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Editor's Foreword

We open this issue of the Journal with an edited transcript of British neuropsychiatrist Peter Fenwick’s address to the 2004 Annual Conference of the International Association for Near-Death Studies (IANDS). In this keynote address to that conference, designated as the annual Bruce Greyson Lecture, Fenwick reviews the early retrospective research on near-death experience (NDEs), and the more recent prospective research, in which people who are likely to have NDEs are identified beforehand, permitting investigators to monitor physiological and other conditions at the time of the actual experience and to seek objective corroboration of the experiencer’s out-of-body perceptions. Fenwick describes ongoing research in which he is involved exploring veridical out-of-body vision, relates NDEs to similar experiences of people as they approach death, and concludes that near-death research may have a profound impact on how scientists and society think of the mind-brain relationship.

Including this transcribed keynote address represents a departure from the Journal’s usual editorial style, in that it maintains the informal nature of Fenwick’s oral presentation rather the more formal style of a written research report. We are deeply indebted to IANDS President, counselor educator Janice Miner Holden, for her able editing of the transcript of Fenwick’s lecture.

Also included in this issue is sociologist James McClenon’s report of a collection of NDEs and similar experiences from a predominantly African-American population. McClenon describes the similarities and differences between this sample of NDE accounts and previously published collections based primarily on British and American Caucasian samples, including differences in the retelling and collection of these accounts. He concludes with a discussion of the role of such narratives within the context of the folkloric tradition, and particularly within ritual healing theory, an evolutionary model describing how genes associated with shamanistic and religious experiences such as NDEs were selected.

We conclude this issue with letters to the editor from Dan Punzak and Oral (Van) Ford, challenging Dutch anesthesiologist Gerald Woerlee’s physiological model of NDEs published in our Summer 2004 issue, and with Woerlee’s response to those critiques.

Bruce Greyson, M.D.
Science and Spirituality: A Challenge for the 21st Century [The Bruce Greyson Lecture from the International Association for Near-Death Studies 2004 Annual Conference]

Peter Fenwick, M.D., F.R.C.Psych.

Institute of Psychiatry, Kings College, London, U.K.
Mental Health Group, University of Southampton

ABSTRACT: Spirituality is increasingly acknowledged in medicine as a legitimate topic of instruction and focus of research. I highlight some findings of my own and others' retrospective research on near-death experiences (NDEs), review recent prospective research by myself and others, and describe veridical perception research I plan to undertake. After reviewing findings regarding approaching-death experiences and their relationship to NDEs, I assert my current perspective on the relationship between mind and brain and explain the impact that empirical support for that perspective will have on both science and humanity.

KEY WORDS: near-death experience; out-of-body experience; cardiac arrest; deathbed visions; mind-brain relationship.
A major and relatively rapid shift is underway in the field of medicine. In the past 10 years, medical professionals have gone from looking upon spirituality with a skeptical if not cynical eye, to embracing it enthusiastically. Consider these developments:

- The number of American medical schools teaching courses on spirituality in medicine was only three in 1995, but grew to 40 by 1998, and reached 100 in 2001. The new generation of doctors that are now qualifying has had spirituality ingrained at an early stage in their medical training.

- In 1997, Harvard University held a conference on prayer. Since then, researchers have conducted a number of double blind, randomized, controlled trials on prayer, and some of these studies indicated that prayer works. The role of prayer in medicine is beginning to be taken so seriously that, in a recent issue of one of the major journals of cardiology, an author raised the question of whether every hospital in this country and in the United Kingdom should have prayer groups for patients in hospital. Such a suggestion would have been unthinkable 10 years ago.

- In 1999, the British Psychological Society, the main academic psychological institution in the U.K., started a section on transpersonal (spiritual) psychology. And in the year 2000, a number of us were able to persuade the Royal College of Psychiatrists to bring in a special interest group in spiritual psychiatry. That group has been growing the fastest of any special interest group: 800 psychiatrists in the U.K. have joined the section in less than four years.

- In 2000, Oxford University Press published the *Handbook of Religion and Health*. In it, authors Harold Koenig, Michael McCullough, and David Larson have brought together into one volume all the research on spiritual medicine. All of you who are caregivers or doctors should have it on your shelf, or urge your libraries to acquire it.

- And to make a point that I have already mentioned, double blind, randomized, controlled trials on many aspects of spiritual medicine are now being conducted. The role of spirituality in medicine has become a legitimate and frequent subject of empirical research. A book by Daniel Benor, *Spiritual Healing: Scientific Validation of a Healing Revolution. Professional Supplement* (Vision Publications 2002) is an excellent reference volume.
Things have changed for the better regarding serious inquiry into, and acceptance of, the role of spirituality in medicine. But they still have further to go. Today I would like to talk about two sets of experiences: approaching-death experiences that occur in the 24 hours before death, and the dying process itself, for which I am going to use the near-death experience (NDE) as a model. I am going to begin my talk with near-death experiences. First, I will discuss the early retrospective studies, those that involved researchers collecting accounts from experiencers whom they met for the first time after the participants had already had their NDEs, and about whom they had no information. I will address only those aspects of these studies that particularly interest me. Then, I will talk about the current focus of near-death research: prospective studies, those in which the researcher begins studying the participants before they have their NDEs, and thus has information about the circumstances in which the near-death experience occurs.

Retrospective Studies on NDEs

What has been learned from the retrospective studies? We learned about the phenomena of NDEs. We learned how often they occur: in about 10 percent of people who come close to death or who survive actual clinical death. We learned a little bit about the circumstances, and, most important, we learned about cultural differences, which are huge.

I want to mention a survey which my wife and I did in 1987 and published in our book, *The Truth in the Light* (Fenwick and Fenwick, 1996). The study followed a television program – the first in the U.K. on the topic of NDEs – after which we received 2,000 letters. The majority of the letters said, “Thank you so much for the program, because I have never been able to talk about near-death experiences before, and now I can, for the first time, actually discuss my experience with people.” It was a landmark.

Of those letters, we took 500 which we thought described core NDEs: what Kenneth Ring (1980) defined as including the subjective sense of being dead; a feeling of peace, painlessness, pleasantness; a sense of separation from the body; a sense of entering a dark region; encountering a presence/hearing a voice; taking stock of one's life; seeing, or being enveloped in, light; seeing beautiful colors; entering into the light; and/or encountering visible "spirits." We sent those 500
a questionnaire, and had 450 replies. Now, we can never find this sort of sample again, because 98 percent of those people knew nothing about NDEs, they had no preconceived ideas about them, and were simply describing exactly what they had experienced. The knowledge that people now have about the NDE has so changed the expectations of people that it is now difficult to say whether people’s accounts are what they expect would happen or what actually did happen. So this is now a disadvantage as regards retrospective research: public knowledge of NDEs has inextricably contaminated our research participant pool. So our sample will remain an important one.

Among those 450 participants, 76 percent were women. Does this finding mean that women are really spiritual and that men have a long way to go? No, I do not think so. I think it is simply that women are much better letter writers than men. The age distribution of those who experienced NDEs was interesting: there were equal numbers in each decade. In other words, the number of people who reported having had their NDE sometime in their first decade of life, age 0–10, was very similar to those who reported having it in their second decade, and so forth. So our findings indicate that there is no privileged age range for having an NDE.

The religious affiliation of our respondents was 54 percent Church of England, 12 percent Roman Catholic, 19 percent other Christian, 1 percent Jewish, 8 percent Agnostic, and 2 percent Atheist, with 41 percent of respondents indicating that religion was not important. This profile of religious affiliation is quite similar to the overall English religious profile, so we were able to say that religious belief at the time of the NDE played no part in it. Indeed, some of the atheist respondents wrote some really cross letters saying that they had not wanted this experience and they found it quite difficult to incorporate into their lives.

The multiplicity of circumstances of our respondents’ NDEs was interesting, and it was the varied nature of the circumstances in which the NDE occurred that led me to the belief that we have to be very, very focused in our research if we are going to find proper answers. Thirty-seven percent of our respondents reportedly were receiving drugs at the time of their NDEs, and 63 percent were not. So the theory that NDEs are all drug induced could not be correct. About two thirds had their NDEs during illness, operations, childbirth, or accidents. Two percent occurred in suicide attempts and 20 percent in other circumstances that included anxiety states, dreams, relaxation states, or quite spontaneously in the normal course of life.
Now, it is impossible to postulate the same mechanism for all of those very diverse states. If you are going to do any worthwhile NDE research, you have to target a specific group of people who, as far as possible, have their NDE in similar circumstances and under similar conditions. Fortunately, nine percent of NDEs were said to have occurred during a heart attack, and that is hopeful from a research standpoint, because most people during a heart attack have the same physiological state, which will allow some conclusions to be drawn about those who do or do not have NDEs.

The phenomena reported during NDEs included 66 percent who reported an out-of-body experience, 76 percent pastoral landscapes, 38 percent seeing deceased friends and relatives, 12 percent life reviews, 24 percent a barrier of some sort, and 72 percent a decision to return. Only 4 percent had hellish experiences. Why so few? Understandably, someone might be reluctant to write a letter to a perfect stranger saying, "There I was in this pit with sulfurous smoke and devils poking me." So that reluctance might account for the low report rate. But in light of all the research we have done, I feel that distressing experiences are, in fact, quite different, and truly occur much less frequently, than the pleasurable NDEs. They have a strong confusional component seen much less often in the positive NDEs.

I was particularly interested in the pastoral landscapes, because they are also reported by terminally ill patients in approaching-death experiences. The landscapes have always been described as very beautiful, and usually include wonderful flowers. We had one or two botanists among our respondents, and they said that the colors were most exciting, but, interestingly, that they saw no new species, only species they already knew. Of course, the main focus of the respondents was the incredible beauty of all those vibrant colors.

I was interested to know whether there were any spiders, gnats, snakes—anything that bites. We found nothing; none was reported. And what about other animals? Our respondents did report animals, but only very seldom, and only dogs. One man saw all the dogs of his life come bounding over the hill towards him. So all in all, it was a very pleasurable experience to be in this land, and if the many NDErs who assert that we all will have this experience at death are correct, our data indicate that it is not going to be awful. You will be able to stroll around the garden, and you will not have to worry about what’s going to bite you.

I was also particularly interested in the heavenly music and wonderful birdsong reported by some of our participants, because of my interest in how the brain works with music. Our respondents
reported mainly concordant music, strong emotional music. At that
time, neuroscientists thought that music was mainly a phenomenon
involving the right hemisphere of the brain; since then, the
neuroscience of music has progressed and indicates that the whole
brain is involved in music. Nevertheless, the strong emotional quality
of this music indicated a strong involvement of the right hemisphere.

Whom did our respondents meet in their NDEs? Well, this seemed to
be culturally determined. In the West, we mostly meet dead relatives
and occasional strangers who always behave toward the NDEr in
a welcoming way. Now, here is an interesting thing that we found also
in the approaching-death experiences: The dead tend to be seen in the
prime of life, even though they may have died ill or damaged by
accidents or in ripe old age. All injuries had been healed. We were told
of a lovely near-death experience by a man who had had meningitis.
Jesus came into his third-floor room by the window, took him by the
hand, and walked with him out of the window, straight into this lovely
landscape, and, coming from all directions, there were people who
were taking off bandages, dropping their crutches, and being healed by
the process of going toward the garden and the light. Some of our
respondents reported meeting people whom they did not know were
dead, but who were later confirmed to have been dead at the time of
the NDE. It was usually the relatives they met, though sometimes it
was the Being of Light, who sent the NDErs back to earthly life.

Another phenomenon that particularly interested me was the tunnel.
Why a tunnel? I told you about the experience involving Jesus: it was
a lovely day, and they went out through the window, which seems
logical. But another of our respondents had an out-of-body experience,
again on a beautiful day outside. She went up to the ceiling, and knew
she was going to go through the window — but she did not. Instead,
a tunnel opened up in the ceiling, and she went through the tunnel. We
all know Hieronymous Bosch's painting as the prototypical NDE
tunnel, but in our study very different kinds of tunnels were described.
The commonest one was a void, a blackness: a floating, a moving,
a going towards the light. The structure of the tunnel, if anything, was
minimal. One person had a "tunnelly tunnel," like one of those great big
pipes that leads the hot air away from a clothes dryer. Other people had
swirling, whirling tunnels, but they themselves did not turn; the tunnel
simply turned around them, while they themselves floated through it.

The data available suggest that NDE phenomena are described
differently in different cultures. Tunnels, for example, seem to be
a particularly Western feature. Take, for example, the journey from
this dimension to an otherworldly dimension. Japanese NDErs do not report tunnels. Instead, they have caves. People will walk towards a cave, which will be the entrance to the new reality. Quite often, they report having come up to a dark river where there was a boatman. This feature is absolutely inherent in their culture. Among hunter-gathers, the transitional journey most often involved a river. They reported going on journeys, most commonly by getting into a boat and paddling for three days before arriving at an otherworldly area.

How many of you NDErs in the audience had a journey back? A couple of you had journeys back, but it is unusual. None of the participants in our study described such a journey; usually they say they just “snapped back” into their body. Why? Why do NDErs so rarely report a journey back?

And then, of course, there is transformation. Particularly notable was the finding that 72 percent of our respondents reported being more spiritual and having less fear of dying. Some findings from other studies provide some very interesting things to think about. For example, in Bruce Greyson’s (2003b) study of 272 patients who had a brush with death, 22 percent had NDEs, and they were found to be less psychologically disturbed than those who did not have NDEs. So that is extremely good news in that it goes against the idea that those who have NDEs have some mental pathology.

