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ANABIOSIS

The Journal for Near-Death Studies

Toward a Psychological Explanation of Near-Death Experiences:
A Response to Dr. Grosso's Paper Bruce Greyson
Near-Death Experiences in a Pacific
The Evergreen Study James H. Lindley Sethyn Bryan, Bob Conley
The Tunnel Experience: Reality or Hallucination?
The Centrality of Near-Death Experiences in Chinese Pure Land Buddhism Carl B. Becker
BOOK REVIEW: Recollections of Death: A Medical Perspective Michael Grosso

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THE INTERNATIONAL ASSOCIATION FOR NEAR-DEATH STUDIES

ANABIOSIS The Journal for Near-Death Studies

Anabiosis - "A restoring to life from a death-like condition; resuscitation."

Anabiosis-The Journal for Near-Death Studies is a semi-annual periodical whose principal purpose is to publish articles concerned with near-death experiences and allied phenomena. Although the Journal will consider for publication any worthwhile manuscript from professionals or lay persons, it particularly welcomes submissions from scholars, scientists, researchers, and practitioners whose work is concerned with the study of human consciousness as it is affected by the prospect or occurrence of death. The Journal will publish articles dealing directly with near-death experiences as well as with such related phenomena as (1) outof-body experiences; (2) death-bed visions; (3) experiences of dying persons, or those in contact with them, prior to the onset of death; and (4) experiences of persons following the death of another. The Journal may publish articles on other topics or experiences if such articles make a definite contribution to the understanding of the experience and meaning of death (for example, experiences suggestive of reincarnation).

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Toward a Psychological Explanation of Near-Death Experiences: A Response to Dr. Grosso's Paper

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INTRODUCTION

Michael Grosso, in his elegant review of various hypotheses intended to explain near-death experiences (NDEs) (1981), dismissed psychological explanations as reductionistic and unable to account adequately for the NDE. The present paper is a restatement of the case for psychological interpretations of the NDE; it is intended to forestall the premature rejection of psychodynamic approaches to the study of NDEs. This paper does not propose a comprehensive psychological model for the NDE; we do not know enough about NDEs yet to formulate comprehensive models, and it may be that when we do know more about these phenomena, we will discover that certain elements are not reducible to psychological constructs. We do know enough, however, about human behavior to state that any comprehensive interpretation of the NDE eventually developed must take into account the role played by psychological defenses.

Grosso noted the difficulties inherent in labeling NDE reporters as having been "dead," since they have been restored to vital functioning and in that regard may differ critically from those who "stay dead." However, he also noted the temptation to consider "dead" all those who have temporarily lost all vital functioning and who would have "remained dead" if not for medical intervention. This dilemma hints at the first problem in the interpretation of NDEs: their degree of relevance to death or dying.

The NDE does not tell us directly what death is like, nor what dying is like. There are at least four critical points at which we may question the correspondence between an NDE report and the experience of those who die. Firstly, those near-death survivors who choose to report their experiences to others may have had very different experiences from those survivors who choose not to report them; indeed, the type of experience recalled may be critical to an individual's decision about whether to report the experience or not. Secondly, those individuals who, upon surviving a close brush with death, recall their experiences may have had very different experiences from those who recall nothing upon revival; again, the nature of the experience may be critical to the process of recalling or repressing the memory of the experience. Thirdly, those individuals who survive a close brush with death may have had very different experiences from those who do not survive; conceivably, the type of experience could influence whether or not one survives the near-death event. And fourthly, it is possible that even if near-death survivors and non-survivors have similar experiences, those who survive experience only the initial and perhaps atypical stages of the dying process; and again, it is conceivable that how far one progresses into the dying experience influences whether or not one survives.

The significance of this series of questions is that what we are studying is not the NDE itself, but a voluntary recounting of a memory of the NDE. Whether or not psychological defenses are operative in the elicitation of an NDE, the recall of the experience and the motivation to recount one's recollection certainly are subject to psychological interpretation. Thus an exploration of psychological mechanisms may be necessary for understanding the NDE report, regardless of one's explanation of the NDE itself.

COULD A PSYCHOLOGICAL HYPOTHESIS EXPLAIN THE NDE?

Consistency and Universality of NDEs

Grosso listed three components of the NDE that he felt demanded explanation by any satisfactory theory of near-death phenomena. The first of these three components is the apparent consistency and universality of NDEs. Grosso cited evidence from the literature attesting to the independence of NDE reports from religious background, demographic factors, and cultural variables. He did warn that further work needs to be done to substantiate the claim of consistency, and in fact Drab (in press) has found that, on more detailed investigation of the "tunnel experience," this consistency appears to diminish.

However, the mere fact, if fact it is, of universality of experience contributes little to an interpretation of the experience. Consistency may be an indication of objective reality, but it may also be an indication of a physiological imperative or a common psychological predisposition. Grosso himself cited the example of delirium tremens, an illusory phenomenon based on impaired physiology with essential elements consistent across cultures and personalities.

One example of a psychological explanation for the consistency and universality of NDEs is the birth-memory-activation model first described in detail by Grof and Halifax (1977). Grof and Halifax suggested that a close brush with death may trigger a retrieval of the individual's long-suppressed memories of the birth process. The feeling of peace, the ineffability, and the spatio-temporal transcendence of the NDE recapitulate the subjective experience of intrauterine life; the propulsion headfirst through a dark, noisy, enclosed, tunnel-like space represents travel through the cervical canal; and the emergence into the light and freedom in the presence of a commanding figure reflect the subjective experience of delivery. While there are questions about the newborn infant's ability to perceive and remember experiences in such detail and imperfect correspondence between the prototypical NDE and the birth experience, this model illustrates the concept of a nearly universal prior experience which may serve as a template on which the NDE reporter might organize his or her understanding, and subsequent retelling, of the NDE.

Paranormal Aspects of NDEs

Grosso listed, as the second component of NDEs that requires explanation, the paranormal material sometimes reported in NDEs. He felt that the significance of this component lay partly in its suggestion that NDEs express more than just wish fulfillment or selfserving fantasy. However, far from dispelling the notion of NDEs as self-serving wish fulfillment, the documentation of paranormal elements may provide indirect evidence for the psychological needsubserving aspect of the NDE.

In a widely used paradigm of paranormal functioning, Stanford's psi-mediated instrumental response (PMIR) model, paranormal events are conceived as occurring only in response to specific needs of the individual. Relevant basic assumptions of the PMIR model, which has received substantial experimental support, stipulate (Stanford, 1974, pp. 43-45) that:

1. In the presence of a particular need the organism uses psi (ESP), as well as sensory means, to scan its environment for objects and events relevant to that need and for information crucially related to such objects or events

- 2. When extrasensory information is thus obtained about needrelevant objects or events (or information crucially related thereto), a disposition toward psi-mediated instrumental response (PMIR) occurs . . .
- 3. Preparation for or production of PMIR often involves such changes as motivational or emotional arousal, attention-focusing responses, and other preparation for response....
- 4. All else being equal, the strength of the disposition toward PMIR is directly related to: (a) the importance or strength of the need(s) in question; (b) the degree of need-relevance of the need-relevant object or event; and (c) the closeness in time of the potential encounter with the need-relevant object or event.

Experimental manipulation of the strength of psychological needs has demonstrated that the tendency to produce paranormal effects is, as predicted, positively related to the strength of the need subserved by the PMIR (Stanford and Associates, 1976). Thus, the occurrence of paranormal material in the NDE may support the claim that the NDE is at least in part a response to some psychological need of the experiencer.

Beneficial Effects of NDEs

Grosso listed, as the third component of NDEs that requires explanation, the modification of outlook, affective states, values, and goals often reported in accounts of NDEs. He felt that the adaptive potential of NDEs seemed incongruous with thinking of them as illusory or pathological.

Few clinicians would agree with Grosso that this is an incongruous state of affairs. In fact, many psychologists and psychiatrists regard the ego disruption characteristic of severe psychopathology as a multipotential state which may lead either to incapacitating disorganization, or to intense self-knowledge and growth. Some psychiatrists interpret schizophrenia as a positive development that reveals truths and opens new paths toward greater moral values (e.g., Siirala, 1963).

The British psychiatrist R. D. Laing's "psychedelic model" of schizophrenia focuses on the creative uses certain schizophrenics have made of their unusual experiences, and suggests that such patients should be regarded as persons embarked on a voyage of selfdiscovery (Siegler, Osmond, and Mann, 1969). Laing asserts that schizophrenia is a natural way of healing alienation and that many schizophrenics can emerge better than they were before: "Madness need not be all breakdown . . . It may also be breakthrough. It is potential liberation and renewal as well as enslavement and existential death" (1967, p. 93).

Mainstream American psychiatrists also acknowledge the potential of psychosis to help an individual become a fuller and better-integrated person. Arieti, in his National Book Award-winning treatise on schizophrenia, stated that some schizophrenic experiences can strengthen and enrich human life (1974, pp. 379-381):

The extreme individualism of the schizophrenic, his use of paleosymbols, the expanded capacity for symbolism, his paleologic thinking permit an enlargement of the human experience, can open new horizons and lead to new paths of feeling and understanding . . . What appears unusual, illogical, imaginary, or exclusively the result of psychosis, should be seen not only in the restricted sense of being outside of reality but also of being an expansion of reality . . . Together with the greatest error and greatest impoverishments I have at times found great truths and enrichments inherent in psychosis, truths and enrichments which transcend the parochialism of time and space.

"Psychedelic" or "mind-manifesting" experiences similar to those precipitated by hallucinogenic drugs or religious conversion experiences are recognized as occurring spontaneously in psychosis, and are acknowledged to impart increased perceptual sensitivity and unique insights to the psychotic patient (Bowers and Freedman, 1966).

The idea that pathological states can lead to positive growth is a basic assumption of the theory underlying crisis intervention, an efficacious and widely practiced psychotherapeutic technique. The concept of opportunity for growth in crisis, as developed by the pioneers of crisis theory, Lindemann (1944) and Caplan (1964), assumes that in periods of stress, a person enters a state of disequilibrium characterized by high anxiety and helplessness, in which his or her ego patterns, having been overwhelmed, are more open than usual to positive and corrective influence. Certain marathon groups are designed to facilitate the breakdown and restoration of personality in achieving the therapeutic result (Yalom, 1975). Finally, psychoanalytic explanations of the therapeutic effect of shock treatments speculate that the shock initiates a deep regression of the individual to a very primitive level, from which a new and better adaptation may develop (Fenichel, 1945). Thus the idea that severe mental dysfunction may lead to positive personality transformation has a long tradition of acceptance and utilization in psychology and psychiatry. Might NDEs be a specific case in point?

Mystical states have been described as one kind of "regression in the service of the ego," a reversion to a more primitive coping style which serves an adaptive function (Prince and Savage, 1966). The renunciation of worldly attachments preparatory to mystical states facilitates the return to earlier levels of functioning; the ineffability of the mystical experience reflects the preverbal stage of development to which the individual is regressed; the noetic quality of the experience corresponds to the "realness" of infantile experiences, when the individual had a primal, immediate, and unquestioned trust in his or her sensations; the ecstatic feeling represents regression to a blissful nursing experience when all the individual's needs were met; and the feeling of cosmic unity recapitulates the loss of ego boundaries in the symbiotic stage of development to which the individual is regressed.

Clark (1966) explained the profound ability of mystical experiences to effect change by invoking this interpretation of the mystical state as regression. He suggested that such experiences produce change because earlier levels of development are characterized by increased lability or impressionability; the infant's blissful state of relaxation facilitates freer exchange of ideas; and the helplessness of the infantile state fosters a sense of awe.

NDEs may be interpreted as one type of mystical state, and thus as an example of regression. I (1981a) reviewed a number of reductionistic psychodynamic hypotheses to explain positive personality transformations following NDEs among suicide attempters. I concluded that NDEs might reduce an individual's suicidal ideation by a variety of psychological mechanisms, including (1) inducing a sense of cosmic unity to replace the suicide attempter's feelings of alienation; (2) inducing a primary sense of worth not contingent upon external circumstances; (3) facilitating a decathexis of unmet worldly goals and a view of one's losses as irrelevant from a transpersonal perspective; (4) enhancing one's sense of value or meaning of life; (5) aiding one, through the life review, to reevaluate old conflicts and differentiate real from neurotic guilt; (6) providing an ego death which may serve as a substitute for death of the self; (7) transcending the ego, which may help the suicide attempter escape from painful feelings; (8) renewing or validating one's sense of being alive; (9) enhancing self-esteem through having survived, or having been assured (subjectively) of post-mortem survival; (10) enhancing self-esteem through having faced death serenely; (11) mobilizing and discharging destructive energies; (12) instilling a fear of repeating an unpleasant close brush with death; and/or (13) effecting secondary gains which might reduce suicidal intent. Thus, an interpretation of the NDE as a form of regression may be quite compatible with its positive transformative effects.

Toward a Psychological Explanation of Near-Death Experiences

In summary, then, a psychological explanation of the NDE is capable of addressing all three puzzling components of the phenomenon that Grosso asserted any explanation of the NDE must do: its consistency or universality, its paranormal dimension, and its beneficial effects upon the individual.

COULD THE NDE SERVE A PSYCHOLOGICAL FUNCTION?

Consistency with the data of NDE reports is just one requirement of an adequate explanation of the NDE. A satisfactory theory should also contribute something unique to our understanding of NDEs. In the present case, it would be pointless to determine whether a psychological interpretation could address the facts about NDEs adequately, unless it was anticipated that the NDE might serve some psychological purpose.

Grosso noted the difficulty in reconciling any purpose with a state of imminent death: once an irreversible process of death begins, what biological function could be ascribed to any experience, let alone a transcendental one? If this apparent paradox is accepted, there are two possible solutions: (1) that death is not cessation, the solution Grosso offered; or (2) that experiences can occur without any biological purpose. Either solution would require substantial revision of our customary attitude toward our biological functioning.

However, there are two less drastic alternatives if one questions the basic assumptions of Grosso's paradox: (3) that the biological function served by the NDE may be beneficial not to the dying individual, but to his reproductive group; or (4) that the NDE may not in fact occur at the point of death, but rather during a time of vital functioning.

Biological Utility of the NDE for Others

An NDE occurring on the threshold of death, when the dying individual has passed the point of personal rescue, could serve an adaptive purpose for those who witness the dying process. That is, the NDE may have evolved as an adaptive mechanism that may influence the dying person's behavior so as to promote the survival of others. The robin about to be overtaken by a hawk will emit a thin, reedy whistle to warn the rest of the flock; the honeybee whose hive is threatened by an intruder will commit suicide by stinging the invader. Many animals have evolved altruistic behavior elicited by the threat of imminent death. Perhaps the behavioral relaxation and equanimity produced by the NDE is adaptive for the dying person's peers to witness. The apparent uselessness of the NDE to an individual at the point of death does not preclude its evolution as a psychological device of utility to others.

Temporal Occurrence of the NDE

In discussing and dismissing reductionistic explanations of NDEs, Grosso differentiated NDEs from hallucinations induced by sensory deprivation and stress in a hospital setting by a variety of factors, one of which was the alleged time of occurrence of the experience: "hospital-induced" hallucinations are said to occur *after* the close brush with death, while NDEs are said to occur *during* the near-death event. But do we know in fact when the NDE occurs? In most cases, all we know is that upon recovery from a close brush with death, a person reports having had an experience. We have no way of determining the temporal location of that experience, except that it must have occurred before, or simultaneously with, the retelling of it.

The observation that many NDEs are recounted following close brushes with death tempts us to assume that the NDE occurred during the near-death event. However, while we may regard neardeath events as common correlates of NDEs, we are not justified in using the close brush with death as a criterion for the temporal occurrence of the NDE.

NDEs are often reported following near-death events that cannot be verified, or that were aborted before the experiencer came physiologically close to death. Among suicide attempters, in fact, NDE reports are more frequent among those who did not come close to death than among those who nearly died (Greyson, 1981b). If we allow near-death events to define the temporal occurrence of NDEs, then what do we make of these prototypical NDE reports that do not follow close brushes with death? If we choose to disregard the NDE report that does not follow a near-death event, then we also discard the argument for using near-death events to locate NDEs in time. That is, if the experiencer's testimony is not a valid criterion for having had an NDE, even in the absence of a close brush with death, then the correlation between near-death events and NDE reports is meaningless.

Sabom (1981) has argued that near-death events *should* be incorporated into the definition of an NDE to reduce the ambiguity of the concept of the phenomenon. It is certainly true that relying on verbal testimony as the sole criterion for an NDE, and disregarding the evidence for a close brush with death, may lead to ambiguity or contradiction. Individuals may report, after a close brush with death, that they did not have an NDE, and then later claim that they did have one after all; or they may report that they are not sure whether or not they had an NDE; or they may report that they think they had an NDE, but can't remember it. Did any of these individuals have NDEs. or did they just think that they did; and if the latter, how do we distinguish thinking that one had an NDE from actually having had one? These are difficult problems for near-death research, and the only reply at this point in our knowledge of NDEs may be that ambiguous criteria are all that can be demanded for a concept that is still as ambiguous as the NDE. As an analogy, one cannot multiply two numbers rounded off to the nearest tenth and demand a product accurate to the nearest hundredth. Any refinement of the definition of the NDE, such as inclusion of a documented near-death event as a necessary component, must be justified by empirical evidence of its validity. At this point we do not have such evidence.

But if a near-death event cannot be used to define logically the temporal location of the NDE, can it be used as a pragmatic guide to the time of occurrence of the experience? One might assert, for example, that close brushes with death are temporal correlates of most NDEs, or that they are temporal correlates of psychological states in which NDEs are most likely to occur. Either assertion connects NDEs with a high probability of occurring at a specific time, without allowing the close brush with death to *define* the temporal location of the NDE. These assertions, however, while possibly correct, are not yet substantiated by empirical data. It is equally consistent with the evidence to assert that a close brush with death merely inclines the individual to have the impression, upon recovery from the near-death event, that he or she had an NDE. That is, the NDE, while made more likely by the occurrence of a close brush with death, may still be elaborated only upon recovery from the near-death event. Such an explanation would account for the association between close brushes with death and subsequent NDE reports without specifying anything about the temporal location or duration of the NDE itself.

Attempts to ascertain the time of occurrence of an NDE by reference to external events fail for similar reasons. Some individuals reporting NDEs describe objective events, localizable in time and space, which they state they witnessed in their out-of-body state. Sabom (1981) considered such cases to be strong evidence for the objective reality of the NDE. However, such cases do not necessarily establish the time of occurrence of the NDE. Waking from a close brush with death with accurate knowledge of certain objective events, and then learning that those events actually occurred while one was ostensibly unconscious, may incline the individual, retroactively, to attribute the NDE to that period of unconsciousness. The causal relation, and hence the temporal sequence, may indeed progress from autoscopic NDE to paranormal acquisition of knowledge; but it can progress just as logically from paranormally acquired knowledge to impression that the knowledge was acquired during an NDE.

