BECOMING MINDFUL OF CONSCIOUSNESS

When IONS began in 1973, consciousness studies were the far frontiers of science. Besides inscrutable philosophical debates about the mind-body connection, which have percolated in academic circles for thousands of years, few articles or books on consciousness were available, and there were hardly any conferences devoted to the subject. Today we are awash in them, suggesting that consciousness is becoming increasingly mindful of itself.

Perhaps the single largest academic conference is held biannually in Tucson and hosted by the Center for Consciousness Studies at the University of Arizona. The last such meeting, known as "Tucson VII: Toward a Science of Consciousness," took place in April 2006. The conference continued to explore the question "Are we there yet?"—meaning, "Is there yet a science of consciousness?"

The consensus seems to be that we aren't, but there is no question that science is now fully engaged in the quest. With more than three hundred talks and posters presented on topics ranging from neural correlates of consciousness, to consciousness and emotion, Freud and dreams, meditation and brain states, and quantum consciousness, it's not possible to review even a fraction of them. So I'll focus on one topic that presented perhaps the most serious challenge to prevailing scientific assumptions about the relationship between consciousness and the brain: the near-death experience (NDE).

THE CHALLENGE

NDEs were first named and popularized by psychiatrist Raymond Moody in the late 1970s. These experiences present a challenge because the neurosciences assume that all mental activity is due to the brain's functioning. If the brain stops operating because of cardiac arrest or serious injury, then by conventional assumptions, all conscious experience should end. The puzzle is that for a small percentage of people, apparently it doesn't.

Pim van Lommel, a cardiologist at Rijnstate Hospital in the Netherlands, spoke about NDEs as "the paradoxical occurrence of enhanced consciousness experienced in a dimension without our conventional concept of time and space, with cognitive functions, with emotions, with self-identity, with memories from early childhood and sometimes with (nonsensory) perception out and above [a] lifeless body." In 2001 Van Lommel and his colleagues published an article on this topic in *The Lancet*, one of the world's leading medical journals.

NDEs involve a sequence of distinctive experiences: finding oneself floating above the body, moving down a tunnel, being immersed in an intense beautiful light, interacting with deceased relatives or loved ones, and sometimes having to decide whether to return to the body or to continue on the disembodied journey. Those who come back to report the NDE often express deep regret at finding themselves embodied again because the out-of-body state is usually experienced as exceedingly blissful.

In three studies involving 496 survivors of cardiac arrest (in Dutch, British, and American populations), between 11 percent and 18 percent of patients reported an NDE. Van Lommel and his team interviewed the Dutch survivors two and eight years after their experience, and they also interviewed a matched control group of survivors who did not report an NDE. They found that patients reporting an NDE showed highly significant positive changes in personality as compared to the controls. They were astonished to find that these long-lasting transformations were sparked from a single experience that probably lasted only a few minutes.

At the two-year follow-up, the personality changes identified by Van Lommel included major improvements in accepting others, becoming more loving and empathic, increased involvement with family, understanding the purpose of one's life, enhanced interest in spirituality, improved intuition, reduced fear of death, and increased belief in life after death. These positive changes were even more apparent at the eight-year follow-up. By contrast, among those who did not report an NDE, their interest in spirituality decreased in the two years after their

cardiac arrest, and most did not believe in a life after death at either the two- or eight-year follow-up.

WHAT DOES THE NDE MEAN?

Something profoundly interesting happens to people who experience an NDE. But what is it? Do NDEs imply that something (the mind or soul) literally separates from the body and lives to enjoy another adventure, as claimed in many popular books? Or are the experiences illusory and better understood in psychological, physiological, or pharmacological terms?

Van Lommel's team studied these possible explanations and could not identify any obvious reason why some people had an NDE and others did not. From a purely physiological perspective, such as insufficient oxygenated blood in the brain, most patients who had been clinically dead as a result of a cardiac arrest should have reported an NDE, but only about one in eight did.

Could an NDE be due to the confused state of awareness that occurs during cardiac arrest or after resuscitation? This seems unlikely because after cardiac arrest, electrical activity in the brain, including all functioning of the cortex and the brain stem, goes flat-line in a matter of seconds, and unconsciousness is virtually instantaneous. And during recovery of consciousness, memory is often vague and confused. These reactions are incompatible with the vivid memories and long-term personality changes associated with an NDE. In addition, memory is a very sensitive indicator of brain injury, so it is more likely that amnesia would occur rather than the production of vivid, life-changing false memories.

Could the classic experiences of being immersed in a bright light or floating above one's body be due to cultural conditioning from movies and books about NDEs that have popularized these concepts? This also seems unlikely because studies of NDEs reported after 1975 (when Moody was developing the classic inventory of experiences) show an increase only in reports of tunnel experiences compared to reports before 1975. Also, children are not as culturally conditioned as adults, and yet they too reported the full range of NDE experiences.

Controversy persists over how to interpret NDEs, but if future studies can substantiate that awareness occurs without a functioning brain, then the neurosciences will require a radical revisioning. The leading alternative to the brain as a "generator" of consciousness views the brain as a "receiver" of consciousness; this opens the possibility that some form of consciousness survives bodily death. As science continues to advance, it becomes increasingly plausible that one day we may have a scientifically persuasive answer to the question posed by NDEs.

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Reference

Van Lommel et al. 2001. Near-death experience in survivors of cardiac arrest: A prospective study in the Netherlands. The Lancet *358:2039–45.*