Willoughby Britton and Richard Bootzin’s 2004 study is interesting, but unfortunately the data set is too limited to draw any conclusions. They suggested that near-death experiences are a manifestation of temporal lobe epilepsy. This suggestion has been made on previous occasions by other authors, and it is always made by those who do not deal with epilepsy on a daily basis and who do not have a comprehensive understanding of the features of an epileptic seizure. No epileptic seizure has the clarity and narrative style of an NDE. And this is because all epilepsy is confusional. Epileptologists all agree that one thing that near-death experiences are not is temporal lobe epilepsy. Britton and Bootzin’s paper is, I think, going to bias the near-death literature in a way that is quite unjustified by the data of the study.

However, within that study there were some interesting points. They had 23 NDErs and 20 controls, so the numbers are small, but the NDErs scored more highly on a scale of their ability to cope. They were better, active copers; they were able to plan; they had positive reinterpretations of their experiences, and they had positive growth. There were no differences in posttraumatic stress scores with the control group. The study is important in that it suggested that NDErs have good coping strategies.
Greyson (1986) found that 26 percent of a group of patients who attempted suicide had NDEs. Of the people who wrote in to us, only 2 percent had their NDEs during suicide attempts. Greyson (1981, 1991, 1992–93) has published additional studies on suicide attempters who had NDEs, finding that their likelihood of attempting suicide again was dramatically lower, compared to non-NDE suicide attempters. But if any of you want a Ph.D. topic, this is an area on which we still need more data. I had one patient who after her NDE wanted to get back to the experience so badly that she always carried a ligature around with her; she was in the hospital a year before we managed to get her better. She would take any chance she could to put the cord around her neck and hang herself. But that is very unusual. I would like to know more about the effect of an NDE on future suicidal behavior.

That is all I want to say about retrospective studies, so let me turn now to the cutting edge of NDE research. This is a new and very exciting developing area: prospective studies. Just to remind you, these are studies in which the researcher begins studying the participants before they have their NDEs, and thus has information about the circumstances in which the near-death experience occurs and can start to ask focused scientific questions about it.

**Prospective Studies of NDEs**

Now, none of you will know this study because it is not published yet. It is a new prospective study from the U.K., conducted by Dan Shears at Guy's Hospital. He was the doctor on the meningitis ward and questioned the 90 percent of children who had recovered from meningitis. What he found was very similar to Melvin Morse's retrospective findings (Morse and Perry, 1990), but, again, Shears' study was prospective, so he knew the medical condition of the children involved. Of the children he questioned, one, a 3 1/2-year-old boy, three months after the meningococcal disease, said that when he had been ill, "Two angels took me: a big angel and a boy angel." He met with his grandfather and played with toys and other children, and "then the angels brought me back." It was a lovely, simple, experience – and his grandfather had died nine days after the child had been admitted to the hospital, which is interesting.

Another 4-year-old boy, two weeks after his discharge from hospital, reported, "A man with wings came to see me while I was in hospital. I could see him out of the corner of my eye." He went on to describe an
out-of-body experience. He recalled his still-living grandmother talking to him at his bedside, and he could not tell her to shut up, as he was "asleep." So he was outside himself and watching. He was also adamant that his grandmother knew who this winged man was, but I do not think she did; I do not think she could see him.

A 7-year-old girl described having an experience in the pediatric intensive care unit of St. Mary's Hospital. She described feeling very calm and peaceful, clearly the beginnings of a near-death experience. She was observing herself from the end of the bed, and, again, she was standing next to a boy whom she did not know.

I have a videotaped account for you, which I will play now. The child is 3 years old and has reflex anoxic seizures in which her heart stops. During the time that she is unconscious she has out-of-body experiences. Here she is describing how, in one of these episodes, she goes up to the ceiling and then watches her mother do the resuscitation process "all wrong":

**Narrator:** Most of us have preconceived ideas about such experiences, but this little girl was barely 3 years old when she described an out-of-body experience to her mother.

**Mother:** She was telling me that she goes, and she goes up, and she's watching herself. Now, I did find it amazing. I was speechless.

**Narrator:** She suffers from a rare illness called reflex anoxic seizures, which temporarily stop her heart beating. In her short life, she has clinically died over 20 times.

**Mother:** She has no vital signs; she has no respiration, no pulse, no heartbeat, no anything. She turns from a blue to an ashen, and black, I would say, lips.

**Narrator:** Fortunately, she normally recovers from a seizure within a minute, but as she grew older, she began to talk to her mother about them.

**Mother:** She watches herself, and then, she tells me, again, her words, she "clicks" back in.

**Narrator:** On one occasion, she collapsed in her mother's bedroom. Her mother placed her in the recovery position and soothed her. When the child "came round," she was furious with her mother for not
placing her on the floor as they'd been taught by
the doctor.

Mother: But when she came back, I mean, she had told me
what I had done and how I did it wrong and what
I'd said.

Narrator to child: Where do you go?
Child: Up in the ceiling.
Narrator: Up in the ceiling! Can you tell me what it's like?
Child: I see Mommy helping me.

There are good reasons for studying childhood NDEs. Very few
children will have been exposed to the idea of NDEs. Young children
especially have a poorly formed view of the idea and permanence of
death. Children whose parents have no religious views or convictions
are even less likely to have been told about what to expect at death.
In his 1989 paper, Harvey Irwin suggested that children who had had
no religious instruction would be ideal to test the sociocultural con-
ditioning hypothesis against the paranormal-spiritual hypothesis.
In other words, if kids who do not know about NDEs have an NDE,
you cannot explain it by saying they have learnt about it as a cultu-
ral experience.

Our Study of Cardiac Arrest Survivors’ NDEs

The first published prospective study that included cardiac arrest
patients, Michael Sabom's 1982 study, also included patients who had
been in other near-death circumstances, such as severe traumatic
injury or comas from metabolic disorders or systemic illness, and also
included patients whose arrests had occurred both in and out of
hospital. To my knowledge, the first published prospective study
focusing entirely on cardiac arrests that occurred in the hospital was
the one that Sam Parnia and I did at Southampton University (Parnia,
Waller, Yeates, and Fenwick, 2001). We wanted to ask two questions
about near-death experiences. Firstly, would people who had had
cardiac arrests report having NDEs at the time of their arrest? That is,
our first question was whether NDEs would be found in our
prospective study. The second question was: Do these experiences
occur before unconsciousness, during unconsciousness, during re-
covery, or after recovery?

Those questions were absolutely crucial. They were not only crucial
for NDE research, but they were also crucial for neuroscience as
a whole, because neuroscience has come up against a block. The
problem is that neuroscientists do not know what consciousness is and have no theories to explain its nature. That is because our science is the science of the external world, a hangover from the time of the Renaissance, and it does not deal with subjective experience, or with consciousness. This is the main problem facing neuroscience at the moment, and it may well be that NDE research will be one way of filling the “consciousness gap” in neuroscience.

So what did we do? We studied cardiac arrest survivors over the age of 18. To qualify for our study, when questioned after their cardiac arrest they had to be lucid, not confused; they had to agree to be interviewed; and their medical team had to allow us to ask them questions. Of course, we used Greyson’s (1983) NDE Scale; there isn’t a better instrument for assessing the presence or absence and the depth of an NDE.

What did we find? We found prototypical NDEs: feelings of peace and joy, sense of harmony, bright lights, heightened senses, encounters with mystical beings, encountering barriers of no return, and so on. Out of a base group of about 220 people who were admitted to the unit after a cardiac arrest, only 63 people survived. Of those 63 survivors, 56 (89 percent) had no memories during their arrest; and 7 (11 percent) had memories. Of these latter 7, four (6.3 percent) met the Greyson criteria for an NDE, and the other two, although not meeting the Greyson criteria, did have NDE features which made us put them in the NDE group. So our rate is about 10 percent, so one can generalize to cardiac arrest as a whole and say that about 10 percent of survivors of cardiac arrest will report NDEs.

Our conclusions from the study were that cardiac arrest NDEs were classical; rates were similar to previous estimates; and patients said that the experiences occurred during unconsciousness. Now, that is important because neuroscience maintains that conscious experience is not possible during physical unconsciousness. We also found that NDEs were not due to medication, electrolytes, or blood gases. So something interesting is going on.

Other Recent Prospective Cardiac Arrest NDE Studies

There are now four recent prospective cardiac arrest NDE studies. There is ours in 2000, and we found an incidence of about 10 percent NDEs among survivors (Parnia, Waller, Yeates, and Fenwick, 2001). Pim van Lommel and his Dutch colleagues in 2001 found about 12% percent (van Lommel, van Wees, Meyers, and Elfferich, 2001). In
Janet Schwaninger's American study published in 2002, a higher rate of 23 percent was found (Schwaninger, Eisenberg, Schechtman, and Weiss, 2002). Greyson, in his study about a year later (2003a), found 10 percent. And one of my Ph.D. students, Penny Sartori, in an unpublished study, found about 25 percent. So, you can say that of people who will have heart attacks, between 10 and 20 percent will have NDEs, and I doubt those figures are going to change very much.

So you can calculate straight away that over one million Americans have stood in the light: very powerful. Think of all those people who have experienced an altered state of consciousness. The world is changing. But not only that: more defibrillators and pacemakers are being implanted into hearts, and as the heart quite often stops in this process, this means that even more people are going to have NDEs and their aftereffects.

I want now particularly to mention van Lommel's Dutch study (van Lommel, van Wees, Meyers, and Elfferich, 2001). This was a huge study, with 344 cardiac arrest survivors in 10 hospitals. Forty-one survivors reported NDEs. The occurrence of NDEs was not influenced by the duration of either unconsciousness or cardiac arrest, or by medication. So that is really interesting: you do not have to be unconscious for long, but there may be a critical limit; we do not know. More NDEs were reported in the group of survivors who actually died shortly after their experience, so it looks as though the closer you are to death, the more likely you are to get an NDE.

This study also had an 8-year follow up, the longest follow up that has ever been published. It enabled the researchers to ask, first, whether the memory of an NDE changes across time, and second, what happens to people who do not have NDEs: do they have any of the change in personality that NDErs show? If you look at Table 1, you can see straight away that, in fact, there are interesting changes after a cardiac arrest even amongst the people who did not have an NDE. Positive scores indicate an increase in the personality changes, and the larger the number, the larger the increase overall for that group. Negative numbers indicate a decrease in the personality changes, and the larger the number, the larger the decrease.

I just want you to look closely at this table. Do you see those changes in the nonNDErs? The changes are greater overall in the NDErs, certainly. But I want you to understand that not only NDErs change, because a heart attack in itself is a very powerful, important event, and here is clear evidence that people who have heart attacks change, whether or not they report having had an NDE. Note that after eight
Table 1
Changes in cardiac arrest survivors at 2-year and 8-year follow-up (from van Lommel, van Wees, Meyers, Elfferich, 2001)

<table>
<thead>
<tr>
<th>Life Change Inventory Item</th>
<th>2-year follow-up</th>
<th>8-year follow-up</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NDE (n=23)</td>
<td>no NDE (n=15)</td>
</tr>
<tr>
<td>Social attitude</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Showing own feelings</td>
<td>42</td>
<td>16</td>
</tr>
<tr>
<td>Acceptance of others</td>
<td>42</td>
<td>16</td>
</tr>
<tr>
<td>More loving, empathic</td>
<td>52</td>
<td>25</td>
</tr>
<tr>
<td>Understanding others</td>
<td>36</td>
<td>8</td>
</tr>
<tr>
<td>Involvement in family</td>
<td>47</td>
<td>33</td>
</tr>
<tr>
<td>Religious attitude</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Understand purpose of life</td>
<td>52</td>
<td>33</td>
</tr>
<tr>
<td>Sense inner meaning in life</td>
<td>52</td>
<td>25</td>
</tr>
<tr>
<td>Interest in spirituality</td>
<td>15</td>
<td>-8</td>
</tr>
<tr>
<td>Attitude to death</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fear of death</td>
<td>-47</td>
<td>-16</td>
</tr>
<tr>
<td>Belief in life after death</td>
<td>36</td>
<td>16</td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interest in meaning of life</td>
<td>52</td>
<td>33</td>
</tr>
<tr>
<td>Understanding oneself</td>
<td>58</td>
<td>8</td>
</tr>
<tr>
<td>Appreciation of ordinary things</td>
<td>78</td>
<td>41</td>
</tr>
</tbody>
</table>

years, the nonNDErs scored higher than the NDErs on understanding the purpose of life! So, having a heart attack in itself is significant. NDErs became less fearful of death after their NDEs, but so did nonNDErs. So one thing that has been learnt from this study is that even people who do not have an NDE may have their consciousness changed just by the fact that they have had a heart attack. Interestingly, spirituality decreased in nonNDErs after their heart attacks but increased in the NDErs.

Moving on to the Schwaninger study, 30 cardiac arrest survivors were interviewed over three years (Schwaninger, Eisenberg, Schechtman, and Weiss, 2002). Twenty-three percent had NDEs, all of which were pleasurable; there were no "negative" NDEs. She found no
difference in demographic variables, so, again, there is nothing special about people who get NDEs. How people interpreted their NDEs, however, was, as we know, based on personal, cultural, and religious views. An interesting point was that they needed psychosocial support before hospital discharge. And at 6-month follow-up – not as long as van Lommel’s, but the results show the same trend – spiritual and religious views changed, as did attitudes towards others, personal understanding, and social customs.

Greyson’s (2003a) American study was of 1,595 patients admitted to a cardiac care unit with heart trouble. He found an incidence of 10 percent NDEs among cardiac arrest survivors and found that the more severe the illness, the more likely the survivor was to report an NDE. And what he said is this: “The paradoxical occurrence of heightened, lucid awareness and logical thought processes during a period of impaired cerebral perfusion [absence of blood flow to the brain] raises particularly perplexing questions for our current understanding of consciousness and its relation to brain function” (p. 275). So that is now in the literature. And based on that, Sam Parnia and I have a paper being reviewed for Neuroscience Letters in which we propose the experiment which I am going to show you. Whether or not they will publish it, I do not yet know.

