

Journal
of
Near-Death Studies

Editor's Foreword • *Bruce Greyson, M.D.*

Homer's Odysseus as an Ecstatic Voyager • *F. Gordon Greene*

Evolution and the Relationship Between Brain and Mind States •
Juan S. Gómez-Jeria, Lic. Q., and Carlos Madrid-Aliste

Effect on Emotional Well-Being of Hypnotic Recall of the Near-Death Experience • *Janice Miner Holden, Ed.D.*

Book Review:

Reunions: Visionary Encounters with Departed Loved Ones, by *Raymond S. Moody, Jr.*, with *Paul Perry* • *Reviewed by Bruce Greyson, M.D.*

Letters to the Editor • *V. Krishnan and John-Wren Lewis*

Volume 14, Number 4, Summer 1996



Editor

Bruce Greyson, M.D., *University of Virginia, Charlottesville, VA*

Associate Editor

Steve Straight, M.A., *Manchester Community College, Manchester, CT*

Consulting Editors

James E. Alcock, Ph.D., C. Psych., *York University, Toronto, Ont.*

Boyce Batey, *Academy of Religion and Psychical Research, Bloomfield, CT*

Carl Becker, Ph.D., *Kyoto University, Kyoto, Japan*

Kevin Drab, M.A., C.A.C., C.E.A.P., *The Horsham Clinic, Ambler, PA*

Glen O. Gabbard, M.D., *The Menninger Foundation, Topeka, KS*

Stanislav Grof, M.D., *Mill Valley, CA*

Michael Grosso, Ph.D., *Jersey City State College, Jersey City, NJ*

Barbara Harris, R.T.T., Ms.T., *Whitfield Associates, Baltimore, MD*

Pascal Kaplan, Ph.D., *Searchlight Publications, Walnut Creek, CA*

Raymond A. Moody, Jr., Ph.D., M.D., *West Georgia College, Carrollton, GA*

Russell Noyes, Jr., M.D., *University of Iowa, Iowa City, IA*

Karlis Osis, Ph.D., *American Society for Psychical Research, New York, NY*

Canon Michael Perry, *Durham Cathedral, England*

Kenneth Ring, Ph.D., *University of Connecticut, Storrs, CT*

William G. Roll, Ph.D., *Psychological Services Institute, Atlanta, GA*

Steven Rosen, Ph.D., *City University of New York, Staten Island, NY*

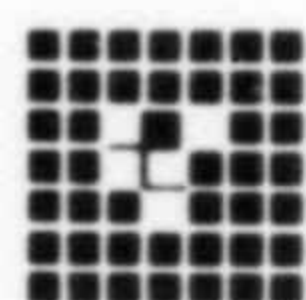
W. Stephen Sabom, S.T.D., *Decatur, GA*

Stuart W. Twemlow, M.D., *University of Kansas Medical School, Wichita, KS*

Renee Weber, Ph.D., *Rutgers College, New Brunswick, NJ*

John White, M.A.T., *Cheshire, CT*

Mark Woodhouse, Ph.D., *Georgia State University, Atlanta, GA*



HUMAN SCIENCES PRESS, INC.

233 Spring Street, New York, New York 10013-1578

Journal
of **Near-Death Studies**

Volume 14, Number 4, Summer 1996

Editor's Foreword 223
Bruce Greyson, M.D.

ARTICLES

Homer's Odysseus as an Ecstatic Voyager 225
F. Gordon Greene

**Evolution and the Relationship Between Brain and
Mind States** 251
Juan S. Gómez-Jeria, Lic. Q., and Carlos Madrid-Aliste

**Effect on Emotional Well-Being of Hypnotic Recall of
the Near-Death Experience** 273
Janice Miner Holden, Ed.D.

BOOK REVIEW

**Reunions: Visionary Encounters with Departed Loved
Ones**, by *Raymond A. Moody, Jr., with Paul Perry* 281
Reviewed by Bruce Greyson, M.D.

Letters to the Editor 287
V. Krishnan and John-Wren Lewis

JOURNAL OF NEAR-DEATH STUDIES (formerly ANABIOSIS) is sponsored by the International Association for Near-Death Studies (IANDS). The Journal publishes articles on near-death experiences and on the empirical effects and theoretical implications of such events, and on such related phenomena as out-of-body experiences, deathbed visions, the experiences of dying persons, comparable experiences occurring under other circumstances, and the implications of such phenomena for our understanding of human consciousness and its relation to the life and death processes. The Journal is committed to an unbiased exploration of these issues, and specifically welcomes a variety of theoretical perspectives and interpretations that are grounded in empirical observation or research.

The **INTERNATIONAL ASSOCIATION FOR NEAR-DEATH STUDIES** (IANDS) is a world-wide organization of scientists, scholars, near-death experiencers, and the general public, dedicated to the exploration of near-death experiences (NDEs) and their implications. Incorporated as a nonprofit educational and research organization in 1981, IANDS' objectives are to encourage and support research into NDEs and related phenomena; to disseminate knowledge concerning NDEs and their implications; to further the utilization of near-death research by health care and counseling professionals; to form local chapters of near-death experiencers and interested others; to sponsor symposia and conferences on NDEs and related phenomena; and to maintain a library and archives of near-death-related material. Friends of IANDS chapters are affiliated support groups in many cities for NDErs and their families and for health care and counseling professionals to network locally. Information about membership in IANDS can be obtained by writing to IANDS, P. O. Box 502, East Windsor Hill, CT 06028.

MANUSCRIPTS should be submitted in triplicate to Bruce Greyson, M.D., Division of Personality Studies, Department of Psychiatric Medicine, Box 152, University of Virginia Health Sciences Center, Charlottesville, VA 22908. See inside back cover for style requirements.

SUBSCRIPTION inquiries and subscription orders should be addressed to the publisher at Subscription Department, Human Sciences Press, Inc., 233 Spring Street, New York, N.Y. 10013-1578 or faxed to the Subscription Department at its number (212) 807-1047, or may be telephoned to the Subscription Department's Journal Customer Service at (212) 620-8468, -8470, -8472, or -8082. Subscription rates:

Volume 14, 1995-1996 (4 issues) \$175.00 (outside the U.S., \$205.00). Price for individual subscribers certifying that the journal is for their personal use, \$44.00 (outside the U.S., \$51.00).

ADVERTISING inquiries should be addressed to Advertising Sales, Human Sciences Press, Inc., 233 Spring Street, New York, N.Y. 10013-1578—telephone (212) 620-8495 and fax (212) 647-1898.

INDEXED IN Psychological Abstracts, Parapsychology Abstracts International, Social Work Research and Abstracts, Sage Family Abstracts, Health Instrument File, and International Bibliography of Periodical Literature.

PHOTOCOPYING: Authorization to photocopy items for internal or personal use of specific clients is granted by Human Sciences Press for users registered with the Copyright Clearance Center (CCC) Transactional Reporting Service, provided that the flat fee of \$9.50 per copy per article (no additional per-page fees) is paid directly to the Copyright Clearance Center, Inc., 222 Rosewood Drive, Danvers, Massachusetts 01923. For those organizations that have been granted a photocopy license from CCC, a separate system of payment has been arranged. The fee code for users of the Transactional Reporting Service is 0891-4494/96/\$9.50.

COPYRIGHT 1996 by Human Sciences Press, Inc. Published quarterly in the Fall, Winter, Spring, and Summer, *Journal of Near-Death Studies* is a trademark of Human Sciences Press, Inc. Postmaster: Send address changes to *Journal of Near-Death Studies*, Human Sciences Press, Inc., 233 Spring Street, New York, N.Y. 10013-1578.

Editor's Foreword

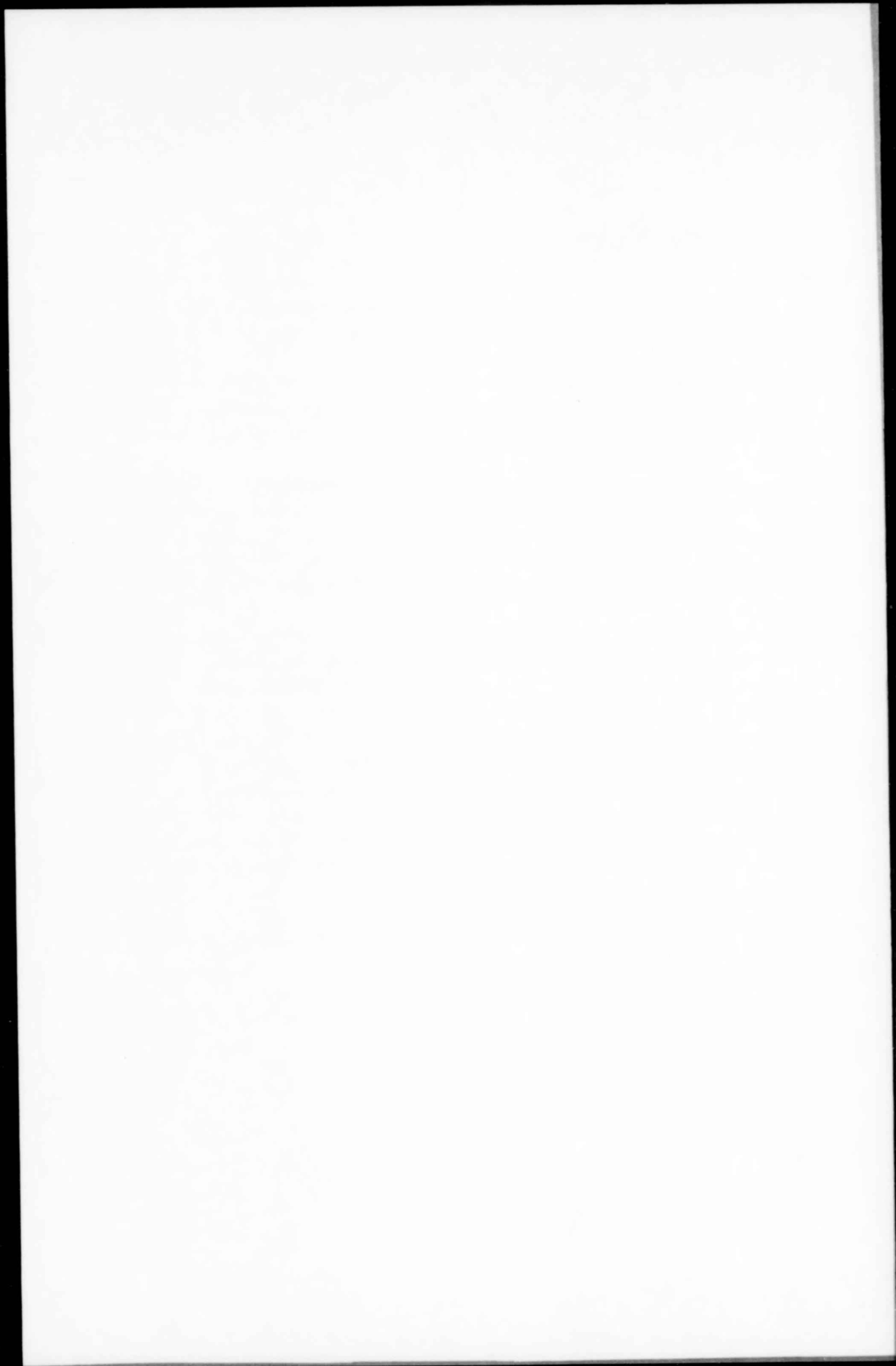
This issue of the Journal leads off with parapsychology writer Gordon Greene's analysis of Homer's *Odyssey* as an account of an ecstatic voyage akin to a near-death experience (NDE). Drawing upon Homer's imagery and upon his own theory of symbolism and inspiration based on a higher-dimensional model of reality, Greene argues that the *Odyssey* shares much in common with traditional ancient "books of the dead."

In another speculative paper, Chilean neuroscientists Juan Gómez-Jeria and Carlos Madrid-Aliste review evolutionary aspects of brain and consciousness, and argue that more rigorous descriptions of the sequential elements of NDEs would permit a scientific explanation for these experiences as brain states, without resorting to a paradigm shift.

Next counselor educator Janice Miner Holden presents data from her study of hypnotic recall of NDEs, suggesting that under proper circumstances, experiences found recalling their NDEs under hypnosis to have a positive effect on their sense of emotional well-being.

We close this issue with my review of psychiatrist Raymond Moody and science writer Paul Perry's *Reunions: Visionary Encounters With Deceased Loved Ones*, an elaboration of Moody's 1992 article in the Journal; and with Letters to the Editor by Indian scholar V. Krishnan on physical evidence and explanations of purported UFO abductions and of NDEs, and by Australian religious scholar John Wren-Lewis on life satisfaction following NDEs.

Bruce Greyson, M.D.



Homer's Odysseus as an Ecstatic Voyager

F. Gordon Greene
Sacramento, CA

ABSTRACT: There are profound experiential and symbolic parallels linking the imagery of Homer's *Odyssey* and the psychophysical characteristics of ecstatic out-of-body and near-death experiences. I examine this epic's events chronologically, identifying and analyzing specific instances where Homer's imagery suggests such a multifaceted relationship. In accounting for this relationship, I introduce a psychospiritual evolutionary theory of symbolism and inspiration based upon the higher dimensional existence of the supernatural. In such a reading, Homer's *Odyssey* serves, in part, as an eschatological text sharing much in common with "books of the dead" from a variety of human cultures.

As the first attempt in Western literature to grapple with the ultimate mystery of death, Homer's *Odyssey* (1967) will always be revered as a classic. The Greek hero Odysseus sailed by ship to the ends of the Earth. On his way, he traveled to many exotic lands where he encountered a variety of grotesque monsters, supernatural beings and minor divinities. Once arrived, he visited Hades, the land of the dead, to converse with phantoms of the dead and other supernatural beings of the underworld. Eventually, after many additional hardships and supernatural confrontations, Odysseus found his way back home safely to the Greek island of Ithaka.

Homer's *Odyssey* is, I believe, more than just a hopelessly naive attempt by a primitive people to penetrate the mystery of death. On the contrary, this epic voyage, I argue, contains numerous profound examples of imagery related experientially and symbolically to an

F. Gordon Greene is a free-lance writer whose principal interests have been parapsychology, religion, and metaphysics. Reprint requests should be addressed to Mr. Greene at P.O. Box 163683, Sacramento, CA 95816.

actual passage by human consciousness out of the world of nature into the realm of the supernatural and back again. This particular interpretation has been inspired by my own understanding of recent findings concerning the implications of out-of-body experiences (OBEs) and near-death experiences during which experiencers seem to engage in ecstatic otherworld journeys.

Common sensations during such voyages include feelings of floating out of the physical body and of passing through long, dark tunnels, empty voids, or fluidic spaces to emerge, for brief periods, into worlds of paradisiacal splendor. In OBE-related ecstasy, the journey may begin during dreams, borderline sleep states, meditation, contemplative prayer, waking fantasy, or after the ingestion of psychedelic substances. In NDE-related ecstasy, the journey may begin after the experiencer's body has been propelled into life-threatening unconsciousness or even, paradoxically, after a perceived threat to life that is unexpectedly avoided.

While I draw upon recent evidence to make my argument, there is nothing new in the idea that Homer's *Odyssey* involves an otherworld journey. Speaking of this epic voyage in his literary and historical study of ecstatic otherworld journeys, Ioan Couliano (1990) noted that "All of these territories [visited by Odysseus] are not strictly this worldly, and Odysseus's voyage can be—and has been—interpreted as simply symbolic" (pp. 114-115). Couliano meant, of course, symbolic of an ecstatic otherworld journey.

By contemplating the imagery of Homer's *Odyssey* in light of recent understandings of ecstatic journeys, I believe that we may be able to illuminate further the words of this ancient Greek bard as well as learn something more about such journeys. The parallels I shall identify in this exercise suggest that Homer's *Odyssey* may be looked upon, in one sense, as a guidebook to death-transitional and after-life-visionary states of consciousness. In such a reading, Homer's epic poem of voyage into the supernatural performs a role similar to that of such eschatological texts as the *Egyptian Book of the Dead*, the Tibetan *Bardo Thodol*, and the *Ars Moriendi* literature of medieval Europe.

Mycenaean Age Cosmology

We will begin our quest by reviewing briefly cosmological and mythological beliefs from the age of which Homer spoke: the Myce-

naean age, circa 1400 BC. These beliefs, it should be noted, are filtered down to us through the subsequent Greek dark age (circa 1200-900 BC) as well as through the slowly emerging classical period that reached its cultural zenith between 600 and 400 BC.

In this distant age, the Earth was conceived to be a flat, sky domed disk of enormous breadth. A central land mass was conceived to be surrounded by an immense outer sea called the river of Okeanos. This land mass, in turn, surrounded an inner sea, the Mediterranean. Circumscribing not only on all sides but also extending above and below this natural region was a supernatural or divine region, the home of the Olympian gods. The sky above was ruled by Zeus, chief god of the Olympian pantheon. Circling around this land mass in the "endless salt water" (Homer, Book V, line 100) was Zeus's brother, Poseidon, lord of all the sea. And underneath this disk in the bowels of the Earth ruled Zeus's brother Hades, lord of the underworld.

From their varying locations outside the natural realm, the gods would influence human affairs through the use of thunder, lightning, earthquakes, and other displays of divine power. More intimately, the gods might communicate their wishes through the intermediary of human dreams, trance states, or other humanly experienced visionary states of consciousness. In pre-Mycenaean times, it was believed, the gods came face to face with human beings. By the time of the Mycenaean age, however, only in veiled form would a god or goddess venture directly into the human condition, disguised, for example, as an animal or an ordinary mortal. The closer a human being traveled to the edge of the natural universe, the greater his or her chance became of coming into "unveiled" contact with one of the gods or with some other supernatural being.

Looking down into this world from the vantage point of our "superior" cosmic perspective, much as Olympian gods might gaze down into this land of "mere mortals," let us now follow the sequence of events chronologically as they occurred in Homer's mythic time stream, stopping appropriately along the way to examine the parallels in question.

The Voyage of Odysseus and Out-of-Body Experience

Homeward bound in their fleet of "hollow ships" after victory against Troy, Odysseus, king of Ithaka, and his fellow Greek warriors

were blown off course and forced westward into unknown waters. The farther west and off course they strayed, the farther Odysseus and his companions wandered from the natural world and the closer they came to the supernatural. Many of the adventures they underwent and the conflicts they endured would seem to take place in an intermediate region situated somewhere between the realms of nature and supernature.

In terms of a clearly recognizable link, the initial OBE phase of the ecstatic journey does not appear to correlate well with the imagery in the *Odyssey*. This is because there is no imagery present at the outset of this epic that clearly correlates with the principal experiential characteristics of out-of-body awareness: the primarily *visual* sensation that one is looking back at one's physical body as if from an exterior position in space. This lack of a clearcut visual sensation correlate presents us, I believe, with the weakest link in my argument. Yet additional contemplation of this problem opens up the following significant, if secondary, correlations. The launching of the hollow ships from the solid land of the known world to voyage out into the waters of the mysterious sea may be seen to represent *symbolically* the OBE, when the OBE is conceived of as the initial phase in the ecstatic journey.

The classical scholar Carl Ruck (1978) observed that "Examples abound in Greek mythology associating the water journey with transport to another world" (p. 99). Sensations of floating, we should note, are not only characteristic of movement through water. The predominant kinesthetic characteristic of the OBE is the sensation of floating freely through the air. Not infrequently the "air," sensed from the out-of-body perspective, is said to possess fluidic properties. And the out-of-body form is sometimes described as ideoplastic while possessing characteristics of permeability ordinarily associated with fluids. When we extend this question of water passage from the initial OBE period to the subsequent penetration into other realms, the following words of Michael Whiteman (1978) take on a particular significance:

In transitional states between a physical state and a psychical one, or between a psychical state and a mystical one, instead of one space gradually or suddenly displacing the other, there is sometimes a kind of dissolution of the "world" into a condition of shapeless fluidity when all we are conscious of is a substantial movement of currents eddying and interweaving in space. Then, in due course, the new "world" and our new personal form are condensed out of "the waters." (pp. 291-292)

Passage through treacherously narrow waterways against strong currents as well as passage through whirlpools and caves form essential portions of the imagery in the *Odyssey*. Similarly, passages through eddies and tides and through twirling spaces and long, dark enclosures are commonly reported elements of the ecstatic journey (Gallup and Proctor, 1982). Robert Crookall (1972) commented upon the fluidic sensations sometimes associated with ecstatic journeys. These sensations have been likened by ecstatic voyagers to "a shining river," "a well of water," "a fringe, which had to be crossed—with sinister fluids," "shadow forms," and "something that is misty" (Crookall, 1972, pp. 50-51).