The question of when the NDE actually occurred is further complicated by the assertion of many individuals that their NDEs cannot be described in any temporal sequence. The component parts of the NDE are often recounted as having occurred all at once, or in no particular sequence, or in a changing or fluid order. NDE reports frequently include the statement that during the experience time stopped, or lost all meaning, or ceased to exist, or no longer constrained the experiencer. Noyes and Kletti (1976) described the temporal disintegration in NDEs by comparing normal consciousness to a movie filmstrip: in NDEs the frames appear isolated and disconnected from those preceding and following, and as a result lose their location in time.

The significance of our inability to localize the NDE in time is not only that it muddies Grosso's distinction between NDEs and "hospital-induced" hallucinations, but that it also invalidates Grosso's paradox of the biologically superfluous experience occurring when hope of revival is lost. If we cannot establish the temporal location of the NDE, then it may well occur during a period of normal vital functioning, either to prepare the threatened individual psychologically for an impending near-death event, or to help the survivor adapt psychologically to the consequences of the close brush with death.

Psychological Function of an NDE Before the Near-Death Event

Most psychological explanations of the NDE have assumed that the experience occurs prior to the near-death event, as a response to the threat of death. This interpretation was first elaborated by Pfister in a 1930 article recently translated into English by Kletti and Noyes (1981). Pfister proposed that persons faced with potentially inescapable danger attempt to exclude this unpleasant reality from their perceptions and replace it with pleasurable fantasies, which protect the individual from being paralyzed by emotional shock. Ehrenwald (1978) also viewed the NDE as a defense against the threat of death, the out-of-body experience being a denial of dependence on the endangered body, and the visions of departed acquaintances being hallucinatory wish fulfillment and, again, a denial of the finality of death. Grosso rejected the wish-fulfillment hypothesis on the basis of NDE reports that contradict the experiencer's reported beliefs or desires regarding post-mortem survival. However, this cavalier dismissal of the role of expectation neglects the substantial ambivalence many people harbor towards death and an afterlife.

Hunter (1967) independently attributed the pleasant and transcendental NDE to denial of death, but also speculated that the passive acceptance of imminent death may be an intrinsically pleasurable state. He explained the life review as a regression to childhood memories in an attempt to escape from frightening present realities. Fisher (1970) echoed this interpretation of the life review as a retreat to a bygone world of pleasant childhood memories and fantasies, and saw the illusory restitution of lost body parts in amputees as a similar defensive mechanism.

Noyes and Kletti (1977) also explained the life review as an escape from threatening reality. In addition, however, they compared the absorption with images of one's past to the bereaved person's absorption with mementos of departed loved ones: they saw in the life review a process of anticipatory grieving over the impending loss of one's own life. The timeless quality of the life review was also interpreted as an escape from the tyranny of the imminence of death. In contrast to pathological conceptions of the life review, Butler (1963) wrote of it as a naturally occurring stage with constructive purposes. Though he too viewed the life review as precipitated by the realization of approaching death, he described the process not only as an escape, but as a device to resolve old conflicts, to reflect upon and reconsider the meaning of one's life, to revise one's perspective on past experience, and to separate real from neurotic guilt.

Grosso attacked the theory that NDEs represent a form of depersonalization in response to life-threatening danger on the grounds that NDEs differ from other types of depersonalization. Noyes, the primary proponent of the depersonalization hypothesis of NDEs, conceded that the NDE seems to be a unique form of depersonalization, particularly in its intense affect and positive effects on the personality (1981). While he acknowledged that depersonalization cannot explain all aspects of the NDE, he viewed the split of the threatened individual's personality into a calm, detached observer and a frantic, imperiled victim as a prototypical description of depersonalization, designed to protect the individual from the painful and disorganizing experience of physical death. Dlin (1980) saw such depersonalization also as the creation of a psychological state that mimicked death, an attempt to avoid actual death by sacrificing a part of the self: the individual, having "died" psychologically, might be spared actual death.

Other authors have cited specific biological changes in the body near death and have concluded that the NDE may be a psychological mechanism having survival value. Krishnan (1981) noted that the brain may die if sensory input to it is stopped completely, and that as one approaches death, environmental isolation and progressive deterioration of the body's sense organs and nervous system threaten to isolate the brain completely. He speculated that the out-of-body experience might be a biological device to keep sensory input coming to the brain during a close brush with death. Watson (1974) cited evidence that one's ability to survive a close brush with death may depend on one's mental state: a calm state of mind may conserve one's energy resources and prolong life, whereas agitation might deplete these energy reserves. He speculated that the transcendental and peaceful NDE may be a psychological mechanism to assure conservation of energy in the face of death.

Thus the NDE, if it in fact occurs in the early stages of a close brush with death, when one's vital functioning is still intact, might serve a number of critical purposes, including a defensive exclusion of reality from perception, when that terrifying reality might otherwise paralyze the will; denial of the threat of death, in an effort to keep hope and rescue efforts alive; pleasurable wish fulfillment; grieving over the imminent loss of one's life; reassessment of one's life; submission to a psychological death in an attempt to preclude actual bodily death; stimulation to keep alive an otherwise deteriorating brain; and conservation of dwindling energy reserves.

Psychological Function of an NDE After the Near-Death Event

Most psychodynamic speculation on the function of the NDE, as noted above, has focused on the individual's response to the threat of imminent death. Some investigators, however, have assumed that the NDE is created upon recovery from the near-death event and have speculated on the role of the experience in adapting psychologically to having been close to death.

Pandey (1971) hypothesized that the idea of being in a near-death state, without one's usual control over consciousness and behavior, may be so repellent to some people that they develop an alternative fantasy to explain their experience while unconscious. She speculated that rather than accept that they had lost control over their bodies, or had become, even briefly, like a biological machine functioning without awareness, some individuals prefer to believe that their bodies had in fact ceased to function, but that they had continued to function independently of their lifeless bodies. In addition to providing a more palatable account of one's behavior while unconscious, Pandey also suggested that believing one had died may relieve some people's strong guilt feelings.

Soliman (1979) focused on the guilt one may have about surviving while others in similar situations died. He speculated that the survivors may delude themselves that they also died in order to rid themselves of this survivor guilt. Ehrenwald (1978) hypothesized that the serenity, peace of mind, and euphoria of the NDE may be due in part not to the experience of nearly dying, but rather to the experience of recovery. He suggested that only when the pain and suffering have ceased and the danger is past can the individual pass into a state of tranquility, as a direct response to his or her survival.

Thus the NDE, if it in fact occurs only upon recovering from a close brush with death, may provide a more acceptable version of one's behavior during the near-death event; may relieve the individual's guilt over having survived the close brush with death; and may be an expression of the individual's relief at having survived the near-death event.

CONCLUSION

Grosso asserted that an adequate explanation of the NDE must address all three puzzling components of the phenomenon: its consistency, its paranormal dimension, and its positive transformative effects. As noted above, psychological interpretations could address all three aspects of the NDE. That is not to say that a psychological explanation is correct; only that Grosso has dismissed the possibility of one being correct prematurely.

But the requirement that one theory explain all aspects of an NDE may be an impediment to our understanding if those phenomena we now call NDEs actually comprise several different experiences. Noyes (1981) has identified by factor analysis three distinct components of the NDE, which he has labeled hyperalertness, depersonalization, and mysticism. It is conceivable that the component parts of the NDE may have different causes and functions. Some features we now consider part of the prototypical NDE, such as visual hallucinations and panoramic memories, may be attributable eventually to organic brain dysfunction; other elements, such as feelings of painlessness and depersonalization symptoms, may be attributable to psychological defenses; and some aspects, such as veridical out-of-body perceptions and so-called flash-forwards, may not be comprehensible by any current physiological or psychological explanation. Grosso's insistence that one explanation encompass all aspects of the NDE is valid only if NDEs are indeed unitary phenomena. I suggest that we need not restrict our consideration of explanatory hypotheses until we have the data to support a unitary conception of the NDE.

Finally, Grosso asserted that an adequate scientific theory of NDEs, in addition to being consistent with all aspects of the NDE, must be consistent with the total system of knowledge, and must enable us to predict new features and ramifications of the *explicanda*. Given these requirements, we do not know enough about NDEs to provide a decisive theory, psychological or otherwise. But psychological explanations can satisfy the requirement of consistency with the reported phenomenon, and should not prematurely be pronounced near death.

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Near-Death Experiences in a Pacific Northwest American Population: The Evergreen Study

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To the Memory of John Lennon

INTRODUCTION

With the refinement of modern resuscitation procedures increasing numbers of people have "died" and then returned to life. Many individuals report that during the time of clinical death extraordinary phenomena occur, which challenge accepted ideas of what happens when we die. A remarkable degree of correlation in these reports demands serious consideration. This paper will address pertinent questions raised by these reports.

This study seemed needed for five reasons: 1) Increasing numbers of responsible people report that during the time of clinical death they maintained conscious awareness of both external and internal environments. 2) The definition of death may need to be adjusted in light of these experiences. 3) The question of whether the NDE is a separate state of consciousness or the result of patterned hallucinations needs to be studied. 4) These experiences may be the source of much of humanity's religious belief and of the persistent, crosscultural belief in an afterlife. 5) Much popular literature proclaims that these experiences are proof of an afterlife. This claim is obviously premature. Before such issues can even be addressed, these experiences must be subjected to objective, scientific studies. The phenomenon is too important to be abandoned to the pulp writers.

Because of time constraints on our research our criteria for inclu-

sion in this study were simply that a person had been in a lifethreatening situation and felt he had actually died. It quickly became apparent, however, that we would not be taking our sample from the ranks of the uninformed. The "contamination" of the near-death population is widespread due to the success of books by researchers such as Moody (1975) and Ring (1980). Put more positively, experiencers are more willing to come forward now that the threat of ridicule has lessened. Nevertheless, we took into account that many of our respondents had been exposed to near-death literature since their own encounter with death. Understandably, this awareness could have affected the manner in which an individual interpreted the basic experience.

Despite these limitations, our respondents' experiences did tend to fall into a common pattern marked by five distinct stages which we shall briefly summarize below. These stages have been outlined previously by both Moody (1975) and Ring (1980). It is important to note that all these stages are not perceived by everyone and that they are not necessarily consecutive levels of experience. Furthermore, not everyone who comes close to death has a near-death-type experience.

The first stage of the near-death experience is one of overwhelming peace in which all agony ceases. There is a feeling of unequalled calm and acceptance. Apparently, from our reports, the further one "sinks" into death the deeper this sense of well-being becomes.

The second stage is characterized by a sense of separation from the body. At this point, awareness shifts from being identified with the physical body and is described as being similar to the view of the eye of a camera. It may also appear that the consciousness is enclosed within a second body similar to but distinct from the physical one.

In the third stage the individual finds himself moving within a dark void or traveling down a long tunnel.

During the fourth stage a light is encountered that is almost always described as being either white or golden and of indescribable brilliance. The fifth stage has been labeled "entering the light" by both Moody and Ring. We found this phrase to be misleading since it implies experiencers first encounter the light and then enter it. Within this light they apparently discover "worlds" from which the light has its origin. We did not have a single report that described the light as emanating from a non-physical environment. Though brightly illuminated, these non-physical environments seemed distinct from the brilliant light of the fourth stage. In fact, we were more inclined to regard these "worlds" as having *their* origin within the light. In this report, we shall refer to the fifth stage, then, as "the inner setting." The setting is usually a location of great natural beauty such as a garden, valley, or meadow. Here the experiencer spends time before deciding to return.

In this report we shall outline our methods, findings, and conclusions along with suggestions for further research. We shall also compare and contrast our study with Ring's investigation.

METHOD

At the beginning of our study we decided to advertise for people "who have been clinically dead or feel they have died and returned to life." We realized the basic weakness in such a procedure, but we calculated that only in this way could we gain a significant number of people in the five months we had to complete the project. Obviously, we cannot claim to have a representative, random sample of Americans from the Northwest. We do think, however, that the cases gathered demonstrate a reasonable degree of comparability to Ring's (1980) study.

In our first advertisement we did not mention we were seeking people who had had near-death experiences, only that we sought people who had come close to death. We did not offer payment. We extended assurances of complete confidentiality and our subjects signed a consent form advising them of our project intent. Later, interest in our research from radio, television, and newspapers allowed us to reach larger numbers of people but it also compelled us to be more open that we were studying the near-death experience. We do not think this significantly altered the quality of our respondents, though, because public awareness of this phenomenon is already high.

A total of 49 people were interviewed, who described a total of 55 encounters with death. Of these, 35 were contacted via some form of advertising and 14 were obtained by word of mouth. We also declined interviews with another 20 contacts who did not meet the criterion of having been clinically dead or of feeling very strongly they had died.

Due to time considerations, we were unable to confirm the actual clinical deaths of our subjects although we have kept records of when and where they died, whenever possible, for future follow-up.

The interviews were all tape recorded and were generally conducted at the home of the respondent, although some were made over the phone when the person lived a great distance from our facilities. During the interview we allowed the subject to give us an uninterrupted account of his encounter with death. After the narrative was completed, we followed with a series of standard questions (Ring, 1980) that probed for details on the nature of his experience and the effect it had on his life. We also gathered demographic information for use in analyzing the results.

Upon completion of the interview, we informed our respondents we would notify them of our results and offered them a copy of our project report.

We used a rating system described elsewhere (Ring, 1980) to isolate and evaluate specific qualities of the experience. In order to determine when a particular quality was present, we each listened separately to the taped interview and recorded our decision on a rating form. Only if two out of three raters agreed did we assume a characteristic was present.

RESULTS

The most intriguing aspect, indeed the crux of the near-death experience, is its invariance across broad social lines. As one listens to personal reports of those who have come close to death, one is struck not by the differences but by the similarities of description. To demonstrate this point we shall move through the five stages of the near-death experience and compare our findings with Ring's.

First Stage. Feelings of peace, warmth, and well-being are the overwhelming sensations reported. As one woman who was a drowning victim described it:

I was in agony . . . and then all of a sudden I became very warm and I was floating, I felt very good and all the pain was just gone instantly! (6)

Another woman (9), who had almost died as the result of a hemorrhage while she was a child, said she "felt guilty" because the sensations she was experiencing felt so good.

Words commonly used to describe this stage are "peace," "happiness," "painlessness," and "tranquility." It is unnecessary to quote further descriptions of the first stage since they have been amply documented by Ring and others. In fact, it is often exhausting to listen to these accounts of sheer bliss because they are so predictable. In our study, 41 of 55 near-death encounters contained some element of peace. This means 74.5 percent of our sample had entered the first stage of death. Ring found 60 percent of his respondents had experienced the first stage. It should be noted that Ring's sample was much larger than ours, with a total of 104 near-death encounters and his overall percentage of near-death experiencers (48 percent) was much lower than ours. (See Table 1 for comparative graph.)



Second Stage. Here the near-death phenomenon begins to display qualities that challenge conventional theories of mind. People report that during this time their awareness *separates* from their physical body and moves spontaneously about the external environment. It may also travel at incredible rates of speed into unrecognized areas of consciousness. Taken at face value, this stage indicates consciousness is capable of existing without the body.

My next awareness was floating in the air about 5 feet above the end of the hospital bed. I saw a body in the bed, it looked awful, a greenish-gray color . . . it looked dead. Nurses and doctors were working on the body. A nurse was yelling a coded message over the intercom . . . it dawned on me that maybe it was my dead body (lying) in the bed. (18)

The ability to observe in detail the movements of people and the location of objects within the external environment is one of the most perplexing problems raised by this stage. How can someone see when the senses seem inert? We have subjects who say they have verified movements and locations of people and identified objects they could not have known were present.

There are, however, cases where perception has been quite inaccurate. The subject may perceive objects and people not present. The following is from a woman who "died" while undergoing a ruptured tubal pregnancy:

The one thing that I was aware of, I saw this little table over the operating table. You know, those little round trays like in a dental office where they have their instruments and all? I saw a little tray like that with a letter on it addressed (from a relative by marriage whom she had not met). (38)

She later told this story to her sister-in-law, a registered nurse, who had been called into the operating room during the crisis. The sisterin-law told the woman the round tray and letter were not in the room. Interestingly, the letter on the table was from the nurse's brother-in-law.

I don't know whether it was her presence I was sensing or if someone in the conversation (in the operating room) mentioned her name. (38)

The tray to which she refers is probably not a round, dentist tray but the small, rectangular instrument table called a *Mayo*. The tray can be pulled over a surgical table. Notice it sounds like "mail". She may have heard someone call the tray by name (since hearing is reportedly the final sense to fail at death) and connected it with "mail."

In another example of misperception in the second stage, two

people were involved in a serious car accident:

Well, then I remember, not physical bodies but like holding hands, the two of us, up above the trees. It was a cloudy day, a little bit of clouds. And thinking here we go, we're going off into eternity... and then bingo, I snapped my eyes open and I looked over and he was staring at me. (49)

In this incident a woman had lost consciousness but her male companion had not. In the experience, she perceived the two of them in an out-of-body state, yet her friend never blacked out. He had, however, received a hard blow on the head. He could not confirm her perception. Monroe (1971) has written about this problem:

One problem is encountered periodically in perception during the Second State. It may be more common in perception by physical means than has been reported, and thus not unique. I refer to the question of the mind's identification of persons, places and things which up to that moment have been unknown and unperceived previously.

In the quest for evidential data and self-orientation, the mind seems to act strongly in response to an unformed thought command to "Identify!" without modification or equivocation. Therefore, when an unknown or apparently impossible situation, place, person, or thing is encountered, the mind comes up with some kind of answer rather than no answer whatsoever.

The answer takes the form of rationalization, if it can be called that; or more commonly, a search is made of past memories and experiences to produce proper identification. It compares the situation under which the object or action is perceived with past personal experience. If there is nothing to coincide exactly with the observed data, the mind invariably reports the *most similar memory* and states, "This is the object or action you are seeing." It is only after critical analysis that some semblance of what actually *was* perceived comes to light (p. 185).

Once again, our figures differ from those reported by Ring. Our sample had 39 of 55 encounters with death reach the second stage for a total of 70.9 percent. Ring reported only 37 percent of his respondents entered the body-separation phase.

Third Stage. In this stage some people find themselves moving through a void or blackness. They may also travel through a long tunnel. Apparently this is an intermediate stage as the awareness shifts from the external environment to the inner setting.