An important finding from Greyson’s study was that patients admitted to intensive care without coronary arrest reported NDEs 10 times less often than coronary arrest patients, and the non-arrest NDEs contained fewer sensations of the light, less enhanced cognitive function during the experience, and less positive emotion. Now, my Ph.D. student, an intensive care nurse, has done a study – again, it is not published – and the rates she found for NDEs in an intensive care unit were almost the same as Greyson’s. So, if you go to any intensive care unit, 1 percent of non-arrest patients have NDEs and 10 percent of people with cardiac arrest.

**Attempts to Understand Cardiac Arrest NDEs**

So, now we come to the really important question: what happens when an NDE occurs during a cardiac arrest, and why is this important?

The first point is that signs of cardiac arrest are the same as clinical death. There is no detectable cardiac output, no respiratory effort, and brainstem reflexes are absent. If you are in this state and I put a tube
down your throat, you will not cough. You will have dilated pupils. Your blood pressure has fallen to zero. You are, in fact, clinically dead. Even if I start cardiopulmonary resuscitation (CPR), I cannot get your blood pressure any higher than 30 millimeters of mercury, and this is not going to produce an adequate blood flow to your brain.

A number of studies show that the longer CPR is continued, the more brain damage occurs. So it is not an ideal intervention. We know that after a cardiac arrest, both NDErs and nonNDErs suffer brain damage, but we do not know whether the amount of brain damage in the two groups is the same or different. During CPR, you are not going to be able to perfuse – that is, force an adequate amount of blood through – the brain. When the heart does finally start, the blood pressure rises, and there is a slow resumption of circulation and lots of technical reasons why your brain function does not return instantly. And the point to remember is that your mental state during recovery is confusional.

What should be clear to you now is that it is not a good thing to have a heart attack. In their 1999 study of cardiac arrest and brain damage, Graham Nichol and his colleagues found that out of 1,748 cardiac arrests patients, only 126 survived (Nichol, Stiell, Hebert, Wells, Vandemheen, and Laupacis, 1999). Most units range between 2 and 20 percent resuscitation rates. Eighty-six of Nichol’s survivors were interviewed, and most of the people who were resuscitated had evidence of brain damage.

Simultaneous recording of heart rate and brain output show that within 11 seconds of the heart stopping, the brainwaves go flat. Now, if you read the literature on this, some skeptical people claim that in this state there is still brain activity, but, in fact, the data are against this in both animals and humans. The brain is not functioning, and you are not going to get your electrical activity back again until the heart restarts.

The flat electroencephalogram (EEG), indicating no brain activity during cardiac arrest, and the high incidence of brain damage afterwards both point to the conclusion that the unconsciousness in cardiac arrest is total. You cannot argue that there are “bits” of the brain that are functioning; there are not. There is a confusional onset and offset, and there is no brain-based memory functioning. Everything that constructs our world for us is, in fact, “down.” There is no possibility of the brain creating any images. Memory is not functioning during this time, so it should be impossible to have clearly structured and lucid experiences, and because of brain damage, memory should be significantly impaired, and you should not be able
to remember any experiences which occurred during that time. Now, that raises interesting and difficult questions for us, because the NDErs say that their experiences occur during unconsciousness, and science maintains that this is not possible.

Figure 1 is an illustration I have drawn that I hope is helpful. The height of the line above the x axis shows the intensity of consciousness, and the squiggly line represents the level of consciousness. When the heart stops, the line starts to dip, and consciousness is lost. So you are going along conscious, your heart stops, and there is a very quick descent into unconsciousness. Those of you who have ever fainted will agree that when you faint you lose consciousness very quickly. So you lose consciousness, then you are unconscious, and then the heart restarts, so science says the NDE cannot occur while you are unconsciousness; that is the pink area in the diagram. Now, as you slowly regain consciousness, the slow recovery is all confusional, so the NDE cannot occur there.

So then, as far as science is concerned, the NDE cannot occur at the point the heart stops, it cannot occur at any point during the period of unconsciousness, and it is unlikely to occur at the point of confusional
arousal, because it is not typical of that level of consciousness; and if it occurred after recovery, the NDErs would say it occurred after recovery, because they know they have recovered. So there are real difficulties in accepting that the NDE happens when the NDErs say it happens: during unconsciousness. So are you beginning to feel the significance of the timing of the NDE both for neuroscience as well as for our understanding of the NDE?

One of the major models we have of the NDE at the moment is the ketamine model. During cerebral anoxia, when the heart stops and there is no oxygen supply to the brain, there is widespread release of a chemical called glutamate, an NMDA agonist which leads to high nerve cell stimulation rates and chaotic firing in the brain. Ketamine is an anesthetic drug that acts like glutamate and is sometimes used as a street drug because of its pleasant subjective effects. Experimentally, ketamine leads to some NDE phenomena. Evgeny Krupitzky and Alexander Grinenko (1997) used ketamine in psychotherapy with alcoholics and found that it resulted in the same sorts of changes that people have with NDEs. Their patients became more social, more creative; more concerned with self-perfection and with achievement in life; more spiritually content; more interested in family, education, and social values; and more individually independent – many of the changes that NDErs have. Does that mean that the experiences are the same? Is it the NMDA stimulation that produces the NDE?

Well, look at this example of a ketamine experience, taken from Karl Jansen's 2001 book, *Ketamine*:

...I found myself as a bodiless point of awareness and energy floating in the midst of a vast vaulted chamber. There was a sense of presence all around, as though I was surrounded by millions of others, although no one else could be seen. In the center of the chamber was a huge, pulsing, krishna-blue mass of seething energy that was shaped in a geometric, mandalic form.... Then suddenly, I was back in my body, lying on my bed. "Wow," I thought, "it's over. How abrupt!" I tried to sit up. Suddenly, my body was gone again and the room dissolved into blackness of the void, my reality being quickly pulled out from underneath my feet, like a hyperspatial magician's tablecloth trick. (p. 243)

NDErs, is that like your experience? No, it is not. There are some similar features, but there are other features that are very different.

So although the ketamine model is the best scientific candidate so far to account for the NDE in cardiac arrest, it cannot explain every feature of NDEs. And I am not sure that even if we say that the NDE is
a ketamine-like experience, we can, in fact, completely understand the whole of the NDE during cardiac arrest. Because we are left with the problem of exactly when does the NDE occur? And the only way you can get an answer to this is through out-of-body experiences (OBEs).

**Focusing In On the Near-Death Out-of-Body Experience**

Anecdotal evidence suggests that the OBE, and so the NDE, occurs during unconsciousness. There is also anecdotal evidence that it may be veridical. Sabom in 1982 found that some of his research participants gave correct accounts of resuscitation procedures, suggesting that the NDE occurs when the brain is “down.” The case of Pamela Reynolds, for those of you who saw the BBC production *The Day I Died* (Broome, 2003) or read the account of her case in Sabom’s later book (1998), is also suggestive of that. And, of course, Kenneth Ring and Sharon Cooper (1997) have described cases of NDEs in blind people who claim to have what they call “mindsight” and are able to “see” the resuscitation room. So, is the OBE truly veridical? That is, does it consist of verifiably accurate perceptions that would have been impossible to perceive from the vantage point of that person’s physical body? This is the cutting edge question in NDE research. So, let us have a look at that. I will just play you this video of one of the people from our study who had a heart attack and an out-of-body experience.

Narrator: In a respectable London suburb near Hampton Court lives a man who has twice been at death’s door and survived to tell the tale. Derrick Scull, age 66, is married with two children. He’s a retired Army major who now works in a large firm of lawyers.

Scull: Well, basically, I pride myself in being a fairly pragmatic, down-to-earth sort of person, but the experience that I underwent in 1978 remains etched in my memory for the last 8 years, and certainly I couldn’t believe my eyes or my senses at the particular time. I had a heart attack, and I found myself in hospital in the intensive care unit on the first day. The hospital medical staff had done everything they could for me. I was lying there in an operation robe with a mask on my face, and obviously I’d received an injection of morphine or some sort of drug to keep me under control. I wasn’t experiencing pain; in fact, I was feeling at peace with the world.
And suddenly, I seemed to take off and float, airborne, I suppose one would describe the word, into the corner of the room where I was able to look back, and I was conscious of lying there, and there was my own body, and I thought, "Good gracious, what is this?" In fact, I sort of, if I can describe it, I was looking at my toes on the ceiling, sort of looking over, and there was my body immediately below me. I was in the corner, left hand corner of the room, looking down on this body, and I had a perfectly good eye view of the bed and the entrance to the ward. And then I was also suddenly conscious that outside the room, there was my wife standing there in a red trouser suit talking to a nurse. I thought, "My God, what an inappropriate time to arrive. I'm up here, and there's the body, and what's going to happen?" I thought, "Something must happen."

But the very next thing I was conscious of was, sitting beside me was my wife wearing a bright red trouser suit. And I was there. I'd come down from the ceiling somehow, and there she was. This is why I know it wasn't a figment of my imagination, because it was so clear. I've given you the illustration of exactly what my wife was wearing, that was a red trouser suit, and I couldn't have seen her at the time. So this absolutely convinced me, and it was certainly cemented after my second heart attack when I went through a totally similar experience, and I am absolutely converted to this theory that something—call it your soul, call it whatever you like—does, in fact, temporally detach itself from your body, goes to a vantage point, and looks back and reviews the situation. And that's exactly what I felt I did on both occasions.

Now, Major Scull is very clear that his OBE happened during his cardiac arrest. What we need to do is to test this. Sartori, from Morriston hospital in the U.K., did this in a study for her Ph.D. thesis, not yet published. Using a method suggested by Janice Holden (Holden, 1988; Holden and Joesten, 1990), Sartori put randomized cards on top of the monitors displaying the patient's medical data, which are always present in patient rooms, usually beside the bed. Because the monitors were above eye level of a person standing up, the cards on top of them could not normally be seen by the nurses.
The question is, of course, when people left their bodies, did they see the cards? What would you guess? What are you NDErs going to look at when you leave your bodies? Are you going to look around the room, have a look at the monitors, see if there are any cards hidden there? You are not going to be interested in impersonal cards. The only thing you are interested in is this thing lying on the bed, which is your body, and nothing else. And that is exactly what happened in Sartori's study. I had thought that people would see the cards, but they did not. Sartori has now had eight patients who reported being out-of-body during their cardiac arrests, and what those people did was look at their bodies. One looked at her body and went out of the window. Another found a tunnel. One simply went back into the body as quickly as she could. Another went out through the wall backwards.

Clearly there is something wrong with this methodology. For if people do leave their bodies and look around the room, they do not gain the sort of information that we want them to gain – at least not through this research protocol. So we are designing a new experiment, very much like the study Greyson and Holden are conducting in Charlottesville, Virginia.

Imagine a cardiac care unit room. In a corner of the ceiling is someone who has left his or her body and is looking back down on the physical body. What we are going to do is to make sure that whatever object we use is something that a patient who leaves the body and looks down at it could not fail to see. One suggestion is that we should suspend from the ceiling a display screen between the person who is up at the ceiling and the physical body. The screen would be translucent, and would display some randomly generated image that is not visible from below, so the out-of-body person has actually got to look through the screen to see the physical body. A camera would record the whole of the resuscitation process, so that we can see if, after resuscitation and stabilization, the patient can accurately report what was displayed on the screen while he or she was unconscious and being resuscitated.

**Approaching-Death Experiences and the NDE: A Model for the Dying Process?**

In the final part of this presentation, I would like to try and put the near-death experience in the context that I feel it deserves. Is the NDE
a model for the final stage of dying? My current view is that it may be. My reasoning begins with those experiences that I call approaching-death experiences, which sometimes occur in the 24 hours before death. These consist of "take-away" deathbed visions of relatives or friends; experiences of light and other worlds; and deathbed "coincidences," that is, visits by the dying person to friends or relatives at the time of death. We, in fact, have three studies ongoing at the moment. One is a study with a palliative care team, asking caregivers about approaching-death experiences in the dying for whom they are caring; a paper describing this study has been accepted by the *American Journal of Hospice and Palliative Medicine*. Another is a study in hospices in Holland, looking at patients' accounts of their experiences as they approach death. Thirdly, we are in the process of setting up a hospice study in the U.K.

Now what are these deathbed visions? On St. Francis's tomb, there is a lovely picture of St. Francis when he was dying. He has several beautiful angels hovering over him, waiting to accompany him into death: a wonderful deathbed vision. I know that I will not have lovely people like that; I will just have my relatives. Just to give you a flavor of what the dying seem to see, here is a wife's description of her husband's death, from a paper by Paola Giovetti (1999, p. 38): "The gauze over his face moved, I ran to him and with his last strength he said to me: 'Adrianna, my dear, your mother (who had died three years before) is helping me break out of this disgusting body. There is so much light here, so much peace.'" Forty percent of the approaching-death experiences Giovetti found were these "take-away" visions.

The next common approaching-death experience is of transiting to a new reality. This story was told to me by a woman who was with her 32-year-old daughter as she was dying of breast cancer. In her last two to three days, the daughter described being conscious of a dark roof over her head; then she would go up and go through the roof into a bright light. She moved into a waiting place where beings were talking to her, to help her through the dying process. She conveyed to her mother that everything would be okay, that these were loving beings, and that her grandfather was amongst the beings. She was able to move in and out of this reality, and she was quite clear that it was not a dream. We have been given other accounts by people who describe waiting in a garden, which sounds very similar to the sort of garden that NDErs describe. Light and love are absolutely primary to these experiences.

The third type of approaching-death experience is the deathbed coincidence, in which the dying persons go to visit somebody to whom
they are close, to tell that person that they are dying. This is a fresco of St. Francis dying in one part of Italy. Here, in another part of Italy, is another prelate who is dying, and just as he is about to die, he suddenly sits up, sees St. Francis, and says, "Wait for me, wait for me, St. Francis; I'm coming." He seems to have paranormal knowledge that St. Francis is dying at the same time.