As this argument pertains to the NDE-related ecstasy, we make note of the following possible initiatory parallels. Serious accidents, falls from great heights, and incidents of near-drowning (Audette, 1982; DeQuincy, 1862/1956) have all served as catalysts for NDEs. Odysseus and his companions were continually confronted by potentially life-threatening dangers, not the least of which was the danger of drowning. Thus we see depicted in this epic any one of a number of different initiatory triggers commonly associated with NDEs.

Land of the Lotus-Eaters

The first island Odysseus and his companions visited was the land of the Lotus-Eaters. Odysseus sent a shore party into the interiors of this realm to gather the supplies needed to continue their voyage. They joined the natives of this land in consuming the fruit of the lotus. Whosoever ate the lotus fruit lost all ambition other than the desire to consume this fruit perpetually. When this party had not returned, Odysseus sent out another landing party to discover what had happened to the first. They too partook of the lotus and succumbed to its irresistible attraction. When he personally went out to discover what had happened he learned of the danger confronting his expedition. Odysseus instructed those in his command who had not eaten the lotus not to consume this fruit and ordered them to escort those Greeks who had back, by force, to their ships. Odysseus and his men immediately set sail to escape the dangerous attraction of this strange land.

In her book *The Hero and the Goddess*, Jean Houston (1992) speculated that the voyage to the land of the Lotus-Eaters involved

the passing from the world of waking consciousness to the world of dreams, from the world of rational expression to one of metaphorical speech, and finally from the bound, structured world of the local self to the more fluid and surprising levels of the mythic and archetypal domain. (p. 102)

Another possible mode of understanding this land is found in an interpretation of the chronicles of the well-known ecstatic voyager Robert Monroe. In his book *Far Journeys*, Monroe (1985) described a visit to a Dantesque-like realm to which he was drawn by a powerful sexual current. He recognized what he believed to be the souls of apparently deceased human beings of both genders manifesting in the forms of naked human bodies. They were heaped atop one another forming an immense pile of wriggling, copulating flesh. After several unsuccessful attempts to communicate with one participant in this cosmic orgy, Monroe left this scene in a despondent mood. Monroe likened the participants of this cosmic orgy to a can of squiggling worms and speculated that they may have been castoffs of the human race.

Obviously, the correlation I propose, based upon Monroe's account, can be nothing more than suggestive. This interpretation does, however, offer us one example of a possible otherworld realm corresponding in some sense to the land of the habitually rapacious Lotus-Eaters. The consumption of fruit, we should observe, is frequently associated symbolically with the sexual act. As we shall see further on in this paper, the sexual impulse, as it may be seen to pertain to the ecstatic journey and to Homer's *Odyssey*, possesses not only negative but also positive connotations.

Giants and Witches on the Way to Hades

Following their escape from the land of the Lotus-Eaters, Odysseus and his men visited the island of Aiolos, mortal king in charge of the winds. They secured from him enough wind, contained in a bag, to enable their sails to ply these mysterious seas uninterruptedly all the way back to the vicinity of their homeland. Yet while Odysseus slept, several of his men became curious to see what else may have been contained in this bag and opened it against his orders. The remaining wind escaped in a flurry, once again blowing the fleet of Odysseus off course into unknown waters.

Of possible significance here is an observation by Robert Graves (1951). The winds, he noted, were thought of among certain ancient Greeks as souls of the dead. Drawing upon this belief, perhaps it is not too far-fetched to make the following suggestion. The permanent release of these "vital spirits" from Aiolos's bag in a single "expiration" may be seen to symbolize the "death" of Odysseus and his men. In other words, the release of these winds may be seen to foreshadow the eventual trip Odysseus and his men were destined to make to Hades.

Odysseus and his men went on to spot land again and anchored their ships off the coast of an unknown country. This country was, as they were to discover to their dismay, the land of the Cyclopes, a race of primitive one-eyed giants who dressed in animal skins, lived in caves, and tended flocks of sheep. A shore party headed by Odysseus became trapped inside the cave of the Cyclops Polyphemos, son of Poseidon. The enormous boulder Polyphemos placed across the entrance to the cave was far too immense for Odysseus and his men to remove. After a number of Greeks were eaten raw by this barbarous "host," Odysseus devised a ruse that he hoped would enable the remainder to escape. He offered Polyphemos wine taken on this expedition, the better to swallow the tough and stringy Greeks being fasted upon. In drinking this wine, Polyphemos passed out in a drunken stupor. This was the moment for which Odysseus has been waiting. He had secretly fashioned a large stake whose tip was now placed inside the cave's fire until it was red hot. Odysseus plunged the stake into this monster's sole eye bursting the socket with a searing pop.

The blinded Polyphemos awakened in agonizing pain no longer able to grab his human prey. Still, these Greeks were trapped in his cave and there he planned to keep them. Later, the now blinded Polyphemos removed the boulder while carefully positioning himself in its place. He ushered his flock of sheep out to graze on pasture lands, carefully feeling to make sure that no Greeks escaped alongside his flock. He then put the boulder back in place. Despite this precaution, Odysseus and his men eventually escaped beneath the bellies of these sheep.

After escaping, just as he and his men were disembarking from the shore of the Cyclopes' land, Odysseus shouted out his name to Polyphemos, telling the Cyclops that it was he, Odysseus, who wielded the blinding stake. In succumbing to this senseless act of hubris, Odysseus condemned himself and his men to years of additional wanderings through mysterious seas and unknown lands. This was because the blinded Polyphemos implored his father, the sea god

Poseidon, to exact revenge upon Odysseus and his men for the loss of his sole Cyclopean eye.

Common among preliterate peoples into modern times, we should note, is the belief that a person's name is somehow sympathetically linked to his or her soul (Frazer, 1922). Often a person's "true name" is kept secret to all but that person's closest friends to ensure that a magical curse will not be cast using this "true name" to harm the soul. If we assume that such a belief was prevalent among Mycenaean age Greeks, Odysseus, in shouting out his name, had acted recklessly. He had invited the wrath of the gods down upon himself and his men.

Next Odysseus and his men visited the land of the Laistrygones, another race of cannibalistic giants. These giants hurled huge boulders down upon the Greek ships that had become anchored in the cave-like harbor of this land. Every ship and crew member in the fleet except those of Odysseus were destroyed in this catastrophic pelting. Only Odysseus, having learned from his mistake of being cornered in the cave of Polyphemos, had developed the foresight to anchor his ship outside the harbor, thereby avoiding the fate to which the rest of his fleet succumbed.

Odysseus and his remaining companions voyaged on to the land of the enchantress Circe. Circe offered members of the first Greek landing party who entered into her realm wine and food. While partaking of these offerings, they were caught off guard. Circe was able to transform them all into wolves and swine before they were able to unsheath their swords or string their bows. Yet another landing party was disarmed and transformed, by the same artifice.

As Odysseus was heading inland to discover the fate of his men, he was stopped by Hermes, the divine messenger of the gods, who had been dispatched from Olympos. Hermes warned Odysseus of Circe's witching ways. He gave Odysseus the magical mole root that would neutralize Circe's magic along with the advice that would enable Odysseus to overcome and dominate her. When Odysseus arrived, Circe attempted to beguile him also. To her astonishment, Odysseus was not stripped of his outer human form to reveal an underlying beastly self. Before she had recovered from this shock, Odysseus showed her the mole root and threatened to impale her on his sword.

Fearful for her life and awestruck to be in the presence of a mortal who was more than her match in cunning, Circe fell back upon her sole remaining defense, the use of her sexual charms. She desired to elevate this conflict onto the plane of erotic lovemaking. The resulting penetration of Circe would then produce not her own demise

but rather the possibility of new life, new life formed out of the comingling of natures human and divine. Circe and Odysseus retired to her private chambers and became amorously entwined. Still untrusting of this witch, Odysseus left his unsheathed sword directly at his side while they made love. Afterwards, Circe reversed the spell she had cast on Odysseus's men, clothing them once again in their human forms.

There are several interesting correspondences worthy of note. Circe's island was surrounded by alders, a particular type of tree that was sacred to the death goddess Hecate. Circle may be seen to be a particular manifestation of Hecate. Representations of alders were commonly used as funerary designs upon the Greek gravestones of this era (Graves, 1959). In other words, in setting foot upon Circe's realm, Odysseus and his men had entered into the grave. Appropriately, after transforming Odysseus's men into swine, Circe fed them on Cronus's cornel cherries, the "blood red" food of the dead (Graves, 1959, p. 367). In one sense, Circe's island may be seen to be a disguised form of the land of the dead.

But even more interesting perhaps is the symbolic import of love-making between Odysseus and Circe. This intercourse between beings human and divine represents, I argue, the creation of a new level in human consciousness. In a psychospiritual evolutionary understanding of human nature, such an act of intercourse may be seen to represent the uplifting of human consciousness from the level of the purely animal to that of a hybrid state partaking of characteristics both human and divine. Jean Houston (1992) came to much the same conclusion while exploring this same idea with deep insight and in greater depth.

After many months of leisurely rest within the realm of Circe, Odysseus's men became impatient and convinced the impassioned Odysseus that it was time to continue their homeward quest. Circe informed Odysseus that to return to the land of the living, he and his men must first sail all the way to Hades, the land of the dead. There they must consult with Teiresias, the blind prophet of Thebes. Only he could provide them with the instructions that would enable them to find their way back safely to Ithaka.

Hades, Land of the Dead

Sailing onward to the very edge of the natural world, Odysseus and his crew passed beyond the island of the god Hyperion, located

where the sun descends each night into the great outer stream. Finally, they reached the shores of Hades. Positioned beyond the island of the sun god, the land of Hades was always dark and misty. It was never illuminated by the light of day or warmed by the rays of the sun. Disembarking from their ship, Odysseus and his men sought out the cave-like entrance leading down into the House of Hades. Once arrived, they made the obligatory animal sacrifices to the gods for protection and began the frightful task of summoning the dead.

Shortly thereafter, the hordes of the dead began to rise up out of this cave. First to come was the phantom of Odysseus's own mother, the grief-stricken Antikleia. He tried to embrace her but his arms went right through her ghostly form. She expressed her sorrow at having died without ever seeing her beloved son alive again after his departure for Troy. She spoke of the desperate circumstances on Ithaka from which she had departed in death, as the royal estate of Odysseus had gone into disrepair. Odysseus also encountered other phantoms of his past, like the Greek hero Achilles, who died on the battlefield in front of Troy, and King Agamemnon, conqueror of Troy, treacherously murdered upon his triumphant return home by his faithless, vengeful wife Klytaimnestra. But it was to consult with Teiresias especially that Odysseus and his companions had braved the passage to Hades. In the words of Odysseus:

Now came the soul of Teiresias the Theban, holding a staff of gold, and he knew who I was, and he spoke to me: "Son of Laertes and seed of Zeus, resourceful Odysseus, how is it then, unhappy man, you have left the sunlight and come here, to look on dead men and this place without pleasure? (Book XI, lines 90-94)

Teiresias continued:

"Glorious Odysseus, what you are after is sweet homecoming, but the god [Poseidon] will make it hard for you. I think you will not escape the Shaker of the Earth, who holds a grudge against you in his heart, and because you blinded his dear son hates you. But even so and still you might come back, after much suffering, if you can contain your own desire, and contain your companions." (Book XI, lines 100-105)

Teiresias then told Odysseus and his men where they must go and how they must comport themselves in order that at least some of them would return safely to Ithaka. Teiresias also prophesied that if Odysseus did successfully return to Ithaka, a long and peaceful life awaited him. Teiresias proclaimed that

"Death will come to you from the sea, in some altogether unwarlike way, and it will end you in the ebbing time of a sleek old age. Your people about you will be prosperous. All this is true that I tell you."
(Book XI, lines 134-137)

These scenes of contact with phantoms of the dead at Hades contain the most obvious examples of mythopoeic imagery compatible with the present interpretation. Modern near-death experiencers frequently report that they have been turned back at the threshold of the spirit world by the souls of the dead. Odysseus also conversed with the dead at the threshold to the spirit world, and even attempted to embrace the phantom of his deceased mother. And just as Odysseus's attempted embrace passed right through his mother's phantom form, so do we find NDErs recounting similar experiences. They report that while in the out-of-body state their "spiritual bodies" have passed right through the bodies of living doctors and nurses engaged in resuscitation efforts (Moody, 1975). There is, however, at least one striking difference between Odysseus's experience and those of modern NDErs.

In modern accounts of ecstatic journeys, the land of the dead is usually depicted as a heavenly realm where the deceased apparently reside in a condition of unsurpassed calm and serene bliss. In the *Odyssey*, on the other hand, the land of the dead is depicted as a shadowy realm filled with lifeless, mournful shades, shades who are only vestiges of their former living selves, vestiges that long to return to the life they once knew. Had Odysseus sailed instead to the Elysian Fields, located elsewhere at the "limits of the earth" (Book IV, lines 562-564), we would have a much better fit with the majority of modern accounts. In the world of Homer, the Elysian Fields served as the final home for those few mortals whom the gods had selected for a happy and fulfilling immortal life.

However, in a small number of contemporary cases, a realm closely resembling Hades is reported. The books of the ecstatic experience scholar Robert Crookall (1961, 1965) refer to a shadowy realm where souls of the dead are said to reside in a state of semiconsciousness. This realm, in Crookall's model of the afterlife, is said to be positioned between our own world and the realm of the supernatural light. Crookall even referred to this proposed dark grayish afterlife region as Hades. In his second book on NDEs, Moody (1977) referred, based upon the NDE observations of some of his subjects, to a realm of bewildered spirits. This proposed realm appears to possess many of the properties of Hades. And the ecstatic voyager Monroe (1971,

1985) has reportedly visited any number of possible afterlife planes that would appear to correspond to the ancient Greek conception of Hades.

Returning to Odysseus's visit to Hades, we note that in the meeting with Teiresias there is yet another interesting correlation between the *Odyssey* and NDE-related ecstatic journeys. In a large number of NDE accounts there is described a panoramic vision of life that occasionally includes not only images of the past but also images that appear to depict events in the future of the experiencer's life (Greene and Krippner, 1990; Ring, 1984). And this life panorama is sometimes reportedly supervised by a higher spiritual intelligence. Although Odysseus himself did not envision his future, he did hear his future accurately foretold by a supernatural being, the blind prophet of Thebes. And while he did not see the past of his life in panoramic vision, he did sequentially encounter a number of significant phantoms from his past, beginning with the ghostly remnant of the one who gave him life.

Song of the Sirens

After this meeting was concluded, Odysseus and his men disembarked from Hades. They briefly stopped at Circe's island again. She warned them of the dangers that awaited them as they passed by the island of the Sirens and of two other dangerous monsters they must confront on their way home, Skylla and Charybdis. While the appearance of the Sirens was not described in the *Odyssey*, in post-Homeric Greek urns these grotesque creatures were depicted as possessing the heads and breasts of human females and the feathered wings, claws, and bodily frames of giant birds. Thanks to the warnings of Circe, Odysseus and his men were prepared as they voyaged close to the Sirens' island. The Sirens, perched upon the shoreline, sang a song whose theme was the claim to "know all things." The promise of absolute knowledge contained in this song was irresistible to all mortal beings who would ply these supernatural seas. Whosoever heard this song became drawn irresistibly toward the Sirens. Sailors whose ships were thereby lured into the shoreline became dashed to pieces, along with their ships, upon the shoals of this supernatural land. Then came the time of feasting as the Sirens consumed their victims.

Only Odysseus among men was crafty enough to hear the Sirens' song without paying this ultimate price. He thereby acquired the supernatural knowledge contained in this song without forfeiting his life in exchange. Once again heeding the advice of Circe, Odysseus instructed his men to bind him tightly to the mast of the ship and then stuff their ears full of wax. He cautioned his men to ignore any irrational commands that he might issue while he was mesmerized by the Sirens' song.

Finally the ship entered the range of the Sirens and they commenced their deadly serenade. As Odysseus listened to this supernatural song his sensibilities were overwhelmed and his mind unraveled. Picking through his open memories, the Sirens mimicked the voice of his beloved wife, Penelope, whom he had longed to embrace ever since disembarking from Ithaca years before on the campaign against Troy. Using her voice they beseeched him to come ever close to the shoreline. But the power of the Sirens extended even beyond this ability to penetrate the minds of mortal men. They informed Odysseus of the oppressive atmosphere surrounding his house and of the state of siege to which his wife was subject at the hands of the suitors vying against one another to marry her. Only the binding rope and the previous orders to his men saved Odysseus and his comrades from succumbing to this deadly song's irresistible attraction.

In attempting to comprehend the possible meanings of the Sirens' song, we have, I believe, come upon one of the most potent examples of mythopoeic imagery present not only in this epic but also in the whole range of mythic/epic literature. Three possible threads of meaning we shall now explore. The first involves the promise of supernatural knowledge, the second the intimation of cosmic sexual passion in the call of these female monsters, and the third, the desire to forsake life to consummate this promised union.

Ecstatic states of consciousness sometimes develop into mystical experiences. Those recounting mystical experiences sometimes report sensations of having come into contact with all knowledge or of having utterly transcended space and time. As such sentiments pertain to sexual passion, we make note of the commonly reported energistic sensations associated with ecstatic and mystical experiences. Sometimes during the onset of ecstasy and then continuing throughout the whole of this condition the conscious self is bathed with a rapturous flame likened to sexual orgasm. These sensations, however, rather than being confined to the sexual center of the physical body,

appear to swirl throughout the whole of the spiritual body housing consciousness during ecstasy. Sexual orgasm, to be more exact, is sometimes reported to be like a shadow of these "higher" supernatural sensations (Laski, 1961).

The Sirens' song may be seen to represent that facet of ecstasy that brings on these cosmic sexual feelings. These hideously strange female creatures appealing to sailors of the opposite gender may, in addition, be seen to symbolize the power of supernatural sensory experiences to overwhelm the sensitivity levels of "ordinary mortals." In making this same point, Houston (1992) noted that the Sirens'

knowledge is clearly more than the ordinary human mind can contain, for theirs is a burning intelligence that will singe the mind away. Indeed, the Greek word *seirios* (siren) means "burning." (pp. 202-203)

Ecstatic otherworld voyagers who become overstimulated by this cosmic knowledge, we may speculate, lose consciousness of their ecstatic condition and "die" to the supernatural.

When ecstatic voyagers are unable to assimilate such supernatural stimuli properly, we may speculate, they *descend* into ordinary dream states or return to the "dream state" that is, according to some mystical teachings, identified with waking-level, body-based reality. Monroe (1971) speculated similarly, when discussing the powerful sexual vibrations whose sensations he must mediate in order to "launch" himself successfully into an out-of-body condition. But as the Sirens relate to NDEs, there is an even more obvious and compelling link.

Frequently during the midst of ecstasy entered during potentially life-threatening circumstances, the experiencer does not wish to return focus to the physical body, even if this means forgoing any effort to rescue this bodily aspect of the self from physical death. Commonly NDErs have reportedly struggled against efforts by other living persons to revive their physical bodies. Such NDErs, caught up in the thrill of ecstasy, would rather die than give up the ecstatic condition they are at that particular moment enraptured within. Once revived, however, their rational minds return and they come to realize that they were in the grip of a powerful cosmic force not apparently of this world. Elsewhere I have documented the commonality of this effect, in the only study designed specially to examine the notion of a death instinct in light of NDEs (Greene, 1982).

The following example of this patterned response is from a woman recounting an experience in which she almost died. She found herself

freezing to death at night, in subzero conditions, after her car had become stalled in a snowbank located in a remote area. She momentarily left her car and then realized there was nowhere she could go. She returned to the car that she believed served as her tomb. She remarked that:

I was overcome by excruciating pain as the cold penetrated the depths of my body. The pain shut off all thought but soon gave way to a warm glow, which softly enveloped me. The pain was replaced by an indescribable comfort and warmth of my innermost being. Then I heard magnificent music, not of this world but from unseen stars, creating a harmony of such rapturous beauty as to lift me to a transcendence of my being.

The music is still audible in my mind, even after forty-seven years, it was of such beauty and harmony. At the same time I saw a soft glow of light—how shall I locate it—on the horizon. For a moment I was one with the Universe. Time, space, and myself were one and the same. I experienced ecstasy and I saw the unity and beauty of the Universe.