A man who had attempted suicide with an overdose of Miltown and Equanil described the blackness:

It was a void. It had no distance. (5)

From a woman who "died" of blood poisoning:

Soon as I left the room I was inside a black river. Everything was dark-

ness. I was all alone and suffering terribly and the waves were washing me to and fro. A voice spoke behind me, a big voice. It sounded like it was through a megaphone . . . and he said: "This is the river of death. This is the river of death. This is eternity. You're lost. This is eternity." (31)

The experience of moving through a tunnel is a distinct element of the NDE but has the same subjective purpose of transition as the darkness. A man who experienced a heart attack described the tunnel effect in this manner:

I felt like I was going up at about a 45 or 50 degree angle... at the end of the tunnel, I say tunnel but I don't mean a tunnel like a tunnel. It was kind of like a funnel. (32)

Our percentages in this stage drop to 21 of 55 instances or 38.2 percent of the sample. Ring reported 23 percent of his respondents experienced this stage.

Fourth Stage. The experience of the third stage often leads directly into the fourth stage, "encountering the light." This light is almost inevitably described as brilliantly white or golden. However, there are exceptions. A French woman we interviewed described this light as pink and blue.

From a man who experienced a heart attack:

The more I concentrated on this source of light the more I realized that it was a light of a very, very peculiar nature . . . it was more than light. It was a grid of power . . . if you could imagine the finest kind of gossamer spider web that was somehow all pervading, that went everywhere. (27)

At this stage, religious preference and family background begin to have some effect on one's *interpretation* of the nature of the light. Many who had deep religious convictions said this light was God or that they had seen the figure of Christ within the light. Most people, including many who were quite religious, described the light as impersonal, though warm and compassionate.

The light that surrounded my hospital bed was so brilliant, I could actually see my bones!" (15)

The light was tremendously bright . . . it was the destination. (16)

One woman (6) described the light as "very white" and like the glow of a Coleman lantern.

In our study respondents encountered the light in 31 of 55 encounters or 56.4 percent. Ring reported 16 percent for this stage.

Fifth Stage. The fewest near-death experiencers reach this stage, the "inner setting." In looking through the descriptions of the inner setting, it is apparent that this stage is referred to in different cultures by a variety of names. The "Realm of the Ancestors" in Hindu mythology, "The Happy Hunting Ground" (so called by the white culture) of the Plains Indians, and "paradise" in Judeo-Christian and Islamic cultures. This is where consciousness finds itself before resuscitation takes place.

One description of this state was given to us by a woman thirtyeight who had nearly drowned when she was eight:

I was in a garden, right behind a bush but I could see everyone that was ahead of me. In the garden there was this one, big, large tree and there were children playing a game; there was seven children; and I saw a bunch of flowers, there was a butterfly and a deer next to me who I felt lick my face. At the time, I didn't understand that but I was more curious about what was going on beyond me. The children saw me and they beckoned me to come over. And I hesitated but when I finally decided to step over . . . then I felt this heavy tug, like a vacuum and then I was forced out and the next thing I knew I was back in my own body. (40)

This incident is interesting for two reasons. It demonstrates the almost playful nature of consciousness at the moment of death. The seven children were playing ring-around-the-rosey.

Ring around the rosey pocket full of posey. Hush-a! Hush-a! All fall down!

One suspects that if she had heard the last words of this stanza she would not have found herself back in her body. The line "All fall down" is a poignant metaphor of the child sinking into death.

The natural setting of this episode also contains mythological symbols which often appear in the inner setting. From a drawing of the scene provided by the respondent, the following points were evident: First, a tree in the center of the garden is certainly reminiscent of the "Tree of Life" found in many cultures: Judeo-Christian, Hindu, and Native American. Second, a path that winds its way through the garden is also a universal symbol of the journey through life. The reasons for the appearance of these symbols in far-flung cultures is widely debated. Perhaps a closer examination of the inner setting might contribute to our understanding of the dispersion of mythological symbols throughout the world.

Our respondents reported reaching this stage in 19 of 55 encounters for a total of 34.5 percent. Ring reported 10 percent of his subjects experienced the fifth stage.

Non-Experiencers. Only 5 of the 55 encounters with death produced no near-death-type experience. One non-experiencer had "died" on a previous occasion and had a classic near-death experience. The other four respondents were either heavily drugged or had been under anesthesia for a period of twelve hours at the time of clinical death. These factors seem to support Ring's contention that heavy drugs and previous experiences seem to inhibit the near-death experience. It is also worth noting that four of the five subjects were agnostic at the time.

We suspect our method of contacting individuals limited the number of non-experiencers we reached. We were careful not to mention that our research purpose was to examine the near-death experience. Although we also asked non-experiencers to contact us, it seems we were not successful.

Hellish and Negative Experiences. The primary emphasis in most of the near-death literature has been on the celestial aspects of the experience. Clearly, most reports are extremely positive in nature, but there are cases of negative and even "hellish" experiences.

We define a negative experience as one that contains extreme fear, panic, or anger. It may also contain visions of demonic creatures that threaten or taunt the subject. In the hellish experience the subject witnesses the proverbial fiery pit and sees "the devil himself."

Most negative experiences begin with a rush of fear and panic or with a vision of wrathful or fearful creatures. These are usually transformed, at some point, into a positive experience in which all negativity vanishes and the first stage of death (peacefulness) is achieved. It is also common for the negativity to come at the *end* of a more positive experience, suggesting the negativity lies in the transition from ordinary consciousness to the peace of the first stage. This may be the source of the mythological "fall from grace" reported in cultures throughout the world. One woman, who is religious, described the "fall from grace" thus:

As I was returning to my body, I had a feeling of coming to a very wicked world and it filled me momentarily with fear.

When I awoke, the realization of who I had seen (Christ) came to me, and what had happened. (29)

Another man, who experienced a cardiac arrest, reported viewing a demonic figure that taunted him, he felt, for being concerned only with "fun and games" during his life. This scene eventually resolved into a beautiful Stage Five setting where he conversed with his deceased father. (43) These examples demonstrate the transitoriness of the negative experience.

We located only one case involving hellfire and damnation in our investigation. If one combines Moody's, Ring's, and The Evergreen Study, only 1 in a combined sample of 301 individuals (.3 percent) described a hellish experience. Note also that this man was reportedly ushered into hell by mistake on his second of three near-death experiences.

- Respondent: The second experience was different, I went downstairs! Downstairs was dark, people were howling, (there was) fire, they wanted a drink of water . . . Then somebody came to me, I don't know who it was, he pushed me aside and said, "You're not coming down here. You're going back upstairs."
- Interviewer: Did he actually use those words?
- Respondent: Yeah. "You're going back upstairs. We don't want you down here because you're not mean enough."
- Interviewer: Did you first experience the blackness and then ...
- Respondent: Pitchblack. First we went down . . . it was pitchblack.
- Interviewer: Did you go down a tunnel?
- Respondent: It was not a tunnel, more than a tunnel, a great big one. I was floating down . . . there was a man there waiting, he says, "He's not the one.
- Interviewer: Could you see the people that were yelling?
- Respondent: I seen alot of people down there, screaming, howling . . .
- Interviewer: Were they also in clothes?
- Respondent: No, no, no. No clothes at all.
- Interviewer: They were nude?
- Respondent: Yeah.
- Interviewer: And there were how many would you guess?
- Respondent: Oh, Christ, you can't count them.
- Interviewer: Thousands?
- Respondent: I'd say about, almost a million to me.
- Interviewer: Oh, really? And they were all really miserable?
- Respondent: They were miserable and hateful. They were asking me for water. They didn't have any water.
- Interviewer: And there was a presence that was watching over them?
- Respondent: Yes, he was there. He had his little horns on . . .
- Interviewer: He had horns on! Do . . . who do you think . . . do you recognize this person?
- Respondent: Oh yes. I know him anywhere.
- Interviewer: Who was it?
- Respondent: The devil himself! (35)

The interview continued with descriptions of the heat and fire of hell, the devil's disciples, and the time the respondent spent there (about four hours). Interestingly, this experience was sandwiched between two positive experiences. During the first episode the man spent time in "paradise." The second, hellish experience took place weeks after the first and shortly before the third and positive experience.

The incidence of a partially negative or hellish experience within a near-death encounter was 11 in 55 or 20 percent, with the remaining 80 percent either a positive experience or no experience at all.

God, Guides, and The Decision to Return. Regardless of what stage an individual reaches, at some point he decides to return to life. This decision is the final event in the near-death experience and is accompanied by a rapid, usually instantaneous, return to the proper body. The experiencer usually does not pass through a tunnel on the trip back to his body. In only three cases was there even an awareness of time passing between the decision and the return. And all of these subjects commented that they returned much quicker than they left. Our findings here strongly support Ring's (1980) data on the decisional process in near-death experiences.

The decision to return may be voluntary: people report having unfinished business "back on earth" and so they return. Women report especially the desire to finish raising children. In fact, some characterize returning for the sake of their children as their "mission."

Often, however, the decision to return is not voluntary. Many report fighting the return to their bodies. Upon regaining consciousness, they may be angry and resentful of having to return to a body racked with pain. Evidently, getting back into the body is an unpleasant sensation comparable to "getting into a peapod... almost a moist shell." (2)

Strangely, the decision to return may involve a period of confusion and bargaining between the experiencer, the guide, and "God Himself." The man who was misrouted to hell is an example of what seems like inefficiency in the operation of the afterlife.

A subject of ours related a remarkable experience in which he was led by his guide, "Joe," into a dark waiting room. From there he listened to Joe conferring with other presences on what they should do with him:

I could hear some other people talking, or the presences, whatever you want to call them, off on the other side of the door about what they should do; whether they should send me back, whether I should go back. They consulted each other about what my age was, my youth, and I felt they were really discussing my future. For a long time I felt I could remember what they said in there but anyhow, the upshot of it was, that it was decided that, yes, I would go back but Joe would go with me and he was supposed to take care of whatever problems presented itself. (16)

The problem this man refers to was the removal of a portion of his right frontal lobe. Between the accident and recovery, he was hustled back and forth between the room and body on four separate occasions. Eventually, the decision to return was made and Joe returned with him to serve as a guide to his damaged brain. This relationship was benevolent for a number of years until Joe began making attempts to take "possession" of the man's vocal chords. A struggle ensued in which his brother choked him by the neck while he "killed" Joe internally . . . and that was the dramatic end of Joe.

It is not uncommon for the experiencer to consult the guides regarding the advisability of returning to the body. The individual weighs what he has accomplished in his life and determines whether to continue his "mission" on earth or remain with the guides. A woman who was involved in a serious car accident was told by her guides:

You have more time on earth, if you want, you have a choice . . . but before you make that decision I want to show you something; and so they proceeded to show me my life ahead into the future . . . he said, "Remember if you check out now, you'll just have to come back and finish your mission. But it's up to you, you have free will." (21)

The future they showed her involved many personal things which, she reports, have come true. At any rate, she bargained for an undamaged body to return to, stating she would not return to a body that was not completely healed.

In a similar occurrence, a man who was accidentally electrocuted said this:

The next thing I remember, there was a cloud and a male, related to Jesus, 'cause he looked like the pictures of Jesus. He was in this chariot type . . . the torso was a horse, everything above the torso was a man with wings; sort of like a Pegasus except instead of a horse's head it was a man . . . and he was beckoning to me . . . and I kept backing up . . . I remember telling him no, I had too many things to do and there was no way I could go now. Then the clouds sort of filled over and as it filled over I heard Him say, "O.K.!" (44)

Occasionally, the guides function as a tribunal that reviews the individual in a more formal manner. The person approaches them as one would a panel of judges, with respect and some trepidation. The tribunal experience was reported to us in 5 of 55 encounters with death (9 percent). Two of the five cases involved brothers who had near-death experiences ten years apart. They told us that neither had discussed the matter with the other for almost twenty years because of a fear of ridicule. Such cases deserve close attention because of the shared family background, which may shape the experiences. A second point of interest is that the content of both seems to support Ring's contention that the near-death experience is an encounter with one's higher self.

The first brother was undergoing a spinal fusion operation at the time of his experience. In it, he found himself before a group of shadowy figures who asked him the following:

. . . explain in four words what my life was all about. Of course, I

immediately started thinking about love and all this stuff...so they told me the answer and I couldn't believe it! It was so simple, that life was explainable in four little words. (10)

The message was so disturbing to him that – he reported – he leaped from the operating table with the surgical knife stuck in his back and ran down the hall! Later, he awoke "roaring like a bull" and bent the frame of his hospital bed. "I was really powerful," he said.

He spent the following 5½ months recuperating and trying to remember the phrase, which had been blanked from his memory.

I've kind of pieced it together through the years. The closest I can come and have any satisfaction with is "In your own image." In other words, you're an individual living by yourself, for yourself, and with yourself, and there's nobody like you. (10)

His brother had a remarkably similar experience in terms of the tribunal review and realization of the nature of the "Self." In his experience he stood before a tribunal (at a location he later journeyed to and recognized as being the Parthenon in Greece):

While I was up in front of this guy that asked me this question there was a whole troop of guys off to one side... come to look at them, they were all me, I guess, at different times. One was dressed something that looked like a pirate, another one was in robes like an old Greek philosopher or something. Another one, way older, maybe thousands of years older, looked like; very crude clothing; looked like a shepherd or something. And then I noticed sort of a medieval green outfit like they were in England in the time of Robin Hood. There was about three young guys almost all the same age; 21 to 23. Then I realized that those were lives that I had lived before! And it took me three lives to get through this situation in old time England. (11)

The Life Review. Only five people (9 percent) reported experiencing the panoramic life review. The mode of death in each case was accidental except for a young man who, with no history of heart trouble, experienced a heart attack. This coincides with Ring's view that it is the suddenness or unexpectedness of death that brings on the life review.

Three of our subjects related a selective, partial review of scenes from their lives. The remaining two had complete life reviews in which they observed visual imagery of their early childhood to the present. The scenes were replayed in a patterned, sequential display from the earliest memories to the most recent.

Gender & Mode of Death Relationship to the Near-Death Experience. Roughly two-thirds (62 percent) of those who related a neardeath experience were women. Of 55 encounters with death, 50 near-death experiences were reported. The following table illustrates

Near-Death Experiences in a Pacific Northwest American Population

the gender and mode of death relationship to the near-death experience. We define accidental death as that which occurs unexpectedly through carelessness or by chance, including electrocution, homorrhaging, reaction to drugs and anesthesia, etc.

	Mode of Deat	h Number	Percent
	*Accident	26	52%
Women	Suicide	1	2%
	Illness	4	8%
Men	Accident	10	20%
	Suicide	1	2%
	Illness	8	<u> 16% </u>
	7	Total 50	100%

(5 non-experiencers not included)

*women had a high number of near-deaths by hemorrhaging.

Demographics. Our demographic information was incomplete. However, we noted apparent minor differences between our study and Ring's in the areas of race, religious preference, and gender. We suspect these variations are due, however, merely to regional differences between the Pacific northwest and New England. We had a higher proportion of non-religious and Protestant respondents than Ring. The Pacific northwest is predominantly Protestant while New England has a higher percentage of Catholics. All of our respondents were Caucasian but the population of Washington is only 3 percent black. Also, there was a difference in how we contacted people. Ring received many of his contacts through hospitals while we reached most of ours through advertisement. We believe women were more likely to answer an advertisement and share a personal experience with us than men.

Life Changes as the Result of the Near-Death Experience. The most frequently mentioned result of the near-death experience is a shift to a more positive view of life. The person generally becomes more appreciative, compassionate, and spiritual. This increase in spirituality does not necessarily mean an increase in a conventional acceptance of religion. These findings are consistent with Ring's on after effects.

There is a tendency for the initial euphoria to fade in time although the memory of the event remains clear. A woman described having the patience of a saint for about a month following her episode. After that she became more normal. The ineffable feelings of the experience also tend to fade, although the memory remains fresh.

Essentially, we found the experience to have a profound effect on the values and internal perceptions of the individual, but the emotional impact tended to fade with the passage of time.

DISCUSSION

Our main concern has simply been to collect data and not be bound by the assumptions and interpretations suggested by some researchers and experiencers. Our desire has been to examine the neardeath phenomenon in terms of established psycho-biological principles without succumbing to the temptation to quash certain features of it that challenge our preconceptions of life and death. Clearly, this phenomenon deserves the most rigorous examination possible because it seems to be more common than had previously been realized.

The first stage of death is possibly the most easily explained from a biological point of view. The peacefulness of this phase could be due simply to the act of dying itself. Death is terminal relaxation. Assuming there is a subtle degree of awareness left in spite of our definition of clinical death, the brain may interpret this state of relaxation as peace, bliss, or freedom. It might be compared to the sensation of climbing into a warm bath in which there is an immediate relaxation of muscles and the feeling "aaahhh!" A second factor in the blissfulness of this stage might be the group of endogenous morphine-like substances called endorphins. That endorphins are involved in pain mechanisms has been firmly established. There is also increasing evidence that links these morphinelike substances to the placebo effect (Fields, 1980) and to the anelgesic properties of acupuncture (Chen, 1976). Beyond this narrow inhibitory function there is also the intriguing discovery that endorphins are found in areas associated with emotional responses and hormone control (Goldstein, 1976) and may be an evolutionary complement to the "fight or flight" reaction (Akil, 1976).

Prior to death, many subjects interviewed reported being in a state of anxiety and pain comparable to the fight-or-flight reaction. This was followed by a sudden cessation of pain and anxiety and the commencement of ineffable sensations of peace and well-being at the moment of clinical death. It seems plausible that physical stress disrupts homeostasis, triggering a massive release of endorphins and enkephalins, possibly from the brain's central core. This release of endorphins could then produce the reported feelings of peace and
well-being that characterize the first stage of the near-death experience.

There are relatively high concentrations of endorphins located in the hypothalamus (Van Vugt and Meites, 1980). A review of this structure will illustrate the role it may play in providing a mechanism for Stage One of the near-death experience.

The hypothalamus is located above the brain stem in the central core of the brain. In spite of its relatively small size, it plays a major role in many functions. Certain areas of the hypothalamus monitor body temperature, maintain homeostasis, and apparently control endocrine functions. The hypothalamus appears to direct the body's reaction to fear and stress by stimulating it to return to the level of functioning prior to the disruption of equilibrium.

In emotion, the hypothalamus also serves a function. When certain areas are stimulated by electrodes, feelings of pleasure arise. If nearby portions are stimulated, however, there is an unpleasant and even painful sensation. Specific areas of the limbic system have also been stimulated in the course of neurosurgery with similar responses of pleasure, anxiety, or fear. Generally, the patient is awake during the operation and experiences difficulty in describing the pleasurable sensations with accuracy (Vander et al, 1980). It seems probable that the affective component from the electrical stimulation has a neurochemical basis and that the analgesia associated with stimulation is produced by the release of endorphins (Marx, 1977).