Here is a more recent example, reported retrospectively:

Around 1950, a distant relative, John, was in hospital. It was a Sunday, and my father went to visit John, to be told that he had died that morning at a certain time. The hospital authorities asked dad if he would inform the next of kin, the deceased's sister Kate and her husband, who were sheep farmers living in a relatively remote part of the country and not on the telephone. Dad and I drove the 20 or so miles and up a hill track to the farmhouse to be met by Kate who said, "I know why you have come - I heard him calling me, saying 'Kate, Kate' as he passed over." She was quite matter-of-fact about it. She gave us the time of death, which was exactly the same as recorded by the hospital. I found it an amazing experience and have never forgotten it, nor will I ever. I was about 17 at the time.

Now, these experiences are common, and whenever I give a talk on approaching-death experiences, someone in the audience always has some experience to report. What we hope to do is find out exactly how common they are. We are building on the work of previous researchers such as Karlis Osis and Erlendur Haraldsson (1977), who examined deathbed visions in terminally ill patients in the United States and India. Other phenomena are also frequently reported at the time of dying. Light at death is very common. A mother in one of our studies whose son was age 7 and dying of leukemia in the hospital told us that, as he became more seriously ill, the curtains were drawn around his bed. She told us that, in the 20 minutes before he finally stopped breathing, the whole area around his bed was flooded with light - the same light that you talk about in the near-death experience: the light of love and compassion. And as he died, the light slowly faded.

I have been given other accounts which are very similar to that. Here is one from a woman whose husband was dying:

Suddenly there was the most brilliant light shining from my husband's chest, and as this light lifted upward, there was the most beautiful music and singing voices. My own chest seemed filled with infinite joy, and my heart felt as if it was lifting to join this light and music. Suddenly, there was a hand on my shoulder, and a nurse said, "Sorry, love. He's just gone." I lost sight of the light and the music and felt so bereft at being left behind.
Once again, we see the phenomena of light, love, and music at the time of death, reminiscent of music described by NDErs.

Could approaching-death experiences and the NDE be a model for the dying process? If so, it would point towards consciousness beyond death. The brain identity theory says that consciousness ends with brain death. But if it can be shown in the cardiac arrest model that people can acquire information when they are unconscious and out of their body, if deathbed coincidences are real, it would be indisputable evidence that consciousness is separate from the brain. The brain identity theory – the reductionist view that consciousness is entirely dependent on brain function – then must fail, and this would have a heavy cost for science. Do not underestimate this cost. Science would have to change in a fundamental way, and so, interestingly, would our social structures. Because the theory also presupposes that consciousness does not survive death, and the evidence is beginning to be against that, too.

The nonreductionist view is that there is a process to dying. There is apparent separation of mind and brain. Love and light are fundamental to the dying experience. And the suggestions are that, in fact, love and consciousness are the fundamental ground structure of the universe and that consciousness may survive death of the body. So perhaps the near-death experience will help us to change science and to change our culture and bring back personal responsibility for our actions, if there is, indeed, continuing consciousness after death.

Will we ever really know? Perhaps, but let me end with a Zen parable. A nobleman asked Master Hakuin, “What happens to the enlightened man at death?”

“Why ask me?” said Hakuin.

“Because you’re a Zen master.”

“Yes, but not a dead one.”

Responses to Selected Questions From the Audience

Question: Is there a difference between hallucinations and NDEs?

Dr. Fenwick: People tend to forget their hallucinations, whereas NDEs remain absolutely clear. If you ask people about the nature of their experiences while they are in the intensive care unit, you find they have a totally different flavor from NDEs. They have hallucinations, many of which are illusions based on what is going on
in the intensive care unit, and they are usually strongly paranoid. For example, one patient felt that everybody in the unit was against her, that devils were poking her, and that she was being roasted. As she slowly came to consciousness, she realized that the roasting was being on the hot warming pad on the bed, and the devils were the nurses giving her intravenous fluids and injecting her. Now experiences like those do not have the clarity; they do not have the narrative quality; they do not certainly have the positive emotional valence of the typical near-death experience. So I think, at long last, we are beginning to be able to draw a distinction between hallucinations due to altered brain chemistry and the near-death experience. I think they are different.

Question: Does the NDE give us insight into the structure of the universe?

Dr. Fenwick: This is a really wonderful question, and it goes right to the heart of our understanding of what the universe is and how it is constructed. Physicist Amit Goswami (Goswami, Reed, and Goswami, 1995) argues that the basic ground structure of the universe is love and consciousness, and that the physical universe is a manifestation of this ground state. He has a theory relating to quantum mechanics about how every moment that we perceive something, we do create the physical world of that perception, and we create it essentially from the ground structure of the universe. So he argues that consciousness is primary and not an epiphenomenon of the brain. Goswami is very much in the Buddhist tradition, and this is the Buddhist view of the world. Now let us just go back to the experiences people have of the universe and how in these wide experiences they define its structure. So again, let us try to follow the data.

These very wide experiences are called transcendent experiences. About 30 percent of the population will have weak transcendent experiences, and about 10 percent strong transcendent experiences, very similar to NDEs, in which they see through into the structure of the universe. Everybody who has had this experience
is very clear: that the universe is composed of love and consciousness. And when they see the structure of plants, matter, people, the whole thing, they say that it is composed of love and consciousness. That is what they say. Now, that is very similar to what people say about their experience in the NDE, and that would also fit in with Goswami's model.

You probably know that a large number of astronauts had transcendent experiences. Edgar Mitchell is one (Mitchell and Williams, 1996). But the astronauts who were in control of the capsule did not have these experiences because they were busy with calculations and responsibilities. It was the guys that could stare out of the windows, who were not doing so much, who had the luxury of contemplation, who had transcendent experiences. And, again, if you talk to Mitchell, he will tell you quite simply that the universe is a universe of consciousness and love. Goswami's ideas go along with this, but the challenge is in formalizing these observations so that they can, in fact, be used by science.

**Question:** In childbirth, people are not dying, so why do they have NDEs?

**Dr. Fenwick:** The NDE has many different causes, and can occur for different reasons. My own view is that the NDE at its limit transforms itself into a transcendent experience, and I am not sure that you can distinguish between NDEs and transcendent experiences. For example, some people have the NDE when they are relaxed, or in a dream, or when they are asleep, and the experience then seems to be much better classified as a true transcendent experience. In a true near-death experience, large changes in physiology are involved; the typical near-death experience which then occurs has many features that will allow its classification also as a true transcendent experience. Some people who do get very seriously ill in childbirth drop their blood pressures and may have catastrophic bleeds. During this medical crisis a true NDE is often experienced. In summary, near-death experiences are transcendent experiences, but transcendent experiences can also occur when you are not actually near death.
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Content Analysis of a Predominately African-American Near-Death Experience Collection: Evaluating the Ritual Healing Theory

James McClenon, Ph.D.

Elizabeth City State University, Elizabeth City, NC

ABSTRACT: Twenty-eight near-death experience (NDE) narratives were selected from 1,832 anomalous experience accounts collected from predominately African-American respondents in northeastern North Carolina. Analysis of this sample allowed testing hypotheses regarding NDEs and the ritual healing theory. The North Carolina sample revealed a lower incidence of NDE core features than Bruce Greyson found in a sample of International Association for Near-Death Studies (IANDS) members, but equivalent to that found by Mark Fox in a British sample and by Kenneth Ring in an American sample. As Fox reported, comparison of crisis to non-crisis accounts revealed no significant differences in frequency of NDE features. Although no narrative features in the sample stories indicated ethnicity, content analysis revealed different frequencies of NDE type and greater incidence of negative emotion than previous researchers found. Accounts portrayed elements associated with shamanism and shed light on the process by which NDEs shape folk religious belief. All in all, hypotheses derived from the ritual healing theory were supported.

KEY WORDS: near-death experiences; African-Americans; shamanism; ritual healing theory; folklore.

Near-death experiences (NDEs) are defined as “profound psychological events with transcendent and mystical elements, typically occurring to individuals close to death or in situations of intense physical or emotional danger” (Greyson, 2000, p. 315). NDEs are thought to have recurring “core elements,” such as ineffability, out-of-body experience, and encounter with light, occurring crossculturally.

James McClenon, Ph.D., is Professor of Sociology in the Department of Social Sciences at Elizabeth City State University. Reprint requests should be addressed to Dr. McClenon at the Department of Social Sciences, Elizabeth City State University, Elizabeth City, NC 27909; e-mail: jmmcclenon@mail.ecsu.edu.
Although Mark Fox (2003) argued that many NDE-type episodes are unrelated to death, this study will refer to experiences having the features identified by Raymond Moody (1975), Kenneth Ring (1980), and Bruce Greyson (1983) as NDEs or "NDE-like" accounts. Comparison of accounts from American, European, Middle Eastern, African, Indian, Asian, Pacific, and Native American peoples allow insights into the nature of NDE core features (Becker, 1981, 1984; Kellehear, 1996, 2001; McClenon, 1991, 1994; Murphy, 2001; Wade, 2003; Zaleski, 1987). Although researchers have not achieved complete consensus regarding these core features, they generally concur that such elements exist, that accounts are shaped in part by expectation and cultural processes, and that these experiences have transformational capacities (Fox, 2003; Greyson, 2000; Kellehear, 1996; Moody, 1975; Moody and Perry, 1988; Morse and Perry, 1992; Ring, 1980, 1984; Sutherland, 1992; Zaleski, 1987).

The present study follows Fox’s (2003) strategy of analyzing a sample of NDE-like accounts taken from a larger collection of experiential narratives. Fox (2003) analyzed 91 NDE-like accounts selected from the collection of 6,000 religious experiences at the Alister Hardy Society Religious Experience Research Center (RERC) at the University of Wales, Lampeter, Great Britain. Using parallel methodology, the present study analyzed 28 NDE-like accounts selected from 1,832 anomalous experience narratives, collected from a predominately African-American population in northeastern North Carolina. The populations generating these two samples differ markedly in culture and ethnicity. Because previous major American studies contained only a small percentage of African-American respondents (Greyson, 1983; Ring, 1980), comparison of findings allows insights regarding the impact of ethnicity on NDEs.

Theories Regarding NDEs

Meanings attributed to recurring features are the basis of theories explaining NDEs. Some argue that core features reflect life after death: the NDEr is thought to have glimpsed the "other side" and returned to tell the tale. Others attribute NDEs to the physiology of dying. Susan Blackmore (1993), for example, argued that temporal lobe activities create the "life review," endorphins generate feelings of peace, and alterations in levels of oxygen and carbon dioxide create visionary perceptions. Opponents of this theory provide counterarguments,
refuting each explanation. They point out, for example, that perceptions associated with oxygen deprivation differ from the clear visions NDEs report: "Every theory that has been advanced to explain the NDE is rapidly confronted by a range of critiques and counterclaims" (Fox, 2003, p. 153).

An alternate paradigm portrays NDEs as one of various anomalous experiences reflecting the genetic basis for human religiosity. NDEs are viewed as a form of religious vision, originating with shamanism, humankind's first religious form. This orientation does not necessarily deny NDEs' religious authenticity, since shamanism may involve paranormal and spiritual forces.

Studies within this paradigm vary with regard to focus and orientation. Crosscultural comparisons of accounts allow insights into the degree to which physiology shapes experiential forms, while sociopsychological studies portray how anomalous perceptions create, and are also shaped by, folk belief (McClenon, 1994, 2002a). Carol Zaleski, for example, compared medieval European NDEs to modern accounts and concluded that

the otherworld journey is a work of the narrative imagination. As such it is shaped not only by the universal laws of symbolic experience, but also by the local and transitory statutes of a given culture. (Zaleski, 1987, p. 7)

Such "universal laws" seem derived from shamanism's physiological basis, demonstrated through crosscultural comparison of trance (Winkelman, 2000). Fox (2003) observed that NDEs are parallel in many respects to shamanic journeys, and that NDE "transformations" are similar to shamanic initiations. Timothy Green (1996, 1998, 2001), Ring (1989, 1990), and William Serdahely (1991) discussed numerous example cases supporting this argument.

The ritual healing theory provides an evolutionary scenario describing how genes associated with shamanism, religiosity, and anomalous experience were selected. During the many millennia that Homo sapiens practiced shamanism, the genes of those more receptive to ritual healing became more prevalent. These genes are linked to religiosity, dissociation, and anomalous experiences supporting shamanism. NDEs can be viewed as one of many forms of anomalous experience providing the basis for shamanism. Other experiences include apparitions, paranormal dreams, waking extrasensory perceptions, out-of-body experiences (OBEs), and psychokinesis (McClenon, 1994, 2002a). As do NDEs, shamanism and the anomalous experiences supporting it reveal recurring "core features." Shamanism
involves practitioners going into trance and communicating with spiritual forces for the benefit of others (Eliade, 1974). Although shamanic practices changed as human societies acquired increasingly complex social forms (Winkelman, 2000), genotypes allowing dissociation and trance are hypothesized to generate universal elements within anomalous and religious experience (McClenon, 2002a).

Much evidence supports the argument that NDEs and shamanic visions are neurologically similar. Kellehear's (1996) crosscultural analysis of NDEs led to a more accurate understanding of their core features, revealing that some elements are found only in technologically complex societies. Kellehear's (1996) list of core features, including darkness, encounters with "other beings," and arrival at an "other world," are equivalent to the core shamanic elements described by Mircea Eliade (1974), including trance, soul travel to a spirit world, and contact with spiritual beings. Ethnographic accounts reveal parallel features in shamanism and NDEs (Green, 1996, 1998, 2001; Ring, 1989, 1990; Wade, 2003). For example, the Oglala Sioux shaman Black Elk reported an NDE when he was 9 years old, an event regarded as his shamanic initiation (Neihardt, 1988/1932). Black Elk, and those around him, regarded NDEs as equivalent to shamanic visions, since these experiential forms corroborated each other regarding the nature of spiritual worlds. In parallel fashion, medieval Chinese and Japanese monks perceived their NDEs as equivalent to meditative visions, since their experiential content coincided (McClenon, 1991, 1994).