When I awoke in a hospital I struggled against those who were working to save me. I did not want to come back. However, my body soon became filled with painful "pins and needles" and I again found myself fighting for life. (Noyes and Kletti, 1976, pp. 105-106)

This superb example of what we may call the Sirens' effect upon NDErs not only illustrates the powerful grip that NDE-related ecstasy exerts upon life-threatened individuals. The effect is, even more spectacularly, directly associated with otherworldly music or with *NAD*, as this music was termed by Scott Rogo (1970, 1972) in his two-volume study of transcendental music. Yet another NDEr directly associated this urge to give up on life on the edge of death with the powerful pull of the Sirens. He stated that

I had wanted death to come... However, in spite of these thoughts my own last-minute efforts rescued me. In retrospect I marvel at my attraction to death. It was as though I had been lured toward my own destruction much as Odysseus was tempted by the Sirens. (Noyes and Kletti, 1976, p. 105)

Final Adventures and Return to Ithaka

Next Odysseus's ship passed by the narrow straits bounded by two other supernatural monsters, *Skylla*, a six-headed monster possessing enormous fangs, and *Charybdis*, a whirlpool monster who sucked

sailors down to their deaths at the bottom of the sea. To save at least a portion of his crew, Odysseus avoided Charybdis and steered his ship toward Skylla. He was prepared to make this choice in deference to the words of Circe. This monster grabbed six men and swallowed them alive and kicking while the rest of the ship's occupants passed through the strait safely.

Following this calamity Odysseus and his remaining crew came once again to the island of the sun god Hyperion. They landed there for water and then found themselves stranded on this island for a month because of a lull in the wind. As they became ever more famished, Odysseus's crew decided it was better to risk the wrath of the gods than to die of starvation. They feasted upon the forbidden sacred livestock of Hyperion. Odysseus, away from his men on another part of the island during this feast, escaped the ensuing divine curse that doomed his men. Later, after their ship had caught a wind to escape this island, Odysseus's whole remaining crew drowned in a stormy sea as their ship was split apart by a thunderbolt from Zeus. Thus did the "Lord of the Thunderbolt," Zeus, avenge this eating of Hyperion's sacred cattle.

Only Odysseus, who had not eaten these cattle and had consequently escaped the curse, now remained, clutching onto a wooden beam from the ship. Days later, he washed ashore on the island of the nymph Kalypso. The name of this island, interestingly, was Ogygia, meaning "navel of the sea." And from Ogygia there extended an opening leading down into the underworld. Kalypso's cavern was surrounded by alders. Alders, we have already noted, were sacred to the death goddess Hecate. Kalypso may, in fact, be seen as another manifestation of Hecate (Lockhart, 1983). Thus even now Odysseus had yet to escape the pull of Hades.

After seven years of "amorous captivity" in the arms of Kalypso, finally Odysseus was able to build a raft and return to the realm of mortal men. He first disembarked upon the shores of the Phaiakians and maintained a disguise until he felt he was safe in their presence. He was treated as a worthy guest by Alkinoös, king of this land, and told of his wanderings in the exotic lands he had visited. Eventually, the Phaiakians presented him with numerous gifts and provided him with safe conduct back to his homeland of Ithaka. Upon arriving home, he once again disguised himself, this time as a beggar of alms. In this way he penetrated his own palace, where he was able to surmise just how stifling was the pressure of the suitors on his wife. When the proper moment arrived he revealed his true identity and

with the help of his son Telemachos, quickly dispatched each and every suitor, spilling their blood down into Hades. After twenty years of longing, finally he found himself reunited in the arms of his faithful, loving wife Penelope. As foretold by Teiresias, Odysseus lived out his life prosperously. Thus ended the first epic journey into the supernatural recorded in Western literature.

The Homeric "Hymn to Demeter" and the "Wine Dark Sea"

In associating the imagery of water passage with the OBE, we have, I believe, drawn attention to the powerful experiential as well as symbolic role that water imagery plays in this epic. Yet we have not, in my view, exhausted the possible import of water imagery present within Homer's *Odyssey*. Additional significance may be found in contemplating the possible meaning of the stock epithet "wine dark sea" uttered throughout the *Odyssey*.

This particular correlation begins to become more evident when we realize that mystery traditions in ancient Greece had, for thousands of years, invoked the use of wine to induce ecstasy. But no ordinary wine was used, as we recognize the constituent properties of alcohol today. Gordon Wasson, Ruck, and Albert Hoffman have established, in their remarkable collaborative work *The Road to Eleusis* (1978), that the wine consumed during these religious rites contained, in all likelihood, powerful hallucinogens. In the most famous of these mystery traditions, the Eleusinian mysteries, these hallucinogens, Wasson, Ruck, and Hoffman speculated, were produced from the ergot collected off wheat and from other naturally occurring substances also possessing psychedelic properties.

More recently, Terrence McKenna (1992) has argued persuasively for the psilocybin mushroom as the principle hallucinogen used at Eleusis. In either view, the act of sailing out into the "wine dark sea" may be equated symbolically with the consumption of a mind-altering liquid known to induce ecstatic journeys (Grof, 1985; Masters and Houston, 1967; McKenna, 1992). Thus by drinking this powerful hallucinogenic brew the initiate might come to be propelled through the sea of a higher supernatural realm and partake of the knowledge thereby gleaned.

Remarkable, in light of this speculation, is the fact that the "Homeric Hymn to Demeter" (Ruck, 1978) (the Homeric hymns were ac-

tually composed centuries after Homer's great epic), the primary instructional text used in the Elysianian mystery rites, is modeled in part upon a particular passage from the *Odyssey*. This religious text is based upon the masked appearance of Odysseus at the court of the Phaiakians during the last phase of his supernatural journey.

In this "Hymn," Demeter, goddess of vegetation or life, also entered a royal household in disguise, a household located near an entrance leading down into the House of Hades at the town of Eleusis. Just as Odysseus eventually revealed his true identity to the Phaiakians, so also do we find that Demeter, disguised as a nursemaid, eventually revealed to the members of this household her true identity as goddess of life. Just as Demeter sacrificed the royal child she had nursed during her disguise, in effect offering him to Hades in exchange for her daughter Persephone, so also do we find that all of Odysseus's men eventually died, in order that he might return to the land of the living.

Odysseus as a Shamanic Initiate

Another correlate linking the ecstatic journey to the voyage of Odysseus we have yet to consider involves the reported spiritual transformations in the lives of persons surviving NDEs (Ring, 1984). In the case of Odysseus, there was also a profound transformation in character, the direct result of the supernatural obstacles he had endured and overcome to reach his home shore. The whole story of Homer's *Odyssey* may be read as a rite of passage to a higher, more evolved state of being (S. Harris, personal communication, December 2, 1987). This rite of passage was very similar to the rituals practiced by shamans (Eliade, 1962). Like the shaman, Odysseus had to endure extraordinary obstacles in order to be spiritually transformed.

Like the shaman, whose higher state of being is formed out of the reconstitution of his dismembered body, Odysseus had had to unify his discordant lower instincts and unruly human appetites into a single higher purpose, the quest to return to the land of the living. Within the context of this interpretation, the near-drownings he had survived are seen to be a form of spiritual baptism. That only he among all of his companions possessed the perseverance, stamina, and intelligence required to overcome all of these obstacles demonstrated that only he could partake in the transformation of being that was required in order to return from the supernatural to the

natural world. And only the shaman, within the context of shamanism, may journey safely into the supernatural and return to the world of nature.

In his historical and literary study of otherworld journeys, Couliano (1991) also identified Odysseus as a shaman, or rather as an "apprentice shaman." Couliano noted that the rituals Odysseus followed while engaged in "soul raising" at the mouth of Hades derived from the native shamanic tradition of ancient Greece. Couliano also identified the practitioners of ancient Greek shamanism as under the aegis of "Apollo of Hyperborea." Such an alignment may be seen to associate these practitioners with the Indo-European invaders who entered Greece from the north around 2000 BC. As Couliano observed,

The old European goddess culture [and its matriarchal society] was brutally replaced by the patriarchal Indo-European culture of semi-nomadic herdsman, whose values were destruction, war, and violence based on a male code of behavior.... Open cities were replaced by walled ones, native goddesses became consorts, were transformed into males, or were recast as monsters. (1991, p. 116)

Within such a historical perspective, those elements in Homer's *Odyssey* possessing a historical basis may be read as literary reflections of this Indo-European invasion. For example, the events surrounding Odysseus's subjugation of Circe may be seen to represent conquest by Indo-European invaders of an older matriarchal society.

The Question of Symbolic Imagery

From the beginning, I have argued that Homer's *Odyssey* is imbued with profound symbolic import. The launching of the Greek ships into the mysterious western sea I have equated with the ingestion of a hallucinogenic brew intended to induce ecstasy; the "Song of the Sirens" I have equated with the powerful orgasmic energies sometimes associated with ecstasy and also with the possible dangers of being overwhelmed by these energies. Finally, the narrow straits, caves, and whirlpools I have equated with the passage by ecstatic voyagers through dark and swirling tunnels and other fluidic currents. The use of symbolic imagery points toward an intelligence behind the symbolism, an intelligence that has intentionally employed this imagery for some reason. But who or what was this intelligence and for what reason has it employed this symbolism?

The most obvious initial candidate would be Homer himself. But who was Homer? To this question we will never have a satisfactory answer. Homer, some scholars believe, may well have been an actual man, a blind bard in the tradition of traveling bards living in the vicinity of the Aegean Sea around the year 850 BC. He may also have been a mythic personage himself, a sort of composite figure of numerous traveling bards who then lived in the proximity of Greece. In granting either view, the works attributed to Homer acquired their final written form over a number of centuries and combined the orally transmitted epics and legends of various peoples and traditions into two unified literary texts, the *Iliad* and the *Odyssey*.

Even accepting the historical existence of Homer, there is little doubt that his primary achievement was as a collector and synthesizer of diverse legends rather than as an entirely original thinker. Homer's function as a collector of legends leads me to wonder how credible the proposition is that he could have intentionally incorporated all of the ecstatic experience-related imagery into the *Odyssey* that I have identified in this paper. As noted, on one level, the events depict not a wandering around in some afterlife state but rather a wandering around the Mediterranean Sea during the chaotic period when Indo-European invaders were subduing older matriarchal societies.

But there is another reason to dismiss the possibility that Homer intentionally employed imagery symbolic of the ecstatic journey. Some contemporary scholars of classical repute (Jaynes, 1976; Latimore, 1965) do not believe that the capacity to think and articulate ideas symbolically had yet developed at the time Homer lived. Only during the classical period, beginning some 150 years after Homer's death, so goes this argument, did Greek intellectuals begin to display an aptitude for the symbolic use of language. Granting the viability of such a view, who or what then was the intelligence employing symbolism in the *Odyssey*? While there is a tendency in our modern age of scientific rationalization to dismiss automatically as unthinkable certain explanations for literary inspiration, the most credible explanation, I believe, may be found among the ancient Greeks themselves.

The power of symbolic mastery over language in Homer's *Odyssey* came, I argue, from a supernatural source, from a "divine muse" existing above the human condition and outside of space and time. In Plato's "Apology," Socrates stated that

not by wisdom do poets write poetry, but by a sort of genius and inspiration; they are like diviners or soothsayers who also say many fine things, but do not understand the meaning of them. (Plato, 1924, p. 108)

Whether we think in term of a supernatural intelligence completely distinct from human existence or rather of a higher supernatural level of human consciousness that has yet to become integrated into the natural human intellect is irrelevant to the present discussion. In either case, I believe, we have a working hypothesis potentially capable of illuminating the reasons why imagery profoundly symbolic of ecstatic journeys breathes life into Homer's *Odyssey*.

To this higher intelligence, existing in a more spacious present moment—that subsumes much larger portions of space and time together—simultaneously accessing information from different historical periods might be no more difficult than for us to glance back and forth at the objects on our living room table and the painting on the wall behind. Like the Jungian archetypes adapted into an explanatory model for NDEs by Michael Grosso (1985), the mythopoeic imagery of which I speak may be said to be charged with a surplus of meaning. This surplus comes from the ability of this supernatural intelligence to draw upon patterns in the cosmos lying outside sentiently perceived space and time.

Various examples of imagery in the *Odyssey* possess more than a one-to-one physical world correspondence because, I submit, they conform to a wider cosmic pattern whose organization transcends mundane human conceptions of space and time. In other words, I am arguing that the meanings present in Homer's *Odyssey* are multileveled, that this work may be read both as a memory of actual wanderings through the Mediterranean Sea by ancient sailors and as an experiential and symbolic journey into the afterlife. The water imagery in Homer's *Odyssey*, for instance, may be seen to possess at least five different levels of meaning relevant to the notions of ecstasy. This is as opposed to the one-to-one connective relationship between things we are conditioned to perceive from our sensory experiences in the physical world.

The first level of meaning involves the use of water imagery to signify the threat of drowning as a potential catalyst of NDE-related ecstasy. The second involves the launching of the Greek ships out into the mysterious western sea that may be equated symbolically with the OBE. The third involves the use of water to symbolize liquid

forms of hallucinogens as potential triggers for ecstatic journeys. A fourth involves the use of water imagery to represent an actual experiential correlate of passage between physical, psychical, and mystical levels of the cosmos, as J. M. H. Whiteman (1978) has observed. And yet a fifth level involves the use of water imagery as symbolic of spiritual baptism or initiation, as I have observed in looking upon Odysseus as a shamanic initiate.

The Song of the Sirens offers us yet another example of mythopoeic imagery suggesting the existence of complex, multifaceted cosmic patterns underlying this epic, patterns shaped, I argue, by an intelligence existing outside of space and time. Cosmic sex and physical/psychological death and associated pleasures and pains, as well as degrees of supernatural stimuli too psychospiritually awesome to be humanly endured, are all somehow intimated in the Song of the Sirens. The supernatural intelligence infusing life into Homer's imagery, I believe, conveys to us insights whose truth value transcends human understanding. In other words, the infinite infused via poetic inspiration into the finite cannot help but flood the islands of physical world sensory knowledge, thereby engulfing linear systems of thought and overwhelming the single cause-and-effect relationships to which "ordinary mortals" are conditioned to respond.

And this is why, perhaps, such intellectually perplexing waters separate the natural level of the cosmos from the supernatural, and human from divine degrees of insight and wisdom. The numbing effect that sensory overload has been demonstrated to have upon the human mind (Oswald, 1965) may perhaps intimate to us something of our relationship to the supernatural, whose numinosity may be too brilliant for us to perceive directly while remaining conscious and alive in this world. Perhaps as successive generations of human wonderers continue to ponder the meanings infused within such works as Homer's *Odyssey* a *stretching effect* reaches across the human species as a whole. Stimuli that had previously been too intense to be received and articulated humanly are finally able to filter through to a later generation of human wonderers, wonderers who are better able to give utterance to that which was previously ineffable. In other words, as a consequence of psychospiritual evolution, it may be that ever increasing numbers of living human beings are able to remember and articulate personal experiences of ecstatic journeys into supernatural worlds.

The Supernatural in Homer's World and Today

Perhaps the greatest barrier to the acceptance of my thesis comes from the greatly varying cosmic conceptions that underlie our modern "scientific" cosmology and the cosmic conceptions of the Mycenaean Age. How can we seriously attribute any reality to the epic events of Homer's *Odyssey* when these events are set inside the context of a primitive and objectively false worldview? This is a worldview wherein one need only keep sailing west in order to pass from the natural universe into the supernatural. From our modern cosmic perspective the supernatural, if it exists at all, lies not beyond the "edge" of the Earth, for there is no edge.

Rather the supernatural must exist outside of or above the very confines of the natural universe. The supernatural, presuming its existence, must be located beyond space and time—space and time, that is, as we now recognize these baseline parameters of human existence. The realm of the supernatural may be located, perhaps, in some superior dimension, perhaps in a world possessing four spatial dimensions. This is in much the same way as we may conceive our own world of three dimensions to be superior to a world of two dimensions that, in turn, is superior to a world possessing one dimension.

In other words, passage into the supernatural universe would involve a process where waking human consciousness ascends, in some transformed state of being, out of our familiar world of three dimensions into the more spatially comprehensive world of four dimensions. During ecstasy, ordinary sensory/perceptual awareness has, in this view, temporarily awakened from the dream state of three-dimensional reality. Elsewhere I have proposed such an explanation for ecstatic experiences (Greene, 1981, 1984a, 1984b; Greene and Krippner, 1990). The higher space argument may be seen to become even more provocative when we once again reconsider, within the context of that argument, the commonly reported sensations of floating associated with the initial stages of ecstasy.

In speaking of the physical world we commonly say that we have access to movement in three dimensions. Yet in a certain sense this is only partially true. While we may easily traverse an entire continent, given the time and circumstance, by moving *across* two of the three dimensions to which we have access, our ability to move in the third direction is immeasurably more limited. Few of us can jump unaided more than two or three feet into the air. Thus our capacity to move is, in one sense at least, far more two- than three-dimen-

sional. If in this postulated higher-dimensional world there is a hyperphysical force that corresponds in some sense or other to gravity in our present world, then we might expect the following condition to hold true.

Upon initial penetrations into this four-dimensional world our capacity to move—that is, to float—rather effortlessly would be confined to three dimensions, with some extra effort required to exercise movement along the fourth spatial axis. This reasoning might help to explain why sensations of floating and effortless movement in three dimensions, including passages through three-dimensional walls and other physical obstructions, frequently seems to precede the more profound alterations in consciousness associated with ecstatic experiences. Here I am referring to episodes of “time traveling” and penetrations into “other realms.” I am also referring to expansions into mystical states of consciousness during which experiencers appear to become engulfed within God and/or to have entered eternity.

In conclusion, I will leave readers with one additional thought to ponder. This involves a similarity that I have often contemplated between modern cosmological ideas and those of the Mycenaean Age. To appreciate this notion we must resort once again to higher-space reasoning. We can easily visualize the drawing of a circle on a piece of paper. It takes little additional thought to imagine that this circle represents a one-dimensional world embedded inside a “higher” two-dimensional plane space. Similarly, we can easily visualize a two-dimensional surface curved completely in upon itself as it extends through the third dimension. We call this geometrical object a sphere.

It takes little additional thought to imagine that this sphere represents a two-dimensional world that is imbedded inside a higher three-dimensional space. Here I do not wish to confuse any possible inhabitants of such a “curved” two-dimensional world with three-dimensional beings, such as ourselves, who inhabit the outer edge of the surface of the oblate spheroid we call the planet Earth. I am, rather, referring to two-dimensional beings imbedded “inside” this curved surface. For them there would be no “up” or “down” but only passage “across” the plane inside of which they live. Now our exercise begins to become “visually” foggy. Most of us will have to leave behind our capacity for visualization, although we may still take along with us our capacity for abstract reasoning. It is logically possible and geometrically correct to conceptualize that our own world of three dimensions curves back in upon itself by extending through a higher space.

However difficult it might be for us to visualize such a condition, contemporary cosmologists seriously contemplate this notion on a daily basis. Our own three-dimensional world, in ways that we may find extremely difficult if not impossible to visualize, may actually be surrounded by a space extended in four dimensions. One view of Albert Einstein's theory of general relativity is that our own three-dimensional space does actually curve back in upon itself by extending through such a fourth dimension. For the adventurous thinker interested in further exploring these ideas, the books of Rudolph Rucker (1984), Paul Davies (1980), and Edward Harrison (1985) are excellent introductions.

Returning to the world of Homer, we find that a similar geometrical relationship orders the Mycenaean cosmos. This disk-shaped universe that is cosmologically speaking two-dimensional is also surrounded on the outside, above, and below by a supernatural realm. Lacking entirely in any conception of higher mathematics and possessing only a poorly developed faculty for abstract reasoning, the ancient Greeks of this far-off age, I believe, came as close as they possibly could to envisioning the true relationship between nature and supernature. Their greatest mistake, as the mythologist Joseph Campbell (1951) might have said, was in confusing metaphorical with literal levels of understanding.

References

- Audette, J. (1982). Historical perspectives on near-death episodes. In C. R. Lundahl (Ed.), *A collection of near-death research readings* (pp. 21-43). Chicago, IL: Nelson-Hall.
- Black, D. (1975). *Ekstasy*. New York, NY: Bobbs-Merrill.
- Campbell, J. (1949). *The hero with a thousand faces*. Princeton, NJ: Princeton University Press.
- Couliano, I. P. (1991). *Out of this world: Otherworld journeys from Gilgamesh to Albert Einstein*. Boston, MA: Shambhala.
- Crookall, R. (1961). *The study and practice of astral projection*. Secaucus, NJ: Citadel Press.
- Crookall, R. (1972). *The case book of astral projection*. Secaucus, NJ: Citadel Press.
- Davies, P. (1980). *Other worlds*. New York, NY: Simon and Schuster.
- DeQuincy, T. (1956). *Confessions of an English opium eater with its sequelae, suspiria de profundis and the English mail coach*. (M. Elwin, Ed.). London, England: Macdonald. (Original work published 1862)
- Eliade, M. (1962). *Shamanism: Archaic techniques of ecstasy*. New York, NY: Pantheon.
- Frazer, J. (1922). *The golden bough*. New York, NY: Macmillan.
- Gallup, G., and Proctor, W. (1982). *Adventures in immortality: A look beyond the threshold of death*. New York, NY: McGraw-Hill.
- Graves, R. (1959). *Greek myths (Vol. 2)*. New York, NY: George Braziller.