Is there a link between the sense of well-being of Stage One of the near-death experience and the endogenous opiates? From hundreds of interviews with near-death experiencers it is well documented that a sudden cessation of pain and anxiety occurs as the body systems fail. Most experiencers describe entering a state of unequalled peace and contentment, which continued to increase the longer they remain unrevived. Upon resuscitation, most subjects report a rapid return to the previous state of pain coupled with a longing for the ephemeral peace they had found in "death." Other experiencers report that the euphoria continues for an undetermined amount of time after revival but that these sensations eventually fade, leaving a powerful memory of the event.

If endorphins are involved in the near-death experience, they must be capable of acting very quickly to account for the rapid cessation of pain characteristic of Stage One. Like some other neurotransmitters, enkephalins have a rapid onset and offset of action (Klee, 1976). Maximum analgesia is reached in two minutes followed by rapid enzymatic degradation within five to ten minutes. The experimentally defined properties of enkephalins seem to correlate with subjective reports of most near-death experiencers. Those who report a longer lasting euphoria may possibly be experiencing the effects of the beta-endorphins, which are more stable and less easily metabolized. Note also the time frame within which the release and dissipation of enkephalins occur. It would encompass the period from death to revival of most experiencers and would account for the rapid onset and offset of Stage One.

The "cue" for the release of the endorphins/enkephalins may originate within the hypothalamus as a response to the unprecedented disturbance of equilibrium brought about by the onset of death. As the simultaneous failures of heartbeat, respiration, and other vital functions occur, the hypothalamus may make a final attempt to restore homeostasis to the internal environment by triggering a massive release of endorphins/enkephalins within the brain.

From an evolutionary perspective, this response can also be viewed as an adjunct of the fight-or-flight reaction. An animal whose death seems imminent must have a system that will suppress pain and initiate the euphoria necessary to act defensively. We hypothesize that the mechanism that prevents incapacitation in life-threatening situations involves this group of endogenous morphine-like substances.

Ring has observed that the incidence of a near-death experience can be affected by the presence of drugs within the body at the time of death. Although this has not been fully established, some drugs may inhibit the experience of Stage One while other drugs and alcohol have no effect. An explanation might be that certain drugs block the endorphins/enkephalins, which are themselves suspected of being neurotransmitters (Vander et al, 1980).

Ring also contends that subjects who have had a previous NDE or even knowledge of near-death experiences tend to have a less intense experience or no experience at all. Although we did not fully corroborate this, it would still not fall outside of the endorphin/enkephalin hypothesis. Most experiencers report having a complete lack of fear of death following the near-death experience. In fact, many look forward to death. This could prove to be antagonistic toward a fight-or-flight reaction and subsequent release of endorphins/enkephalins if the manner of death is not too violent or unexpected. In a naturally occurring death, an experiencer would meet his fate with the powerful memory of Stage One and would be less likely to experience panic associated with "fight or flight."

It has also been observed that terminally-ill patients often enter a period of remission before dying. This phase, which may last for several days, is frequently described as a state of peace, contentment, and relative painlessness. If this final stage of dying is but a qualitative degree below the euphoria of the first stage of death, one would expect that endorphins are providing the analgesia. In that event, an injection of naloxone (a pure narcotic antagonist) would dramatically reduce the feelings of contentment and painlessness of the remission period. The return to pain would be short-lived and the subject would quickly recover his comfort. Such a test raises obvious ethical questions but is suggested to stimulate thinking along these lines. This or a similar test might indicate whether endorphins are involved in the last stage of dying. By implication, one would then suspect a similar analgesic effect occurring in Stage One of the near-death experience.

We confess, at this point, being unaware of convincing biological explanations for the succeeding stages. It is possible the out-of-body experience is a "programmed" behavior to preserve essential identity by appearing to separate consciousness from the threatened physical body. Computers are programmed to react in this way to preserve "essential information" in the event of a complete breakdown of the system. Perhaps the body has a similar mechanism. This is only a partial answer though, and doesn't begin to explain the perception of external and internal environments that accompany this and succeeding stages, especially those that involve veridical perceptions while out-of-body (Sabom, 1981). For this reason, we are eager for neuroscientific researchers to come forward and confront the challenge of explaining the near-death experience as a whole.

We have given a great deal of emphasis in the Results portion to personal descriptions of the inner setting, the light, and so on. In examining the mechanisms of the experience, it is important not to discard the subjective reports of our respondents. Practically all report these experiences as real and in the most emphatic terms. In fact, a sizable portion regard the near-death experience to be more real than their normal perceptions of reality. Although some researchers might find this difficult to believe, it is important to remain open at this point to the possibility that there is some truth in the perceptions of these sane, responsible people.

SUMMARY

The near-death experience clearly has invariant characteristics. It occurs in significant numbers of people who have experienced clinical death. These reports come from individuals of widely dispersed groups and a variety of social and religious backgrounds. Near-death experiencers report reaching at least one of the five stages of neardeath: Stage One, feelings of peace, freedom, and well-being; Stage Two, the sensation of separation from the body; Stage Three, the tunnel effect, or entering the darkness; Stage Four, encountering the light; Stage Five, the inner setting. Each of these stages is marked by extraordinary but patterned phenomena.

Feelings of peace and well-being are possibly due to the "terminal relaxation" of dying and to the effects of endorphins. The concept of clinical death needs to be reexamined in light of the reports that consciousness continues even after prolonged periods of apparent death.

The near-death experience is a subjective and highly personal exploration of an inner state. Although we may expound theories regarding the nature of this phenomenon, the experience of death stands as an existential reality outside the present limits of empirical knowledge. Regardless of whether the experience is "real" or hallucinatory, it very definitely and profoundly changes the life of a near-death survivor.

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The Tunnel Experience: Reality or Hallucination?

Kevin J. Drab

INTRODUCTION

Experiences of unusual states of awareness are important phenomenological resources whose contents may, when properly classified and analyzed, contain invaluable insights into the nature of the human mind. The topography of anomalous subjective events, however, often tends to be too complex and novel to communicate or study systematically. Therefore, if we wish to study reports of these experiences, we will have the most success if we begin by examining their *less complex* elements.

The sensation of moving through a tunnel-like space is an occasional occurrence in hallucinatory conditions, and has been reported in association with certain types of unusual experiences considered by many to be important contacts with other realms of reality or consciousness, e.g., out-of-body experiences (OBE) and near-death experiences (NDE) (Crookall, 1970; Moody, 1975; Green, 1968; Ring, 1980a). A typical example of such a *tunnel experience* (TE) can be found in this report of a twenty-seven-year-old Englishwoman whose heart failed: "I became less and less able to see and feel. Presently I was going down a long black tunnel with a tremendous alive sort of light bursting in at the far end. I shot out of the tunnel into this light. I was in the light, I was *part* of it, and I knew everything – a most strange feeling."¹

TEs are generally simple and consistent in their descriptions, permitting a fair degree of detailed study of their characteristics. Through such a study of reports of TEs in various states of awareness, significant clues may be found that could shed light on the more complex contents of these states and their underlying mechanisms.

The purpose of this study, then, is to perform a descriptive analysis of the TE based on the accounts of individuals who have had one and to discuss possible explanations for the experience.

METHOD

Data Collection

I have collected approximately 1,112 reports of unusual experiences whose contents are of the type considered by many cultures to be visionary encounters with other modes of being related to conceptions of other worlds, death, afterlife, mysticism, or psychic forces. Most of the cases in this collection contain one or more of the following elements: otherworldly environments and beings, OBEs, deceased persons, varieties of light phenomena, mystical unity, intuitive knowledge, tunnel experiences, panoramic life reviews, and other phenomena seeming to reflect contact with another realm of existence. Although they lack publicly demonstrable reality, these experiences are distinguished by their perceptual and/or emotional vivacity, similarity in description, and apparent bearing on crucial questions concerning the nature of man, non-physical realities and post-mortem survival.

In selecting my case materials, I simply included all cases that contained the previously mentioned features. The cases were obtained from the following sources:

1. Personal interviews and correspondence.

2. Interviews and correspondence in the Archives of the (British) Society for Psychical Research.

3. Cases published in the literature (circa 1700 to 1981).

4. Case history material lent by Professor Kenneth Ring from his NDE files.

Published cases used included relevant reports in the collections of Barrett (1926), Myers (1903), Crookall (1961, 1964, etc.)², Muldoon and Carrington (1929, 1951), and numerous other compilations of reports. The collection can be considered a fairly comprehensive and representative sample of the types of unusual experiences that have concerned parapsychological investigators over the years.

Of the 1,112 cases in the original pool, 297 were not considered for this study (although many contained TE reports) because the medical categories under which they were subsumed (anesthetics without physiological complications, CO_2 inhalation, minor and major psychedelics, and psychoses) contained too few cases and too many complicating variables to allow effective comparative analysis with reports in other categories. This elimination of valuable data was unavoidable; it is hoped that these problems will be overcome in future research and that these categories, particularly CO_2 inhalation and anesthetics, will be studied.

Definition of Tunnel Experience

Moody's (1975) study of NDEs classified reports of tunnels, dark spaces, vacuums, and voids under one heading ("dark tunnel"), as he believed that the experients were all trying to express the same idea "of being pulled very rapidly through a dark space of some kind." Other NDE researchers, such as Sabom and Kreutziger (1978) and Ring (1980a), also combined descriptions of dark dimensionless spaces with those of tunnel-like spaces. Garfield (1979) placed his emphasis on the contrasting themes of maximal freedom and maximal constriction that were expressed in his respondents' experiences of tunnels or voids. Crookall (1964) assumed that a transitional phase involving a "blackout of consciousness" occurred in OBEs, and considered descriptions of tunnel-like spaces to be the same as reports of outer space, black vacuums, voids, and unconsciousness.

Although a close relationship appears to exist between experiences of tunnel-like spaces and dark, empty spaces, the featureless and vague properties of the latter present little information for analysis or comparison. A good example of this can be found in the description of a severely ill woman: "I all at once felt myself soaring up into space. Faster and faster I went. Space was like a dark void, but it wasn't black. It was like nothing at all. I've never been able to find the right words to describe the void I flew through."³

The problem is further compounded by the difficulty that an experient may have in discriminating between experiences of a dark visual field having a natural cause, such as closing one's eyes or syncope, and the actual perceiving of, or moving through, a dark space. In order to avoid additional confusion I decided that descriptions of empty spaces would not be considered in this study; as a result, I will concentrate here on descriptions of definite tunnel-like spaces.

The tunnel experience may be defined as the perception of a realistic enclosed area of space much longer than its diameter. The surrounding features and depth perspectives of this phenomenon imply an organization of the space around a central area in the visual field. Indeed, a centralized area of light or an opening is sometimes described at the "far end" of the space, but observation of a central point is not necessary in establishing a tunnel-like perspective. Descriptions using identifying words such as cylinder, pipe, tunnel, passage, corridor, spiral, well, funnel, shaft, hole, culvert, cave, long enclosure, sewer, cone, and so on, would be considered TEs.

Medical Conditions

The methodological problems normally accompanying the use of anecdotal reports of unusual experiences (Krippner, 1970; Savage, 1975; West, 1948) were further complicated in this study by the frequent lack of complete biographical and medical information on cases gained from the Archives of the Society for Psychical Research and the general literature. Despite the lack of these data, the *majority* of cases contained sufficient details regarding their circumstances to permit their assignment to one of the following categories of general medical condition:⁴

a. Cardiopulmonary arrest (CPA). The experient had either inadequate or total arrest of respiratory and/or circulatory functions with concomitant symptoms. It is assumed that if the natural course of the subject's condition had not been reversed by external resuscitative measures, irreversible cellular biochemical changes of biological death would probably have occurred. Cardiac arrest is manifested clinically by apnea, unconsciousness, dilated pupils, and the absence of heart sounds, pulse, and blood pressure. It may be due to ventricular fibrillation, uncoordinated contractions, cardiac standstill, or circulatory collapse with sudden hypotension due to vasodilation or hypovolemia. Respiratory arrest results from airway obstruction or respiratory depression, or may be secondary to cardiac arrest. Cyanosis (except in CO poisoning), and eventually dilated pupils and cardiac arrest, follows respiratory arrest. Of the 815 collected cases, 183 (22 percent) belong to the CPA category.

b. Severe stress (SS).⁵ The experient was in a serious physiological condition resulting from disease, trauma, or stress, the natural progress of which, without medical intervention, might lead to CPA or *permanent damage* to the patient. This category would include near-drowning, coma, traumatic shock, severe toxic conditions, severe blood loss, and generally weakened conditions such as extended serious illness. Of the 815 collected cases, 220 (27 percent) belong to the SS category.

c. *Mild stress* (MS).⁵ The experient suffered a *non-severe* disturbed physiological condition resulting from disease, trauma, or other stresses that do not meet the CPA or SS category requirements. Sources of MS may be external, neurological, psychological, etc., as long as some degree of stress has been placed on the organism. This category would include minor injuries and pain, fatigue, mild fever, fainting, fear, and other strong but not extreme emotions, migraines, and mild toxic conditions. Of the total, 130 (16 percent) belong to the MS category.

d. Normal (NL). The experient was in a relatively healthy, unstressed physical or mental condition. This category would include normal waking states, relaxation, sleep, meditation, and hypnosis. Of the total, 282 (35 percent) belong to this category and are predominantly forms of out-of-body experiences.

Evaluation of Data

Since the study is descriptive in nature, sophisticated statistical procedures were not employed in the analysis. The material contained in the TE reports was instead grouped into common features that were then examined for frequencies and relationships among the variables of medical conditions and sex. Measurement of frequencies of various features is presented in discrete number and percentage values. Simple measures of association and chi-square analysis (corrected) were used to evaluate the significance of observed distributions, and the significance level of $\leq .05$ (two-tailed) was selected for assessing results.

RESULTS

The pool of 815 cases yielded only 71 (9 percent) describing an element meeting the TE definition. The occurrence of so few reports in a pool of this size indicates that the TE was not a commonly reported feature in the general range of anomalous experiences under study. A significantly higher incidence of TEs was found, however, in the CPA category (20 percent) as compared with the SS (8 percent), MS (5 percent), and NL (4 percent) categories, suggesting that extreme physiological stress may be especially conducive to TEs (see Table 1).

Near-death experience (NDE) researchers have tended to include experiences occurring in CPA and SS categories under the general grouping of "near-death"; combining the CPA and SS cases yields a total of 54 TE reports (13 percent) from a pool of 403 for this neardeath category. A significant difference was found between the frequency of cases in the near-death category and that found in the combination of the MS and NL categories (chi square (1) = 21.46, p. < .001), which presents further support for the observation that TEs are more frequent in serious medical conditions than in nonserious conditions.⁶

The tendency of NDE researchers to classify descriptions of tunnellike spaces with descriptions of voids, black spaces, and darkness hampers comparison of their statistics with those of the present study. Ring (1980b), however, found 18 percent of his NDE cases mentioned "something like a tunnel"; my general impression is that other studies of NDEs have found the frequency of TEs to be similar to or less than Ring's results.

Medical Conditions

Since heart attacks and mechanical accidents are two of the leading causes of death in America, it is not surprising to find that 48 percent of the CPA and SS cases were grouped under these conditions (see Table 1). Cancer and stroke rank as the second and third leading causes of death among Americans, yet no CPA or SS cases reported these medical conditions.

The absence of these conditions is notable, since cancer and cerebrovascular accidents are commonly associated with hallucinations and altered cognitive functions (Lipowski, 1980). This absence is particularly interesting in view of Osis and Haraldsson's (1977) finding that the largest number of terminal patients reporting apparitions, mood elevation, and visions of other worlds were those dying of cancer, followed by those dying of heart and circulatory diseases. The significance of there being no TEs reported by stroke cases is difficult to assess with the limited data available, but there is a possibility that it may offer a clue to the mechanisms producing the TE. Heart attacks, mechanical injuries, and the other conditions reported in the CPA and SS categories are typically acute (excepting pneumonia and inflammation cases in the "general illness" conditions), occurring in otherwise healthy individuals, and the chances of uncomplicated resuscitation and recovery are, therefore, considerably greater than those of patients with chronic conditions. If cases reporting "general illness" or "no specifics" are excepted, 74 percent of the cases in the CPA and SS categories underwent a sudden onset of the condition as opposed to an extended illness involving a slow decline in the patient's functions (e.g., cancer or wasting and degenerative diseases). This suggests the TE is more often triggered by a specific sudden change in the physiological state of the experient (such as an abrupt drop in blood pressure, or shock to the nervous system) and will be discussed more fully later in this paper.

Sex and Age

Reports found in the published literature failed on occasion to mention the experient's gender, as a result of which the sex of 12 TE cases is unknown; of the 59 known cases, 41 percent were male and 59 percent female. No significant differences were found in gender distributions in the medical categories and specific conditions.

The experient's age at the time of the TE was seldom reported, so this variable was not considered for inclusion.

		Sex			
General Category	Specific Condition	Male	Female	Unknown	
	Anaphylactic shock	_	1	_	
	Burns, 3rd degree	—	1	—	
	Drowning	1	_	-	
	Drug overdose				
	1. Anesthesic agents	1	1	1	
a. Cardiopulmonary	2. Triphetamines	1	_		
arrest (CPA)	General illness	1	1	1	
n = 36	Heart attack	6	5	2	
	Hemorrhage	_	3	_	
	Hypothermia	1		_	
	Mechanical injury	5	1	-	
	No specifics	_	-	3	
	TOTAL	16	13	7	
	Diazepam overdose	_	1	-	
	General illness		5	2	
	Heart attack	1	1	_	
b. Severe stress (SS) n = 18	Hemorrhage	_	2	_	
	Mechanical injury	2	1	2	
	No specifics	1		_	
	TOTAL	4	10	4	
	Analgesic	1	-	_	
	General illness		1	_	
c. Mild stress (MS) n = 7	Mechanical injury	1	2	_	
	No specifics	_	1	1	
	TOTAL	2	4	1	
	Asleep	-	1	_	
	Relaxing	2	5	_	
d. Normal (NL) n = 10	Trance	_	1	_	
	No specifics	_	1	_	
	TOTAL	2	8	-	

Table 1 Medical Conditions and Sex of TE Cases

Characteristics of the Tunnel

Primary identification. Descriptions of the appearance of the tunnel-like space were necessarily limited by the original criteria used to choose the cases: a realistic, enclosed area of space, longer than its diameter. In view of the selection procedure, the fact that 65 percent of the cases identified the enclosed space as a *tunnel* and 11 percent as a *passageway* is understandable (see Table 2, row a).

