooper by another NDE researcher, no one appeared to have ever followed up with potential witnesses. In another seemingly impressive case, a man who had been blind for 10 years reported an OBE after lying down on a couch, in which he could see a tie that he was wearing purchased for him by a friend who had never described it to him. The NDEr reported how amazed his friend was when he accurately described the patterns on the tie to her. But upon interviewing the friend, Ring and Cooper found that she could not really corroborate his recollection:

Although Ring and Cooper present this as a 'corroborative' case of sight during a blind respondent's out-of-body experience, it is clear that it is not. The witness does not remember clearly the events or the tie. She thus cannot corroborate the detail of the episode in question, but merely presents a testimony to Frank's apparent truthfulness and simply thinks that he was 'probably accurate' in the details he gives. ... Once again, therefore, we must exercise care with the quality of the data presented. ... More cautious commentators may be forgiven for suggesting that much stronger data are needed before

they agree that existing scientific paradigms need to be hauled down and new ones erected. (Fox, 2003, p. 234)

Thus Blackmore's conclusion about paranormal perception during NDEs prior to Ring and Cooper's study is just as poignant today as it was more than a decade ago:

I think it would not be surprising if there were many claims of paranormal perception in NDEs even if it never happened. It is my impression that it probably never does happen. ... [F]or the moment at least, these claims present no real challenge to a scientific account of the NDE. (Blackmore, 1993, pp. 134–135)

NDE Target Identification Experiments

The cutting edge of near-death research lies in controlled tests of veridical paranormal perception during the out-of-body phase of those NDEs that include OBEs. The detection of remote visual targets during out-of-body NDEs has the potential to provide decisive evidence of consciousness functioning independently of the body, conceivably answering the survival question once and for all. Alternatively, if NDEers are given ample opportunities to identify remote visual targets during their experiences yet fail to do so, veridicality studies offer the prospect of confirming the hallucinatory nature of these experiences. Given the importance of such experiments in either establishing or falsifying veridical paranormal perception during NDEs, it would seem remiss to conclude this paper without a survey of the results of NDE veridicality research conducted to date.

Thus far there have been five separate studies in which remote visual targets were placed in presumably NDE-conducive hospital environments. Although earlier experiments with OBEs induced at will have failed to provide compelling evidence of any paranormal processes operating during induced OBEs (Alvarado, 2000; Blackmore, 1982), one might anticipate a greater likelihood of paranormal activity during *spontaneous* out-of-body NDEs. The first NDE target identification experiment was carried out in the mid-1980s by Janice Minor Holden in the emergency room (ER), each room of the coronary care unit (CCU), and each room of the intensive care unit (ICU) at Lutheran General Hospital in Park Ridge, IL (Holden and Joesten, 1990). As Holden and Leroy Joesten reported, visual targets were placed

in the corners of hospital rooms in which near-death episodes were most likely to occur. ... in such a way as to be visible only from a vantage point of looking down from the ceiling. No living person was to know the exact content of the stimuli, thus rendering the design double-blind. Once the patient was resuscitated from a near-death episode in one of the “marked” rooms, knowledge of the content of the visual stimulus would be assessed. (Holden and Joesten, 1990, p. 46)

The authors went on to explain what would constitute a positive result in their study: “If [out-of-body NDErs] accurately identified card content with significantly greater frequency than other NDErs and non NDErs ... the hypothesis that [out-of-body NDErs] have veridical perception ... would be supported” (Holden and Joesten, 1990, p. 48). Unfortunately, however, in the entire year of the study, only one cardiac resuscitation occurred in the hospital areas covered by the study, to an Armenian immigrant with poor English who declined to give an interview about his resuscitation. At the same time, at least one NDE occurred in a hospital area not covered by the study (Holden and Joesten, 1990, p. 51). With no experiences to test, inevitably no positive results were reported.

A second experiment was conducted by Lawrence at Hartford Hospital in Hartford, CT, in 1994, when she was Director of Nursing Education and Research there. A scrolling light emitting diode (LED) display placed in the cardiac electrophysiology lab – though occasionally turned off – was up and running for a total of about six months (M. Lawrence, personal communication, August 7, 2006). Lawrence reported:

I placed an electronic sign high on a cabinet in the room [of the electrophysiology lab], not visible to anyone standing on the floor. In order to read the sign a person needed to use a ladder or be out of his body. It contained a nonsense statement like, “The popsicles are in bloom,” and I changed it randomly. It was nonsense so that no one could say he overheard a conversation about the words on the sign. All subjects who became unconscious during the EP [electrophysiology] studies were interviewed and asked to describe their experiences. We were hoping they had had an NDE and had read the sign. (Lawrence, 1997, pp. 158–159)

Unfortunately, although “three patients reported the early stages of an out-of-body experience,” no one had an OBE extensive enough to see the sign (Lawrence, 1997, p. 159). So the results of this study, too, can only be considered negative.