- Greene, F. G. (1982). Thanatos: The death instinct. In M. C. Rose (Ed.), *Academy of Religion and Psychical Research 1982 Annual Conference Proceedings* (pp. 110-121). Bloomfield, CT: Academy of Religion and Psychical Research.
- Greene, F. G. (1983). The out-of-body experience, extrasomatic or intrasomatic phenomenon? A non-Euclidean/higher space approach. *Journal of Religion and Psychical Research*, 6, 159-180.
- Greene, F. G., and Krippner, S. (1990). Panoramic vision: Hallucination or bridge into the beyond? In G. Doore (Ed.), *What survives? Contemporary explorations of life after death* (pp. 61-75). Los Angeles, CA: Tarcher.
- Grof, S. (1985). *Beyond the brain: Birth, death, and transcendence in psychotherapy*. Albany, NY: State University of New York Press.
- Grosso, M. (1985). *The final choice: Playing the survival game*. Walpole, NH: Stillpoint Press.
- Harrison, E. (1984). *Masks of the universe*. New York, NY: Macmillan.
- Homer. (1967). *The Odyssey of Homer* (Trans. by R. Lattimore). New York, NY: Harper and Row.
- Houston, J. (1992). *The hero and the goddess*. New York, NY: Ballantine.
- Irwin, H. J. (1985). *Flight of mind: A psychological study of the out-of-body experience*. Metuchen, NJ: Scarecrow Press.
- Jaynes, J. (1976). *The origin of consciousness in the breakdown of the bicameral mind*. Boston, MA: Houghton Mifflin.
- Lattimore, R. (1967). Introduction. In R. Lattimore (Ed.), *The Odyssey of Homer* (pp. 1-24). New York, NY: Harper and Row.
- Lockhart, R. (1983). *Words as eggs*. Dallas, TX: Spring Publications.
- Masters, R., and Houston, J. (1967). *Varieties of psychedelic experience*. New York, NY: Holt, Reinhart and Winston.
- McKenna, T. (1992). *Food of the gods*. New York, NY: Bantam.
- Monroe, R. (1971). *Journeys out of the body*. Garden City, NY: Doubleday.
- Monroe, R. (1985). *Far journeys*. Garden City, NY: Doubleday.
- Moody, R. A. (1975). *Life after life*. Covington, GA: Mockingbird Books.
- Moody, R. A. (1977). *Reflections on life after life*. St. Simon's Island, GA: Mockingbird Books.
- Noyes, R., and Kletti, R. (1976). Depersonalization in the face of life-threatening danger: An interpretation. *Omega*, 7, 103-114.
- Oswald, I. (1966). *Sleep*. New York, NY: Penguin.
- Plato. (1924). *The works of Plato*. (B. Jowett, Trans.). New York, NY: Dial Press.
- Ring, K. (1980). *Life at death: A scientific investigation of the near-death experience*. New York, NY: Coward, McCann and Geoghegan.
- Ring, K. (1984). *Heading toward omega: In search of the meaning of the near-death experience*. New York, NY: Morrow.
- Rogo, D. S. (1970). *NAD: A study of some unusual "other world" experiences*. New York, NY: University Books.
- Rogo, D. S. (1972). *NAD: A psychic study of the "music of the spheres."* New York, NY: University Books.
- Rogo, D. S. (Ed.) (1978). *Mind beyond the body*. New York, NY: Penguin.
- Ruck, C. (1978). Documentation: Vision at Eleusis. In R. G. Wasson, C. Ruck, and A. Hoffman (Eds.), *The road to Eleusis*. New York, NY: Harcourt Brace Jovanovich.
- Rucker, R. (1984). *The fourth dimension: Toward a geometry of higher reality*. Boston, MA: Houghton Mifflin.
- Staples, D. (Trans.). The Homeric hymn to Demeter. In R. G. Wasson, C. Ruck, and A. Hoffman (Eds.), *The road to Eleusis*. New York, NY: Harcourt Brace Jovanovich.
- Whiteman, J. (1978). The process of separation and return in experiences fully "out-of-body." In D. S. Rogo (Ed.), *Mind beyond the body*. New York, NY: Penguin.

Evolution and the Relationship Between Brain and Mind States

Juan S. Gómez-Jeria, Lic. Q.

Carlos Madrid-Aliste

University of Chile

ABSTRACT: We discuss the phylogenetic basis of states of consciousness, and present the central theses of monism and dualism, in which near-death experiences (NDEs) enjoy very different ontological statuses. Next, we summarize the evolution of the genus *Homo*, with emphasis on neuroanatomical changes, and define brain and consciousness states. Data suggest that consciousness states are produced by brain states. We address the problem of states of consciousness in other species because consciousness states seem to emerge from a phylogenetic continuum, and analyze problems connected with verbal reports of internal experiences. Finally, we examine NDEs as brain states/consciousness states, and conclude that we need further study of elements appearing in each NDE with their order of appearance. We discuss problems in the relationship between brain states and consciousness states, and conclude that science does not need a paradigm shift to deal with NDE data.

Every word and every brain,
And our ancient family line . . .
Everything must come to death.

—Michelangelo Buonarroti, *Sonnet*, 16th century

When a new phenomenon is accepted as being real, a first step in its study is its observation and classification. At this stage, speculation about its origin and composition is normal. Sometimes this stage

Juan S. Gómez-Jeria, Lic. Q., is Associate Professor of Quantum Chemistry and Philosophy of Science at the Faculty of Sciences, University of Chile. Carlos Madrid-Aliste is an undergraduate student of the Faculty of Sciences of the University of Chile. This work has received financial support from the University of Chile (Grant Q-3064) and from the International Association for Near-Death Studies through their Small Grants Program. We gratefully acknowledge the very helpful comments of Prof. Dr. Bruce K. Cassels. Reprint requests should be addressed to Prof. Gómez-Jeria at the Faculty of Sciences, University of Chile, Casilla 653, Santiago, Chile.

is never overcome. More often, statistics are used to mask the conceptual poverty related to lack of knowledge of the phenomenon. In still other cases, the discovery of the phenomenon and some predictions about its behavior are accepted as sufficient. For a scientific explanation, however, it is necessary to construct a hypothetical-deductive system, which can be checked against available evidence; naturally, this demands some simplification, or model creation. In addition, a phenomenon should be placed within the physical world to study it more adequately.

In this article we shall present some thoughts about human evolution and its link with the appearance of more and more complex mental phenomena. Then, near-death experiences (NDEs) will be discussed within this framework. We intend this article as a basis to open an exchange of ideas among interested people.

Monism and Dualism

All ideas about the relationships between the brain and the mind can be grouped into two main streams of thinking: monism and dualism. In very general terms, the former holds that all things can be reduced to one class of substance, while the second maintains that brain and mind are not mutually reducible. Monism does not assign ontological freedom to the mind, but considers it as a product of the brain. There are at least five monist and five dualist positions about mind/brain relationships (Bunge, 1980). Only dualist positions permit the possibility of "something," such as a soul, spirit, or astral body, "going out" of the body and having body-independent out-of-body or near-death experiences. Clearly, NDEs enjoy a very different ontological status in monism and dualism.

A position regarding this problem must be able to survive the scrutiny of independent observers. However pleasant any pattern of thinking may be, it must be rejected as soon as an observation appears for which there is no place in it. If such a procedure is not used, any position is allowed. This can lead to arguments *ad ignorantium*: a proposition is considered true simply on the basis that it has not been proved false, such as acceptance of unidentified flying objects or ghosts, or an extremely long list of analogous beliefs. In the following we shall present and comment on scientific data that can be verified by any reader, and that will help us to decide whether monism or dualism are to be taken seriously.

Human Evolution and Brain States

The first stage in this work must be some words about how we *Homo sapiens sapiens* evolved. We may consider *Homo sapiens sapiens* as the successful result (a work in progress) of a certain number of variations of a genetic pool that produced other variations that either survived or did not. The phylogenetic changes leading to *Homo sapiens* are more or less known. One model suggests the following steps, which could of course be modified with new scientific evidence:

About 15 million years ago (all these dates are approximate), a line leading to the present-day orangutan separated from the line leading to genus *Homo* (see Moyà Solà and Köhler, 1993). About 9 million years ago, another branch leading to the modern gorilla evolved, and about 5 million years ago, the line leading to the modern chimpanzees emerged. About 4 million years ago, *Australopithecus afarensis* appeared, surviving about 1 million years. About 2 to 3 million years ago the *Homo* line diverged from *Australopithecus* and divided into several species; this seems to have occurred in Africa (Schrenk, Bromage, Betzler, Ring, and Juwayeyi, 1993; Wood, 1992a, 1992b).

About 1 million years ago, *Homo erectus* migrated to Eurasia. The descendants of this migration are *Homo sapiens neanderthalensis*. About 250,000 years ago, in Africa and probably within a very restricted population of *Homo erectus*, the ancestor of *Homo sapiens sapiens* appeared. About 100,000 years ago, our ancestors migrated to Eurasia (see Gibbons, 1993). The last *Homo sapiens neanderthalensis* disappeared about 35,000 years ago (Stringer, 1992; Valladas, Vandermeersch, and Bar-Yosef, 1988; Wolpoff and Frazer, 1992). After this, *Homo sapiens sapiens* migrated throughout the rest of the world and eventually produced civilization as we know it (Andrews, 1992; Cann, Stoneking, and Wilson, 1987; Cavalli-Sforza, Piazza, Menozzi, and Mountain, 1988; Conroy, Pickford, Senut, Van Couvering, and Mein, 1992; Hill, Ward, Deinoi, Curtis, and Drake, 1992; Lewin, 1992; Maddison, 1991; Mercier, Valladas, Joron, Reyss, Leveque, and Vandermeersch, 1991; Simons, 1989; Stringer, 1990; Stringer and Andrews, 1988; Vigilant, Stoneking, Harpending, Hawkes, and Wilson, 1991; Walker, Leakey, Harris, and Brown, 1986; Wolpoff, 1984; Wolpoff and frazer, 1992; Wood, 1992a, 1992b).

Steven Stanley (1992) proposed an ecological theory for the origin of the genus *Homo*. He suggested that about 2.5 million years ago the evolution of large-brained early *Homo* followed closely the global climatic changes signaling the onset of the modern Ice Age. At this time, forests shrank and grassy habitats expanded, forcing some australopithecine populations to abandon arboreal activities. It is probable that a single fully terrestrial population (or an entire bottlenecked species) of australopithecines evolved into *Homo* (Stanley, 1992). Stanley noted that this evolution under a crisis situation entailed only a restriction of the existing behavior and not a sudden change or mutation. The progressive encephalization followed from selection pressure, resulting primarily from an extension of the high fetal growth rate into the postnatal stage. This delayed development seems to be the reason why humans have the longest interval of helplessness among all mammals (Stanley, 1992; see also Foley and Lee, 1989; Gibbons, 1993; Schrenk, Bromage, Betzler, Ring, and Juwayeyi, 1993).

During this time, the brain underwent a process of change such that one of the brain's hemispheres came to control spatial behaviors, while the other was involved in the regulation of linguistic functions. This differentiation, coupled to the noteworthy fact that at present most people are right-handed and have language represented in the left hemisphere of the brain, needs an explanation. Right-handedness developed independently and prior to language; in fact, there is evidence to suggest that 2 million years ago hominids were right-handed.

Given that our primate ancestors were ambidextrous and that both brain hemispheres processed information in a symmetrical way, a biasing mechanism based on survival has been proposed, in which hominids were more likely to survive if they fought with the right hand, while the left one protected the heart. With time, a male right-handed population was selected. In the case of females, the fact that young infants are calmed when they hear a heart's beating helped right-handed females to survive predators (see MacLean, 1990). Then, natural selection led to the regulation of dexterity by the left hemisphere, while the right one dealt with the regulation of manipulative spatial skills. This does not preclude the possibility that, as hominids lived in groups, some left-handed people survived.

Language and spatial behavior require a multimodal convergence. Furthermore, language must follow the appearance of some internal

representation of the external milieu. If the developing language system has greater survival value when connected with the mechanisms controlling dexterity, there will be a bias favoring the left hemisphere. On the other hand, from the point of view of hardware, it will be advantageous for the tongue, a midline organ with bilateral innervation, to receive its commands from a single hemisphere. These two coupled effects lead to the above mentioned fact. The nondominant hemisphere is the neurobiological link with the primate path because its changes have been a matter only of degree.

The conclusion is therefore that evolutionary pressures led to modifications in the brain of hominids allowing them to deal better with internal representation and motor manipulation of the external world and its objects (Arensburg and Tillier, 1990; Beynon and Dean, 1988; Brain and Sillen, 1988; Conroy, Vannier, and Tobias, 1990).

The anatomical structures involved in arousal and attention, the basic components of consciousness states, are phylogenetically old and correspond to the nuclei giving origin to the cholinergic, noradrenergic, serotonergic, and histaminergic projections to the brain cortex. The stimulation of these projections has in common an optimization of the signal-to-noise ratio, in such a way as to permit a more accurate transmission of the information arriving to the cortex (McCormick, 1989).

Several studies have shown the remarkable development of the human association cortices in volume and complexity of organization. It has been suggested that the functioning of these structures is the basis of behavior that is properly human (Connolly, 1950; Crosby, 1982; Pearson and Pearson, 1976; Stephan and Andy, 1969). In the normal conscious state, with sensory input kept at a minimum, there is high activity in the frontal cortex, and less in post-central and temporal regions (Ingvar, 1979). It has been suggested that the frontal activity in these conditions comes from a simulation of behavior, i.e., "an inner anticipatory programming of several alternative behavioral modes prepared to be used depending upon what will happen" (Ingvar, 1979, p. 21). This frontal activity can be conscious or unconscious.

An example of conscious activity came from studies of the neuroanatomical correlates of anticipatory anxiety (Reiman, Fusselman, Fox, and Raichle, 1989). In these studies, apart from a significant increase in bilateral temporal lobe activity, related to anxiety and panic attacks, there is an additional increase of activity in the bilateral temporofrontal regions near the anterior aspect of the lat-

eral sulcus. This last activity could be related to an analysis of the approach to the anxiety-causing stimulus.

Furthermore, in patients with obsessive-compulsive disorder, abnormalities are observed that involve the orbital frontal cortex, frontal white matter, cingulate gyrus, and lenticular nuclei of the right hemisphere (Garber, Ananth, Chiu, Griswold, and Oldendorf, 1989); these areas are components of the frontal-limbic pathways. Assuming that in these patients the left hemisphere is the verbal one, this abnormal activity could correspond to an unconscious activity in which a given algorithm, the one leading to the obsessive-compulsive behavior, is continuously processed, leading to obsessive thinking, and executed without verbal control, producing compulsive behavior. This could imply that the nonverbal hemisphere might influence the verbal one not only for written or verbal responses, but also for motor behavior (Gazzaniga, 1985).

According to Paul Green, Stephan Hallett, and Mick Hunter (1983), the positive symptoms of schizophrenia may come from an abnormal awareness of the right hemisphere's activity by the left hemisphere. Also, the anterior corpus callosum, which connects the right and left frontal lobes, seems to be involved in higher order cognition (Sidtis, Volpe, Holtzman, Wilson, and Gazzaniga, 1981). Moreover, it has been suggested that the most differentiated areas of the prefrontal cortex, which are not connected with the limbic system, may be involved in complex discrimination and spatial functions (Barbas and Pandya, 1989). In agreement with the above, we think that the neocortical development of the association areas, especially the prefrontal ones, is the basis of self-consciousness (Sani-dos, 1969). Our next step is to discuss a way of representing brain functioning.

Brain States

First, it is necessary to explain what we mean by "brain state." Taking the neuron as the simplest unit of the central nervous system, we have at least three ways of describing brain functioning: as a set of neurons, as a set of neuronal groups, or as a neuronal network. Let us select, for example, the neuronal level of description. We must select one or more neuronal variables to describe their function. For the purpose of this discussion we shall select the firing state. Then, for neuron n_i we shall have two possible states of s_i : $s_i = 0$ when the

neuron is not firing and $s_i = 1$ when it is. If we denote by N the total number of neurons in the brain, the j th state of the system will be described by a time-dependent vector $\vec{S}_j^B = (1, 2, \dots, N, t) = (s_1, s_2, \dots, s_N)$, where B refers to brain and the s 's are the actual values for each neuron. Note that while it is a technological impracticability at this time, there is no scientific principle forbidding the *a priori* knowledge of the state of each neuron. Considering that each neuron is independent, we shall have an N -dimensional discontinuous space, in which each point corresponds to a possible state of the system. For example, the state described by the vector $S_0 (1, 2, \dots, N, t) = (0, 0, \dots, 0)$ corresponds to that in which no neuron is firing at time t . If this state persists for, say 29 minutes, the brain may be considered as dead.

Using phase space formalism, we can describe the state of the system called brain (B) by the values of i variables b_1, b_2, \dots, b_i , which are linearly independent. To this system we shall couple a Euclidean i -dimensional space, Γ , whose points are determined by the Cartesian coordinates $\{b_j\}$. Then, for each possible state of B there will correspond a point in Γ that is called the image point of B . The whole space Γ will be called the brain states space. The motion of the image point in the brain states space represents therefore the change of state of B . Note that this description is a purely neuronal one.

Mind States

The definition of a mind state is a rather complex subject. An examination of the literature clearly indicates that topics such as mind, consciousness, self, self-consciousness, the unconscious, and related themes seem to have different meanings for different people. There is no doubt that this area needs to be cleaned conceptually. Here we shall speak of consciousness and we shall consider it as a primitive concept, though this does not preclude its *a posteriori* elucidation.

A statement about consciousness must be made to open the discussion. What could the general characteristics of consciousness states be? We have several candidates for answers to this question: for example, that they are private, that they have an intentional content, that we are aware of them, or that they employ internal language and/or images.

The most obvious characteristic of consciousness is its continuous stream, never being the same from moment to moment (James, 1892/1984). The continuous change of consciousness, and the existence of radically different modes of mental working, led to the concept of "states of consciousness." Following Charles Tart, we shall define the normal state of consciousness as follows: "For any given individual, his normal state of consciousness is the one in which he spends the major part of his waking hours" (Tart, 1969, p. 1). We refer to normal individuals and we assume that within this set of human beings the normal state of consciousness is approximately the same. The other states can be reached from the normal state of consciousness, and we shall refer to them as "alternate states of consciousness," instead of Tart's term "altered states of consciousness."

Seeking a list of alternate states of consciousness in the literature yields a surprising variety of them, including lucid dreams, day-dreaming, meditation, hypnosis, trance, ecstasy, stupor, coma, and states labeled mystical, hypnagogic, psychotic, creative, drug-induced, hyperalert, lethargic, hysteric, fragmented, regressive, expanded, and released (Bourgignon and Evascut, 1977; Fischer, 1971; Globus, Maxwell, and Savodnik 1977; Tart, 1969; Valle and von Eckartsberg, 1981; White, 1972; Zaehner, 1972; Zimberg, 1977). This apparent variety exists because of the lack of a formal theory defining the different states of consciousness and their interconnections.

There have been some interesting theoretical developments pointing to such a theory but, as far as we know, a theory does not yet exist (Drab, 1981b; Fischer, 1971; Marsh, 1977; Saavedra-Aguilar and Gómez-Jeria, 1987; Tart, 1969, 1972, 1977). Some "permanent" psychiatric states, such as autism or catatonic schizophrenia, can be viewed as stable areas in the consciousness state space. On the other hand, states of consciousness such as NDEs, out-of-body experiences, and drug-induced states may be viewed as unstable states that can be reached from the normal one and that decay after some time. This passage between states is equivalent in the formalism to a movement in the state space.

For consciousness (C), we may also apply the phase space formalism; j linearly independent variables $\{c_k\}$, a j -dimensional consciousness state space, Θ , and so on. This will be a purely consciousness/language description. Nevertheless, we are confronted with the major problem of finding the variables to be used in the construction of Θ . Variables such as attention, memory of several kinds, concentration, and awareness may be used, but only after con-

ceptual elucidation of these concepts. This is an open field of research.