Correlational studies support the argument that NDEs are a form of shamanic vision. Psychological correlates of NDEs are similar to those of shamanism and associated anomalous experiences. Variables correlated with the incidence of NDEs, extrasensory perception, and capacity for shamanic vision include hypnotic ability, memory of dreams, use of mental imagery, absorption, and fantasy proneness (Greyson, 2000; Irwin, 1985; McClenon, 1997, 2002a). NDErs are more likely to report childhood trauma and paranormal perceptions than are nonNDErs (Ring, 1984, 1992); the biographies of shamans, spiritual healers, and psychic practitioners reveal a similar pattern (Emmons and Emmons, 2003; McClenon, 1994, 2002a).

Shamanism involves complex processes in which certain people, having dissociative tendencies often linked to psychosomatic disorder, experience anomalous and extrasensory perceptions, gain reputations for supernatural ability, and undergo initiations that typically involve symbolic "deaths" and "rebirths" (Eliade, 1974). The process is associated with creativity and, as a result, shamanism is regarded as
“a good outlet for the self-expression of those who might be described as being endowed with an ‘artistic temperament’” (Haviland, 1997, p. 651). Shamanic visions often have innovative qualities, designed to help people adjust to changing situations. Visions often reflect hypnotic “creative problem-solving” (Lynn and Sivec, 1992), since they may provide solutions to problems that would not have been devised or accepted if they had originated through other means. As a result, shamans perform rituals that create hypnotic and placebo effects with proven therapeutic benefits.

NDEs reveal parallel features. They have utopian qualities, providing images of an afterlife contributing to transformation (Kellehear, 1996). They provide “solutions” to the problem of death, valuable to both individuals and their communities. Throughout history, NDEs have creatively shaped religious beliefs in a manner contributing to psychological health, sometimes providing images preceding formal changes in theology (McClenon, 1991, 1994). Although the shamanic approach to NDEs emphasizes imagination, this orientation need not be regarded as completely materialistic, since some shamanic visions provide special insights into reality (Ring, 1990).

This is not to say that all NDEs are exactly like shamanic visions. Anomalous experiential forms are shaped by physiology, culture, expectation, and creativity, with the later three factors contributing to variance among cultures. NDEs occur in special settings, surrounded by expectations that differ from those associated with shamanism; variations in setting generate variations in experiential content.

The ritual healing theory argues that shamanism and NDEs are linked by their common physiological basis. Hominid genotypes allowing dissociative and hypnotic capacities protected against the psychological effects of trauma (McClenon, 2002b). Such genotypes contributed to the ability to perceive apparitions, paranormal dreams, waking extrasensory perceptions, psychokinesis, OBEs, and NDEs. Many researchers have found significant correlations between the propensity for dissociation or hypnosis and the incidence of paranormal experiences (Kumar and Pekala, 2000), including NDEs (Ring, 1992). Among Homo sapiens, these anomalous experiences generate beliefs in spirits, souls, life after death, and magical abilities, concepts providing the basis for shamanism. The ritual healing theory argues that shamanic rituals, based on placebo and hypnotic effects, provided greater survival benefits to those with dissociative or hypnotic genotypes, causing an evolutionary cycle that led to the modern genetic basis for religiosity. This theory coincides with a growing body of
evidence, derived from twin studies, indicating that religious attitude, interests, and practice have a genetic basis (D’Onofrio, Eaves, Murrelle, Maes, and Spilka, 1999; Waller, Kojetin, Bouchard, Lykken, and Tellegen, 1990).

**Hypotheses**

The ritual healing theory allows hypotheses pertaining to NDEs. I tested these hypotheses through analysis of a sample of narratives gathered from a predominately African-American population in North Carolina and through comparison of these results to others’ findings.

**Hypothesis 1: The Biological Basis of NDEs**

Any large collection of NDE narratives should reveal core features reflecting the biological basis of this experiential form. The incidence of features can be measured using scales based on the work of Moody (1975), Ring (1980), and Greyson (1983).

**Hypothesis 2: The Source of NDEs: Crisis versus Non-crisis Accounts**

Fox (2003) identified 32 “crisis” cases and 59 “non-crisis” cases (not related to danger or death) in his sample of 91 “NDE-like” accounts. He determined that “the average number of Moody’s original 15 NDE elements in the crisis and non-crisis accounts examined were 3.3 and 2.9 respectively, a difference of only 0.4” (Fox, 2003, p. 325). These results reduce faith in the “dying brain” theory, since equivalent perceptions were found in dying and non-dying contexts. The ritual healing theory argues that core features in crisis and non-crisis accounts should be equivalent in the North Carolina sample, since NDEs are hypothesized to be related to propensity for experiencing visions rather than to dying.

**Hypothesis 3: The Cultural Shaping of NDEs**

The ritual healing theory suggests that both visions and NDEs are shaped by expectation, culture, and creativity. As a result, any large collection of NDEs should reveal features reflecting these factors. Analyses conducted by Fox (2003), Ring (1980, 1985), and Greyson (1983, 1985) provided data for comparison with the North Carolina
sample. I compared samples with regard to frequency of core elements, incidence of negative emotion, and NDE type. Because this is an exploratory hypothesis, I did not predict directions of differences.

**Hypothesis 4: The Shamanic Nature of NDEs: Individual Transformation**

The ritual healing theory predicts that people who report NDEs are more likely to perceive other forms of anomalous experience. It also hypothesizes that NDEs and other anomalous experiences generate beliefs in spirits, souls, life after death, and magical abilities. Such beliefs motivate frequent experiencers to seek shamanic skills and play shamanic roles, performing magical services for others. This hypothesis can be investigated through qualitative case analysis: we would expect to find accounts of people who report many anomalous experiences to take on spiritual healing roles.

**Hypothesis 5: The Social Impact of NDEs: Social Transformation**

The ritual healing theory argues that audiences hearing NDE stories tend to increase their belief in life after death. Qualitative analysis of stories deemed most interesting by listeners, and the impacts attributed to these stories, should shed light on the process by which folk religion is created through oral transmission of personal experience.

**Methodology**

Between 1988 and 2003, I required students in my Introduction to Anthropology class at Elizabeth City State University in Elizabeth City, NC, to ask a minimum of three individuals the question: “If you have had a very unusual experience, would you describe it?” Students transcribed respondents’ accounts and provided their opinions of each story.

The collected narratives reflect the average student at Elizabeth City State University (ECSU). ECSU is a small, predominately African-American college, with about 2,000 students during the time of the study. Elizabeth City, with a population of about 17,000 (half of whom are African-American), is located in rural northeastern North Carolina, an area regarded as economically disadvantaged. Narratives
that included demographic data indicate that 71.2 percent of the informants were African-American and 68.5 percent were women. Among these informants, 15.2 percent were white-collar workers, 29.3 percent blue-collar workers, 37.4 percent full-time students, 7.5 percent housewives, and 8.9 percent retired.

Through analysis of accounts previously gathered in the United States, China, and Japan, I had previously identified naturally occurring categories of anomalous experience, such as apparitions, paranormal dreams, waking extrasensory perception, psychokinesis, sleep paralysis, and out-of-body experiences. I devised coding guidelines, based on core elements within each category, and classified narratives regarding their experiential form. Between 1978 and 1997, my students collected 1,215 anomalous experience accounts; I have published reports based on these data previously (McClenon, 2000, 2002a, 2002b). Between 1997 and 2003, 617 more accounts were collected and sorted into the previously devised categories.

The original coding system provided no category for "near-death experience." Narratives of the NDE form were either classified as "out-of-body experiences" or placed in a "miscellaneous" category that included religious visions. Careful reading of Fox's (2003) classification strategy allowed identification of NDE-type accounts. Fox (2003) described "crisis" experiences, in which the account involved the possibility of death, and "non-crisis" experiences, in which that possibility was not present. He noted that non-crisis experiences involved no "life-threatening crisis" but revealed "a range of traditional NDE elements, including out-of-body experiences, tunnels, light and so on" (Fox, 2003, p. 247).

Using Fox's strategy, I identified 28 accounts as "NDE-like" experiences. Among these 28 respondents, 20 were African-American and 8 were Caucasian; 10 were male and 18 female; and their average age was 39 years. I instructed nine ECSU undergraduate students in Fox's (2003) system of classifying crisis, non-crisis, and deathbed experiences: stories involving hospital visits were classified as "crisis" accounts; stories lacking a life-threatening event were coded as "non-crisis"; and episodes in which the person having the vision died and did not come back to life were labeled "death-bed visions." This strategy allowed identification of 22 crisis cases, 5 non-crisis cases, and 1 deathbed vision, which was excluded from comparative analysis.

Cases were evaluated, based on previous studies, regarding incidence of NDE core features (Moody, 1975; Greyson, 1983; Ring, 1980). Moody's (1975) 15-item list includes: (1) ineffability, (2) hearing the
news of one's death, (3) feelings of peace and quiet, (4) hearing a particular noise, (5) traversing a dark tunnel, (6) feeling out of the body, (7) meeting others such as deceased relatives, friends, or religious guides, (8) meeting or experiencing a being of light, (9) perceiving a life review, (10) perceiving a border between life and death, (11) coming back to the body, (12) telling others of the experience, (13) perceiving effects on attitudes toward life, (14) gaining new views of death, and (15) corroboration of information gained from the other-worldly travels.

Ring's (1980) five "sequential stages" or "elements" include (1) feeling peace, (2) body separation, (3) entering the darkness, (4) seeing the light, and (5) entering the light. Moody and Ring scale scores were determined by counting the incidence of core elements. Greyson's (1983) 16-item NDE Scale quantifies NDE depth through questionnaire response. The scale, validated through Rasch scaling (Lange, Greyson, and Houran, 2004), allows classification of NDEs based on response to four subscales: cognitive, affective, paranormal, and transcendental. I slightly modified the wording of the NDE scale to make items applicable to a narrative text rather than a questionnaire to which narrators were asked to respond.

Following Fox's (2003) strategy, I directed coders to accept any mention of darkness as indicating Moody's (1975) tunnel element. Final coding was determined by averaging coders' scoring for each case.

Results

Hypothesis 1: The Biological Basis of NDEs

The finding of NDE core features in the North Carolina sample, as measured by all three scales, supports Hypothesis 1, as shown in Table 1.

Due to ambiguity in texts, lack of precise definitions in scaling systems, and variations in student coding skills, coders often failed to achieve consensus. The first example narrative, presented under "hypothesis 3," portrays ambiguity derived from imprecise definitions of "out-of-body experience." As shown in Table 2, equivalent coefficients of variation indicate that reliability was approximately equal among the scales. Average Pearson product-moment correlations
Table 1
Mean Rates of Core NDE Features in North Carolina Sample and in Previously Published Studies

<table>
<thead>
<tr>
<th>Measure</th>
<th>North Carolina Sample</th>
<th>Previouly Published Study</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fox's scale derived from Moody (1975)</td>
<td>2.81 (crisis cases)</td>
<td>3.3 (crisis cases)</td>
</tr>
<tr>
<td>Ring (1980) scale*</td>
<td>1.16</td>
<td>1.46</td>
</tr>
<tr>
<td>NDE scale (Greyson, 1983)</td>
<td>3.78</td>
<td>16.48</td>
</tr>
</tbody>
</table>

* Summed proportions of “core experiencers” reporting each NDE “stage.”

among coders for each scale, an alternate measure of reliability, varied from an acceptable minimum value of .70 to .87.

Hypothesis 2: The Source of NDEs: Crisis vs. Non-crisis Accounts

Table 3 compares average Moody, Ring, and Greyson scale scores of crisis and non-crisis accounts. As hypothesized, crisis and non-crisis average scores did not differ significantly. The non-crisis experience averages on the Moody and Greyson scales were actually slightly higher than the crisis experience averages.

Table 2
Reliability of Measures of Core NDE Features in North Carolina Sample

<table>
<thead>
<tr>
<th>Measure</th>
<th>Score (N=27) (Mean ± SD)</th>
<th>Coefficient of Variation (SD/Mean)</th>
<th>Mean Correlation (R) Among Coders (N=36)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fox’s scale derived from Moody (1975)</td>
<td>2.83 ± 0.73</td>
<td>0.26</td>
<td>.85</td>
</tr>
<tr>
<td>Ring (1980) scale*</td>
<td>1.16 ± 0.33</td>
<td>0.29</td>
<td>.70</td>
</tr>
<tr>
<td>NDE scale (Greyson, 1983)</td>
<td>3.78 ± 0.31</td>
<td>0.31</td>
<td>.87</td>
</tr>
</tbody>
</table>

* Summed proportions of “core experiencers” reporting each NDE “stage.”
Table 3
Mean Rates of Core NDE Features in Crisis and Non-crisis Cases

<table>
<thead>
<tr>
<th>Measure</th>
<th>Crisis Cases (N=22)</th>
<th>Non-crisis Cases (N=5)</th>
<th>t</th>
<th>df=25</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fox's scale derived from Moody (1975)</td>
<td>2.81</td>
<td>2.87</td>
<td>-0.06</td>
<td></td>
<td>.95</td>
</tr>
<tr>
<td>Ring (1980) scale*</td>
<td>1.18</td>
<td>1.07</td>
<td>0.48</td>
<td></td>
<td>.64</td>
</tr>
<tr>
<td>NDE scale (Greyson, 1983)</td>
<td>3.69</td>
<td>4.13</td>
<td>-0.32</td>
<td></td>
<td>.76</td>
</tr>
</tbody>
</table>

* Summed proportions of “core experiencers” reporting each NDE “stage.”