A third experiment was set up in “the medical, emergency, and coronary care units of Southampton General Hospital” in the United

Kingdom by Sam Parnia from August 1997 to August 1998 (Parnia, Waller, Yeates, and Fenwick, 2001, p. 150; S. Parnia, personal communication, August 3, 2006). For one year “boards were suspended from the ceiling of the wards. ... [with] various figures on the surface facing the ceiling which were not visible from the floor” (Parnia, Waller, Yeates, and Fenwick, 2001, p. 151). Of the 63 cardiac arrest survivors interviewed during that time, seven had some recall of the period after they lost consciousness. Of these seven, four had NDEs as defined by Greyson’s NDE Scale, two others had some NDE-like memories such as feelings of peace or seeing deceased relatives, and one other had memories unlike NDEs, such as seeing “some unknown people jumping off a mountain” (Parnia, Waller, Yeates, and Fenwick, 2001, p. 153). Though two of the four NDErs “lost awareness of their bodies,” none of them had full-blown OBEs (Parnia, Waller, Yeates, and Fenwick, 2001, p. 152).

Under the supervision of Fenwick and Paul Badham, Director of the Religious Experience Research Centre (RERC), Penny Sartori conducted a fourth target identification experiment, also in the United Kingdom, at Morrision Hospital, Swansea, from January 1998 to January 2003 (Sartori, 2004, p. 34). As Sartori explained:

At each patient’s bedside in ITU [the intensive therapy unit], mounted on the wall, is a cardiac monitor. Symbols which were mounted on brightly coloured day glow paper to attract attention were placed on the top of each monitor. These symbols were above head height and concealed behind ridges to prevent them being viewed from a standing position, thus ensuring they could only be viewed from an out-of-body perspective. (Sartori, 2004, p. 35)

Sartori added that the symbols were inconspicuously changed every two months and, being covered by a card that was removed away from her sight, ensured “that not even the author knew which symbol was on which monitor” (2004, p. 35). Though all ITU patients were interviewed in the first year of the study, for logistical reasons interviews in the remaining four years were limited to cardiac arrest survivors, those who came so close to death that their survival was unexpected, and spontaneous OBErs and NDErs (Sartori, 2004). Consistent with the findings of van Lommel, van Wees, Meyers, and Elfferich (2001), about 18 percent of the cardiac arrest survivors reported NDEs; about 5 percent of the cardiac arrest survivors reported OBEs (Sartori, 2004). In the entirety of Sartori’s five-year study, 15 patients reported NDEs or NDE-like experiences, and eight reported OBEs (Sartori, 2004, pp. 37–

38). Nevertheless, Sartori reported, this study also yielded negative results, as “not all of the patients rose high enough out of their bodies and some reported viewing the situation from a position opposite to where the symbols were situated” (Sartori, 2004, p. 38).

The fifth and most recent veridicality study was conducted by Greyson, Holden, and Paul Mounsey at the University of Virginia Health System Cardiac Electrophysiology Clinic from January 2004 to July 2006 in order to demonstrate whether “patients during cardiac arrest have perceptions that they could not have had normally from the position of their bodies,” as this would provide profound “evidence for the independent functioning of the mind while the brain was physiologically impaired” (Greyson, Holden, and Mounsey, 2006, pp. 94–95). Following Lawrence’s precedent, the University of Virginia study was premised on cardioversion, the controlled administration of an electric shock to the heart to restore normal heart rhythm. But whereas only about 30 percent of Lawrence’s electrophysiology patients required cardioversion in order to restore a normal heart rhythm (of which 9 percent reported NDEs) (Lawrence 1997), all 25 of the University of Virginia patients experienced at least two episodes of *induced* cardiac arrest in order to test implantable cardioverters/defibrillators (ICDs) (Greyson, Holden, and Mounsey, 2006).

During the two-and-a-half-year period of the study, a ceiling-facing laptop computer visible only from a perspective far above eye level was opened and laid flat on top of a cabinet or video monitor before patients entered the procedure room for ICD implantation and testing. The laptop generated clear and simple but unpredictable cartoon animations, such as a jumping frog, of varying colors quasi-randomly selected by the computer based on when it was turned on and unknown to any living person prior to the completion of the study. Although 5 patients (20 percent of the sample) acknowledged some recall of events while unconscious – such as a sense of timelessness, feelings of peace, vaguely being somewhere unfamiliar, and possibly sensing the presence of a deceased relative – no NDEs were reported, and thus no out-of-body NDEs were available to test (Greyson, Holden, and Mounsey, 2006).

Given that controlled studies of veridical paranormal perception during NDEs have been attempted only intermittently and on a small scale, it is imperative that further target identification experiments be simultaneously carried out at multiple hospitals over a period of several years. For, as Sartori noted,

If hundreds of patients report an OBE there is a greater potential for the symbols being viewed. Equally, if hundreds of patients report an OBE but none correctly identify the symbols then it could lead to the conclusion that the OBE is a mind model. (Sartori, 2004, p. 39)

In a related but hardly surprising development, similar long-term, multicenter research has already established that distant prayer, unknown to the patients being prayed for, has absolutely no effect on the health of hospitalized patients (Benson, Dusek, Sherwood, Lam, Bethea, Carpenter, Levitsky, Hill, Clem, Jain, Drumel, Kopecky, Mueller, Marek, Rollins, and Hibberd, 2006, p. 934). If past experience is any guide at all, NDE veridicality research is no more likely to overthrow our current scientific understanding of humanity's place in the universe. In the meantime, at any rate, existing veridicality research presents no challenge to the current scientific understanding of near-death experiences as hallucinations.

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