The Relationship Between Brain States and Consciousness States

The separate definitions of the brain state space and consciousness state space do not represent a dualistic position, but rather our temporary ignorance of the equivalence between them. We must elucidate two relevant questions: the relationship between $\text{Dim}(\Gamma)$ and $\text{Dim}(\Theta)$ and the relationship between the movement of the image points in both spaces. The former cannot be determined theoretically, but rather by considering all relevant data regarding brain functioning and consciousness models. These two spaces are not independent but are equivalent. Also, the variation of one variable in one space can be accounted for by the variation of one or several variables in the other. These variations may or may not be linear.

At this point, we must consider that the normal state of consciousness is not a point in the consciousness state space, but a hypervolume defined by the minimal and maximal values of each variable varying in this state. External fluctuations, such as those due to drugs, panic, shocks, sensory deprivation, torture, or asceticism, may lead the system rather far from a not very stable state. Also, there is a dynamic equilibrium between the brain and the environment: slow changes in the latter will produce slow changes in the former. These changes compel the system to explore an "area" around the position of stable equilibrium.

This hypervolume limits with some alternate states of consciousness, which are geometrically close to the normal state of consciousness. This does not mean that we can move from the normal state to all the neighboring alternate states with the same probability; in fact, there will be some alternate states that are more accessible due to the possibility that some variables vary more easily than others, creating more likely paths. For this reason some alternate states of consciousness, like the so-called mystical one(s), are reached by fewer people than others such as out-of-body or tunnel alternate states.

The problems arising with the definition of brain states and the differences between mental-state sentences and brain-state sentences have been discussed by other (Armstrong, 1973; Raab, 1965; Wilkes, 1980) Considering the present knowledge in brain sciences and the

considerable ambiguity in the verbal description of consciousness states, we need to employ a rational and cautious approach to overcome these difficulties.

In this regard, we may employ Jeffrey Gray's approach to the analysis of anxiety (Gray, 1987): a certain internal state is called "anxiety" in consciousness language, and in brain language this state is probably located somewhere inside the limbic system. Therefore, we may consider two forms of description for anxiety: a description of the psychological processes that are modified by the anxiety-suppressing drugs, that is, a description of the psychology of anxiety; and a description of the neuronal processes modified by these drugs, that is, a neurobiological description of anxiety (Gray, 1987).

The integration of both descriptions will produce a neuropsychology of anxiety erasing the artificial brain/consciousness division. We must stress that we are not describing two different phenomena but are employing two different levels of abstraction. This approach was used in our neurobiological model of NDEs (Gómez-Jeria and Saavedra-Aguilar, 1994; Saavedra-Aguilar and Gómez-Jeria, 1989a, 1989b).

The question that is still unanswered is whether a physical relationship between brain and consciousness exists. Let us first examine dualist positions. If we accept that consciousness is a nonphysical thing (substance dualism) or that the brain has a set of nonphysical properties (property dualism), or any other possible dualist position, then we need to answer scientifically *when* nonphysical consciousness or nonphysical brain properties appeared. We may say as a provisional answer that they appeared at a certain stage "A" of human evolution; for example, that they appeared in *Australopithecus* or in *Homo habilis*. The next question to answer is *why* they appeared at this stage and not at a previous one. The only reasonable *scientific* answer would be because at stage "A" the physical structures of the central nervous system made it possible. This implies a causal relationship between physical structure and "nonphysical mind" or "nonphysical brain properties." Unless we hold that physical structure at stage "A" involved a "kind of connection"—which must finally must be of a physical nature—between the physical body and "nonphysical mind" lying in another "plane"—a nonscientific answer that also maintains a causal brain/nonphysical mind relationship but allows the existence of souls, heavens, and hells—we must conclude that when physical structures disappear, "nonphysical minds" or "nonphysical brain properties" also disappear.

Stage "A" could be moved back to more distant ancestors, but that would lead to interesting problems like the existence of consciousness states in whales, chickens, or proconsuls. This *reductio ad absurdum* argument will always lead to the general conclusion that consciousness states are produced by brain states, and that human states exist because of the particular form of brain evolution attained in *Homo sapiens sapiens*. Within this context, Kenneth Arnette's (1992) attempt to revive dualism by using NDE data is untenable. On the other hand, the emergence of consciousness through evolution leads to the natural question of the existence of consciousness states in other species, since brain states exist because of neuronal functioning.

Consciousness States in Other Species

The existence of phylogenetic continuity in some mental processes, such as world perception, is expected. This hypothesis leads naturally to the question of the existence of consciousness states in species close to us in the evolutionary line, like the great apes. The genetic distance between chimpanzees and humans is remarkably small (King and Wilson, 1975).

If the great apes have consciousness states, it is necessary that they be aware of their internal states and be able to communicate them, though it is not necessary that their internal experiences should be similar to ours.

Determining whether apes have consciousness states requires a knowledge of how these species experience the world: their perceptions, thoughts, and feelings (Mason, 1976). As James Gibson (1966, p. 5) pointed out, "the perceptual systems, including the nerve centers at various levels up to the brain, are ways of seeking and extracting information about the environment from the flowing array of ambient energy." Taking behavior as the final point of an information processing sequence (Mason, 1976), our first step in the analysis of consciousness states in great apes involves a comparison of sensory capacities.

Humans and great apes have virtually identical color vision, while humans have an increased sensitivity to low frequency sounds and a reduced sensitivity to high frequency ones (King and Fobes, 1974). Regarding olfaction, humans show an important loss of olfaction as

a mode of communication, accompanied by changes in olfactory anatomical correlates (King and Fobes, 1974; Stephan and Andy, 1969).

Regarding brain anatomy, comparative studies of the Sylvian fissure have shown that it is longer in the left hemisphere of the human brain than in the right, and that chimpanzees show this same asymmetry to a lesser degree (Yeni-Kanshian and Benson, 1976). If functional asymmetries are associated with anatomical asymmetries, then asymmetry in brain functioning is not limited to humans. Despite the above, a comparative study of neocortical development in insectivores and primates showed (Stephan and Andy, 1969) that the differences between the indices of cortical progression in chimpanzees and humans are greater than between chimpanzees and insectivores, showing the great neocortical development achieved by humans in relation to apes; and that gorillas, who are well known to have a social behavior, have a comparatively low cortical index compared to other apes.

On the other hand, experimental evidence has shown that chimpanzees can respond to relations among elements and to specific attributes of elements; classify objects according to their physical properties; distinguish the physical properties of the sign of an object from the properties of the object signified; carry out intermodal integration; work with functional categories; remember selectively; anticipate the consequences of their own actions and, to a lesser degree, the actions of others; reconstitute concepts, as in "ducks = water birds"; learn by observation; and recognize their own mirror reflections (Beck, 1974; Fouts, 1974; Gallup, 1968, 1970, 1977; Mason, 1976).

To further develop our analysis, we must say some words about communication, self-recognition, and self-consciousness. It has been suggested that "The capacity for self-recognition [in mirrors], although influenced by learning, is predicated on a sense of identity," (Gallup, 1977, p. 334) and that the mirror is only a means of objectifying self-concept. Self-recognition implies a certain degree of self-consciousness, or self-awareness, but there are no studies directed at knowing the degree of self-consciousness in great apes or whether self-consciousness in apes is a permanent state or is only evoked by random circumstances.

The studies of communication between humans and great apes still have not provided conclusive results (Fouts, 1974; Mounin, 1974, 1976; von Glassersfeld, 1974). William Mason (1976) suggested that, at the level of vocalized language, the difference between humans

and great apes is qualitative, while at the level of concept formation, that difference is only quantitative. Of interest also is the suggestion that the basis of language is not unique to language itself but is also the basis for other behaviors (Fouts, 1974). Finally, Benjamin Beck (1974) pointed out that since language is well suited for observation learning, and chimpanzees' proficient tool behavior is due mainly to observation learning, it is not strange that they show an interesting language ability.

If we accept Mason's premise that "All behavior that is guided by sensory information, that is, most of the behavior that interests us, implies some type of schema or functional 'image' of the environment" (1976, p. 284), and if we consider the above information, it would not be too far-fetched to suggest that if any species other than humans have consciousness states, then chimpanzees and orangutans are the best candidates.

Be that as it may, it seems conceivable that most human consciousness states are radically different from the consciousness states of the great apes. The main reasons are our high degree of self-consciousness and the internal and external use we make of verbal language. In this respect, NDEs are typically human.

Nevertheless, the above discussion was necessary in order to place these experiences within the general framework of consciousness states that seems to emerge from a phylogenetic continuum. On the other hand, as speaking mammals we use language to report our internal experiences. In the next section we mention some problems related to language use.

Verbal Reports of Internal Experiences

The role of verbal (or written) language is fundamental in the research of alternate states of consciousness. Verbal systems, developed from the perceptual world, sometimes dissociate from it, becoming isolated within their own reality and acquiring truth value *per se*. As an example, we may cite the cases of some religious, political, and economic theories, which are verbal constructions devoid of any scientific base, yet which exist and propagate through time. In some moments of world history their proponents have had the opportunity to implement their models and have found that reality was different from what their models predicted. Intelligent people usually try to adapt models to reality; nevertheless, the existence of mass murder,

population deportation, concentration camps, and general economic failure shows that people sometimes insist on trying to adapt reality to their models.

On a smaller scale, verbal reports do not generally describe what a subject has perceived. For example, in chronic schizophrenia, the initial verbal descriptions of hallucinations do not correspond to what individuals perceived. Interestingly, in normal individuals the secondary elaboration of the hallucinatory state may result in hallucinations, illusions, eidetic imagery, or hypnagogic states that are related to their actual needs and wishes.

Furthermore, the use of hallucinogenic drugs causes an impairment of learning and retention of connected verbal material, especially of the neutral kind, an effect restricted to accuracy (Paul, 1964). Also, the individual has better recall of experiences that are likely to occur in the normal state of consciousness (Linton, Langs, and Paul, 1964). Finally, written reports of the same experience by different persons show clear internal consistency (Oxman, Rosenberg, Schnurr, Tucker, and Gala, 1988).

Dissonance is defined as

a negative state of psychological tension aroused when the individual holds two cognitions that are mutually inconsistent. Dissonance arousal motivates the individual to reduce dissonance by changing one or both of the inconsistent cognitions. (Kiesler and Pallak, 1976).

In general, it is demanded that attitude and behavior be consistent. Let us suppose that someone believing in life after death has a NDE in which he or she sees lights and figures. The experiencer will naturally interpret light as "heavenly lights" and the figures as "sacred beings," such as angels or gods. For this reason the researcher must try to get information from experiencers before it is further elaborated verbally (see for example Gómez-Jeria, 1993). Furthermore, the possibility that the nonverbal hemisphere influences the verbal one for spoken or written responses must not be ruled out (Gazzaniga, Holtzman, and Smylie, 1987; Sidtis, Volpe, Holtzman, Wilson, and Gazzaniga, 1981).

The need for keeping scientific objectivity in near-death studies is stressed by its particular nature. In fact, if a near-death researcher falls into parochial attitudes, he or she will be exposed to two dangers: interacting with NDErs in a way leading to the so-called "self-fulfilling prophecy" (Jones, 1986), or becoming lost in an unreal but self-consistent verbal world. This kind of deviation is not new in hu-

man history. Long ago it was said that "after inventing their systems, they accumulate dispersed texts and names and transpose them from their natural sense to a forced one" (Irenaeus, ca. 180).

Brain States and NDEs

In light of the above considerations, we consider NDEs as a consciousness (purely psychological description)/brain (purely neurobiological description) state. We fully agree with Kevin Drab (1981a, 1981b) that the NDE is constituted by a variety of alternate states of consciousness, of discrete configurations.

In his study of the tunnel experience, Drab noted that "The majority of cases experienced no preceding [experiential] elements or sense of logical transition to their TEs [tunnel experiences]" (Drab, 1981a, p.137). This is also true for NDEs, in which one finds sudden transitions between states of consciousness (Drab, 1981b). Interestingly, even in nonscientific popular books we may find data about abrupt transitions in NDEs. For example, in one of Raymond Moody's books citing historical accounts of NDEs, this fact appeared clearly stated (Moody, 1977).

An interesting feature of NDEs that could help in the construction of a general theory of alternate states of consciousness is the appearance of different states along well-defined temporal paths: out-of-body experiences, tunnels, panoramic memory, simple and complex visual hallucinations, and so on. Therefore, it would be of great help this line of work if researchers possessing NDE data banks produced a detailed study including the elements appearing in each experience, *together with their temporal order of appearance*. This information, coupled with analogous results for out-of-body experiences and other alternate states of consciousness, will allow the construction of subspaces of Γ and Θ . We urge near-death researchers to provide this kind of information.

These arguments imply that our neurobiological model for NDEs must be considered as a special case in which the elements appeared in a certain order (Saavedra-Aguilar and Gómez-Jeria, 1989a, 1989b). Further elaboration of our model is dependent upon the determination of the different alternate states appearing in NDEs, together with their order of appearance, and the neurobiological modeling of each alternate state (see for example Gómez-Jeria and Saavedra-

Aguilar, 1994). The concept of brain modules could help in this task (Gazzaniga, 1985).

NDE reports are always subsequent to the experience itself; this fact hinders the measurement of the variables needed to locate the corresponding hypervolume in Γ . Nevertheless, the similarity among some aspects of NDEs and those of other alternate states of consciousness, together with the clear dependence of consciousness upon brain functioning, allows us to infer the kind of participation of some cerebral structures in these phenomena.

On the other hand, the lack of knowledge of all the variables defining the Θ space makes the location of the hypervolume(s) corresponding to the different NDE stages and the formal comparison of them with alternate states of consciousness difficult. For these reasons it is not possible even to try to deduce the mathematical transformation among the movements of the image points in Γ and Θ . Nevertheless, with the recent use of positron emission tomography and magnetic resonance imaging, the first functional brain/consciousness relationships are beginning to appear (Posner, 1993). It seems to us that in the next few years the study and analysis of Γ/Θ relationships will undergo very rapid development.

There is another problem appertaining to all consciousness states: the lack of an instantaneous relationship between brain state and consciousness state. As all consciousness states are the result of a brain state, they must follow them in time. This is so because a certain amount of time is needed between the establishment of a neuronal configuration and the appearance of some content in the field of consciousness (Gurwitsch, 1979).

Other problems that need attention are the way in which the brain generates material later reaching the field of consciousness through symbolic imagery and the unconscious actions that are the product of neuronal activity.

We suggest that this field of research is marvelous enough without invoking souls. Science does not need a paradigm shift to deal with NDE data (Serdahely, 1990). This is only a pretext to insert into science personal beliefs that destroy its objectivity and rationality. If anything is needed, it is a shift to rational thinking. William Serdahely (1990) mentioned the rise of "exotic" experiences and the resistance, suppression, and skepticism of scientists working under the present scientific paradigm.

In this respect we agree that the number of people undergoing or admitting "exotic" experiences is growing. It is also clear that the

number of people under psychiatric treatment and the number of automobile crashes are growing. The real problem is why all these numbers (and others) are growing. Maybe factors such as the psychopathology of urban life, internal conflicts of daily life, growing anxiety in a stressful way of life, and the transformation of our societies into what Marshall McLuhan (McLuhan and Powers, 1992) called "the global village" should be considered.

We have two counterexamples to suggest that a paradigm shift is unnecessary. In the 1960s a lot of people began to experiment with mysticism, meditation, Occidentalized Oriental religions, psychedelic drugs, and so on. What did science do? It provided us with social psychologists, theories about social learning, humanistic psychology, and so on. In the 19th century, despite the acknowledgment of fraud, spiritism continued to be practiced. What did science do? Without a paradigm shift it provided us with the contributions of Sigmund Freud and Pierre Janet. Paradigm shift is most probably related to the necessity of holding a critical quantity of data accessible to all observers that cannot be explained by the present models and theories. A change of paradigm cannot be invoked for data that are suspect, to say the least, and/or accessible only to "privileged" individuals.

Within this view, models that contradict physical reality (see Lundhal, 1993a, 1993b), make an appeal to forms of bioenergy so subtle we cannot even measure them (Ring and Rosing, 1990), insert loose words such as telepathy (Becker, 1991), or mention visionary encounters happening only "inside the head" must be discarded. We must also remember that the appeal to "other dimensions" is classical in pseudoscientific writings: it is the spatial equivalent of "unknown forces" or "unknown energies" (Becker, 1990; Gliksman and Kellehear, 1990; Walker, Serdahely, and Bechtel, 1991).

Finally, we would like to comment briefly on two studies of NDEs that are of great interest for model creation. In the first one, Mori Insinger (1991) cited sociologist William Thomas's statement that "If men define situations as real, they are real in their consequences" (Thomas and Thomas, 1928, p. 572; cited in Insinger, 1991, p. 141). This is certainly a true fact explaining not only the *a posteriori* impact of an NDE upon a person, but also political and religious persecutions, concentration camps, and mass murder. In the second study, Bruce Greyson found in a sample of suicide attempters that

The group reporting NDEs and the group not reporting NDEs did not differ from each other in any parameters measuring psychopathology, religious background, or expectations of death and dying. (1991, p. 183)

He suggested that this finding contradicted the hypothesis that NDEs represent fantasies based on religious teachings. This is consistent with our neurobiological model for NDEs (Gómez-Jeria and Saavedra-Aguilar, 1994; Saavedra-Aguilar and Gómez-Jeria, 1989a, 1989b), which is not dependent upon religious belief, although subsequent verbal reports of these experiences may be. Nevertheless, we would like to suggest that there is another factor that was not taken into account: the subliminal one. In fact, subliminal influences such as television, cinema, personal readings, newspapers, and other environmental influences could effectively contribute to shaping subsequent verbal reports despite the individual's religious beliefs or lack of them.

References

- Andrews, P. (1992). An ape from the south. *Nature*, 356, 106.
- Arensburg, B., and Tillier, A.-M. (1990). Le langage des Neandertaliens. *La Recherche*, 21, 1084-1086.
- Armstrong, D. M. (1973). Epistemological foundations for a materialist theory of the mind. *Philosophy of Science*, 40, 178-193.
- Arnette, J. K. (1992). On the mind/body problem: The theory of essence. *Journal of Near-Death Studies*, 11, 5-18.
- Barbas, H., and Pandya, D. N. (1989). Architecture and intrinsic connections of the prefrontal cortex in the Rhesus monkey. *Journal of Comparative Neurology*, 286, 353-375.
- Beck, B. B. (1974). Baboons, chimpanzees and tools. *Journal of Human Evolution*, 3, 509-516.
- Becker, C. B. (1990). Extrasensory perception, near-death experiences, and the limits of scientific knowledge. *Journal of Near-Death Studies*, 9, 11-20.
- Becker, C. B. (1991). Over my dead body there is an ideal utopia: Comments on Kellehear's paper. *Journal of Near-Death Studies*, 10, 97-106.
- Beynon, A. D., and Dean, M. C. (1988). Distinct dental development patterns in early fossil hominids. *Nature*, 335, 509-514.
- Bourguignon, E., and Evascut, T. (1977). Altered states of consciousness within a general evolutionary perspective: A holocultural analysis. *Behavior Science Research*, 12, 197-216.
- Brain, C. K., and Sillen, A. (1988). Evidence from the Swartkrans cave for the earliest use of fire. *Nature*, 336, 464-466.
- Bunge, M. (1980). *The mind-body problem: A psychobiological approach*. London, England: Pergamon.
- Cann, R. L., Stoneking, M., and Wilson, A. C. (1987). Mitochondrial DNA and human evolution. *Nature*, 325, 31-36.