		Re	Reports	
Variables	Description	Number	Percentage	
	Tunnel	46	65	
	Passageway, passage	8	11	
	Corridor, hall	6	8	
	Funnel	6	8	
a. Primary	Shaft	4	6	
identification ^a	Tube	3	4	
	Hole	2	2	
	Cave	1	1	
	Well	1	1	
	Sewer	1	1	
	Enclosure	1	1	
b. Length	Long	22	31	
	Very long	3	4	
	No information	46	65	
	Narrow	6	9	
	Narrow then widening	2	3	
	Wide	1	1	
c. Diameter	Wide then narrowing	3	4	
	Huge, large	3	4	
	No information	56	79	
	Dark, black	32	45	
	Dimly lit	3	4	
d. Illumination	Brightly lit	4	6	
	No information	32	45	

Table 2 Characteristics of Tunnel Experience

^aSome cases used more than one term to describe the appearance of their TE

Length and diameter. Although the average duration of time spent in the TE was reported as large, 65 percent of the reports did not comment specifically on the length of the space through which they were moving (see Table 2, row b). Thirty-one percent of the cases described the space as "long" and 4 percent experienced it as "very long". No cases reported the space as short or brief.

Few details regarding the space's diameter were obtained (see Table 2, row c), and the 15 descriptions given varied somewhat, with a "funneling" effect being reported in a few cases. Analysis of the cases mentioning diameter yielded no significant interaction between the type of diameter perceived and medical condition or sex. *Illumination.* Impressions of illumination in the enclosed space were frequently general and vague (see Table 2, row d). Thirty-two cases failed to report on the illumination; of the 39 cases that did, 90 percent used terms such as "dark," "black," or "dimly lit," and 10 percent described their spaces as "brightly lit."

Surfaces of enclosure. None of the 71 cases reported coming into contact with or attempting to touch the surfaces of their enclosed spaces. Seven experients specifically stated that they did not contact the sides, and some of these explained that they were reluctant or even afraid to try such an action. Only 11 cases mentioned the appearance of the tunnel's surfaces. Despite the fact that all 11 cases mentioning their tunnel's surfaces were in general agreement that they were moving through a long enclosed space, none agreed on what the surfaces looked like. Each case provided a different description: "scintillating darkness," "luminous vapor with mesh of fine lines," "shiny, black, triangular projections," "bricks and a cobblestone floor," etc. This disparity in detail when moving from the general (for which the cases were selected) to the specific is a common feature in these experiences, raising important questions that will be discussed later.

Phenomena Encountered in Tunnel Experience

Light phenomena. An area of light in the center or at the end of the space was described by 30 cases (42 percent). Of those cases reporting a light, 22 (73 percent) experienced it as becoming *larger* in their field of vision and described themselves as moving toward the light rather than the light moving toward them.

Although 30 cases did mention a light, many failed to provide details of its appearance. Fourteen reported the intensity of the light as "bright," "brilliant," "dazzling," "radiant," or "shining," yet none of these experients mentioned any visual discomfort to the brightness, and 2 cases remarked on this fact. The *color* of the light varied, being described as "white," "yellow-white," "like a flash bulb" or "tungsten flame," "golden," "red," or "bluish." Two cases added that the light was "warm."

Eleven cases reported very positive feelings toward the light, 2 cases felt fearful of it, while the remaining 17 did not mention any emotional reactions. Twenty-five reports did not identify the nature of the light, but 2 cases felt it was Christ, and 3 cases saw the light in the shape of an unidentified human being.

Of the 14 men, 12 women, and 4 cases of unknown gender reporting light phenomena, no significant relationship could be found in their distributions. All medical conditions were represented to some extent in these cases, with no exceptional distributions.

Colors. Of the 13 cases reporting color, 8 described the color of the light they saw. One case experienced a dark redness above and a dark blueness in front of her that gradually became brighter and varied until finally the colors and sounds synesthetically combined into a "wonderful music." An orange-red light seemed to reflect on the walls of one experient's tunnel, although he could not determine its source. Three cases described areas of color as if these were floating in the tunnel: one case described it as profound colors streaking by him as he moved forward, another saw multi-colored small bright flashes of light around him, while the third case reported patches of various colors passing between him and a light at the end of his tunnel.

Sounds. Only 18 cases (25 percent) reported hearing sounds during the TE, with 4 of these hearing more than one sound. Simple noises such as swishing, humming, distant voices, wailing, ringing, and moaning were reported by 11 experients. All cases hearing simple noises were in the CPA or SS categories undergoing medical conditions associated with rapidly falling blood pressure (e.g., heart failure, hemorrhaging, and anaphylactic shock). Twelve of the 18 individuals reported complex sounds such as music, or voices which sometimes told them to return to life.

Beings and obstacles. Only 8 cases (11 percent) reported encountering something resembling a living being in their TEs. Three cases described a brightly lit human form, while the remaining 5 cases described dissimilar entities: a grotesque giant, the husband of the percipient calling her to return to life, two women dressed in white, an old man traveling ahead down the tunnel, and a surrounding field of figures changing from monstrous to peaceful forms.

Six of the 71 cases were prevented at some point in their TEs from moving further, though the causes of these stoppages varied considerably. No agreement was found among experients concerning beings and obstacles encountered in their TEs.

Temperature. Five cases mentioned a comfortable feeling of warmth in their TEs, with 2 of these associating the warmth with a light at the end of their tunnels. One case experienced an unpleasant coldness and felt that she would get warm if she reached a golden light at the end.

Emotion/pain. Emotional reactions to the TE were generally passive or calm. However, 15 cases (21 percent) reported some degree of strong positive affect, e.g., peace, delight, joy, and happiness, and this emotion was occasionally associated with a release

from physical pain, a light at the end of the tunnel, or a heightening sense of expectancy. Negative affect, e.g., fear, panic, and sadness, was reported by 8 cases (11 percent); however, 2 of these experienced an initial fear upon entering the TE but began to feel happy and peaceful as the experience progressed. Two cases reported feeling physical pain in their TEs, and 2 cases experienced the narrow diameter of their tunnels as being uncomfortably tight.

Movement of Experient

Direction. The sensation of moving through the TE was described by 67 cases (94 percent); the remaining 4 (6 percent) reported they were stationary. Of those cases reporting movement, 14 described themselves as moving down through the tunnel, 5 as rising up through the tunnel, while the majority (48 cases) reported their movements as going through the tunnel, indicating or implying in most instances that the direction appeared to be on a horizontal plane. No significant relationships were found between direction of movement and medical condition or sex.

Speed. Of the 67 cases reporting movement, 31 were unclear concerning their speed, 12 described themselves as moving at a "slow" to "moderate" speed (e.g., floating, rising, walking), and 24 experienced themselves as moving very fast.

Volitional control. Fourteen cases seemed able to influence their movement through the tunnel. Of these cases, a significant difference was found between the sexes, with 11 of the 14 being female and only 1 male, while the gender of 2 cases was unknown (chi square (1) = 6.75, p < .01). The distribution of sexes (21 males and 23 females, with 9 unknown) in the 53 cases not reporting the ability to influtheir movement was not significant.

Going and returning. The experience of moving in only one direction was reported by 59 cases, whereas the other 8 cases described moving through the tunnel a second time in the context of "returning" to normal life. All 8 cases indicated a complete reversal in their original direction.

Peripheral Elements

TEs normally occur in unusual experiences containing other elements. Although it is not the purpose of this study to examine experiential elements other than the TE, it will be useful to look at those elements immediately preceding and succeeding the TE as possibly offering clues to the nature of these experiences.

Elements preceding the TE. The TE was the first experiential

element for 44 cases (62 percent). Of the 27 cases reporting an element preceding their TE, 20 had a simple out-of-body experience (SOBE) immediately before the TE. That is, they found their center of perception floating above or near their physical bodies with no complex phenomena such as otherworldly beings, "flying" to distant places, or trying to interact with the physical environment.⁷ The remaining 7 cases described more elaborate and dissimilar experiences preceding the TE.

No clear picture arises from these reports. Although SOBEs account for 74 percent of those cases reporting preceding experiential elements, they are very frequent in unusual experiences not entailing TEs, and thus their occurrence in this context can only be considered as possibly suggestive of a pattern.

Entering the tunnel. The majority of cases experienced no preceding elements or sense of logical transition to their TEs, i.e., they were just suddenly "there." Five cases, however, did report encountering an entrance to their tunnels. In 4 of these cases, the experients were undergoing an SOBE above their bodies, and in the fifth case there was simply a sensation of floating. None of the cases gave any specifics concerning the tunnel entrance.

Exiting the tunnel. The experience of leaving the tunnel as if passing through an opening at the far end was described by 20 cases. As with the cases reporting an entrance to the tunnel, those cases exiting gave no details concerning the appearance of the exit. Nineteen cases experienced no exiting from the tunnel, suddenly finding themselves no longer in the tunnel but in different surroundings. Thirty-two cases reported nothing following the TE (i.e., they returned to normal consciousness or could not remember anything else).

Elements subsequent to a TE. Of the 39 cases who reported experiential elements following their TE, considerable variation existed and no consistent theme could be found among the descriptions. Six experients mentioned leaving their tunnels to enter various versions of a brightly illuminated but empty space, in which 3 cases sensed the "presences of others," 2 encountered human figures, and 1 traveled to an area where she was able to view a garden. Four cases reported out-of-body experiences following their TEs (2 SOBEs and 2 COBEs), and 4 cases found themselves in scenes with a hellish theme.⁸ Unique scenes were reported by 12 cases: a light blue universe; a mouthless figure leading the way over a bridge; a stream of people; a bare room with dead relatives; a room or box-like area in mist; an empty room; a desert of a "lower-order world"; a celestial city; fantastic landscapes that changed with the experient's thoughts; a "spiritual sphere"; scenes of the experient's past; and an encounter with a deceased relative with no mention of surroundings. Thirteen cases reported a natural scene of some kind: 10 experients found themselves in country settings, e.g., meadows, fields, valleys, (but all the scenes were different); of the other natural scenes, one involved a beach with a wall of vegetation, another a seascape, and the other a desolate area spotted with rocks.

Dead friends and relatives were encountered by 6 of the 10 cases experiencing a country scene, as well as by the case describing a celestial city and the one mentioning a bare room.

DISCUSSION

Salient Results

Using the more frequently occurring features found in this study, we can construct the following composite of a typical TE.

The TE is often the first element in an unusual experience, and its occurrence is usually abrupt. If an element precedes the TE, it is most frequently a simple out-of-body experience (SOBE). TE characteristics do not differ among the medical conditions studied, although they are more often found in association with the more serious conditions (excepting cancer and stroke). Men and women are equally likely to report a TE, and the majority of experients feel that the terms "tunnel" or "passageway" adequately describe what they have perceived. The sensation of movement, usually in only one direction, is almost always reported, and the tunnel interior is typically long and either dark or dimly lit. Slightly less than half the cases report a light or luminous object in the center or at the end of their tunnel-like spaces. Descriptions of elements subsequent to the TE are reported by only half of the experients and display little inter-subject agreement.

The occurrence of TEs in only 13 percent of the CPA and SS categories, and in only 9 percent of the total categories, leads to the conclusion that this element is not a typical characteristic of the average near-death or out-of-body experience. The disagreement between the details of the TE reports is the most salient and surprising finding of this study. Studies such as this one have been undertaken because the descriptions of these various unusual experiences display impressive similarities, which may differentiate them from the normal range of psychopathological subjective events. However, the inter-individual variations in the descriptions of specifics of TEs raise serious questions that cannot be explained by simple differences in individual viewpoints and interpretations.

Symbols of Transition in Myth and Ritual

The presence of the TE in a variety of conditions suggests that it may be a universal theme, perhaps in the sense of Bastain's (Campbell, 1959) "elementary ideas" or Jung's (1959) "archetypes." Gennep, in his famous book, *The Rites of Passage* (1961), observes that the symbol of passing through a defined area such as a gate or portal is almost universally held to represent a transition from one realm or condition to another. Caves or tunnels are, however, only one example of a multitude of forms used to represent passage themes in mythologies and in the rituals of birth, initiation, marriage, and death (Jung, 1968; Levy, 1948).

Cultures such as the Babylonian and Greek, which located their afterworlds deep underground, naturally viewed caves, chasms, and burrows as means of access to these realms, but such forms of entry clearly do not precisely parallel the TE. The idea that the soul of the shaman (Eliade, 1964) or the dead must pass through areas or trials before reaching the other world is widespread, but roads, bridges, and rivers rather than tunnels are the predominant mode of transit (Eliade, 1967). Although the descriptions found in *The Tibetan Book of the Dead* (1975) show some impressive parallels with neardeath experiences, no mention can be found of anything approximating a TE. A suggestive description of the soul of the dead passing through holes in the sky, the sun, and the moon can be found in the tenth Brahmana of the Brhad-Aranyaka Upanisad (Radhakrishnan, 1953), but the passage is unclear and may only refer to a Pythagorean purging of the soul by passage through the various elements.

Examination of eschatological mythologies leads to the conclusion that in general the TE is not in evidence in these beliefs about the afterlife.

Drug-related TEs

TEs were common events in connection with anesthetic experiences until fairly recently (Smith, 1972). One early researcher (Dunbar, 1905) found that 80 percent of the surgical patients he interviewed experienced singing in the ears, rushing into a dark tunnel, and a flashing of lights in the eyes.

The following ether experience illustrates this common phenomenon: "I seemed to float down a dark tunnel moving towards a halfmoon of light that was miles away. I heard the sound of music and smelled the scent as of an old-fashioned bouquet. Then my flight down the tunnel was halted . . . A voice said, 'Go back and live.' Then I found myself back in the body" (Crookall, 1976, p. 119). The beautiful smells and complex sounds so often reported in the anesthetic experience are usually found to be illusory elaborations of the unpleasant odor of the anesthetic, and the ringing or buzzing in the ears (tinnitus) caused by the anesthetic. Bizarre experiences of spinning, flying, or falling are typically attributed to the sensations of vertigo produced by the anesthetic. In contrast to the frequency of early reports, recent studies of the incidence of mental aberrations associated with general anesthesia reveal an extremely low frequency of dreams and hallucinations, and no reports of tunnels (Browne and Catton, 1973; Wilson, Vaughan, and Stephen, 1975). This lack of contemporary reports is attributable to the modern trend in anesthesiology of using sophisticated techniques to provide complete amnesia while maintaining adequate analgesia (Cherkin and Harroun, 1971). As a result, little modern systematic knowledge has been collected on the phenomenology of anesthetic states. The similarities between elements such as TEs reported in NDEs and OBEs and those found in anesthetic hallucinations (Muldoon and Carrington, 1951; Moore and Alltounian, 1978; Shedlin, Wallechinsky, and Salyer, 1973; Smith, 1972), strongly suggest a common mechanism as well as the prospect of using anesthetics (e.g., ether, chloroform, ketamine, nitrous oxide, etc.) to investigate this mechanism.

Meduna (1950) also found many of his patients reported experiences of tunnels, cones, and bright lights while undergoing a therapeutic inhalation of a mixture of 30 percent carbon dioxide and 70 percent oxygen. The following is a typical experience of CO₂ narcosis involving a tunnel:

I seemed to see a bright white light at the end of a long tunnel, and had an intense feeling that it would be wonderful if I could only reach it. I couldn't get to it before the effects of the gas wore off, but I felt very excited and exhilarated (Johnson, 1959, p. 157).

The similarities between CO₂ narcosis and LSD are so close that the subject's reaction to carbon dioxide inhalation can be used as a prognostic tool before LSD sessions (Grof and Halifax, 1977). Over the years many investigators have noted that the imagery of hallucinations is basically the same whether induced by stress, drugs, or a variety of other conditions.⁹ Kluver (1942) referred to the simpler common images as "form-constants" and observed that many "atypical" visions were, upon closer examination, nothing but variations of these form-constants. He described four types of formconstant: (1) grating, honeycomb, or lattice; (2) cobweb; (3) tunnel, funnel, or alley; and (4) spiral. The development of hallucinatory imagery has been found to demonstrate a consistent pattern of sequential development beginning with the simple form-constants, which are gradually elaborated into faces and static objects and then into landscapes and more complex and prolonged scenes (Richardson, 1969; Schacter, 1976). An example of this type of elaboration with the tunnel form-constant is found in the reports of some of Meduna's (1950) patients, who began by experiencing circles which then "pulled out" into straight tubes or funnels as the effects of the gas increased.

Circular tunnel-like forms are particularly prevalent in hallucinogenic drug experiences. In his experiments with peyote, Kluver (1926) noted that the center of his visual field was often distinguished from the remainder of the field, being frequently similar to "the interior of a cone, the vortex of which is lying in the center of the field directly before the eyes" (p. 503). This commonly reported effect was systematically explored by Siegel (1973) and Siegel and Jarvik (1975) in experiments with marijuana, THC, LSD, psilocybin, and mescaline. They found that the imagery was usually characterized by a very bright light in the center of the visual field; the locus of this light created a tunnel perspective, and subjects commonly reported viewing their imagery in relation to a tunnel.

Certainly in some ways the elaborated drug-induced form-constant of a tunnel seems to resemble the TEs examined in our study. There are, however, notable deviations such as complex imagery moving in the periphery of the visual field, which often involves recognizable landscapes, people, and objects. In the early stages of the hallucinogenic session, the subject is usually aware of the unreality of the tunnel and continually changing imagery, but as the state deepens he begins to accept the reality of the complex imagery and becomes part of what he was previously merely observing (Siegel and Jarvik, 1975).

The occurrence of tunnel forms in conditions such as anesthesia, carbon dioxide inhalation, and hallucinogen ingestion, contributes an important finding to our analysis. Although there are differences in the characteristics of TEs under some of these conditions, the similarities are clear enough to suggest strongly the idea that the same event is occurring in all of these conditions, and that variations are merely reflective of etiological peculiarities. Often the only difference between an unreal tunnel-like image and a realistic TE is the individual's ability to discriminate between literal and analogous meanings, i.e., a thin cognitive line exists between the point where the experient still perceives an image in terms of "as if" and where he begins to experience it as reality (McKellar, 1957; Reed, 1972). I believe sufficient evidence exists to support serious consideration of the hypothesis that a common mechanism underlies both the TEs examined in this study and those similar experiences associated with the other conditions discussed in this section.

Explanatory Theories

As the TE gives the impression of passing through an area, the majority of theories suggested to explain the experience assumes that it is a transition of some kind, either between two different conditions of existence or of consciousness. I will now discuss several of these theories and examine their explanatory value in view of the results of the present study.

Objective explanations. Explanations assuming an objective reality to the tunnel are normally based on a conception of the otherworld as lying deep underground, and that the soul journeys to it through actual caves and holes in the earth's surface (such as the famous cave at the lake of Avernus, near Naples). Some spiritualists and occultists contend that the tunnel is a shield to protect the soul as it passes through the lower, possibly dangerous, astral realms.