Hypothesis 3: The Cultural Shaping of NDEs

Table 1 compares average incidence of NDE core features, as measured by the Moody, Ring, and Greyson scales. Average incidence of features in the North Carolina sample, as measured by the Moody scale, was equivalent to that found by Fox (2003) in his crisis and non-crisis samples. Average incidence of features in the North Carolina sample, as measured by the Ring scale, was only slightly lower than that found by Ring (1980). Average incidence of features in the North Carolina sample, as measured by the NDE scale, was much less than found by Greyson (1983).

The proportion of NDEs compared to other experiences was equivalent, perhaps coincidentally, to that found by Fox (2003). Fox found 91 “NDE-like” accounts within a 6,000-case collection, for an incidence of 1.5 percent. Among the 1,832 North Carolina cases, 28 “NDE-like” accounts were identified, for an incidence of 1.5 percent. Fox (2003) reported a far greater percentage of non-crisis accounts within his analysis sample (65 percent) than I found in the North Carolina sample (19 percent).

Typical accounts in the North Carolina collection were similar to typical NDEs published in the literature. There were no apparent differences between African-American and white respondents’ accounts. The most common motif involved an anesthetized surgical patient viewing his or her body on the operating table from above while medical personnel dealt with a medical emergency. The modal value of core elements was one, most commonly an OBE. The more complex stories included many core features, typically OBEs, feelings of peace, seeing deceased relatives or Jesus, and perceiving a bright light.
Content analysis reveals quantitative differences between the North Carolina accounts and other NDE collections. Ring (1980) listed percentages of people reporting his sequential NDE stages as 60 percent feeling peace, 37 percent separating from the body, 23 percent entering the darkness, 16 percent seeing the light, and 10 percent entering the light. The North Carolina sample differed markedly from that pattern, with 26 percent feeling peace, 63 percent separating from the body, 11 percent entering the darkness, 26 percent seeing the light, and none entering the light.

The North Carolina collection also lacked NDE forms reported by Greyson (1985, 1990). Greyson’s (1983, 1985) NDE scale has four subscales: cognitive, affective, paranormal, and transcendental. He reported that his IANDS sample could be grouped into three major types: 43 percent described transcendental NDEs, 42 percent described affective NDEs, 16 percent described cognitive NDEs and none described paranormal NDEs. Because, in general, North Carolina NDE scale scores were low, only three individuals scored high enough in a subcategory to allow subscale classification using Greyson’s system. In all three cases, these NDEs were “transcendental,” involving traveling to another world and meeting deceased relatives or Jesus.

The 28 North Carolina NDE accounts included 99 positive responses to items in Greyson’s NDE Scale. Of those positive responses, 42 percent were transcendental, 20 percent were affective, none were cognitive, and 38 percent were paranormal. By contrast, it can be calculated from Greyson’s (1983) data that among his IANDS sample, 26 percent of the positive responses were transcendental, 37 percent were affective, 16 percent were cognitive, and 22 percent were paranormal. Seventy-five percent of Greyson’s IANDS respondents stated that their experience included the feature of time distortion: “everything seemed to be happening all at once; or time stopped, or lost all meaning” (Greyson, 1990, p. 156). Although the nine North Carolina students did not code a single respondent as reporting this feature, one narrative described possible “time distortion.” If this case were coded as “positive,” this would mean that only 4 percent of accounts included this element.

The North Carolina sample revealed higher percentages of negative emotions than did Fox’s British or Ring’s American samples. Among crisis cases mentioning emotions, Fox (2003) noted that 6 percent reported “negative or unpleasant” sensations and 12.5 percent reported mixed sensations. Ring (1980) noted that only 5 percent of reported feelings or emotions were negative. Among the 10 North Carolina “crisis experience” respondents mentioning emotions, 7 (70 percent)
were positive and 3 (30 percent) were negative. Although North Carolina respondents mentioned 7 visits to heavenly realms and only one visit to hell, no heavenly visitor mentioned an emotion.

Comparison of non-crisis accounts also revealed a higher incidence of negative emotion within the North Carolina sample. Among Fox's (2003) non-crisis cases mentioning emotion, 5 percent portrayed negative feelings while 8.5 percent reported mixed experiences. Among 5 non-crisis North Carolina reports of emotions, two (40 percent) were negative, two (40 percent) were mixed, and one (20 percent) was positive.

**Discussion**

**Hypotheses 1-3: The Biological Basis, Source, and Cultural Shaping of NDEs**

The finding that the North Carolina collection contains NDE core features, as defined by the three scales (Hypothesis 1), supports the argument that NDEs have a physiological basis, since accounts from all over the world reveal similar core features. The finding that crisis and non-crisis accounts contain equivalent frequencies of core features (Hypothesis 2) replicates Fox's (2003) finding and supports the ritual healing theory: NDEs seem more closely linked to shamanic, visionary processes than to the physiology of dying.

Although we cannot be certain that variations among samples with regard to incidence of core elements and expression of negative emotions are a reflection of cultural differences, these variations seem to support Hypotheses 3. Differences in sample selection, story collection, and evaluation methodology may contribute to these variations. The North Carolina collection methodology, based on student interviews, differed from those used by other researchers. Ring's sample was gathered in Connecticut and Maine, and Greyson's sample was derived from members of IANDS throughout the United States. The Fox and North Carolina samples were not originally gathered with the intention of collecting NDE cases, as were the Ring and Greyson samples.

Greyson's IANDS members may have reported a higher incidence of core features because their experiences were sufficiently compelling to motivate them to join an organization dedicated to NDE research. In addition, Greyson's respondents were specifically asked about each item on the scale, whereas those providing North Carolina accounts
were not. These methodological differences would contribute to a lower incidence of reported core elements within the North Carolina sample. Qualitative analysis of the North Carolina accounts provides insights into these quantitative differences. Example cases demonstrate the similarity between crisis and non-crisis accounts. Three non-crisis respondents reported fear while out of their bodies, because they thought they might be dead. Two respondents described sleep paralysis, episodes where they awoke to find they could not move. An example case includes sleep paralysis, panic, and a form of OBE:

I awoke in a deep sweat. My eyes were open but I could not move. I looked above at the ceiling and I saw myself, my spirit, before my very own eyes. I remember praying, asking the Lord what was happening. I felt my heartbeat dropping and I began to panic. (Narrative 13)

As with many accounts, coders did not reach consensus on this narrative. A majority labeled this episode an OBE because the speaker's spirit left her body.

A second non-crisis night paralysis report mentioned both positive and negative emotions:

I decided to lie on my back in my bed to take a short break and rest. I began to hear a faint whirring sound, similar to that of a vacuum cleaner. I realized that something very strange was happening to me. My body began to shake in proportion to the intensity of the progressively louder whirring noise until it reached a point of violently shaking as if someone was shaking me with me having no control over it. At this point I felt as if I could be shaken no harder and the whirring sound could be no louder.

I experienced a floating sensation and could feel my inner self slowly rising upward towards the corner of the room, where the walls and ceiling meet. About a third of the way up, I could see my roommate continuing to sleep on the other side of the room in his bed. As I was baffled by this strange phenomena, I concluded that I must be dying and as I looked up at the corner of the room, I saw it open up to a long concrete stairway, similar to the ones used in the dorm to go from one floor to the other. At the top of this opening was the brightest white light you could imagine.

As I stared at this light, the most peaceful, alluring feeling came over me and I was convinced that I was dying and was so happy and unafraid, and accepting. I felt that I was in the process of going to heaven to see Jesus. The instant I graciously accepted this fact, the whole floating upward process speeded up dramatically and I said to myself, "This is really happening." Now, I started to panic and I tried to call out to my roommate but nothing would come out of my mouth. At this instant, the whole process immediately stopped and I was again in my body, lying flat on my back in my bed. I was white as
a sheet, and was in a cold, clammy, light sweat, almost scared to even breathe. (Narrative 22)

This story illustrates how non-crisis accounts can be equivalent to crisis NDEs.

One non-crisis respondent even described a visit to hell and then heaven, the only "hell visit" in the collection:

I had worked real hard that day and fell asleep on the sofa. Then I thought I got right back up and I started walking around and I noticed someone lying on my sofa. I thought about calling 911 but the person seemed to be harmless. I walked over and it was me. I started panicking because I thought I was dead. Then I screamed and it felt like something was pulling me very fast throughout the house. When I blinked my eyes and then opened then back up I was in hell. I saw many people there that I knew and they were burning, screaming, and asking me for help. I was yelling for a while too until I realized that I was not burning.

As soon as I realized I was not burning, I felt another pull and this time when I opened my eyes I believe I was in heaven. I was in the middle of a forest but it was no ordinary forest. I saw no grass on the ground or dirt. The ground looked golden. Then I felt another pull and this time I ended up in what looked like a foggy tunnel. I heard an echo saying my name, "Shondra, you have a choice. You can either follow your Lord and Savior Jesus Christ or death come unto you." Then I went back to my body and then I was awake. Once I got myself together I realized that the Lord was trying to give me a choice to live forever or burn in hell in the bottomless pit. That is when I accepted the Lord in my life. (Narrative 23)

Some North Carolina respondents noted that their NDEs had elements that differed from their expectations of the afterlife. No narrative mentioned "judgment" preceding entry to heaven, a concept advocated by many Christian denominations. (Perhaps 80 percent of people in northeastern North Carolina are Baptist.) As in medieval Europe and Asia, where NDErs described forms of "purgatory" before the concept became canonized (McClenon, 1991, 1994), modern NDErs advocate theological innovation, portraying easy entrance to heaven. Nonjudgmental NDEs are functional for pluralistic societies, where people from different ethnic, social, and religious groups live in close proximity.

The higher incidence of negative emotions within this sample may be related to ethnicity and associated anxiety, unusual sleep patterns, and high blood pressure. Hypertension among African-Americans is about twice as prevalent as among whites. Panic disorder, anxiety disorder, and sleep paralysis, thought to be interrelated, are also far
more prevalent among African-Americans and may be related to hypertension (Bell, Dixie-Bell, and Thompson, 1986; Bell, Shakoor, Thompson, Dew, Hughley, Mays, and Shorter-Goeden, 1984; Neal and Turner, 1991; Williams and Collins, 1995). Although random sample survey results indicate equivalent reporting of most forms of anomalous experience among two predominately white college samples and the predominately African-American ECSU sample, the ECSU rates of sleep paralysis were 13 to 18 percent higher (McClenon, 1994).

Carl Bell, Bambade Shakoor, Belinda Thompson, Donald Dew, Eugene Hughley, Raymond Mays, and Kumea Shorter-Goeden (1984, p. 506) argued that “a great number of black persons suffer from ‘survival fatigue,’ a situational predicament that may result in an over aroused adrenergic central neurobiologic system, leading to a variety of behaviors, attitudes, and psychophysiologic diseases.” People under stress and suffering from hypertension may have greater tendency to experience sleep paralysis and to report negative emotions as a result of anomalous perceptions (McClenon, 2002b).

Hypothesis 4: The Shamanic Nature of NDEs:
Individual Transformation

The ritual healing theory hypothesizes that NDEs are one of various forms of anomalous experience that provide bases for shamanism. It predicts that any large collection of NDEs should include stories portraying shamanic processes: people who experience frequent anomalous episodes gain absolute faith in spirits, souls, life after death, and magical abilities. They are regarded by others as “special” and tend to become shamans, psychics, or spiritual healers.

One case directly supports this hypothesis. While in the hospital, a 30-year-old woman perceived an NDE that included feelings of peace, an OBE, meeting others, seeing the light, coming back, telling others, effects on life, new views of death, and corroboration. She reported that when she was a child she was considered “special” because of the many apparitions she perceived. She described frequent conversations with a deceased uncle when she was 5 years old, before she realized he was dead. She told of apparitional visits by a deceased grandfather and a precognitive dream of a shooting in her neighborhood. She described a waking extrasensory perception that foretold a relative’s death. She reported many precognitive dreams: a wake that corresponded exactly with later events, a miscarriage experienced by a woman at her work, a trip to Richmond for a medical appointment, and a bald stranger
whom she later recognized as her brother's attorney, even though he wore a hairpiece, and who became an important person in their lives.

She described a series of precognitive dreams regarding winning numbers in the Maryland lottery. She won small amounts on three occasions and her cousin won a larger sum through playing a number she provided (McClenon, 2002a, p. 139). These experiences made her certain regarding spiritual forces, life after death, and her own magical abilities. She acquired a reputation in her community as a spiritual healer and advisor, someone whose prayers were often answered. As a result, people often asked her to pray for them. Her NDE contributed to her beliefs:

It's like this, [Jesus] touched my hand and it's like – now, no matter what happens, I really know He's there for me. It's made a difference for me – how I think – how I treat other people. ... I ask Him for guidance and I try to take the steps as He guides me. But I don't worry about anything because I don't need to. I know that I'm only going to be here for a little while and when I go, I know there is going to be complete peace. I'm not afraid of dying. (Narrative 1)

This respondent stressed that her NDE was merely one of many experiences creating "transformation." People who see apparitions of deceased relatives, have frequent dreams that come true, and perceive visions corresponding with reality perceive themselves as changed and tend to take up shamanic roles as a result.