- Cavalli-Sforza, L. L., Piazza, A., Menozzi, P., and Mountain, J. (1988). Reconstruction of human evolution: Bringing together genetic, archeological, and linguistic data. *Proceedings of the National Academy of Sciences*, 85, 6002-6006.
- Connolly, J. C. (1950). *External morphology of the primate brain*. Springfield, IL; Charles C Thomas.
- Conroy, G. C., Pickford, M., Senut, B., Van Couvering, J. and Mein, P (1992). *Ota-vipithecus namibienses*, first Miocene hominoid from southern Africa. *Nature*, 356, 144-148.
- Conroy, G. C., Vannier, M. W., and Tobias, P. V. (1990). Endocranial features of *Australopithecus africanus* revealed by 2- and 3-D computed tomography. *Science*, 247, 838-841.
- Crosby, E. C. (1982). Telencephalon of primates. In E. C. Crosby and H. N. Schmitzloin (Eds.), *Comparative correlative neuroanatomy of the vertebrate telencephalon* (pp. 727-729). New York, NY: Macmillan.
- Drab, K. J. (1981a). The tunnel experience: Reality or hallucination? *Anabiosis: The Journal of Near-Death Studies*, 1, 126-152.
- Drab, K. J. (1981b). Unresolved problems in the study of near-death experiences: Some suggestions for research and theory. *Anabiosis: The Journal of Near-Death Studies*, 1, 27-43.
- Fischer, R. (1971). A cartography of the ecstatic and meditative states. *Science*, 174, 897-904.
- Foley, R. A., and Lee, O. C. (1989). Finite social space, evolutionary pathways, and reconstructing hominid behavior. *Science*, 243, 901-906.
- Fouts, R. S. (1974). Language: Origins, definitions and chimpanzees. *Journal of Human Evolution*, 3, 475-482.
- Gallup, G. G. (1968). Mirror-image stimulation. *Psychological Bulletin*, 70, 782-793.
- Gallup, G. G. (1970). Chimpanzees: Self-recognition. *Science*, 167, 86-87.
- Gallup, G. G. (1977). Self-recognition in primates: A comparative approach to the bidirectional properties of consciousness. *American Psychologist*, 32, 329-338.
- Garber, H. J., Ananth, J. V., Chiu, L. C., Griswold, V. J., and Oldendorf, W. H. (1989). A nuclear magnetic resonance study of obsessive-compulsive disorder. *American Journal of Psychiatry*, 146, 1001-1005.
- Gazzaniga, M. S. (1993). *The social brain*. New York, NY: Basic Books.
- Gazzaniga, M. S., Holtzman, J. D., and Smylie, C. S. (1987). Speech without conscious awareness. *Neurology*, 7, 682-685.
- Gibbons, A. (1993). Pleistocene population explosions. *Science*, 262, 27-28.
- Gibson, J. J. (1966). *The senses considered as perceptual systems*. Boston, MA: Houghton-Mifflin.
- Gliksman, M. D., and Kellehear, A. (1990). Near-death experiences and the measurement of blood gases. *Journal of Near-Death Studies*, 9, 41-43.
- Globus, G. G., Maxwell, G., and Savodnik, I. (Eds.). (1977). *Consciousness and the brain*. New York, NY: Plenum.
- Gómez-Jeria, J. S. (1993). A near-death experience among the Mapuche people. *Journal of Near-Death Studies*, 11, 219-222.
- Gómez-Jeria, J. S., and Saavedra-Aguilar, J. C. (1994). A neurobiological model for near-death experiences. II: The problem of recall of real events. *Journal of Near-Death Studies*, 13, 81-89.
- Gray, J. A. (1987). *The neuropsychology of anxiety*. New York, NY: Oxford University Press.
- Green, P., Hallett, S., and Hunter, M. (1983). Abnormal interhemispheric integration and hemispheric specialization in schizophrenics and high-risk children. In P. Flor-Henry and J. Gruzelier (Eds.), *Laterality and psychopathology* (pp. 443-470). Amsterdam, The Netherlands: Elsevier.

- Greyson, B. (1991). Near-death experiences precipitated by suicide attempt: Lack of influence of psychopathology, religion, and expectations. *Journal of Near-Death Studies*, 9, 183-187.
- Gurwitsch, A. (1979). *El campo de la conciencia [The field of consciousness]*. Madrid, Spain: Alianza.
- Hill, A., Ward, S., Deinoi, A., Curtis, G., and Drake, R. (1992). Earliest Homo. *Nature*, 355, 719-722.
- Ingvar, D. H. (1979). Hyperfrontal distribution of the cerebral grey matter flow in resting wakefulness: On the functional anatomy of the conscious state. *Acta Neurologica Scandinavica*, 60, 12-25.
- Insinger, M. (1991). The impact of a near-death experience on family relationships. *Journal of Near-Death Studies*, 9, 141-181.
- Irenaeus of Lyon (circa 180). *Adversus haereses [Against heresies]*. I: 9, 4.
- James, W. (1984). *Psychology: Briefer course*. Cambridge, MA: Harvard University Press. (Original work published 1892.)
- Jones, E. E. (1986). Interpreting interpersonal behavior: The effects of expectancies. *Science*, 234, 41-46.
- Kiesler, C. A., and Pallak, M. S. (1976). Arousal properties of dissonance manipulations. *Psychological Bulletin*, 83, 1014-1025.
- King, J. E., and Fobes, J. L. (1974). Evolutionary changes in primate sensory capacities. *Journal of Human Evolution*, 3, 435-443.
- King, M.-C., and Wilson, A. C. (1975). Evolution at two levels in humans and chimpanzees. *Science*, 188, 107-118.
- Lewin, R. (1991). La naissance de l'anthropologie moléculaire. *La Recherche*, 22, 1242-1251.
- Linton, H. B., Langs, R. J., and Paul, I. H. (1964). Retrospective alterations of the LSD-25 experience. *Journal of Nervous and Mental Disease*, 138, 409-423.
- Lundahl, C. R. (1993a). Near-death visions of unborn children: Indications of a pre-Earth life. *Journal of Near-Death Studies*, 11, 123-128.
- Lundahl, C. R. (1993b). Otherworld personal future revelations in near-death experiences. *Journal of Near-Death Studies*, 11, 171-179.
- MacLean, P. D. (1990). *The triune brain in evolution*. New York, NY: Plenum.
- Maddison, D. R. (1991). African origin of human mitochondrial DNA reexamined. *Systematic Zoology*, 40, 355-363.
- Marsh, C. (1977). A framework for describing subjective states of consciousness. In N. E. Zimberg (Ed.), *Alternate states of consciousness* (pp. 121-144). New York, NY: Free Press.
- Mason, W. A. (1976). Environmental models and mental modes: Representational processes in the great apes and man. *American Psychologist*, 31, 284-294.
- McCormick, D. A. (1989). Cholinergic and noradrenergic modulation of thalamocortical processing. *Trends in Neurosciences*, 12, 215-221.
- McLuhan, M., and Powers, B. R. (1992). *The global village: Transformations in world life and media in the 21st century*. New York, NY: Oxford University Press.
- Mercier, N., Valladas, H., Joron, J.-L., Reyss, J.-L., Lévêque, F., and Vandermeersch, B. (1991). Thermoluminescence dating of the late Neanderthal remains from Saint-Césaire. *Nature*, 351, 737-739.
- Moody, R. A. (1977). *Reflections on life after life*. St. Simon's Island, GA: Mockingbird Books.
- Mounin, G. (1974). Reviews. *Journal of Linguistics*, 10, 197-206.
- Mounin, G. (1976). Language, communication, chimpanzees. *Current Anthropology*, 17, 1-21.
- Moyà Solà, S., and Kohler, M. (1993). Recent discoveries of *Dryopithecus* shed new light on evolution of great apes. *Nature*, 365, 543-545.

- Oxman, T. E., Rosenberg, S. D., Schnurr, P. P., Tucker, G. J., and Gala, G. (1988). The language of altered states. *Journal of Nervous and Mental Disease*, 176, 401-408.
- Paul, I. H. (1964). The effects of a drug-induced alteration in state of consciousness on retention of drive-related verbal material. *Journal of Nervous and Mental Disease*, 138, 367-374.
- Pearson, R., and Pearson, L. (1976). *The vertebrate brain*. New York, NY: Academic Press.
- Posner, M. I. (1993). Seeing the mind. *Science*, 262, 673-674.
- Raab, F. V. (1965). Of minds and molecules. *Philosophy of Science*, 32, 57-72.
- Reiman, E. M., Fusselman, M. J., Fox, P. T., and Raichle, M. E. (1989). Neuroanatomical correlates of anticipatory anxiety. *Science*, 243, 1071-1074.
- Ring, K., and Rosing, C. J. (1990). The Omega Project: An empirical study of the NDE-prone personality. *Journal of Near-Death Studies*, 8, 211-239.
- Saavedra-Aguilar, J. C., and Gómez-Jeria, J. S. (1987). [Towards a neurobiological model of self-consciousness.] *Revista Chilena de Neuropsiquiatria*, 25, 247-251.
- Saavedra-Aguilar, J. C., and Gómez-Jeria, J. S. (1989a). A neurobiological model for near-death experiences. *Journal of Near-Death Studies*, 205-222.
- Saavedra-Aguilar, J. C., and Gómez-Jeria, J. S. (1989b). Response to commentaries on "A neurobiological model for near-death experiences." *Journal of Near-Death Studies*, 7, 265-272.
- Sanidos, F. (1969). Comparative architectonics of the neocortex of mammals and their evolutionary interpretation. *Annals of the New York Academy of Sciences*, 167, 404-423.
- Schrenk, F., Bromage, T. G., Betzler, C. G., Ring, U., and Juwayeyi, Y. M. (1993). Oldest *Homo* and Pliocene biogeography of the Malawi Rift. *Nature*, 365, 833-836.
- Serdahely, W. J. (1990). Thomas Kuhn revisited: Near-death studies and paradigm shifts. *Journal of Near-Death Studies*, 9, 5-10.
- Sidtis, J. J., Volpe, B. T., Holtzman, J. D., Wilson, D. A., and Gazzaniga, M. S. (1981). Cognitive interaction after staged callosal sections: Evidence for transfer of semantic activation. *Science*, 212, 344-346.
- Simons, E. L. (1989). Human origins. *Science*, 245, 1343-1350.
- Stanley, S. M. (1992). An ecological theory for the origin of *Homo*. *Paleobiology*, 18, 237-257.
- Stephan, H., and Andy, O. J. (1969). Quantitative comparative neuroanatomy of primates: An attempt at a phylogenetic interpretation. *Annals of the New York Academy of Sciences*, 167, 370-387.
- Stringer, C. B. (1990). The emergence of modern humans. *Scientific American*, 263, 68-74.
- Stringer, C. B. (1992). Neanderthal dates debated. *Nature*, 356, 201.
- Stringer, C. B., and Andrews, P. (1988). Genetic and fossil evidence for the origin of modern humans. *Science*, 239, 1263-1268.
- Tart, C. T. (Ed.). (1969). *Altered states of consciousness: A book of readings*. New York, NY: Wiley.
- Tart, C. T. (1972). States of consciousness and state-specific sciences. *Science*, 176, 1203-1210.
- Tart, C. T. (1977). Putting the pieces together: A conceptual framework for understanding discrete states of consciousness. In N. E. Zimberg (Ed.), *Alternate states of consciousness* (pp. 158-219). New York, NY: Free Press.
- Thomas, W. I., and Thomas, D. S. (1928). *The child in America*. New York, NY: Knopf.
- Valladas, H., Vandermeersch, B., and Bar-Yosef, O. (1988). L'évolution de l'homme: Les surprises du Proche-Orient. *La Recherche*, 10, 966-968.
- Valle, R. S., and von Eckartsberg, R. (Eds.). (1981). *The metaphors of consciousness*. New York, NY: Plenum.

- Vigilant, L., Stoneking, M., Harpending, H., Hawkes, K., and Wilson, A. C. (1991). African populations and the evolution of human mitochondrial DNA. *Science*, 253, 1503-1507.
- von Glasserfeld, E. (1974). Signs, communication, and language. *Journal of Human Evolution*, 3, 465-474.
- Walker, A., Leakey, R. E., Harris, J. M., and Brown, F. H. (1986). 2.5-Myr *Australopithecus boisei* from west of Lake Turkana, Kenya. *Nature*, 322, 517-522.
- Walker, B. A., Serdahely, W. J., and Bechtel, L. J. (1991). Three near-death experiences with premonitions of what could have been. *Journal of Near-Death Studies*, 9, 189-196.
- Watanabe, M. (1989). The appropriateness of behavioral responses coded in post-trial activity of primate prefrontal units. *Neuroscience Letters*, 101, 113-117.
- White, J. (Ed.). (1972). *The highest state of consciousness*. New York, NY: Anchor.
- Wilkes, K. V. (1980). Brain states. *British Journal of the Philosophy of Science*, 31, 111-129.
- Wolpoff, M. H. (1984). Evolution in *Homo erectus*: The question of stasis. *Paleobiology*, 10, 389-406.
- Wolpoff, M. H., and Frazer, D. W. (1992). Neanderthal dates debated. *Nature*, 355, 200-201.
- Wood, B. (1992a). Old bones match old stones. *Nature*, 355, 678-679.
- Wood, B. (1992b). Origin and evolution of the genus *Homo*. *Nature*, 355, 783-790.
- Yeni-Kanshian, G. H., and Benson, D. A. (1976). Anatomical study of cerebral asymmetry in the temporal lobe of humans, chimpanzees, and Rhesus monkeys. *Science*, 192, 387-389.
- Zaehner, R. C. (1972). *Zen, drugs and mysticism*. New York, NY: Vintage Books.
- Zimberg, N. E. (Ed.). (1977). *Alternate states of consciousness*. New York, NY: Free Press.

Effect on Emotional Well-Being of Hypnotic Recall of the Near-Death Experience

Janice Miner Holden, Ed.D.
University of North Texas

ABSTRACT: The prototypical near-death experience (NDE), characterized by positive affect, and its psychologically and spiritually beneficial aftereffects are well documented. However, the aftermath of even a pleasant NDE has sometimes involved psychological difficulties that range from relatively mild adjustment disorders to profoundly distressing and disorienting spiritual emergencies. Consequently, the prospect of recalling an NDE under hypnosis has been fraught with controversy. A recent study (Holden and MacHovec, 1993) suggested that, at least under certain circumstances, hypnotic recall of NDEs could occur without physical or lasting psychological distress. I report here the preliminary finding of overwhelming psychological benefit of such recall, and discuss implications for future research.

Although cases of distressing near-death experiences (NDEs) have begun to appear in the professional literature (Atwater, 1992; Greyson and Bush, 1992), the vast majority of reported NDEs have involved predominantly pleasant feelings during, and apparently constructive effects on personality and spirituality after, the experience (Grey, 1985; Ring, 1980, 1984; Sabom, 1982). However, adjustment difficulties, even full-blown spiritual emergencies, sometimes accom-

Janice Miner Holden, Ed.D., is Associate Professor of Counselor Education at the University of North Texas, and maintains a private practice where she specializes in the facilitation of psychospiritual development. The author gratefully acknowledges the assistance of Bruce Greyson, M.D., Research Director of the International Association for Near-Death Studies, and Kenneth Ring, Ph.D., Professor of Psychology at the University of Connecticut, in identifying and contacting potential subjects for the study from among their respective subject pools. Reprint requests should be addressed to Dr. Holden at the Department of Counseling, Development, and Higher Education, University of North Texas, Denton, TX 76203-6857.

pany even constructive aftereffects of NDEs (Bragdon, 1988; Greyson and Harris, 1989). Therefore, hypnotic recall of a prototypical pleasant NDE might be expected to sustain or enhance positive feelings or aftereffects, respectively.

However, in cases in which psychological difficulties had occurred and remained unresolved, hypnotic recall of the NDE might intensify distress. Even in cases where such difficulties had been resolved or had never occurred, the possibility that hypnotic recall of the NDE might reactivate or precipitate such difficulties could not be ruled out.

A recent study used hypnotic recall of NDEs to address three questions:

- 1) Can hypnotic recall of the prototypical pleasant NDE occur without harm, that is, without major or lasting physical or psychological distress?
- 2) What benefit might result from hypnotic recall of the NDE?
- 3) Can paranormal information be tapped during hypnotic recall of the omniscient phase of the NDE, that phase in which the NDEr experienced a sense of access to any information in the universe?

The first question, of safety, was addressed in a recent publication (Holden and MacHovec, 1993). Under the conditions of this study, hypnotic recall of the NDE occurred without physical detriment to any of the six subjects. In half the cases, subjects experienced no psychological distress associated with NDE hypnotic recall; in the other half, some psychological distress occurred but was quickly resolved.

This article describes findings pertaining to the second question, of potential benefit from hypnotic recall. Because the study has been described in detail elsewhere (Holden and MacHovec, 1993), it will be only briefly summarized here.

Summary of Study

The primary purpose of the study (Holden and MacHovec, 1993) was to investigate the possible use of "omniscient NDErs," those whose NDEs had contained a phase in which the experiencer perceived him- or herself to have access to any information in the universe, as a source of paranormal information about the genetic basis

of a hereditary neuromuscular disease. Sixty-two potential subjects were identified from near-death researchers' subject pools and invited to apply for participation in the study. Fifteen respondents were screened for apparent physical and mental health and for presence of the omniscient phase of the NDE. Six subjects, five females and one male ranging in age from 42 to 76 years, participated in the study.

After preliminary contact with the principal investigator, Janice Miner Holden, and the hypnotist, Frank MacHovec, subjects' travel and accommodation expenses were paid for five days at the research site. Subjects were isolated from each other for four days: day 1 for orientation to researchers, facility, and schedule for study, and for psychological screening; day 2 for individual two-hour sessions of general hypnosis induction; and days 3 and 4 each for an individual two-hour session of hypnotic recall of the NDE and, during recall of the omniscient phase, questions pertaining to the primary purpose of the study. On the fifth day subjects and researchers met together to share and process NDE and research experiences.

Most pertinent to the hypnosis procedure is that it did not involve regression. In hypnotic regression, the subject is led from general hypnosis induction through a backwards chronology, stopping at a point of psychological significance, in this case, the subject's NDE. Rather, in this study, subjects were led from general hypnosis induction to a "peaceful place" involving a location and multisensory imagery of the subject's choosing; from there the subject was guided to turn from the peaceful place toward and into the NDE.

After four weeks all subjects were mailed, and all responded to, a follow-up questionnaire. Instructions were as follows:

Please answer the following questions about your sense of emotional well-being regarding hypnotic recall of your NDE. "Negative" effects would include anxiety or other unpleasant emotions that detract from your usual sense of emotional well-being. "Positive" effects would include positive anticipation or other pleasant emotions that enhance your usual sense of emotional well-being.

Feel free to make comments, if you wish, using the back of this sheet.

What was the effect on your sense of emotional well-being regarding hypnotic recall of your NDE at each of the following times?

Fifteen items indicated specific times during the study, arranged chronologically. Likert-type responses ranged from 1 (strongly negative) to 7 (strongly positive).

Table 1
Subjects' Ratings of Effect of Hypnotic Recall of NDE on Emotional Well-Being (1 = strongly negative; 7 = strongly positive)

| <i>Retrospective Time Frame</i> | <i>Mean</i> | <i>Range</i> |
|--|-------------|--------------|
| anticipating NDE recall during week prior to study | 5.50 | 4-7 |
| prior to first hypnotic induction on day 1 of hypnosis | 5.67 | 3-7 |
| after hypnosis session on day 1 of hypnosis | 6.17 | 4-7 |
| prior to 1st hypnotic induction on day 2 of hypnosis | 5.83 | 4-7 |
| prior to 1st NDE recall on day 2 of hypnosis | 6.00 | 4-7 |
| during 1st NDE recall on day 2 of hypnosis | 6.50 | 4-7 |
| just after 1st NDE recall on day 2 of hypnosis | 5.83 | 3-7 |
| hours after 1st NDE recall on day 2 of hypnosis | 6.67 | 5-7 |
| prior to 2nd NDE recall on day 3 of hypnosis | 6.17 | 5-7 |
| during 2nd NDE recall on day 3 of hypnosis | 6.67 | 6-7 |
| just after 2nd NDE recall on day 3 of hypnosis | 6.83 | 6-7 |
| hours after 2nd NDE recall on day 3 of hypnosis | 6.67 | 6-7 |
| during first day following study | 6.83 | 6-7 |
| during first week following study | 6.83 | 6-7 |
| at follow-up 4 weeks after study | 6.67 | 6-7 |

Results

Results of the questionnaire are reported in Table 1 and summarized in Figure 1, where "item number" refers to retrospectively-rated sequential time periods. Respondents perceived hypnotic recall of their NDEs to have an overall positive effect on their sense of emotional well-being. In addition, mean ratings indicated an increasingly positive effect as respondents proceeded through the phases of the study.

Discussion

The trend for NDErs to rate the effects as increasingly positive as they proceeded through the phases of the study may reflect the re-

searchers' observation of some anticipatory anxiety that dissipated in the first two days as subjects experienced the hypnosis procedure with greater familiarity and without any or lasting discomfort, and were better able to "relax and enjoy" the process. As previously reported (Holden and MacHovec, 1993), the two ratings of "3 = slightly negative" reflected issues that were addressed immediately, resulting in alleviation of distress: one involved anticipatory anxiety about the experience of hypnosis itself, and the other involved the subject feeling self and NDE cruelly denigrated by a minister whom the subject had trusted and respected.