Representational explanations. The majority of theories does not argue for an objective reality to the tunnel, but instead advocates a representational interpretation, which is based on the premise that the sensing mind does not have direct acquaintance with the objective event but apprehends it symbolically through images and ideas.

The representational approach has often been used to explain contradictions and unrealities in a variety of altered states. In her classic study of mysticism, Underhill (1961, p. 271) concluded that many of the disharmonies noticeable in visionary experiences are explicable as forms of symbolic expression of real spiritual experiences that would be incomprehensible to the conscious mind if directly perceived. Osis and Haraldsson (1977) in their study of deathbed experiences reached a similar position when confronted with the bewildering variety of imagery in their cases and suggested that the images are probably symbolizations pointing to an existence not congruent with our perceptual capabilities. Whiteman's (1961) years of personal experience with OBEs and mystical states led him to a similar representational interpretation of the content of these states. He argued that the TE is a fantasy representation of very different deeper mental conditions having an objective basis (Whiteman, 1956).

Green (1968) suggested that OBEs involving falling or traveling along a tunnel are representations of long displacements in space, possibly including a displacement in time. Shirley (1972) viewed the tunnel experience as a symbolic production of the subconscious in order to represent movement out of the body. The association of the TE with the separation process of body and mind/soul is a prevalent idea among theorists. Crookall (1970) postulated that during separation there is a "blackout" of consciousness when neither the soul body nor the physical body is available as an instrument of awareness of either the physical world or the "next world." When it is brief, the transition is experienced as merely a blank; if the process takes slightly longer, it is symbolized by the subconscious as passing through a tunnel or vast space.

Ring (1980a) and Bentov (Ring, 1980a) argue that the TE is a psychological phenomenon whereby the mind experiences a shift from the body's sensory-based state of consciousness to a holographic or four-dimensional consciousness of pure frequencies. The gap in time while this shift is occurring is experienced as movement through a dark space. Bentov (Ring, 1980a) also suggested that once this shift becomes habitual it becomes instantaneous, and then there is no longer any need for a TE. His idea is especially interesting since a similar conclusion was reached independently by one of the men in the study who had frequent OBEs during which he traveled down a long tunnel to visit dead friends. After a number of years he no longer traversed a tunnel, finding himself "instantly" with his friends. He felt that the tunnel never actually existed, but was a required illusion while one was learning.

The final theory with which I shall deal is the argument that the TE is a transition represented to awareness using memories of the individual's physical birth (Rogo, 1978, pp. 317-319; "Theta Forum," 1978). As the higher centers of the fetal brain are not functioning at birth, it is difficult to understand how this memory of the birth process could exist for such retrieval. In any case, the theory is confounded by the dissimilarity between the typical TE and the physiologically traumatic passage through the birth canal, which involves tremendous crushing pressures and suffocation (Lefrancois, 1977).

The disparate descriptions of details in the TE reports weigh heavily against those theories that argue for the tunnel as an objective reality while it is this very diversity that would seem to encourage representational speculation. If we examine these explanations more closely, however, we find that none is currently testable. The theories require the assumption that some form of change or transition is taking place, yet there is no reason beyond the imagery of the TE itself to think that such an event is actually occurring. Most of the theories fail to mention what mechanisms are involved in the representational process or why the process generates the forms it does. As the objective event itself remains undefined in most cases, we are left with little or no explanation of the representative relationship, i.e., is it metaphorical, or one of correspondence, or entirely fantasy? Without definite statements about the representational processes, these theories have only small explanatory value and are of little use in research.

The fact that 28 percent of the cases reported an SOBE before their TEs would seem to suggest that Shirley's and Crookall's identification of tunnels with separation is incorrect. When they did occur, the elements subsequent to the TE were too disparate to offer support for those theories that expected the tunnel to lead to a particular level of consciousness or existence. Only a condition approximating the illusory (ideoplastic) state of the Tibetan Chönyid Bardo would seem to account for the diversity of circumstances encountered after the TE. Large scale studies of otherworldly environs reported in unusual experiences may find common patterns and themes, but in this study there is no indication of a coherent phenomenon at the end of the tunnel and little direct evidence that the tunnel is a transition of any sort.

The development of a theory for the TE that specified the supposed event taking place and postulated a definite representational process could provide a considerable impetus to future research. In view of the findings in this study, current representational explanations tend to create far more questions than they answer.

A psychophysiological explanation. In view of the results of this study, there is good reason to assume that the TE is not a form of transition and most probably has no objective dimension at all. I believe the evidence leads to the conclusion that the TE is an hallucinatory event. To support this view, I would like to present the following explanation using a psychophysiological model.

Perception is a continuing process of information gathering, processing, and decision making, which is highly reliant on the reliability of incoming stimuli and the brain's discriminative and organizing abilities. The brain is constructed to make sense of whatever information it is presented, and perception can therefore be considered its "best guess" as to what stimuli mean. When information sources are limited, in conflict, or supply unusual patterns of stimuli, the perceptual process persists in its attempts at interpretation, and the results are errors in perception such as illusions or hallucinations (Gregory, 1966; Reed, 1972).

Man's dependency on visual information over other sources renders his assessment of reality particularly vulnerable to injuries or transient disturbances in this system. Although the brain's judgments as to body location and movement are informed by nervous feedback from the visual, vestibular, proprioceptive systems (Waterbor, 1979), visual inputs – even when supplying blatantly incorrect information – will tend to override more reliable inputs from all the other sources. A good illustration of this can be found in the illusion of "induced motion," which is especially evident in the false movement felt when the train on a neighboring track pulls out (Wallach, 1972).

In situations in which reliable exterioceptive stimulation is decreased or distorted, the brain's recruitment of information becomes more desperate. Those conditions that tend to disrupt external information flow are usually associated with (1) a diminished capacity to discriminate reliable from unreliable data and (2) increased cortical arousal (Lipowski, 1980; Winters, 1975). This disorganization of perceptual functioning is prevalent in many situations, including the medical conditions examined in this study as well as anesthetic states, CO₂ narcosis, and hallucinogenic drug states.

Some writers have argued that the uniqueness of the unusual experiences found in many near-death situations lies in their occurrence during a period when the subject is unconscious and therefore should not be experiencing anything. It would be a mistake to assume that a lack of responsiveness is indicative of a depressed central nervous system; an individual undergoing coma, delirium, sleep, convulsions, or forms of temporary unconsciousness may well be in a hyperaroused state and yet be cut off from, and hence unresponsive to, external stimuli (Fischer, 1971; Winters, 1975). Few of the cases in this study reported any awareness of external stimuli during their TEs, and Ring (1980a) found the majority of his cases reported either totally absent bodily sensations or a sense of bodily lightness. Although external stimulation is decreased, reports of NDEs and OBEs generally describe feelings of alertness and even superawareness, which very probably reflect the hyperattentiveness of cortical arousal coupled with a narrowing range of sensory and ideational stimuli (Fischer, 1971; Silverman, 1971).

In this study the medical conditions associated with TEs tended to be acute. Perceptual disturbances have been found to be much more probable in situations involving such sudden changes in the physicochemical milieu of the brain, whereas patients suffering from chronic conditions show little or no evidence of cognitive dysfunction as they seem to undergo the same changes over an extended period of time and can thus adapt gradually (Lipowski, 1980, pp. 152-154).

Deprived of reliable stimuli, the brain's increasing need for information combined with its decreased discriminative powers results in the use of normally ignored or inhibited internal stimuli sources.¹⁰ In its search, the perceptual process may become sensitized to "noise" and transitory disturbances in different levels of the nervous system. Preference will always be given to information from the visual pathway, regardless of how contradictory or vague it may be. These anomalous inputs tend to be experienced by the brain in certain patterns though it remains unclear whether these patterns are isomorphic reflections of nerve excitation (Richards, 1972) or expressions of the mind's propensity for organizing random stimuli in meaningful ways. These patterns are visually perceived as the simple form-constants discussed earlier, e.g., tunnels, spirals, and lattices (see Barber, 1970, pp. 26-34; Horowitz, 1964; and Siegel and Jarvik, 1975 for an extensive examination of this process). These form-constants, particularly tunnels and spirals, then serve as *sensory cores* or *niduses* around which *complex images* and *hallucinations* are elaborated (Horowitz, 1975).

Because of the impaired interpretative ability of the discriminative function, the imaginative processes of the unconscious come to provide the elaboratory mechanism. The unconscious considers *similarity* as the equivalent of *identity*, so a simple tunnel form-constant becomes imbued with a realistic dimension creating an hallucinatory perception. Although the *general* features of the tunnel are determined by a commonly shared perceptual tendency, the *details* of the hallucination are left to the unique elaborations of each individual's unconscious, hence the large variations in specifics found in TE descriptions.

Disturbances of the vestibular system, such as vertigo, are common in many disruptive conditions (Merck Manual, 1977), and these illusions of movement are probably used by a disorganized perceptual process either to create an elaborated TE or augment elaborations on an already existent tunnel form-constant. Sounds would also be elaborations of tinnitus, e.g., simple sounds such as humming or ringing that originate in the middle ear (Saravay and Pardes, 1970; Segal, 1971).

Those components that seem to comprise the tunnel hallucination, such as dark visual fields, lights, movement, and tunnel forms, are found in many types of unusual experiences, yet the events that bring them together seem fairly rare, as this study shows.

Although I have noted that TEs tend to be associated with acute crises, there would appear to be an unknown factor in the etiologies of certain conditions that makes the TE more probable, e.g., clinical death conditions or CO₂ narcosis. I would conjecture that sudden disturbances in the vestibular cerebellar system may well play a crucial role in producing the TE.

CONCLUSION

The results of this study have led me to conclude that the experience of moving through a tunnel-like space is merely an hallucinatory creation of the mind. The explanation I have presented does not differ in principle from the one suggested by Siegel (1980; 1981). Unlike Siegel, however, I would confine this theory solely to explaining the TE and not propose it as a general explanation of *all* elements in NDEs or OBES.

Although the TE would appear to have no objective basis outside the experient's nervous system, this conclusion cannot be indiscriminately extended to other elements such as otherworldly environs, SOBEs, light phenomena, and mystical unity. I have argued in an earlier paper (Drab, 1981) that the NDE may well be comprised of a number of contiguous yet independent discrete states of consciousness and minor perceptual disturbances. I propose that these unusual experiences are *far too complex* for blanket theories and that it will be far more productive to examine and evaluate the worth of each element separately from the rest. The results of such an approach may support Siegel's hallucinatory explanation or lend credence to my own conjecture that at least some of these unusual experiences are amalgams of psychopathological, psychological, and parapsychological phenomena (Drab, 1981).

NOTES

- 1. Excerpt from CPA case No. 26, interview by K. Drab with Mrs. R. W. O. on July 15, 1976.
- 2. A number of Crookall's cases were not used due to their duplication, misquotation, and inappropriate classification.
- 3. Excerpt from MS case No. 91, as reported in Fiore and Landsburg, 1979.
- 4. The medical categories are described in detail since it is hoped that this classification will prove useful to other researchers.
- 5. The term "stress" is used in the physiological sense as any stimulus that creates an imbalance in the homeostatic state of the organism's internal environment. The stress may originate from the external environment, e.g., in the form of injury, infection, lack of oxygen, or excesses of temperature; or the stress may originate within the body, e.g., in the form of high blood pressure, pain, tumors, or excesses of CNS arousal (Tortora and Anagnostakos, 1978).

- 6. This finding agrees with the results of a recent study (Gabbard, Twemlow, and Jones, in press), which also found a much higher incidence of tunnel experiences in association with NDEs than in OBEs not occurring in near-death conditions.
- 7. The use of the terms SOBE and complex out-of-body experience (COBE) is a convenient way of distinguishing between the far more common experience of "separating" briefly from the body and "separations" entailing a variety of more complicated and extended phenomena.
- 8. It should be mentioned that 3 of these cases encountering hellish scenes were from a collection of rather *atypical* NDE reports in M. Rawlings' *Beyond Death's Door*. New York: Thomas Nelson, 1978.
- 9. See the excellent review of the literature in Siegel and Jarvik, (1975).
- 10. These internal sources may include psychodynamic, ontogenetic, and phylogenic, as well as parapsychological information. The TE is considered to be based on fairly superficial stimuli, hence the present discussion does not consider deeper sources.

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The Centrality of Near-Death Experiences in Chinese Pure Land Buddhism

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INTRODUCTION

The field of near-death studies has burgeoned since Raymond Moody Jr. (1975) published his ground-breaking studies of neardeath experiences. One of the commonest reactions to the visionary experiences of heaven by the critical observer has been to argue that these are nothing more than the projections of the expectations of the dying person, who was either consciously or subconsciously trained to expect heavenly scenery (etc.) by his cultural upbringing. This theory can be tested, in part, by examining the religiosity of the near-death experiencer. Ring (1980), for example, found that there was no correlation between religious belief - and negative correlation between prior knowledge of NDEs – and the person's actually having a full-blown near-death experience. But it could still be argued that since the entire culture uses heavenly imagery and metaphor, even the "non-religious" subjects had been unconsciously conditioned to project such experiences as they approached death. To further explore this claim, and to learn how culture-specific the characteristics of NDEs are, cross-cultural studies are necessary.

It is clear that many cultures believe in both the possibility of outof-body experiences (OBEs) and in the continuity of life after death. Tylor (1974) found such beliefs common among "primitive peoples"; and Shiels (1978) showed that almost all of seventy non-Western cultures he studied believed in OBEs of some sort. Gilmore (1981) has shown that visions of angels are prevalent in the Middle East, including Muslim, Zoroastrian, and Egyptian religious affiliations. But these studies, while important, tell us only about the belief-systems of non-Western peoples and fail to document that they actually experience NDEs like those being studied in America.

The turn-of-the-century studies reported by Bozzano (1906) are among the first careful attempts to document NDEs, but they cannot be considered truly cross cultural since the European cases he cites are very much within the same cultural framework as modern America. Robert Crookall (1964, 1967, 1968) also included a few reports of non-Western OBEs and NDEs in his numerous compendia, but these often lack careful documentation and reporting techniques. Osis and Haraldsson (1961, 1977) conducted the first attempts at cross-cultural comparison by gathering reports of Indian doctors and nurses who had witnessed NDEs in India. They found greater fear of dying, a larger incidence of religious imagery, and appropriately Hindu-flavored interpretations of apparitional figures. These studies are an important first step, but are frequently based on second-hand accounts some time after the NDE itself, and memories are notoriously subject to distortion. Other studies tangential to cross-cultural NDÉ research include Kalish's (1979) comparison of ethnic groups in Los Angeles and Audette's (in press) survey of the history of NDEs.

This paper is a preliminary report on the status of NDEs in Pure Land Buddhism in China, and is an important contribution to crosscultural research for several reasons. In some cases, like those of T'an-luan, the NDEs are clearly *prior to* personal knowledge of NDEs, and indeed become the cause of the holy man's search for religious explanation. In other cases, like those of Hui-yuan's disciples, we have deathbed records made at the time of death by first-person observers, along with time and dates for additional historical veridicality. In Pure Land Buddhism, we have a religion that not only admits of NDEs, but that is philosophically grounded upon their reality and accessibility to all men. Therefore it is hoped that such study of non-Western cultures and eras will be of value in determining the nature and universality of NDEs.

PURE LAND BUDDHISM IN CHINA

Few societies have placed greater importance on the reverence of ancestors – and therefore on funerals and concern for the dead – than the Chinese. Although Confucius tended to avoid discussions of the afterlife, and the Taoists envisioned it as a purified continuation of this bodily existence, there was a widespread acceptance of certain religious assumptions about the afterlife which lay the foundation for a Buddhist elaboration of it. The Chinese believed that the soul hovered around the body for some time until it was interred, and thence might haunt the house or ascend to other regions. The souls
of at least the more famous generals or honorable rulers were expected to live on in a quasi-material paradise. The fate of the souls of average men could be influenced by the prayers of the living, during a period of forty-nine days after the death. Immediately after the death and funeral of one's father, fasting and prayer, penances and sackcloth were prescribed for the surviving sons, and even the most orthodox of Confucians undertook such mourning practices as part of their state duty. Pre-Buddhist traditions include numerous dreams of sick or dead men who visited heaven and then returned to earth, or of spirits returning to visit their loved ones.

Thus to the early Chinese mind, there was less of a conscious separation between the physical and the spiritual than most Western thinkers would tend to draw. Rather, man with all his organs and souls was simply another being on a vast cosmic continuum of gross and subtle matter, part of nature that included elements visible and invisible, but all real, detectable, and quasi-material (as opposed to transcendental or philosophically idealistic). It is little wonder, therefore, that the Buddhist notions of *anatta*, or of the illusoriness of material existence, were either rejected or misunderstood throughout the history of Buddhism in China.

The Attraction of Buddhism to the Chinese

After all that has been said about the great psychological gaps between Buddhism and Chinese thought: the conflicting life-ideals, different views of the cosmos, of death, of the family and the individual, of the soul - even of basic vocabulary - it is amazing that Buddhism ever made the headway it did in China. This progress was made, however, because certain (previously obscure) Buddhist sutras served to substantiate and "elaborate" details of Chinese cosmology which earlier Confucians or Taoists had not chosen to do. Moreover, the school of Buddhism that eventually won the hearts of the great masses of Chinese, the Pure Land (Ching T'u) School, painted pictures (metaphorically and literally) of a bejeweled Paradise to which any believer might aspire. Thus China transformed Buddhism not only from a world-denying to a world-affirming creed, but from a strenuous ascetic discipline for the spiritual elitc into a path of salvation open to the masses, who would be saved, not by their own efforts, but through their faith in their saviour.

Before examining the details of the Pure Land School, however, let us consider the assimilation of the basic notions of Buddhism: rebirth and *nirvana*. By the time Buddhism was approaching China, it had largely crystallized into two metaphysical schools, the Madhyamika nihilists and Yogacara idealists. Neither reflected the original teachings of the Buddha. Nor would the logical intricacies and philosophical subtleties of either be appreciated by the common Chinese layman. The Chinese were more impressed by what they took to be the affirmation of the continuity of a soul, from an oversimplified interpretation of the Buddhist doctrine of rebirth. Problems such as what (if anything) transmigrates, and what constitutes *nirvana*, so perplexing to Buddhist scholars ancient and modern, were largely ignored by most Chinese Buddhists, who developed the simplistic formulas that the doctrine of rebirth implies a permanent ongoing soil (*shen*), and that the notion of Nirvana implies a heaven beyond this earthly plane.¹

The elaborate cosmology and "levels" of existence mentioned above which were embodied in popular Buddhism by the early centuries of the Christian era, if not in early Buddhism per se, gave flesh and bones to the previously vague Chinese conceptions of the nature of heavens and hells, and the ways men might arrive there. In accord with their hierarchical view of politics in this world, the Chinese elaborated a stratified hierarchy of heavens, hells, and their appropriate ministers, presided over by Yen-lo (Jap. Emma), a corruption of the Indian God of Death and the underworld, Yama.² Yama was also taken to be the judge of all but the noblest of souls. Buddhist sutras that purported to report Gotama's instructions for the relief of the suffering of departed spirits (pretas) to Ananda, or that related the saving of sufferers in Hell by the vicarious prayer and merit of their surviving ancestors, were taken as an opportunity to further develop rituals for reverencing of the dead, such as at the Ulambana (Jap: O-bon) ceremonies.³ Ultimately, the notion that merit of one person could be transferred to another in the heavenly balance book led to the development of radically new Buddhist sects, based on the hope of salvation by faith and grace.