A second example portrays how those with multiple otherworldly experiences gain certainty regarding life after death. A 53-year-old man described a non-crisis OBE that included six of Moody's core features and scored 7 on Greyson's NDE scale. His first experience alarmed him; after repeated experiences, he came to believe that he could control his perceptions:

Since this occurrence, I have had this same thing happen to me several times. From these experiences, I feel that it is possible that the dying process may have some human choice involved in it. I feel that it may allow you to ultimately control your final destiny. Even though we are overpowered by the stresses of everyday life, the light that I saw makes you think and see that Jesus has given us a final escape route from the truly unbearable aspects of life. (Narrative 22)

**Hypothesis 4: The Shamanic Nature of NDEs:**

**Individual Transformation**

The idea of control is at the heart of shamanism. The shaman gains control of his or her cognitive processes and, as a result, is able to visit
the spirit world and gain concessions from spiritual forces. As with NDEs, the other forms of anomalous experience can involve "corroboration" of compelling belief. Those who have frequent anomalous experiences accept the authenticity of magical claims. For example, an adult male described repeated OBEs. He knew his mother was sick and purposefully attempted to "visit" her spiritually:

You may not believe this, but I tell you every word of it is true. For years I have had this ability to leave my body to go and visit someone who may be in trouble or who is dying. When my mother was dying I went to visit her, not in person but spiritually. . . . I went in my room and got down on my knees like I was praying. The next thing I knew I was with my Mama. We talked and talked about all those good times we used to have and she told me that she was going to be all right and to go back to myself and not grieve because she was going to be in heaven and would be watching down over me. When I came back everybody was around me and they told me I must have passed out. I looked at them and said, "No, I was with Mama." (Narrative 20)

This man's father stated that others had verified many of his son's previous anomalous experiences and that the episode his son described coincided with his wife's death within 15 minutes.

These cases illustrate a pattern found around the world. Humans have a natural propensity for shamanic experience. Certain people who experience frequent anomalous events develop powerful beliefs and acquire shamanic roles within their communities. This evidence supports the ritual healing theory.

**Hypothesis 5: The Social Impact of NDEs:**

**Social Transformation**

The ritual healing theory argues that NDE stories shape folk beliefs regarding life after death. This process was documented by requiring interviewers to summarize their reactions to each informant's story and by asking coders to explain why they found certain stories to be particularly interesting.

Qualitative analysis of these results provides insights into processes by which some stories gain wide distribution, affecting folk beliefs. Interviewers provided a variety of opinions, from strong skepticism to absolute belief.

The few skeptical comments often included theological arguments. These cases fail to support the hypothesis that NDEs
generate social transformation. For example, one student interviewer commented:

Though many people in a near death situation will say they have visited Heaven none have actually died. There is a difference between biological death and clinical death. Biological death is permanent; clinical death is a subnormal condition that can change. The lights people report are the operation room lights. Also hearing is the last sense a person loses when they are impaired or in a coma. They are hearing the voices of the medical people, not angels. It is pleasant to think that there is life after death, yet the vast majority of people who are religious or who tell these stories drink, divorce, commit adultery, etc., acts that are not permitted for those who will go to Heaven. (Narrative 11)

This text illustrates typical arguments disputing NDE authenticity. People tend to reject accounts that do not coincide with their previous beliefs.

More typically, interviewers stated that NDE accounts caused them to evaluate their beliefs from the vantage point of the experiencer. They indicated that the story caused them to ponder the meaning of individual experience in relation to belief, concepts central to shamanism:

This is something that you hear about but never think actually happens to a real person. It makes me think about the way I am living. (Narrative 26)

When people hear that someone has died and come back to life, they often label the person as crazy. But if you think about it, Jesus died and came back to life. If you believe that then why is it so hard to believe that another human could not do the same? (Narrative 5)

I had never given any thought to these types of things. I was very interested in what Mrs. M. had to say because it just seemed so unreal. While she was talking, I got goose bumps. I felt spooked thinking that it really happened. It made me think that when we die, our spirits or souls really leave the body, and not just die with our mortal beings. I had always believed in life after death because of religious reasons, but there's a difference in believing something and hearing that it has actually happened. (Narrative 6)

Although no interviewer described being "converted" as a result of talking to an NDEr, some expressed admiration for the powerful beliefs associated with the experience. People who have had many experiences often provide a model for others by exemplifying the value of belief.

Student coders were asked to list the three stories they found most interesting and to describe why they chose those particular stories.
Four stories received three or more votes, three of which have been discussed previously. Ironically, among these four most-favored stories, only one was a crisis NDE. These stories were: (1) the woman who reported an extremely large number of anomalous perceptions, one of which was an NDE (Narrative 1); (2) the man who claimed to engage regularly in out-of-body travel and who visited his mother as she died (Narrative 20); (3) the woman, not involved in a crisis, who had a vision of hell and heaven (Narrative 23); and (4) a man who saw his deceased relatives immediately before he died (Narrative 3). This last experience was classified as a deathbed vision and not included in the quantitative analysis, since equivalent cases were not included in other researchers' NDE samples.

Students described why these particularly stories were interesting. Many mentioned that some people were able to control these episodes, using their abilities to gain benefits. This capacity is central to shamanism and these stories tend to cause audiences to accept fundamental shamanic doctrines. Some students stated that the hell-and-heaven vision represented their own religious beliefs and, as a result, they regarded this story to be particularly valid. Coders also selected the deathbed vision as interesting due to the empathy this story elicited, as it went into much detail describing the suffering of a dying man. Although the story was presented in a rambling, unorganized style, coders stated that they identified with the storyteller's grief, a process that led to feeling the storyteller's joy when his father glimpsed deceased relatives before dying.

Some students described emotional processes as part of their evaluations. For example, various students found a story told by a young woman to be particularly powerful. She reported an NDE while suffering childbirth complications, during which she chose life on earth rather than entrance to heaven so that she could raise her newborn child. Such stories provide healthy ways for people to think about the problems they face, such as the stress associated with childrearing.

The evaluation indicated (1) that people are interested in stories that portray shamanic perspectives, the idea that some people have the ability to experience and control spiritual realities; (2) that although people tend to be attracted to stories coinciding with their beliefs, some change their opinions as a result of hearing NDEs; and (3) that people like stories portraying emotional, therapeutic themes.

These findings allow insights into the processes by which folk beliefs evolve. NDE accounts are selected and shaped through retelling,
resulting in accounts that serve people in a particular community. Certain stories gain particular importance, emphasizing valued themes.

Conclusions

Although conclusions are tentative due to the limited number of narratives, results coincide with predictions derived from the ritual healing theory. First, the narrative collection contains accounts with NDE core features, implying a biological basis. Second, comparing crisis to non-crisis accounts reveals almost no difference in incidence of these features. This suggests that NDEs are derived from a visionary process rather than the physiology of dying. Third, NDErs' culture and expectations contribute to NDE content, creating features that differ among cultures. Fourth, NDEs are one of various forms of anomalous experience that lead some people to take on shamanic roles. And fifth, reports of NDEs shape folk beliefs regarding life after death.

This study illustrates how the ritual healing theory can be tested empirically. Study weaknesses include small sample size, marginal coder reliability, comparison with findings from studies with different collection methods, and use of qualitative hypotheses. The small sample size in particular makes inferential tests of significance problematic, as relatively large differences in means are required to achieve statistical significance. As noted above, methodological differences in story collection, interviewing, transcription, and coding may have contributed to quantitative differences between the North Carolina sample and previously published studies. Study strengths include quantitative comparison and analysis, multiple coders, multiple scales, and methodology suitable for replication.

References


Letters to the Editor

Cardiac Arrest and Near-Death Experiences

To the Editor:

The article by G. M. Woerlee on cardiac arrest and near-death experiences (NDEs) in the Summer 2004 issue of the Journal was rather disappointing in that it apparently did not even consider the excellent research by cardiologist Michael Sabom, one of the founders of the International Association for Near-Death Studies. Sabom conducted a major study on autoscopic NDEs, his own term for self-viewing of the physical body from an apparent location outside of the body. The results were published in his book *Recollections of Death: A Medical Investigation* (Sabom, 1982). Woerlee himself is an anesthesiologist and not a cardiologist.

In his first book, Sabom, from his experience as a cardiologist, was able to determine that six NDErs who said that they observed their resuscitation while allegedly outside their body were able to describe almost unerringly the cardiac resuscitation procedure that had been performed on them. Many of the descriptions were of visual rather than auditory phenomena. A larger selection of patients who did not claim an autoscopic NDE acted as controls, and they made numerous errors in describing the procedures being performed on them. Sabom's research appears very thorough and grounded in empirical evidence, in contrast to Woerlee's speculation that descriptions of medical procedures could be reconstructed by the mind from unconfirmed auditory input during periods of semiconsciousness while undergoing the cardiac resuscitation procedure.

In Sabom's second book, *Light and Death* (Sabom, 1998), he discussed a woman named Pam Reynolds who had an NDE and later described what was being done to her while her body was drained of blood in preparation for removal of a brain aneurysm. During that time, her eyes were taped shut and speakers were fitted in her ears to document by evoked potential recordings that auditory stimuli were not getting to her brain. Her NDE did begin before the blood was drained, but her body temperature was below 65° F.
Woerlee's discussion of levels of oxygen required for consciousness made his article appear scientific, whereas it was really conjecture unsupported by more thorough research such as Sabom's study. I do thank Woerlee for recognizing that NDEs can have profound changes in people's lives, but I believe the evidence supports the conclusion that the descriptions by NDErs are not the result of sensory input to the physical body.

References


Dan Punzak, P.E.
2720 Timber Pointe
Springfield, IL 62702
E-mail: Dan.Punzak@epa.state.il.us

To the Editor:

This is to comment on the article entitled "Cardiac Arrest and Near-Death Experiences," by G. M. Woerlee in the Summer 2004 issue of the Journal. Woerlee wrote: "This article offers a full explanation of NDEs occurring during cardiac resuscitation based solely upon human physiology" (p. 235). But to make this "full explanation," he had to make several assumptions, seemingly taking them for granted. First, Woerlee assumed that the brain equals the mind. Second, he assumed that memory is entirely in the brain. Third, he assumed that the only form of consciousness is ordinary waking consciousness. And finally, he assumed that the mind is defined by ordinary waking consciousness.

Many who think the material world defines everything have taken for granted that the mind is defined by neuronal activity. Many who have not experienced (or have not recognized that they have experienced) other forms of consciousness make the mistake of assuming that there
are no other forms of consciousness. That is analogous to a group of blind persons deciding that no one can see. There is much evidence to the contrary, as examples of which I suggest the following.

First, alternate states of consciousness have been successfully used to influence health, control pain, and so on. It is not clear that these states of mind are all brain effects.

Second, our mind is the final decider of our mood, often countering bodily and external influences. A person can decide that he or she is going to be happy in spite of aches, pains, and less than positive situations. We can have free will, moral values, courage, creativity, love, and imagination. These things cannot all be done by the mechanics, chemistry, and electrophysiology of the brain. One certainly does not get will power from secreted chemicals that cause urges. We use our will power to buck those urges in order to remain moral or healthy.

Third, ordinary waking consciousness is not required for thinking. Waking brain action is not the source of all our intuitions and inspirations. We are sometimes even conscious of trying to return to ordinary waking consciousness, of trying to awaken from sleep. Some of our best thoughts do not come from wakeful analysis but are there when we awaken from sleep. In light of the fact that creativity occurs (and is indicated by electroencephalographic recordings consistent with creativity) when sensory stimuli and the associated brain functions are bypassed, it appears that the brain becomes involved with the *results* of thinking rather than with its generation. It is not clear that the brain is involved in the process of thinking except when it is necessary to utilize sensory input.

Fourth, language synthesis by the brain is not required for thinking. Language is needed only to prepare the thoughts for common communications. When we occasionally grope for the right word to convey a thought to someone else, we already have the intended thought even though we do not yet have the words to express it.

Fifth, artificial electrical stimulation has been used to map the various motor and sensory functions of the brain. However, no locus on the brain has been found at which artificial stimulation could cause a patient to believe or decide something.

Sixth, split-brain research data show that the mind is not totally a function of either hemisphere of the brain.

Seventh, brain handicaps do not always seem to be associated with mind handicaps. Clinical data imply that the mind is more durable than the brain.
Eighth, long-term memory capabilities seem to be unaffected by age.

Ninth, the only tissues involved with recall seem to be the tissues involved in the performance of the acts recalled. No place has been found in the brain that, when damaged, diseased, or removed, obliterates long-term memories. People who recover from a stroke sufficiently to demonstrate it still retain their knowledge from before the stroke.

Tenth, recall can be increased by altered states of consciousness, and recall is improved when two long-term acquaintances both try to remember something at the same time.

Eleventh, extrasensory phenomena are evidence of mental functioning without the assistance of the brain. Without using either the physical senses or brain motor functions, telepathy and clairvoyance are methods of communication, although sometimes not very accurate for some of us.

Twelfth, the results of meditation studies show that when sensory stimuli are bypassed, the mind can better use other information.

Thirteenth, there appears to be more to a person than can be explained by genes and environment, implying that some aspect of us is derived from some other source.

Fourteenth, some information derived from multiple personality cases implies that more than one consciousness can inhabit the same brain and body, and their different intelligence levels indicate that intelligence resides with the different consciousnesses.

Fifteenth, some small children claim to recall past lives spontaneously. Investigations have been reported in which researchers have corroborated places, people, and events mentioned by these children as having related to their past lives.

Finally, many of these children have unusual abilities and knowledge, the source of which their parents cannot explain. Some of these abilities have been verified to be skills that were learned by the personality the child claimed to have been in a previous life. Some phobias in these children have been traced to traumatic experiences endured by these past life personalities.

The evidence is extensive that the brain is not the mind, and that the mind can act independently of the brain. We have much evidence from many sources indicating that the brain is guided by the mind, but does not equate to the mind. We are more than can be explained by physiology alone. Space limitations do not permit me to do more here than just mention these types of evidence. Further details are provided in my book, *Marvelous Miracles of the Mind* (Ford, 2003).
Letters to the Editor

References


Oral I. (Van) Ford, Ph.D.
7508 Mariposa Avenue
Citrus Heights, CA 95610
E-mail: orfo9@earthlink.net

Woerlee Responds

To the Editor:

I thank Dan Punzak and Oral Ford for their responses to my recent article in this Journal (Woerlee, 2004).