It is noteworthy that another subject's history revealed a difficult adjustment after the NDE, including somewhat extenuated psychotherapy that had ended in a positive outcome some years before the study. Results of psychological screening on the first day of the study indicated that this subject met the criteria for narcissistic personality disorder. The subject experienced a reactivation of some psychologi-

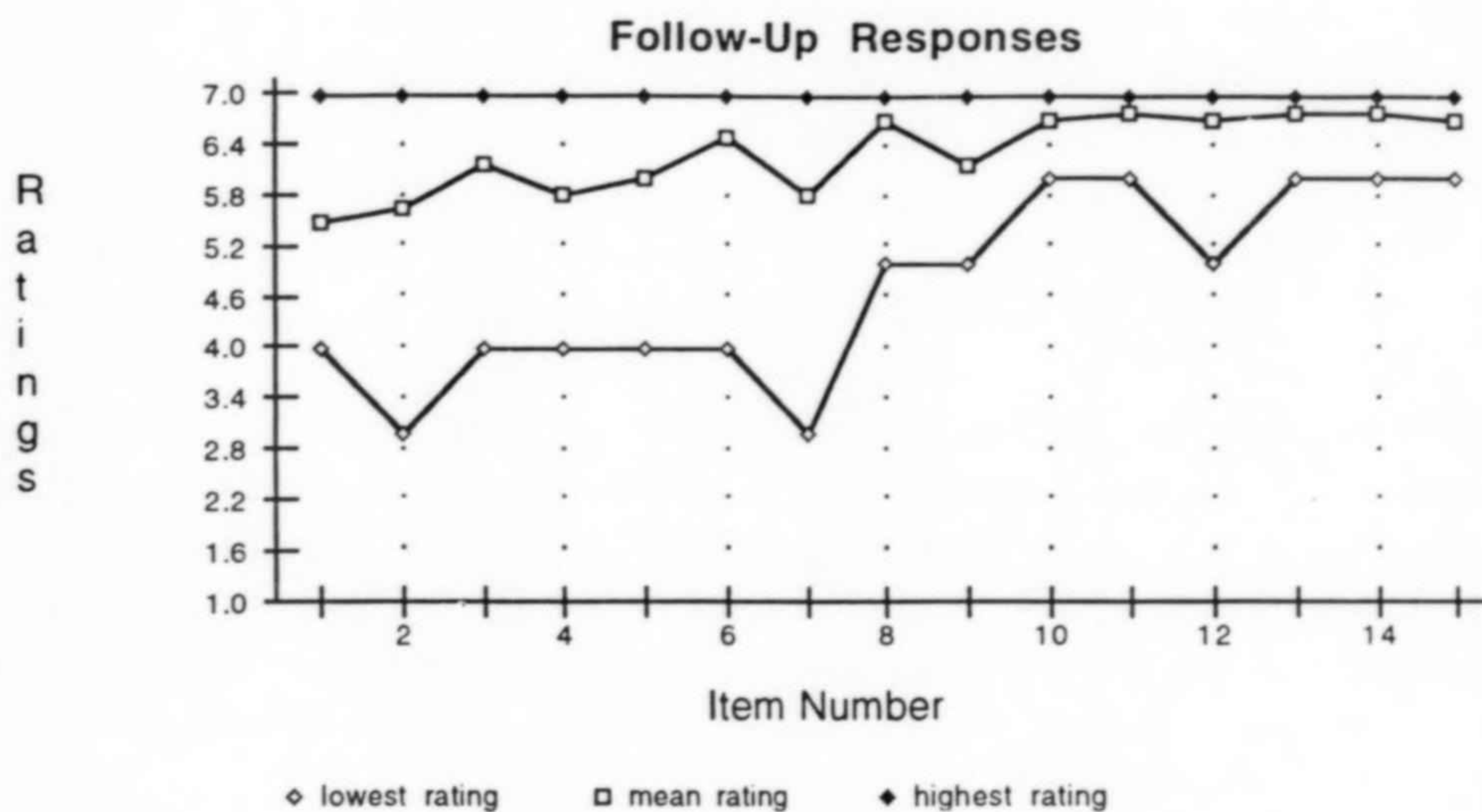


Figure 1. Subjects' ratings of effect of hypnotic recall of NDE on emotional well-being (1 = strongly negative; 7 = strongly positive).

cally distressing material after her first hypnotic NDE recall: at the time of the NDE, the subject had wanted the experience to continue, and in the aftermath of the NDE she felt guilty about having been willing to abandon her family. The researchers helped this subject to work through this material rather quickly, and observed an apparently complete alleviation of psychological distress. Interestingly, the subject's follow-up ratings consisted entirely of 6's and 7's, making no reference to the transient detraction from her sense of emotional well-being.

In summary, the NDErs in this study, most of whom evidenced no adjustment difficulties in the aftermath of their prototypical pleasant NDEs and one of whom evidenced both adjustment difficulties that had been resolved and an ongoing personality disorder, reported hypnotic recall of their NDEs to have overall a quite positive effect on their sense of emotional well-being. In three cases in which the researchers observed psychological distress surrounding hypnosis or NDE recall, the distress was addressed and worked through immediately, had no lasting effect on sense of emotional well-being, and was reported in follow-up by only two of the three subjects.

For a number of reasons, the results reported herein must be considered preliminary. The sample size was small. Only subjects who expressed primarily positive anticipation of NDE recall were included. Subjects were carefully screened for physical and psychological health. A specific and standardized hypnotic procedure was used. Although subjects were asked to consider only the isolated factor of hypnotic recall of their NDE in responding to the follow-up questionnaire, they may have had difficulty isolating this variable from other variables.

For example, repeated hypnosis alone might account for an enhanced sense of emotional well-being; conversely, repeated, purposeful recall of the prototypical pleasant NDE without hypnosis may be responsible for the effect; and the positive set of being selected to participate in an all-expenses-paid study may very well have shed a halo effect on subjects' overall sense of emotional well-being before, during, and after the study.

On the other hand, some anecdotal material supports the hypothesis that hypnotic recall of a pleasant NDE may be psychologically beneficial. One subject reported that after her NDE, when she felt overwhelmed by the stress of her prolonged, very difficult life circumstances, she would occasionally isolate herself and, using relaxa-

tion and focusing techniques not unlike hypnosis, would draw on her memory of her NDE. On those occasions, she found the memory or reexperience of her NDE to be a source of sustenance and renewal, in essence, extremely therapeutic.

In addition, five of six subjects in this preliminary study specifically asked to be given an audiotape of their personalized NDE-recall hypnosis induction. It appears that NDErs who did not spontaneously discover but were introduced to the practice showed a high degree of interest in continuing it, reportedly because they found it subjectively pleasant and/or beneficial.

Their reports of pleasantness/benefit might be understood in light of recent findings that dogs who were conscious at the moment of cardiac arrest showed a significant increase in β -endorphin, one of the body's endogenous opioids (Sotelo, Perez, Guevara, and Fernandez, 1995). Hypnotic recall of the NDE may constitute a stimulus for the conditioned response of β -endorphin release, which would hypothetically result in the subjective experience of pleasure.

This supportive material is interesting to consider in light of other research findings that NDErs do not report greater satisfaction with life (Greyson, 1994; Olson and Dulaney, 1993). It may be, for example, that NDErs do not "naturally" draw on NDE recall, but if they did, they might experience greater life satisfaction along with greater emotional well-being. Another possibility requires a closer look at items on the Satisfaction With Life Scale (Diener, Emmons, Larson, and Griffin, 1985). For example, an NDEr may not report any greater frequency of having "gotten the important things I want in life" (Diener, Emmons, Larson, and Griffin, 1985, p. 72), but may feel more emotional well-being in the face of that situation. Further research may tell.

The question of benefit of hypnotic recall of pleasant NDEs could be further researched also by using a larger sample of NDErs, not limited to omniscient NDErs, and comparing conditions that would isolate the necessary elements for positive effects. A related question is whether hypnotic recall of pleasant near-death-like experiences (Holden and Guest, 1990) also might yield positive effects on emotional well-being. Now that the safety of hypnotic recall, at least under the conditions described in this study, has been established, and the benefit of such recall to experiencers seems likely, further research, following the guidelines described by Holden and MacHovec (1993), may be undertaken with greater confidence.

References

- Atwater, P. M. H. (1992). Is there a hell? Surprising observations about the near-death experience [Guest editorial]. *Journal of Near-Death Studies*, 10, 149-160.
- Bragdon, E. (1988). *A sourcebook for helping people in spiritual emergency*. Los Altos, CA: Lightning Up Press.
- Diener, F., Emmons, R. A., Larson, R. J., and Griffin, S. (1985). The Satisfaction With Life Scale. *Journal of Personality Assessment*, 49, 71-75.
- Grey, M. (1985). *Return from death: An exploration of the near-death experience*. London, England: Arkana.
- Greyson, B. (1994). Near-death experiences and satisfaction with life. *Journal of Near-Death Studies*, 13, 103-108.
- Greyson, B., and Bush, N. E. (1992). Distressing near-death experiences. *Psychiatry*, 55, 95-110.
- Greyson, B., and Harris, B. (1989). Counseling the near-death experiencer. In S. Grof and C. Grof (Eds.), *Spiritual emergency: When personal transformation becomes a crisis* (pp. 199-210). Los Angeles, CA: Tarcher.
- Holden, J. M., and Guest, C. (1990). Life review in a non-near-death episode: A comparison with near-death experiences. *Journal of Transpersonal Psychology*, 22, 1-16.
- Holden, J. M., and MacHovec, F. (1993). Risk management in hypnotic recall of near-death experiences. *American Journal of Clinical Hypnosis*, 36, 38-46.
- Olson, M., and Dulaney, P. (1993). Life satisfaction, life review, and near-death experiences in the elderly. *Journal of Holistic Nursing*, 11, 368-382.
- Ring, K. (1980). *Life at death: A scientific investigation of the near-death experience*. New York, NY: Coward, McCann and Geoghegan.
- Ring, K. (1984). *Heading toward omega: In search of the meaning of the near-death experience*. New York, NY: Morrow.
- Sabom, M. B. (1982). *Recollections of death: A medical investigation*. New York, NY: Harper and Row.
- Sotelo, J., Perez, R., Guevara, P., and Fernandez, A. (1995). Changes in brain, plasma and cerebrospinal fluid contents of β -endorphin in dogs at the moment of death. *Neurological Research*, 17, 223-225.

BOOK REVIEW

Bruce Greyson, M.D.
University of Virginia

Reunions: Visionary Encounters with Departed Loved Ones, by **Raymond A. Moody, Jr., with Paul Perry.** New York, NY: Villard, 1993, 213 + xxi pp, \$20.00, hardcover.

Raymond Moody, the scholar and storyteller who introduced to us—and named—the near-death experience (NDE) two decades ago, has now taken another leap forward in our understanding of the human mind. Moody's pioneering collection of NDE accounts awakened both medical science and popular culture to inexplicable experiences that normal people have *spontaneously* when they approach death. With his new exploration into mirror gazing, he presents to us, with the help of co-author Paul Perry, equally startling experiences that can be produced reliably in a *controlled* situation.

Humans have always longed for reunions with deceased loved ones, and throughout history we have fulfilled that wish through visions. Most societies entertain, frighten, or inspire themselves with ghost stories, and today up to two-thirds of widows see apparitions of their deceased husbands. The ancient Greeks went so far as to create the institution of the oracle of the dead, or psychomanteum, to facilitate these visions for the masses.

Moody identified three visionary techniques that would be considered safe and legal today: "pareidolia," as when we see faces in clouds, which rarely produces visions of the departed; "dream incubation," popular in many cultures, which requires at least drowsiness; and mirror gazing, which often yields apparitions of the deceased, as well as scenes, dramas, and life reviews. Different re-

Bruce Greyson, M.D., is Professor of Psychiatric Medicine at the University of Virginia Health Sciences Center. Reprint requests should be addressed to Dr. Greyson at the Division of Personality Studies, Box 152, Health Sciences Center, University of Virginia, Charlottesville, VA 22908.

flecting surfaces may be easier or harder to see into, but the power to produce visions seems to lie in the individual and not in the surface used.

Moody also identified six elements of what he calls the "mirror-gazing complex," a collection of curious phenomena associated with mirror gazing throughout history: the mirror as a window to oneself, frequent accounts of the "marvelous" acquisition of a mirror, the mirror as portal to another realm, special entities associated with a mirror, superstitions and phobias about mirrors, and spontaneous mirror visions. The consistency of these phenomena suggested to Moody that mirror gazing might be a reliable way to facilitate our natural visionary ability.

Moody and Perry guide us on a tour through the centuries of various people's success in seeing apparitions in a variety of reflective surfaces, including mirrors, crystal balls, ponds or bowls of water, and magic lamps. They might also have mentioned contemporary parapsychological studies of extrasensory perception in a *ganzfeld*, or homogenous visual field, which are modern analogues of mirror gazing. The apparitional experience at issue here is not a seance, in which a purportedly gifted "medium" provides sitters with a second-hand encounter with the deceased. This is, rather, a direct firsthand experience that ordinary people have had over the centuries, and, Moody claims, still can have, almost at will, with the proper setting and preparation.

If mirror gazing was widely practiced in the ancient world, why was that skill lost to us until now? Moody argues that practitioners maintained professional secrecy so that unsupervised seekers wouldn't get hurt, and that both secular and religious bureaucracies sought to repress these techniques to safeguard their own authority over the masses.

To investigate this visionary ability of people, Moody designed a modern psychomanteum after the Greek model, even to the point of locating his Oracle of the Dead at Choccolocco, Alabama, far off the beaten path, as was the Greek Oracle of the Dead at Ephyra, so that the difficult trip there would allow pilgrims ample time for reflection. He and Perry describe the elaborate physical set-up, preparation, and subsequent "processing" sessions that he uses.

Contrary to Moody's expectations, over half his subjects, who were selected for their emotional stability rather than their psychic ability, report mirror visions—and not necessarily confined either to the mirror or to the mirror-gazing session! Every one of his subjects who

experienced visions of the deceased emphasized the realistic nature of these visions and regarded them as healing experiences. Though profoundly moving, these encounters with the deceased are experienced as neither frightening nor eerie, but as comforting and inspiring.

Moody also shares with us his own visionary experience, which occurred not in the psychomanteum but hours after his visit there, and with a deceased relative other than the one he wanted and expected to see. He concluded that, as many people have said about their NDEs, he got not what he wanted, but what he needed.

Are these apparitional experiences "real" encounters with deceased spirits? Mirror visions are no more proof of an afterlife than are NDEs. In fact, it is not at all clear that there can be a "scientific proof" of an afterlife. While Moody and Perry write of his "experiment" with mirror gazing, they use that term to mean not a rigorous scientific study with matched subjects randomly assigned to experimental and control groups, but rather a systematic demonstration, under repeatable circumstances, of the common human ability to see visions. They emphasize that Moody's goal in this study was not to *prove* communication with the deceased, but rather to *evoke* it, and to allow the visionaries to decide for themselves the reality of the experience.

If these visions don't prove anything, what good are they? Moody's near-death studies, corroborated by those of investigators who followed him, showed that reunions with deceased loved ones in the NDE usually resulted in transformations that eliminated fear of death. Moody wondered whether replicating NDEs safely would also lead to personal transformation, and developed his psychomanteum as a vehicle to reproduce at least one part of the NDE.

The numerous cases described in detail in *Reunions* suggest that mirror gazing can be a useful tool for enhancing creativity, for psychotherapeutic exploration of issues, and for consciousness research. The mirror has traditionally been called a window to the soul, and these cases show that it indeed can be used to explore inner depths. It also appears to serve as a portal to another realm of whatever name, and as these cases demonstrate, it can be a two-way portal: we can follow Alice through the looking-glass, and apparitions can emerge from the mirror into our world.

Beyond Moody's inspired explorations into mirror gazing, he and Perry also treat us to his novel reinterpretation of parapsychology. Science, they write, is limited to the physical realm and therefore

cannot address the interfaces between worlds. But other human endeavors do address that interface, specifically play and theater. If parapsychology, the study of the interface between realms, cannot be accepted as a scientific discipline, perhaps we should try regarding it instead as a performing art! After all, parapsychology is a leisure-time activity for many of its practitioners, and uses toys like playing cards and Ouija boards; some phenomena like children's imaginary playmates may be considered either amusements or paranormal phenomena; and skeptical "debunking" of parapsychology bears more resemblance to heckling a performance than to scientific critique.

While his modern psychomanteum includes the best features of the Greek oracles of the dead, Moody also capitalized on this kinship between play and the paranormal and added his own touches. He calls his oracle of the Dead at Choccolocco the "Theater of the Mind," and designed it to include elements of a theater, a temple, a fortune teller's parlor, a spiritual retreat center, an art museum, a school, a library, and a funhouse.

Moody presented the fundamentals of his mirror-gazing studies in his earlier article in this Journal (1992), and with his typical humor he refers to this book with coauthor Paul Perry as the "colorized" version, written intentionally in a less rigorous style to be more palatable to the general reader. Toward that end, they included a chapter entitled "Creating Your Own Psychomanteum." Without trying to sound like the elitist necromancers of past centuries who tried to hide these techniques from the masses, let me suggest that there is some virtue in the traditional warning against casual attempts to "try the spirits."

Just as psychedelic drugs in the 1960s, valuable tools for exploring the farther reaches of the mind, resulted in "bad trips" for many poorly prepared users, so too the basement psychomanteum may have negative emotional effects on unsuspecting adventures without the advantage of a "guide" to prepare them for the experience and to debrief them afterwards. While we may find that mirror gazing is not nearly as powerful a tool outside the context of a Theater of the Mind, we should be prepared for both some enlightenment and some "bad trips" if the homemade psychomanteum becomes a fad.

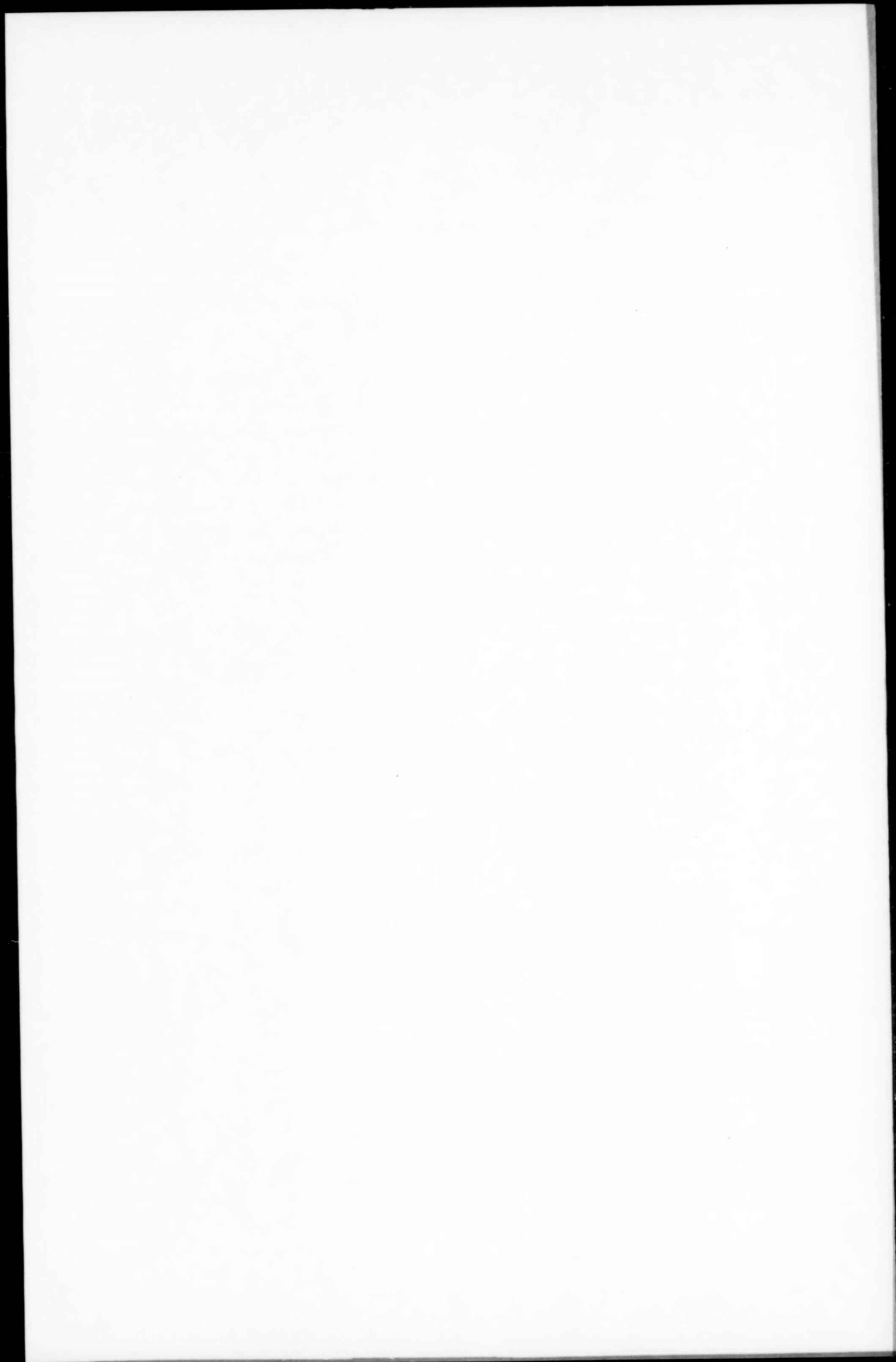
Although *Reunions* was written for a popular audience and not a scholarly one, it still contains much of serious interest, including the rationale for a scientific study. Moody's essential argument is that, since apparitions are commonly seen by normal people, that experience must be a human propensity that can be studied. Furthermore,

if such study can identify the factors that predispose humans to see apparitions, then such visions can be facilitated and made reproducible, rendering them amenable to controlled study. Science has pretty much ignored spontaneous apparitions of the deceased, because experiences that cannot be predicted or controlled cannot be observed systematically. But with mirror gazing as a reliable way to facilitate apparitional experiences, we can systematically study both the vision and the visionary.