Amida pietism:

Even prior to the flourishing of the Amidist sects, there had grown into Mahayana Buddhism the idea that Gotama had been more than a mere mortal, but one of a veritable pantheon of Buddhas and bodhisattvas who had gained enlightenment through innumerable ages of meritorious deeds and rigorous practices. While explicitly human in origin, they had ascended in the minds of the common Mahayanists to a position quite analogous to the gods in the Hindu pantheon — indeed, the identities of various gods and bodhisattvas were frequently confused. Implicit in this new theology was the notion that such bodhisattvas could reach down to aid humans who besought their help, to share or impart their unlimited merits with their human believers, and reveal themselves physically (like Gotama) or through spiritual inspiration to their devotees. While strict Theravadins may see such views as an unforgivable corruption of the original intentions of the Buddha, the Mahayana approach did have the important merit of encouraging active good works among the people in society, holding as a model not the isolated ascetic but the ever-compassionate and helpful bodhisattva image.

Among the bodhisattvas, there were several whose roles and functions came to be associated with the hereafter and salvation of men, particularly Maitreya, Amida, and Ksitigarbha (Jap. Jizo). Maitreya is generally portrayed as the future Buddha who will come to teach and redeem the world after this depraved current period has come to an end. In the meantime, however, he presides over the Tusita heavens in the East and welcomes to those heavens after death those who have been devoted to him. Amida is the bodhisattva of infinite life and light who has come through many kalpas of self-sacrifice to preside over the Pure Land in the West, a kingdom free from defilements, where all beings who are born therein may expect nirvana in their next lifetime. Ksitigarbha, often depicted as a monk, does not govern an entire heaven of his own, but rescues and conducts pious souls from Hell, either back to this life, or to the Tusita or Pure Land heavens. By far the most prominent and important of these bodhisattvas, however, was Amida, and it is therefore to his particular position and role that we turn our attention.

The earliest "scriptural references" to the idea that one might be saved by the power of a bodhisattva rather than relying upon one's own abilities may be found in Nagarjuna's *Dasabhumi Sutra*, but no specification is made of any bodhisattva as being particularly relevant or efficacious there. The earliest sutras that specifically describe the land of bliss and the reign of Amida appear in Sanskrit and Chinese in the first and second century, respectively. The larger and smaller *Sukhavati-vyuha sutra* have become the major scriptural basis for the religion, supported by the *Amitayurdhyana sutra* and various fifthcentury commentaries by Vasubandhu, Kumarajiva, and the Pure Land patriarchs. Minor differences in the scriptures gave rise to different interpretations and factions particularly in the Japanese context, but for the most part the scriptures agree on the essentials.⁴

The sutras relate that Dharmakara bodhisattva made forty-eight vows, half concerning the commitment to save all beings, and half concerning the nature of the heaven to which they should be reborn. Each of the vows concludes with the prayer, "May I not attain supreme enlightenment if I fail to accomplish this," and since it is a premise of the sutra that the bodhisattva Dharmakara has already completed his practice and attained enlightenment as Amida, the conditions of salvation and nature of heaven are therefore also taken to be established. These conditions are summarized in the eighteenth through twentieth vows, which may be rendered as follows:

- (18) All the beings of ten directions with sincere profound faith who seek to be born in my land and call upon my name ten times, except those who have committed the five cardinal crimes or injured the true *dharma*, shall be born in my land.
- (19) I will appear at the moment of death to all beings of the ten directions committed to Enlightenment and the practice of good deeds, who seek to be born in my land.
- (20)All beings of the ten directions who hear my name, desire the Pure Land, and practice virtue in order to attain the Pure Land will succeed.5

It should be emphasized that the success of all beings in achieving the Pure Land is not due to their own merits or efforts, but due solely to the efficacy of Amida's vows, in concert, admittedly, with the earnest longing and moral behavior of the devotees.

Other sections of the sutras make clear that Amida is a golden buddha of infinite light, who rules a heaven full of gold, jewels, and all manner of beautiful flowers and fountains, where days are spent in ceaseless praise and repetition of the sutras. The saved people sit on lotuses in the middle of a clear lake, on which they are reborn, and are blessed to live in this realm of no craving and no suffering (and no women).

Some of the obvious similarities with the heavenly imagery of the Christian church, or with the sun-god like imagery of the Zoroastrian or other Middle-Eastern religions, have led some scholars to postulate an origin for this pietistic cult in the Middle East. Takakusu (1947) refers to theories of origins in Christianity (Dahlmann), Manichaeism (Eliot), or the silk road in Central Asia (Reischauer) as failing to credit the original faith and religious experience of the Mahayanist tradition itself.⁶ Although there was indeed occasional contact among Christians, Buddhists, and Zoroastrians in Central Asia, it seems hard to account for the flourishing of such a major tradition in China and Japan if it were merely the product of occasional missionaries and not the indigenous experience of the people. On the contrary, a survey of some of the major historical figures involved in the Pure Land traditions in China will serve to demonstrate that the imagery found therein was not borrowed from some Western tradition, but rather grew from the depths of their own religious life, a spontaneous, indigenous cultural phenomenon.

The First Transmission

Although some Pure Land masters are traced back to the third century A.D.7, it was not until the fourth century that a groundswell of popular thought leaned towards the acceptance of this supernatural, deific figure of Amida and his paradise as an acceptable path to salvation. Tradition has it that Tao'an, the learned monk who was first to formally make vows for salvation, learned of the other-power salvation tradition from an Indian (Sanskrit) scholar visiting China.8 It is equally arguable that Tao-an's familiarity with and interest in Maitreya grew not from a particular scripture or scholar, but from the oral traditions that were already becoming popular in China at that time.⁹ Tao-an is primarily remembered as a great translator, commentator, and exegete of the wealth of Sanskrit literature that was pouring into China in the fourth century, and he was highly familiar with many of the more intricate doctrines and self-reliant disciplines of Indian Buddhism. It is therefore all the more remarkable that he should have sought salvation by faith rather than through his own works. Zurcher (1959) illuminates the interesting fact that Maitreya was seen as a patron of exegetes, and Tao-an was almost pathologically concerned with not making mistakes in his difficult exegeses.¹⁰

It was to Maitreya, then, and not to Amida, that Tao-an devoted himself, and in the year 370 he assembled seven of his pupils, who made a collective vow to be reborn in the Tusita heaven. This vow was probably accompanied by meditations to enable the believers to catch a glimpse of the Tusita heavens even while still in this earth,¹¹ but it is also clear that the primary hope was that of rebirth in the heavens after death in this body. We cannot be certain, but it seems quite probable that Tao-an's disciple Hui-yuan was among those who vowed before Maitreya at Hsiang-yang.¹² In any event, the parallels between this Maitreya-devotionalism and Hui-yuan's subsequent Amida-pietism are too blatant to dismiss.

De Visser (1935) explains it this way:

There was a close connection between the Maitreya and Amitabha doctrines, since both of them were "easy ways" towards Nirvana . . . ; they were based on the power of another . . . ; they were gates of the Pure Land instead of the "Road of the Aryas" . . . In China, Tao-an was the first to worship Maitreya and pray to be reborn in the Tushita heaven; and when he died in A.D. 385, a strange priest appeared and pointed to the Northwest, where the clouds opened and a beautiful heaven became visible to his dying eyes.¹³

Whether or not this story bears the marks of hagiography, it is important because it illustrates the strong belief that believers would meet the bodhisattvic object of their devotions face to face, either through meditations, or indeed while on their deathbeds. This is a pattern that we shall see reiterated time and again. It seems that the cult of Maitreya was continued by some of Tao-an's disciples after his death, but the groundswell of popular opinion was more interested in the salvation offered by the compassionate Amida than by the patron of scholars, Maitreya.¹⁴ This may have been one of the factors that led Tao-an's disciple Hui-yuan to abandon Maitreyaworship in preference to Amida-pietism, and to summon not only priests and translators but eminent lay Buddhists to join him in his devotional pledge.

In addition to being a highly competent Buddhist intellect, Huiyuan had studied Confucianism and Taoism in his youth, and the mountain on which he founded his famous monastery (Lu-shan) had been famous for centuries previous as the abode of animistic gods and Taoist immortals. Hui-yuan attracted to his mountain hermitage many bright young scholars who preferred the peaceful meditative existence to the competition of official circles,¹⁵ particularly in that warring period when officials' lives were anything but secure. Zurcher (1959) characterizes Hui-yuan's disciples as young artistic gentry literati, and although he only discusses the lives of a small handful, there were apparently more than a hundred of such disciples at Lu-shan around 400 A.D.

It was on September 11, 402, that Hui-yuan gathered 123 of his followers, including both monks and laymen, before an image of the Buddha Amitabha. Together they vowed to be devoted to Amitabha, to strive for rebirth in the Pure Land, and to refrain from entering the Pure Land alone without attempting to help all their comrades to attain the same goal. This marked the founding of the White Lotus Society, the first formal school of Amida pietism (perhaps because it is into white lotuses that people hope to be reborn in the Pure Land). The ceremony was accompanied by the solemn reading of a text composed by Hui-yuan's disciple Liu Ch'eng-chih, by the burning of incense, offering of flowers to the image of Amida, and the pledging of commitment to the pact.¹⁶

As in the case of his master Tao-an, Hui-yuan sought contact with the bodhisattva (Amida in this case) not only at death, but through meditations while alive. The use of carved and painted images supplemented meditative practices to better enable the devotees to experience visions of their saviour even before death. We know that Hui-yuan himself frequently had such visions, for he asked Kumarajiva in a letter whether the apparitions of Amida came from the mind of the meditator or from some more objective source.¹⁷ We also know that Hui-yuan was "often ill" in his later years (he was seventy at the time of the vow). Although this might point to the possibility that such visions were products of a fevered brain, we must balance this consideration with the facts that Hui-yuan was still lucidly capable of rigorous physical and academic practices, that he believed strongly enough in the reality of the Pure Land to commit an entire community to its achievement, and that many of his disciples also had similar visions, with or without accompanying illness. It is therefore equally possible that an earlier illness occasioned his first visions or brush with the mystical Buddha of infinite light, and that he thereupon developed Buddhist practices to substantiate and perpetuate this vision.

Apart from his Pure Land devotionalism, Hui-yuan wrote several treatises in which he treats the nature of the soul in a very concrete manner:

As for the soul, it responds perfectly and has no master, it is extremely mysterious and nameless. It moves in response to things, and it functions in individual destinies. Though it responds to (physical) things, it is not a thing; therefore the thing may change but it (the soul) does not perish. It is attached to individual destinies (lives) but it is not bound to them, so that it is not exhausted when the destiny is terminated... the soul has the power of moving subtly.¹⁸

He attacks the Taoists who try to make man's body eternal, but then suggests that it is in fact the soul that is eternal, capable of perception, movement, and above the wheel of life and death.¹⁹ As mentioned earlier, this would seem a very un-Buddhistic approach to the Indian Buddhist of nine centuries earlier, but it was the only way in which the Chinese could make sense of the notions of karma and rebirth, lacking the sophisticated process philosophy the early Indians had had. From these detailed descriptions of the soul as a permanent, subtly moving entity, we may also be led to wonder whether Hui-yuan's meditations had not led him to the point where he actually believed his soul occasionally detached from his given body.²⁰

Whether or not Hui-yuan himself had a remarkable deathbed or out-of-body experience, we have reports of the deaths of several of his disciples who preceded him. Liu Ch'eng-chih, the student who had composed the vow of the White Lotus Society, demonstrated exceptional zeal in meditation. It is said that he could see the Pure Land when in meditation, that he saw the Buddha in the air in front of him whenever he encountered a statue, and that he constantly encouraged the monks around him to recite the Pure Land Sutras. Zealously eager to leave this world for the next, he predicted the date of his own death, and passed away while sitting upright facing west, after bidding farewell to his friends, and without a trace of disease, suffering, or other natural cause of death. These accounts seem to imply that he had a vision of the Pure Land in his last moments, and that the cause of death was his own excellence in being admitted into the Pure Land.²¹ Seng-chi was the next famous disciple to pass away, and his death too is recorded in some detail for its unusual circumstances. Because of its parallels with modern deathbed research, it is worth recounting in full here:

He was afflicted by a grave disease, and then he devoutly wanted the Western Country . . . he asked the monks to gather at night and recite the Sukhavativyuha for his sake. During the fifth watch, Chi handed the candle to his fellow-students and requested them to go around with it among the monks. Then he lay down for a moment, and in his dream he saw himself proceed through the void, (still) holding the candle, and he beheld the Buddha Amitabha, who took him up and placed him (or: the candle?) on the palm of his hand, and (in this position) he went through the whole (universe) in all directions (or: its light spread everywhere in all directions). Suddenly he woke up and told everything about his dream to those who nursed him, who were grieved (at this sign of approaching death) and yet consoled (at his vision). When he examined his own body, there were no (longer any signs of) disease and suffering whatsoever.

The following night, he suddenly sought for his sandals and stood up, his eyes (looking into) the void in anticipation, as if he was seeing something. A moment later he lay down again, with a joyful expression on his face. Then he said to those who stood at the side of his bed: "I must go," and when he had turned over on his right side, his life-breath and his words became simultaneously extinguished.²²

A similar death is reported for the star disciple Hui-yung in 414:

Although his disease was very grave, he (still) assiduously observed the monastic rules . . . Shortly afterwards, he suddenly asked for his clothes, folded his hands, sought for his sandals, and wanted to stand up as if he was seeing something. When the monks, all startled, asked him (what he saw), he replied: "The Buddha is coming!" When he had finished speaking he died.²³

These historic accounts should make clear that there were famous people, whose deathbed scenes were witnessed by many friends, carefully recorded, and widely reported, who experienced an apparition of the Buddha Amida at their deathbeds. Such facts of religious experience were not only sufficient to bolster and encourage the spread of Pure Land Buddhism throughout China during the following centuries, but they also demonstrate that the belief in Amida had its basis in personal, Buddhist experience of the Chinese, and was not merely a doctrinal or artistic distortion of Christianity or Manichaeism. The lives of later patriarchs point to similar experiential bases.

The Second Transmission

Although the White Lotus Society continued to enjoy a following for many centuries, the next major development in this history of Pure Land thought came from a completely separate and unrelated source. This time, the impetus came to north China, where a scholar more than fifty years old, by the name of T'an-luan, had a remarkable conversion experience. Ch'en summarizes it as follows:

On one occasion he recovered from a serious illness when he suddenly saw a golden gate open before him. With this experience, he decided to search for an elixir that would bring about everlasting life . . . on his way back to the north he met the Buddhist monk Bodhiruci, who told him that in Buddhism there was a formula for attaining everlasting life that was superior to that of the Taoist. Upon being asked to reveal the formula, Bodhiruci taught him the texts of the Pure Land school, where upon T'anluan became so convinced that he discarded the Taoist texts which he had obtained and concentrated on the attainment of the western Paradise. This conversion took place about 530, and for the remainder of his life he devoted all his time to the propagation of the Pure Land tenets.²⁴

Several observations warrant emphasis at this point. First of all, we have here the case of a man whose whole view of life is changed by "seeing a golden gate" at the end of a serious illness. While he had not been especially famous as a religious figure prior to that point, suddenly, at the advanced age of fifty-two, he began a pilgrimage from the north to the south of China to seek the religious truth. And when he thought he had found it, he forsook all else in order to preach it to the Chinese world. This would reinforce the tremendous impact of the religious experience he underwent.

Secondly, we should note that he threw away his Taoist (Chinese!) texts, acquired only after great effort, for the little known and foreign Buddhist scriptures Bodhiruci was just then introducing from India. Why should foreign scriptures have had precedence over his native Chinese tradition - especially scriptures that had not yet even won the respect of the majority of Chinese Buddhists? Surely, in meeting Bodhiruci, T'an-luan must have told him of his disease, his recovery, the golden gate, and his search for the way to eternal life. This conversation could not help but to have jarred Bodhiruci's memory about the sutras of the Pure Land, with its golden gates and heavenly interior, governed by Amida. Although these were but a minor part of the sutras he was carrying and translating, they clearly seemed the ones most relevant to the search of his new acquaintance, T'an-luan. For his part, T'an-luan, hearing of the similarity of the Pure Land sutras to his own experience, undoubtedly concluded that here was the explanation of the phenomenon he had witnessed, and this was the reason he so readily forsook the Chinese Taoist tradition for an otherwise relatively minor tradition in Indian Buddhism.

T'an-luan particularly emphasized three of the forty-eight vows: the eighteenth (that all beings who call on Amida's name will obtain the Pure Land); the eleventh (that all beings in the Pure Land shall be on the path to nirvana); and twenty-second (that bodhisattvas of other heavens who come to the Pure Land will experience there their last rebirth [prior to nirvana] unless they choose to be reborn on earth to save other sentient beings).²⁵ In the eighteenth vow, we find the doctrinal basis for chanting the name Amida, which T'an-luan initiated and advocated, and also the foundation of *tariki*, the faith that one is saved not by his own but by divine power. This eighteenth vow was used again by later patriarchs to justify and establish their own faith. But the eleventh and twenty-second vows have been largely overlooked by later Pure Land Buddhists, even though their founder T'an-luan emphasized them.

Why were these vows particularly important to T'an-luan? By calling the Pure Land, if not nirvana, the gateway to nirvana, and equating Amida with the ultimate reality,²⁶ T'an-luan deemphasized the differences between Pure Land and other Buddhist schools, and concretized the Chinese understanding of such otherwise abstract terms. Experientially, we may ask whether perhaps he had felt that he was on the threshold of the absolute when he had his golden gate vision at the end of his illness. By stressing the twenty-second vow, T'an-luan pointed to two other convictions of his which later thinkers ignored. The first is that other bodhisatty (and holy men) could enter the Pure Land, without necessarily undertaking specifically Pure Land practices.²⁷ The other point is that men can return from the Pure Land to teach each other here in this world. Since his personal brush with death, perhaps T'an-luan felt that he had almost entered the Pure Land himself (without specifically Pure Land-type preparation) and was "born again" to teach men of this realm.