In response to Punzak's comments, first I would like to clarify the differences between cardiologists and anesthesiologists. Both are doctors specialized in different aspects of medicine. The anesthesiologist is by virtue of his profession specialized in many practical aspects of cardiology. Often he must keep patients with failing hearts alive during operations, despite the depressant effects of anesthetic drugs upon the heart, the loss of blood due to the operation, and the pain due to the surgery – and all this is done with the full gamut of cardiological therapies and monitoring. This is my normal work, and that of many anesthesiologists working in large and moderately large hospitals. (See my website page on anesthesia for a simple and clear description of the effects of anesthesia and the tasks of the anesthesiologist written for non-medical persons: www.mortalminds.org.)

As an anesthesiologist, I am a member of the hospital resuscitation team and regularly take part in resuscitation of patients in the hospital, as well as occasionally in operating rooms with patients who develop cardiac arrests during operations. Furthermore, I teach the basics of physiology as applied to anesthesia to physicians specializing in anesthesia, which includes extensive teaching about the mechanisms and effects of oxygen starvation, a matter of vital concern to all anesthesiologists (chapter 16 in Woerlee [2003] contains an extensive review of the effects of oxygen starvation on humans.)
together with extensive references to appropriate human research). Regarding cardiological problems, I have written textbooks covering cardiological aspects of body function affecting patient survival (Woerlee, 1988), as well as the way heart function influences the mathematical description of drug distribution and actions in the body, (Woerlee 1992, 2005).

There are very good reasons I did not consider the research of Michael Sabom. Sabom is a cardiologist who has done much to further the serious study of near-death experiences (NDEs), and the study in his book is quite good, but it only deals with retrospective NDE accounts (Sabom, 1982). They are accounts of NDEs told by those who underwent them some time after the events related. These NDE accounts were related to Sabom at periods varying from one day to many years after the NDEs occurred. Such retrospective studies are always tainted to some degree by alterations in memory, as well as an unconscious desire to embellish.

The study of Pim van Lommel and his colleagues was quite different (Van Lommel, Van Wees, Meyers, and Elfferich, 2001). It was set up with a strict protocol whereby survivors of cardiac arrest and resuscitation in participating hospitals were administered a standard interview a few days, two years, and eight years after the event. This minimized the problems of possible embellishment, giving the best chance of an accurate account of the incidents and the experiences undergone. This study was excellent, but I disagree with the interpretation of the causes of the NDE proposed by Van Lommel and his co-workers, because the functioning of the human body and natural laws both explain and predict all aspects of the NDEs reported in this study (Woerlee, 2004; see also Woerlee [2003] for extensive explanations of all NDE phenomena reported by Sabom).

This brings us to the person of the pseudonymous Pam Reynolds. Her story has achieved an almost hagiographic status in the world of popular near-death literature (Sabom, 1998). It is an account of a truly profound and wondrous NDE, but nonetheless an account whose every aspect can be explained by natural laws, the functioning of the human body, and the effects of anesthesia. I have administered anesthesia for such neurosurgical procedures for several years, and am very familiar with the techniques and surgical instruments used at the time of her operation; they are standard in all advanced Western countries. I am also very familiar with the technique of hypothermic cardiac arrest used during this operation, having done a residency in the Westminster Hospital during 1979–1980 in London, England, where the
cardiothoracic surgeon Charles Drew was still using this technique for heart surgery in adults (Hilson, 2001). There I was one of the last few residents to get experience with hypothermic cardiac arrest at body temperatures down to 12°C (54°F). At these temperatures the heart no longer beat, the circulation ceased, we stopped mechanical ventilation, and Drew then had about 45 minutes to perform his operation before brain damage started to occur in these so-called “clinically dead” persons. So I am also quite familiar with the technique of hypothermic cardiac arrest.

I have written an extensive two-part article for the British magazine *The Skeptic*, detailing how Reynolds’ body could generate her amazing NDE. A short preliminary version of this article is to be found on the appropriate page of my website at www.mortalminds.org. For some reason, many people seem to ignore the accurate sequence of events surrounding the timing of the operative events. I will give them here in the form of a list that clarifies Reynolds’ story considerably.

First, Reynolds was put under general anesthesia.

Second, Reynolds’ head was clamped onto the operating table.

Third, Reynolds’ head was disinfected and her body was covered with surgical drapes, except for those parts of the head the surgeon wanted to operate upon, and the groin where the cardiothoracic surgeon was to insert the bypass tubing into the large blood vessels there.

Fourth, Robert Spetzler, the neurosurgeon, cut open the skin of the scalp, and drilled a hole in the skull with a pneumatic drill so as to insert the pneumatic bone saw.

Fifth, Reynolds awakened to the sound of the bone saw, which she later described as a “high D.” She was awake because of insufficient anesthesia (see my web page on anesthesia), and unable to move because of paralysis caused by anesthetic drugs.

Sixth, vibrations from the pneumatic saw together with the effects of anesthetic drugs induced an out-of-body experience (OBE) (see chapter 12 in Woerlee, 2003).

Seventh, she perceived all that happened in the operating room during her OBE.

Eighth, she heard the voice of the cardiothoracic surgeon saying that the blood vessels on one side of her body were too small to insert the cardiac bypass tubing, and that she would have to use the veins on the other side. This means Reynolds was *not* on bypass, and that her body was not cooled down at this point. In fact, to cool her body down to 15°C without cardiac bypass would have caused her heart to stop beating, and most likely her death.
Ninth, bypass tubing was inserted as the operation progressed.

Tenth, Reynolds' body was gradually cooled down by cooling the blood passing through the cardiac bypass pump, but not to less than $32^\circ$ C; otherwise cardiac arrest or other forms of abnormal heartbeat were likely to occur.

Eleventh, the aneurysm was exposed. Reynolds' body was then definitively cooled to $15^\circ$, her heart stopped beating, and blood was drained from her head. The neurosurgeon now had 40 to 45 minutes to operate on the aneurysm and restore circulation before brain damage started to occur.

Twelfth, the aneurysm was successfully operated on.

Thirteenth, the cardiac bypass pump warmed the blood passing through it, raising Reynolds' body temperature back to normal.

Fourteenth, normal heart action was restored with a defibrillator, causing her body to arch upwards due to the 5000-volt, high-amperage shock delivered by the defibrillator.

Sixteenth, the operation was finished to the tune of "Hotel California," but even though Reynolds was awake at the time, she could not move because she was still paralyzed due to paralyzing drugs.

Her typically American transcendental NDE of someone expecting to die (see the page on NDE types in my website) occurred somewhere between the time of her OBE and the awakening at the end of the operation. But it could not have occurred during her period of hypothermic cardiac arrest, because people are definitely unconscious at $15^\circ$ C, and unconscious people have no conscious experiences.

I believe this clarifies the opinions expressed in my article in this Journal, clarifies my opinion regarding Reynolds' story, and hopefully answers Punzak's question.

In response to Ford's comments, he raised a large number of points as proof of his thesis that the mind is something quite separate from the body. This concept of an immaterial mind that is separate from the body has existed throughout all known human history, but is, in my opinion, a concept totally at variance with medical reality. True, it is a very believable and emotionally very satisfying idea, but it is an idea whose origin lies in the functioning of the human body. I have found no evidence to the contrary.

By profession and training I am a physician specialized in anesthesiology, a profession in which I am still very active. Accordingly, my approach to the problem of determining whether consciousness is generated by the physical brain or a product of an
external influence whose effects are mediated through the brain is medical, not philosophical, not emotional, but simply based upon the facts of body function. An extensive study of the relationship of the body to the mind reveals the impossibility of definitively proving whether brain mechanisms generate consciousness and mind, or whether the brain is the receiver of consciousness and all other properties of mind from an external source. Regardless of which of these two possibilities is true, one fact stands out—a fact born out by observations made by each and every person, and especially by anesthesiologists: consciousness and all properties of mind require the mechanisms of the brain and the body to manifest. I will give a short expose of my reasoning.

A simply enormous amount of research performed over the last 50 to 60 years reveals that the manifestation of consciousness requires an intact and functioning upper brainstem. A person whose upper brainstem is destroyed or malfunctions is unconscious. This is a fact with which I am regularly confronted. All the belief and willpower in the world cannot alter this. An example of this is the effect of drugs used to induce sleep at the beginning of a general anesthetic. These drugs act by causing brainstem malfunction, thereby causing the patient to lose consciousness. Some patients tell me they do not believe that the contents of the syringe containing these sleep-inducing drugs will cause them to lose consciousness. They try and try their very best not to lose consciousness, summoning all the willpower they possess, but 20 to 30 seconds after the drug is administered into a hand or arm vein, it arrives in the blood passing through the brainstem, diffuses into the substance of the brainstem, and causes the cells there to malfunction, thereby inducing unconsciousness. This means an intact and functioning brainstem is required to generate, or to manifest, consciousness.

The fact that a person is unconscious due to any cause, such as sleep, general anesthesia, a blow on the head, or whatever does not mean the rest of the brain malfunctions. Many years of research show that the brains of unconscious people are capable of registering and processing sensory inputs while unconscious. A nice example of this is a phenomenon called implicit learning. Patients under general anesthesia hear a sequence of words spoken out aloud by the researcher. After awakening, they are asked to recognize words that sound familiar, and more often than not they choose the words spoken into their ears while under general anesthesia. There are many more examples of this type of unconscious mental processing. But all these
things and processes have one thing in common: the parts of the brain involved in registering, processing, and remembering these stimuli must be intact and functioning, otherwise the brain cannot generate the appropriate responses, or manifest the appropriate responses.

Then we come to the matter of movements. Clinical experience reveals a number of facts, some of them very strange indeed.

First, a spinal anesthetic is a form of local anesthesia of the whole of the lower part of the body, blocking transmission of nerve impulses from the brain to the lower body, and blocking all sensory impulses transmitted from the lower body to the brain. If the leg of a person under spinal anesthesia is lifted so that the person can see the leg, that person almost always exclaims, “Is that my leg?” Persons undergoing spinal anesthesia feel the leg is in some totally different position, or the idea of the leg has disappeared from their minds altogether. When they try to move their legs, they find they cannot move their legs, and even the use of incredible willpower fails to elicit movements – proof that the mind must use the mechanisms of the body to manifest.

Second, a person who suffers a stroke of the right parietal lobe without involvement of the motor cortex has what is called left-sided neglect. Such persons claim nothing is wrong with their body, but act as if the left-hand side of their body was paralyzed, even though painful and other stimuli applied to the left-hand side of the body elicit movements, proving that the left-hand side is not paralyzed. When asked to draw a clock face, or a figure of a human body, people with left-sided neglect only draw the right-hand side of the clock face, or the right-hand side of their body. This indicates that the mechanisms of the brain must be present to generate the idea of the left-hand side of the body, or that the same mechanisms must be present to manifest the effects of a mind influencing the body.

Third, disease or damage of the hippocampus causes failure of generation of long-term memory. The cells of the CA1 sector of the hippocampus are exquisitely sensitive to oxygen starvation, and elderly people may have failure of this aspect of hippocampal function due to brain oxygen starvation caused by diseased brain blood vessels commonly affecting the elderly. This is why the elderly can remember the past very well, but are not so good at remembering recent events.

Fourth, the neurological and anesthesiological literature are full of many more such examples, as well as examples of how drugs, physiological states, and so on, can alter mental state.

Now we come to the matter of altered states of consciousness. Consciousness is a condition that is either present or absent. But the
state of consciousness can be modulated by the physiological or psychological state of a person, drugs, hormones, oxygen starvation, epilepsy, many brain diseases, brain malfunction, or actual brain damage. These are the basic modulators of the state of consciousness, and these explain altered states of consciousness.

All these considerations still do not enable a determination of whether brain mechanisms generate consciousness and mind, or whether the brain is the receiver of consciousness and all other properties of mind. However these considerations do prove conclusively that the physical mechanisms of the brain are required to generate the properties of the mind, or to manifest the properties of the mind.

So is the mind something immaterial and independent of the body, or are all properties of consciousness and mind generated by the brain and modulated by the body? As of yet, it is impossible to distinguish between these two possibilities solely by examining the properties of the mind. Something more is needed, and this means investigating the properties of a possible immaterial mind.

But it is impossible to examine something immaterial directly, because it is just that: immaterial. Accordingly, the only way to investigate the properties of a possibly immaterial mind is to examine known indirect evidence for the immaterial, such as is manifested by auras, paranormal phenomena, NDEs, OBEs, demonic attack, and so on. Yet the very immaterial nature of these phenomena also makes them impossible to investigate directly. So all that can be done is to carefully determine the properties of these phenomena, and see if they can be predicted and explained by physical explanations, which in turn are capable of yielding predictions of the observed nature of these phenomena. Such a methodology reveals that the human aura, paranormal phenomena, OBEs, NDEs, and stories of nocturnal demonic attack are all explicable in terms of natural laws and the functioning of the human body (Woerlee, 2003). Furthermore, it is possible to make useful predictions about the properties of these phenomena with these natural, physical, and biological explanations. It is true that explanations using natural laws and the functioning of the human body to explain these phenomena do not exclude the possibility of the immaterial, including the possibility of an immaterial mind. But when not one, not two, nor three, but each and every one of these phenomena can be explained in this way, then the chance of these phenomena being due to something immaterial acting from outside the body, or independent of the body, becomes vanishingly small.
All this means that the paranormal and the immaterial very likely do not exist, that is very likely that there is no immaterial soul, no reincarnation, just the wonder of the physical universe we inhabit with our very mortal and physical bodies, the generators of our consciousness and minds.

All this is a rather different way of looking at things than in Ford's thesis. For a more extensive discussion replete with references to the fundamental medical research, I refer readers to my book, Mortal Minds: A Biology of the Soul and the Dying Experience (2003).

References


G. W. Woerlee, M.B.B.S., F.R.C.A.  
Kagerstraat 4  
2334CR Leiden  
The Netherlands  
E-mail: mortalminds@hotmail.com
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