Fans of Moody's previous works will be pleased to see his various facets come together in this book. Moody as professor of classical philosophy, as medical scientist, as psychotherapist, as entertainer, as awestruck child, and as spiritual seeker all have their say in these pages. Judith Miller (1989), in her review of Moody and Perry's first collaboration, *The Light Beyond* (1988), lamented that Moody had not shared much of his own personal experiences, intellectual insights, and clinical perspectives in that book. In *Reunions* he has.

References

- Miller, J. (1989). [Review of *The light beyond*]. *Journal of Near-Death Studies*, 7, 191-199.
- Moody, R. A. (1992). Family reunions: Visionary encounters with the departed in a modern-day psychomanteum. *Journal of Near-Death Studies*, 11, 83-121.
- Moody, R. A., and Perry, P. (1988). *The light beyond*. New York, NY: Bantam.



Letters to the Editor

Misidentified Flying Objects

To the Editor:

Keith Basterfield (1994) pointed out that while near-death experiencers (NDErs) have no physical evidence to show for their experience, some of those who claim to have been abducted by unidentified flying objects (UFOs) have reported unusual scars on their bodies with no known cause. Actually, some NDErs have been found to bear physical marks on their bodies that they believe to have resulted from injuries sustained in a postmortem world. For example, one experiencer reported by Satwant Pasricha and Ian Stevenson (1986), who said that the god of death Yama's messengers cut off his legs at the knees, had deep fissures in the skin on the front of the knees. However, x-ray photographs of his legs showed no abnormality below the surface of the skin. Such instances recall the well-authenticated reproduction of bruise marks in the abreactive reliving, under hypnosis, of traumatic experiences, and are not indisputable evidence for the objectivity of the NDEs or UFO abductions.

This phenomenon, however, merits serious study because of its bearing, among other matters, on the aftereffects of NDEs. For example, if a frightening experience like the feeling that the legs were chopped off can produce appropriate marks on the skin, it is pertinent to ask whether pleasant experiences might not sometimes have healing or other beneficial effects on the state of health. There are hints in the NDE accounts of some experiencers, who were ill before their near-death crisis, having felt better or having been cured on recovery from the crisis (Krishnan, 1995). Future investigators would do well to verify such claims of healing and try to find out the underlying mechanisms, which could have practical applications.

Fowler Jones seems to approve of Michael Schuster's view that "the origins of physical reality lie in the nonphysical worlds" (Jones, 1994, p. 236). What exactly is meant by the word "nonphysical"? Few, if any, who use it care to explain. To say that a nonphysical entity has none of the qualities of a physical object, that it is an entirely

different order of reality, is no help at all; examples of nonphysical items should be named and proved to exist. Assuming for the present that there is such a thing as a "nonphysical world," as Schuster proposed, how can it give rise to another order of reality of stuff—the physical—that has absolutely nothing in common with it? This is not a matter of qualitative or irreversible change; though a piece of paper, when burned, turns into ashes irreversibly, both the paper and the ashes are still the same order of stuff, usually called matter. Where would a "nonphysical" word exist? How can we verify whether or not it exists? Do those who invoke a nonphysical order know all the properties of the physical order, so they can judge that the latter cannot account for the phenomena they attribute to the former? These are but a few of the numerous questions that dualists have so far not been able to answer.

I suggest considering whether a dualist approach is necessary to understand any phenomenon known to us. Something cannot be made, or emerge, from nothing. (By "nothing" I mean "absolute emptiness," not just empty space, which, according to physics as well as Hindu and Buddhist traditions, is a plenum.) It is also a fact that no object, not even a single subatomic entity, can be wiped out of existence. Whatever the process to which a thing is subjected, it will only undergo transformation in various respects; the physicist would say that matter is indestructible. It follows from these facts that everything that exists now came from pre-existing stuff or materials; things existing now will be the basis of entities that may come into being in the future; and birth, growth, decay, and death are our descriptions of certain aspects of the continuous process of change. It may be asked what causes the ceaseless change. It is not necessary here to go into the answers attempted in various branches of inquiry such as metaphysics, physics, chemistry, as so on; the important point to note is that the cause cannot be of an order of reality different from that of the things that undergo change. This is so because there cannot be any interaction between orders or entities that have nothing in common; if they have anything in common, obviously, they cannot be said to be of different orders. In short, the universe is monistic, and it should be possible to explain all phenomena related to its constituents in terms of a single order of reality. What we call it—matter or something else—is immaterial, for the criteria for making such classifications are laid down by us and are not unalterable. The concept of matter in dialectical materialism, for example, extends

to all discovered and not yet discovered objects as well as their properties (Gribanov, 1987).

The above view of the universe is not my original formulation; it is largely based on some of the ancient Indian speculations about it. As I see it, physicists are trying to restate it in greater detail and more precision in the language of physics with the support of experimental proof.

Regarding the proposal, cited by Jones (1994), that consciousness can influence matter, again we are not told what precisely its proponents mean by the word "consciousness." If they mean that consciousness is some kind of stuff in its own right capable of acting directly on an object, then the usage is questionable. The dictionary definition of the word "consciousness" is "a state of being conscious" or "awareness." It is advisable to adhere to this meaning to avoid confusion. What is sought to be conveyed, I think, is that thoughts, feelings, and such subjective phenomena, commonly called mental phenomena, can produce observable or measurable effects not only in the body but also on objects at a distance from it. Effects of the first kind, such as increased heart rate while angry, are not difficult to understand if we do not forget the fact, pointed out by Jack Ornstein (1972), that mental phenomena and accompanying physiological effects are different aspects of certain patterns of electrochemical activity in the brain.

As for effects on objects outside the body, the so-called psychokinetic effects that Stuart Twemlow mentioned (1994), it is useful to bear in mind that since physical objects are influenced, whatever mediates the influence must have something in common with them. That is, the mediator must also be physical in nature and therefore amenable to empirical investigation.

Jones asked how out-of-body experiencers (OBErs) can make accurate reports of events in their vicinity if the experience is only a defense mechanism in the service of the ego. There seems to be more to the OBE than is suggested by the psychoanalytic view, and I have proposed that it may be a compensatory device involving body-based perceptual processes that come into operation when the input of information to the brain deviates from the level normal for the experiencer (Krishnan, 1985). I have also indicated some ways to investigate the underlying mechanism of out-of-body sight (Krishnan, 1988, 1993).

Lastly, those who are inclined to a psychological interpretation of UFO sighting may be interested to read Carl Jung's (1964) views

about the phenomenon. It came as a surprise to me that they were not even touched on in any of the discussions of Twemlow's paper. Jung also mentioned the case of a person who claimed to have boarded a UFO willingly and went for a flight through cosmic space. On returning he felt a burning sensation on his chest, which left a circular stigma. The experience was pleasant otherwise.

References

- Basterfield, K. (1994). Comments on Stuart Twemlow's "Misidentified flying objects? An integrated psychodynamic perspective on near-death experiences and UFO abductions." *Journal of Near-Death Studies*, 12, 225-227.
- Gribanov, D. P. (1987). *Albert Einstein's philosophical views and the theory of relativity* (Trans. by R. C. Creighton). Moscow, U.S.S.R.: Progress Publishers.
- Jones, F. C. (1994). Misidentified flying objects? A critique. *Journal of Near-Death Studies*, 12, 235-243.
- Jung, C. G. (1964). Flying saucers: A modern myth of things seen in the skies. In *The collected works of C. G. Jung, Vol. 10: Civilization in transition* (Trans. by R. F. C. Hull). London, England: Routledge and Kegan Paul.
- Krishnan, V. (1985). Near-death experiences: Evidence for survival? *Anabiosis: The Journal of Near-Death Studies*, 5(1), 21-38.
- Krishnan, V. (1988). OBEs in the blind [Letter]. *Journal of Near-Death Studies*, 7, 134-139.
- Krishnan, V. (1993). The physical basis of out-of-body vision [Letter]. *Journal of Near-Death Studies*, 11, 257-260.
- Krishnan, V. (1995). NDEs and healing [Letter]. *Journal of Near-Death Studies*, 13, 278-281.
- Ornstein, J. H. (1972). *The mind and the brain*. The Hague, The Netherlands: Martinus Nijhoff.
- Pasricha, S., and Stevenson, I. (1986). Near-death experiences in India: A preliminary report. *Journal of Nervous and Mental Disease*, 174, 165-170.
- Twemlow, S. W. (1994). Misidentified flying objects? An integrated psychodynamic perspective on near-death experiences and UFO abductions. *Journal of Near-Death Studies*, 12, 205-223.

V. Krishnan
P. O. Box 1863
Kaloor
Cochin 682017
India

More on NDEs and Satisfaction with Life

To the Editor:

Of the many interesting articles in recent issues of the Journal, the most intriguing by a long way for me was Bruce Greyson's (1994) very discreet entry into Susan-Blackmore-type territory with his paper showing that the much-publicized positive aftereffects of near-death experiences (NDEs) apparently do not lead to any above-average long-term life satisfaction. For all his gentle manner of presentation, and quiet suggestion that his findings may be explained in terms of NDErs' difficulties in readjusting to practical life, he must surely have set several cats amongst the proverbial pigeons. His findings came as no surprise to me, however, and this despite (a) having myself enjoyed very greatly increased life satisfaction ever since my own 1983 NDE (Wren-Lewis, 1985, 1994) and (b) having urged, in my Guest Editorial for the Journal (Wren-Lewis, 1992) that the major significance of the NDE phenomenon lies in demonstrating the possibility of a mystical dimension of consciousness in *this* life rather than in providing evidence that personal consciousness may survive bodily death.

A subtheme of my own research over the past decade has been an investigation of why no other NDE report in the literature (to my knowledge) has mentioned bringing the timeless heavenly peace and happiness of the experience itself back, undiminished, into subsequent daily life after resuscitation, as happened with me. In other words, I've been trying to understand why the "mystical opening" that Kenneth Ring (1984) identified as a common feature of NDEs *doesn't last*, except as an inspiring memory that often motivates NDErs into a life of spiritual work and search.

My own continuing day-by-day (and night-by-night) "eternity-experience" since 1983 disproves the common assumption that such consciousness is a very high state to be achieved only by a long struggle of spiritual practice and purification. In fact, my experience suggests that this assumption is part of the very mindset that has kept humanity in general locked into the petty pace of time (with very low life satisfaction) for most of its history. My conclusion (Wren-Lewis, 1994) is that the "eternity-consciousness" of the mystics is in fact the truly natural human condition, blocked out by something like a hyperactivity of the mind's survival programs, passed on by conditioning from one generation to the next.

The mystical openings in NDEs occur because those programs relax at the point of death, but as I demonstrate in my forthcoming book *The 9:15 to Nirvana* (Wren-Lewis, in press), they are normally *aborted* on resuscitation by the deeply-ingrained common mindset that consciousness in earthly life must necessarily be timebound. The mindset, sometimes actually personified in near-death visions as heavenly command to "return to earth," has the effect of converting the eternity-opening into a wonderful but temporary experience of the timebound personality.

Greyson's findings jibe very well with this model of the NDE, but the significance of his report will be lost if it becomes the occasion *either* for skeptical dismissal of NDEs as mere passing mental aberrations *or* for attempts to explain his findings away in order to retain the mystique of NDEs. As I see it, Greyson's study indicates the most important challenge to be faced on this vital research frontier: the challenge of unearthing the mechanisms responsible for the common human conditions of eternity-blindness. And the fact that those mechanisms can be seen in operation when NDE-breakthroughs get lost in return to timebound life may be the best clue yet to understanding and outwitting them.

References

- Greyson, B. (1994). Near-death experiences and satisfaction with life. *Journal of Near-Death Studies*, 13, 103-108.
- Ring, K. (1984). *Heading toward omega: In search of the meaning of the near-death experience*. New York, NY: Morrow.
- Wren-Lewis, J. (1985). The darkness of God: An account of lasting mystical consciousness resulting from an NDE. *Anabiosis: The Journal of Near-Death Studies*, 5(2), 53-66.
- Wren-Lewis, J. (1992). Avoiding the Columbus Confusion: An Ockhamish view of near-death research. *Journal of Near-Death Studies*, 11, 78-81.
- Wren-Lewis, J. (1994). Aftereffects of near-death experiences: A survival mechanism hypothesis. *Journal of Transpersonal Psychology*, 26, 107-115.
- Wren-Lewis, J. (In press). *The 9:15 to Nirvana*.

John-Wren Lewis
1/22 Cliffbrook Parade
Clovelly, New South Wales
Australia 2031

Journal
of **Near-Death Studies**

Volume 14, Number 1, Fall 1995

| | |
|--|----|
| Editor's Foreword | 3 |
| <i>Bruce Greyson, M.D.</i> | |
| GUEST EDITORIAL | 5 |
| A Call to Reconsider the Field of Near-Death Studies | |
| <i>P. M. H. Atwater, L.H.D.</i> | |
| ARTICLES | |
| A Philosopher's View of Near-Death Research | 17 |
| <i>Carl B. Becker, Ph.D., D.Litt.</i> | |
| Disclosure Habits After Near-Death Experiences: Influences, Obstacles, and Listener Selection | 29 |
| <i>Regina M. Hoffman, Ph.D.</i> | |
| Lucid Dreams as One Method of Replicating Components of the Near-Death Experience in a Laboratory Setting | 49 |
| <i>J. Timothy Green, Ph.D.</i> | |
| BOOK REVIEW | 61 |
| Beyond the Light: What Isn't Being Said About the Near-Death Experience, by P. M. H. Atwater | |
| <i>Reviewed by Joseph Chilton Pearce</i> | |
| Announcement | 71 |

Journal
of **Near-Death Studies**

Volume 14, Number 2, Winter 1995

| | |
|---|-----|
| Editor's Foreword | 75 |
| <i>Bruce Greyson, M.D.</i> | |
| ARTICLES | |
| The Theory of Essence. II. An Electromagnetic-Quantum Mechanical Model of Interactionism | 77 |
| <i>J. Kenneth Arnette, Ph.D.</i> | |
| The Physical Basis of Subtle Bodies and Near-Death Experiences | 101 |
| <i>Deno Kazanis, Ph.D.</i> | |
| BOOK REVIEW | |
| Dying to Live: Science and Near-Death Experience, by | 117 |
| <i>Susan Blackmore</i> | |
| <i>Reviewed by Kenneth Ring, Ph.D.</i> | |
| Letter to the Editor | 133 |
| <i>V. Krishnan</i> | |
| Announcement | 139 |

Journal
of **Near-Death Studies**

Volume 14, Number 3, Spring 1996

Editor's Foreword 143
Bruce Greyson, M.D.

ARTICLES

Dissociation: Normal or Abnormal? 145
Marlene Spencer, M.Ed.

**Near-Death Prophecies of Disaster and the New Age:
Are They True?** 159
Alfred S. Alschuler, Ph.D., D.H.L., H.D.P.

The Near-Death Experience: A Study of Its Validity 179
Aureliano Pacciolla, Ph.D.

**ECT: TNT or TLC? A Near-Death Experience Triggered
by Electroconvulsive Therapy** 187
Keith Floyd, C. Psych., Ed.D.

BOOK REVIEWS

**To Hell and Back: Life After Death—Startling New
Evidence, by Maurice S. Rawlings** 197
Reviewed by Michael B. Sabom, M.D.

Near-Death Experiences in Antiquity, by Jeno Platthy 211
Reviewed by Bruce Greyson, M.D.

Letters to the Editor 215
*Melvin L. Morse, M.D., Karlis Osis, Ph.D., and Bruce
Greyson, M.D.*

Journal
of **Near-Death Studies**

Volume 14, Number 4, Summer 1996

Editor's Foreword 223
Bruce Greyson, M.D.

ARTICLES

Homer's Odysseus as an Ecstatic Voyager 225
F. Gordon Greene

**Evolution and the Relationship Between Brain and
Mind States** 251
Juan S. Gómez-Jeria, Lic. Q., and Carlos Madrid-Aliste

**Effect on Emotional Well-Being of Hypnotic Recall of
the Near-Death Experience** 273
Janice Miner Holden, Ed.D.

BOOK REVIEW

**Reunions: Visionary Encounters with Departed Loved
Ones, by Raymond A. Moody, Jr., with Paul Perry** 281
Reviewed by Bruce Greyson, M.D.

Letters to the Editor 287
V. Krishnan and John-Wren Lewis

INSTRUCTIONS TO AUTHORS

THE JOURNAL OF NEAR-DEATH STUDIES encourages submission of articles in the following categories: research reports; theoretical or conceptual statements; papers expressing a particular scientific, philosophic, religious, or historical perspective on the study of near-death experiences; cross cultural studies; individual case histories with instructive unusual features; and personal accounts of near-death experiences or related phenomena.

GENERAL REQUIREMENTS: Logical organization is essential. While headings help to structure the content, titles and headings within the manuscript should be as short as possible. Do not use the generic masculine pronoun or other sexist terminology.

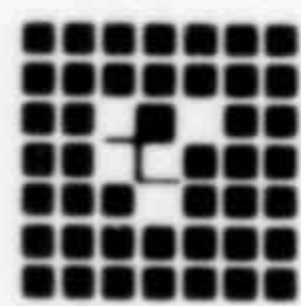
MANUSCRIPTS should be submitted in triplicate, typed on one side of the page only, and double spaced throughout. A margin of at least one inch should be left on all four edges. Except under unusual circumstances, manuscripts should not exceed 20, 8 1/2 x 11" white pages. Send manuscripts to: Bruce Greyson, M.D., Division of Personality Studies, Department of Psychiatric Medicine, Box 152, University of Virginia Health Sciences Center, Charlottesville, VA 22908.

TITLE PAGE should contain the names of the authors, as well as their academic degrees, affiliations, and phone number of senior author. A name and address for reprint requests should be included. A footnote may contain simple statements of affiliation, credit, and research support. Except for an introductory footnote, footnotes are discouraged.

REFERENCES should be listed on a separate page and referred to in the text by author(s) and year of publication in accordance with the style described in the Publication Manual of the American Psychological Association, 3rd Edition, 1983. Only items cited in manuscripts should be listed as references. Page numbers must be provided for direct quotations.

ILLUSTRATIONS should be self-explanatory and used sparingly. Tables and figures must be in camera-ready condition and include captions.

PERSONAL-COMPUTER DISKS: After a manuscript has been accepted for publication and after all revisions have been incorporated, manuscripts may be submitted to the Editor's Office on **personal-computer disks**. Label the disk with identifying information—kind of computer used, kind of software and version number, disk format and file name of article, as well as abbreviated journal name, authors' last names, and (if room) paper title. Package the disk in a disk mailer or protective cardboard. **The disk must be the one from which the accompanying manuscript (finalized version) was printed out.** The Editor's Office cannot accept a disk without its accompanying, matching hard-copy manuscript. Disks will be used on a case-by-case basis—where efficient and feasible.



HUMAN SCIENCES PRESS, INC.

233 Spring Street, New York, New York 10013-1578