Although T'an-luan taught fervently for a dozen years after his conversion, contributing to the spread of Pure Land Buddhism in northern China, it was not an immediate student, but a "spiritual disciple" born several decades later who was to take up his mantle as Pure Land patriarch. Tao-ch'o was born in 562 in a period of social and political upheaval and was convinced that he was living in the predicted period of the latter law, in which the dharma of Buddha had degenerated. Inspired by an inscription on the tomb of T'an-luan, Tao-ch'o entered the monastery where he had taught and seriously undertook the Pure Land meditations. Possessing a calm and quiet nature, a peaceful smile, and an ability to relate to commoners as well as nobility, Tao-ch'o soon attracted a large following, and became famous for temple-building and statue-erecting.

At the age of sixty-five, aged and sick, he felt himself to be on his deathbed, and summoned his disciples and many followers to recite the sutras. Thereupon T'an-luan appeared to him, and in a voice heard by all present, commanded that Tao-ch'o must continue to teach people for many years. It is said that flowers fell from heaven, which were carefully preserved by his followers. From that day on, Tao-ch'o became progressively healthier, even regaining another set of teeth, and continued to teach for almost two decades, living to the rare age of eighty-three.²⁸ Thereafter he was revered almost as a god by lay and priestly disciples alike.

Let us turn briefly to Tao-ch'o's writings to better understand his visions. Tao-ch'o held that Pure Land practices included both meditations and calling on the name of Amida Buddha. In his *An-le-chi*, he is particularly intent upon denying the contemporary allegations that visions of the Pure Land are purely subjective and psychological, declaring them to be *sambhoga-kaya* – subtle but real matter.²⁹

Tao-ch'o's disciple Shan-tao was held in far less estimation than Tao-ch'o by his contemporaries, so we know few details of his life. Writing numerous picturesque and emotional commentaries on the Meditation Sutra, he outlined five activities that could lead to birth in the Pure Land: name-chanting, sutra-chanting, meditations, imageworship, and hymn-singing.³⁰ The important thing to note here is that Shan-tao, although often distorted by later interpreters, placed equally great stress on the meditative visualization of the Pure Land and concurred with his master Tao-ch'o on the objective reality of those visions. Shan-tao lived a frugal beggar's life, contrasting with the quiet but ample life-style of his master; he was often poor, sick, and troubled by sin, and clearly held his dreams of the Pure Land to be more real than the miserable world around him in waking life. (This is in sharp contrast to Tao-ch'o, who believed that the two were on a continuum, not contrary.) We do know that Shan-tao's insistence on the preferability and availability of the Pure Land to this world led at least one follower to suicide by jumping from a tree in front of his monastery. Tsukamoto (1968) hints in other ways at Shan-tao's "dark past" and suggests that the legend may be true that Shan-tao himself committed suicide to end his days of suffering and obtain the Pure Land.³¹

The Third Transmission

Hsin Hiu-jih (who has come to be known as Tzu-min) was born in

680, only shortly after Shan-tao's passing, but he was not connected to the T'an-luan-Shan-tao tradition. It was apparently a desire to travel that motivated Tzu-min above all else, for he journeyed for almost twenty years, first by sea to India, and then throughout the subcontinent. His biographers relate that he was inspired by stories of Amida while in India – so much so, that he decided to devote the remainder of his life to spreading the gospel of the Pure Land and the practice of *nien-fo* (Jap. nembutsu) among the masses in China.³² Fujiwara (1974) calls Tzu-min a "sincere aspirant for the Pure Land," who rejected meditations merely on the void (of Ch'an Buddhism). He studied and respected Shan-tao's works, and stressed, like Tao-ch'o, that the visions of the Pure Land obtained in meditation were objectively real and not psychological illusions.

Tzu-min's star pupil, Ch'eng-yuan, had begun his training in the Zen tradition, then switched to T'ien-tai and Vinaya Buddhism, and finally,

He happened to hear that Tzu-min had come from Chang-an to Kuangchou to preach the Pure Land teaching. Thus Ch'eng-yuan paid Tzu-min a visit and immediately took refuge in the teaching of the Nembutsu. After returning to Nan-yueh, he established a Nembutsu center called Mi-t'o-tai, and started a vigorous missionary movement among the many people who gathered there from remote areas.³³

The striking thing to be noticed about the biographies of both of these men is that they studied Buddhism for many years before becoming closely acquainted with the Pure Land tradition. Upon making the acquaintance of the Pure Land tradition, however, they "suddenly" decided to devote their entire lives to it, and they started a new period of highly active temple-building and nien-fo proselytizing. We cannot help but surmise that there must have been some important personal experiences behind this sudden conversion, for a merely intellectual change of mind could hardly account for so drastic a change of mind and of life-style.

The role of personal experience in the conversion of Fa-chao is even clearer. Although his early history remains in some doubt, it seems clear that he entered a monastery on Mount Lu-shan, where Hui-yuan had first formed the White Lotus Society 350 years earlier. While in meditation on the nien-fo, he had a vision of Ch'eng-yuan, and left Lu-shan for Nan-yueh to join Ch'eng-yuan, who had remarkable powers and special virtues, as he later reported to the emperor.³⁴ He had many remarkable visions while practicing the constantlywalking *samadhi* meditations under Ch'eng-yuan, and felt that he had personally been taught a five-tone nien-fo chant by Amida himself, while visiting the Pure Land in meditation.³⁵ He entered *samadhi*, being born in the Pure Land with his physical body, he personally listened to the sounds of water, birds and trees in praise of the Buddha. After coming out of the *samadhi*, he introduced the sound of the *dharma* to Wu-t'ai-shan.

He then moved to Wu-t'ai-shan and established a temple for the chanting of five-toned nien-fo. The story has it that the Emperor heard the nien-fo drifting into his palace from the northeast, sent a messenger to seek the source of the sound, and discovered a huge assembly of people surrounding Fa-chao, chanting the nien-fo (but at a great distance from the palace).³⁶ Fa-chao was thereupon invited to the palace and honored, given royal patronage, encouraged to write numerous texts on the nien-fo and to teach the imperial court to praise the name of Buddha in those five musical tones. Returning to his mound Wu-t'ai-shan, he established the Chu-lin-ssu temple where he had formerly experienced visions of Amida, and it was there that the pilgrim Eshin (later master Jikaku) from Japan met his disciples and observed his nien-fo practices.³⁷

As we thus view the history of the several transmissions and the "patriarchs" of Pure Land Buddhism within them, certain common elements stand out before us. In many cases, the patriarch was either a sickly fellow or in fact had an experience on his deathbed after which he revived to preach the Pure Land for many years. For those patriarchs whose conversion was less dramatic (or of whom we have no clear record), we can at least assert that the conversion involved a great leap of faith, a change of life-style from quiet scholarship to dramatic preaching, and promulgation of little-known Indian sutras over more popular Chinese Ch'an or T'ien-tai Canons. Unlike their Japanese followers, these Chinese Pure Land patriarchs stressed that the Pure Land may be seen in this life while in *samadhi*-meditation, and notably, that the reality of such visions or dreams was equal to (or greater than) the reality of the waking world.

Moreover, although separated by hundreds of miles and hundreds of years, patriarchs in each of these traditions described similar visions and expected similar phenomena in their Pure Land rebirths. To some degree this similarity might be attributed to their using the same sorts of sutras as the basis for their meditations, and to their living in the same culture (although the language and customs of north and south were very different). On the other hand, the fact that some of them apparently sought the Pure Land tradition after having had visions while very ill (either of the Pure Land itself or of Pure Land masters) might lead us to suspect that more was occurring here than mere psychological projection on the part of would-be believers. Historically speaking, these facts constitute an important refutation to the theory that the Pure Land tradition was necessarily borrowed from some Near Eastern source. Philosophically speaking, they add important evidence of the cross-cultural continuity of deathbed experiences.

NOTES

- 1. Smith (1973), pp. 291-298.
- 2. Reichelt (1928), pp. 82-84.
- 3. Ibid., pp. 92, 115.
- 4. Fujiwara (1974), pp. 28-35.
- 5. Matsunaga (1976), pp. 30; cf. pp. 22-23 for preceding ideas.
- 6. Takakusu (1947), p. 167.
- 7. Ch'en (1964), p. 342f.
- 8. Zurcher (1959), pp. 180-183.
- 9. Ito (1923), pp. 192-3.
- 10. Zurcher, p. 194.
- 11. Demieville (1954), pp. 377-390.
- 12. Zurcher, p. 195.
- 13. deVisser (1935), p. 318.
- 14. See also Fung (1948), pp. 244-246.
- 15. Zurcher, p. 217.
- 16. *Ibid.*, pp. 218-220.
- 17. Ibid., pp. 240-253.
- 18. Ch'en, p. 111.
- 19. Smith, pp. 295-297.
- 20. Zurcher, pp. 240-253.
- 21. Cf. parallels in Reichelt, p. 169; Zurcher, p. 221.
- 22. Liebenthal (1950), p. 251.
- 23. Zurcher, p. 222.
- 24. Ch'en, p. 108, p. 344.
- 25. Fujiwara, p. 57.
- 26. Matsunaga, p. 25.
- 27. Ibid., pp. 25, 40.
- 28. Tsukamoto (1968), pp. 106, 278.
- 29. Matsunaga, p. 26; Fujiwara, p. 62.
- 30. Matsunaga, p. 27; Ch'en, p. 346.
- 31. Tsukamoto, pp. 283, 288.
- 32. Ch'en, pp. 347-8.
- 33. Fujiwara, pp. 130-134.
- 34. Chih-p'an (1966), pp. 69, 73 cf. notes.
- 35. Fujiwara, pp. 145-6.

36. Chih-p'an, p. 72.

37. Fujiwara, p. 135.

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BOOK REVIEW

Recollections of Death: A Medical Perspective by Michael B. Sabom – Harper and Row, \$13.50

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Empirical studies of near-death phenomena have been published from the viewpoint of several disciplines: philosophy (Moody, 1975); parapsychology (Osis and Haraldsson, 1977); transpersonal psychology (Ring, 1980); and psychiatry (Greyson and Stevenson, 1980; Noyes, 1979). In this book, Michael Sabom, a cardiologist and professor of medicine at Emory University in Georgia, brings an almost exclusively medical perspective to bear on the study of neardeath experiences. Although another cardiologist, Maurice Rawlings, has previously published on this subject (Rawlings, 1978), his book, while not without interest, is more of a sermon than a scientific document.

In contrast, *Recollections of Death* is a sober and objective investigation of near-death phenomena. While readable for the layperson, the thrust of the book is toward arousing the medical community from its dogmatic slumbers. Sabom urges that "caution should be exercised in accepting scientific belief as scientific data".

Sabom himself was roused to question his scientific dogmas by Moody's Life After Life and, with Sarah Kreutziger, a psychiatric social worker, set out to investigate Moody's claims. 116 persons formed the basis of the study; 10 of these encountered their crisis event in conjunction with general anesthesia during surgery. Of the remaining 106 cases, 78 were obtained prospectively; 43 percent of these reported a near-death experience (NDE). Sabom concludes from this that NDEs are a "common" event among those who survive near-death incidents. On the whole, Sabom's findings are consonant with those of previous researchers. The author distinguishes three types of NDE. The first he calls "autoscopic." Here the subject, during a near-death situation, finds himself "out-of-body," a detached observer of his physical organism, usually from a position suspended near the ceiling. A second type of NDE is called "transcendental." Here the person ostensibly enters an environment that "transcends" the observable physical environment. In the third type of NDE, the person experiences both autoscopic and transcendental elements during the NDE, the latter usually unfolding in sequence from the former. Sabom's basic distinction is useful on the grounds that the autoscopic component of the experience can be verified, whereas the transcendental apparently cannot.

There might be an exception in some rare cases of "meeting" others not known by the near-death experiencer to be dead. These cases were called by William Barrett (1926) "peak-in-Darien." Also, the transcendental component may contain, as reported by Ring, "flashforward" or precognitive elements. In any case, Sabom's work does not focus on these possibilities. Another question that needs to be addressed is why the transcendental generally *follow* the autoscopic episodes. *Prima facie*, at least, if an aspect of a person were really "splitting off" from a dying body and embarking on a "journey beyond," this would seem to be the most plausible sequence – i.e., from autoscopic to transcendental.

The most original contribution of this book lies in Chapter Seven, where the author provides some detailed corroborations of the objective nature of the autoscopic component of the NDE. There are, in fact, at least two distinct kinds of questions we can ask about the NDE. One is phenomenological, the other ontological. At the level of phenomenology, the NDE is "real" - i.e., it is what it appears to be. Moreover, it is meaningful in a variety of ways: for the experiencer; for the physician (it may have therapeutic significance); for the student of comparative religion (it may resemble classic conversion experiences); and so forth. But beyond questions of phenomenology are questions of ontology - i.e., is the NDE "really" real, occurrent independently of the subject's mind and brain states? My impression is that even among serious researchers of NDEs, there is a tendency to shy away from the ontological question. This may in part be due to a feeling that the phenomenological dimension of the experience is of sufficient importance. On the other hand, one might be reluctant to ascertain that one's favorite research baby is just a fascinating illusion.

The virtue of Sabom's book is that it broaches the ontological question, at least in regard to the autoscopic component of the NDE. Thirty-two of Sabom's patients claimed to be out of their bodies and able to provide visual accounts of cardiopulmonary resuscitation procedures being performed upon their bodies during periods of apparent unconsciousness or clinical death.

In order to evaluate these reports, Sabom tested the hypothesis that cardiac patients could provide a pseudo-veridical account of CPR procedures on the basis of an "educated guess." He interviewed 25 "control" patients with medical backgrounds similar to those who had autoscopic episodes and found that 23 of them made at least one major error in their descriptions of the CPR procedures. In contrast to the control group, none of the autoscopic patients made any serious errors in their descriptions. Twenty-six of the thirty-two autoscopic subjects had only general, nonverifiable details in their accounts. According to these patients, this paucity of detail was due to their being absorbed in "overall amazement at what was occurring".

Six, however, of the thirty-two provided specific, verifiable details in their NDE reports. Indeed, particularly valuable are the ample and detailed accounts of the NDEs, especially of the autoscopic episodes. Sabom's procedure was to compare the patient's medical report with his own near-death account. He obtained further verification, whenever possible, from relatives who may have witnessed the near-death event. Finally, Sabom's own medical expertise is crucial in the evaluation of these autoscopic episodes. The six cases cited are impressive. Sabom makes a strong case for the veridical nature of the near-death out-of-body experience. In short, we have here for the first time expert medical testimony that patients who apparently are either unconscious or who have lost all vital signs are in reality conscious and capable of accurate observations of the physical environment from a viewpoint spatially separate from their bodily organisms. This rather astonishing fact simply does not fit into the current, orthodox biomedical model.

No less intriguing is the next chapter in which several cases are cited of persons who "learned," after initial NDEs, to have out-ofbody experiences. The evidence presented for these extended ecsomatic capacities is largely anecdotal. Nevertheless, they force us to ask an interesting question. In Sabom's words: "Could some latent human ability have been activated by the near-death crisis event, allowing these autoscopic experiences to repeat themselves under non-near-death circumstances?" This question gives rise to another: in addition to the near-death crisis, are there other circumstances, "mechanisms," or "triggers" that may, perhaps in a fragmentary way, activate a latent human ability, an ability to function independently of the ordinary limits of bodily existence? And, if so, what is the fundamental "mechanism," or complex of "mechanisms," involved in NDE, out-of-body, and related phenomena of transcendence? In my opinion, future research needs to address these questions and to attempt to grasp the NDE in relation to this possibly wider set of psychophysical interactions.

Altogether, Sabom critically examines a dozen possible ways to account for the NDE: as the result of semiconscious states, conscious fabrication, unconscious fabrication, depersonalization, autoscopic hallucinations, dreams, prior expectations, drug-induced delusions or hallucinations, endorphin release, temporal lobe seizures, hypoxia, and hypercarbia. None of these explanations, according to Sabom, quite fit the phenomena they are supposed to account for. Sabom could have made his case more effectively, if he had stated more clearly what it is about the NDE that calls for explanation. His approach is more ad hoc - e.g., he rejects the psychodynamic explanation of NDEs as subconscious fabrications to ward off the fear of extinction. Sabom's reason for rejecting this explanation is that, if true, it works much too inconsistently. For instance, in multiple near-death situations, the near-death (allegedly defensive) experience occurs only once, or it manifests during the least lifethreatening situation. But this is not an entirely effective rebuttal, for there is no reason to believe that our psychological defense systems work with infallible efficiency. No doubt it would be desirable if they did, but the subconscious mind is not a computer. And even our best computers have their off-days.

In general, Sabom's strategy is to show that the NDE represents a unique complex of phenomena for which none of the explanations adequately accounts. For instance, endorphins are pain-killing substances released by the brain during periods of stress. The action of endorphins, however, produces effects that last from 22 to 73 hours; freedom from pain in the NDE lasts only the duration of the experience – seconds or minutes. Further, endorphins produce sleep and somnolence, not the clarity and intensity of vision associated with the NDE.

Of special interest is the discussion of hypercarbia – increased levels of carbon dioxide in the brain. Experiments with elevated levels of CO₂ are cited in which experiences were produced closely akin to NDEs: light and out-of-body effects, panoramic memories, ineffability, religious presences, and so forth. As Sabom rightly observes, however, we do not know if the CO₂ surplus is the sole cause of the NDE or simply a physiological correlate of the NDE. To complicate matters, in the one case in which the patient's carbon dioxide and blood oxygen levels were measured at the very moment of his NDE, the oxygen level was *above* normal (thus ruling out hypoxia) and the carbon dioxide level was *below* normal (thus ruling out hypercarbia). In any case, hypercarbia intoxication constitutes a possibly valuable line of research into NDEs, for it is a method, free of serious risk, of mimicking, fairly closely it would seem, full-blown near-death experiences.

Sabom is very cautious in his conclusions about the ultimate significance of the phenomena he has studied. He does apparently incline toward a *dualistic* interpretation of near-death phenomena, however, citing for support the philosophical speculations of neurologists Penfield and Sherrington. The most I am willing to say in this brief review is that much of the material in Sabom's book makes the case for anti-dualists considerably more difficult than otherwise.

A separate list of references would have been handy, especially for those not initiated into the medical literature on the subject. On the other hand, there are few, if any, references to the large and relevant parapsychological literature on NDEs and related phenomena. This is unfortunate, since, if – as I hope it will – Sabom's book reaches a medical readership, an opportunity will have been lost to shake them even further from their dogmatic slumbers. For after all, near-death research is only a part of a large mass of explorations into the hinterlands of human potential.

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