

fraud is always the most plausible explanation. In many cases, such as the Scole experiment, the complexity of events would have necessitated a hoax of elaborate proportions with nothing apparently to be gained by the participants (Keen, 2001), so that explanations other than fraud must be seriously considered.

Are experiences associated with death meaningless or meaningful? Are they what they appear to be? Are they delusional or veridical? Are they mundane or extraordinary? Can materialist theories adequately account for them? Are they beneficial? What do they tell us about our self-identity? Is the psyche closed or open? Is there life after death? Again, I will leave the reader to answer these questions herself.

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CONCLUSION

We have surveyed the spectrum of alterations of consciousness, from the ordinary waking state, through sensory restriction, sleep, dreams, hypnosis, trance, drug-induced states, transcendence, and experiences associated with death. What is striking about the ground that we have covered is the amount of polarization in this area of investigation: the mind is a by-product of the brain versus the brain is a vehicle for the mind; dreams are meaningless versus dreams are messages; hypnosis is just ordinary behavior in a social situation labeled as hypnosis versus hypnosis is a special state of trance; shamanism is just schizophrenia versus shamanism is a means of communicating with spirits; dissociative identity disorder (DID) does not exist versus multiple personalities are present in DID; people who believe they have been abducted by aliens are crazy versus people really are being abducted by aliens; psychedelics are dangerous versus psychedelics are divine sacraments; mystical experiences are nothing but aberrant brain activity versus enlightenment is conferred in mystical experiences; death is oblivion versus personal consciousness continues after death. Perhaps the best way to tie together some of the material in this book would be to use our thematic threads as the basis for a summary discussion. In the process of doing so, let me take the opportunity to make some comments about directions for further research.

RECAPITULATION OF THEMATIC THREADS

In chapter 1, the following 10 thematic threads, associated with fundamental questions about the nature of reality, were introduced, with the idea that they would help us to discuss alterations of consciousness.

Physiological, Cognitive, and Experiential Perspectives

Our first thread was that of the three perspectives taken when approaching consciousness. Although all three were used throughout the book, the physiological perspective underlay our discussions of sleep and psychedelic

states, the cognitive perspective was most evident in cognitive theories such as those for dreaming and OBEs, and the experiential perspective became particularly significant for unusual phenomena such as transcendence and near-death experiences. All three perspectives need to be considered as much as possible in any further research, and the interactions between these perspectives need to be established more fully. For example, what physiological changes accompany the perceptual changes associated with hypnotic suggestions of analgesia? Is it possible in any way to determine if near-death experiences occur during the actual time that someone is near death, and, if so, what are the physiological correlates, if any, that correspond to them? What is the nature of the knowledge associated with the noetic quality of transcendent states of consciousness? The effort to make these links is perhaps most evident in psychoneuroimmunology when trying to understand how psychological events can affect physiological ones.

Material Versus Transcendent Beliefs

It is hard to overemphasize the importance of the material-transcendent dimension of beliefs about consciousness and reality for the understanding of alterations of consciousness. The ways in which phenomena are conceptualized, the kinds of research programs that are carried out, and the interpretation of the results of research depend on the beliefs of investigators. For example, if the world is conceptualized as a physical place in a naive sense and consciousness as just an emergent property of processes in the brain, then there is no point in research aimed at looking for life after death. It is important for scientists to examine their own beliefs, to learn to rely on the data rather than their predilections, and to go wherever the evidence leads them.

Delusional Versus Veridical Experiences

Remaining open to transcendental interpretations of reality involves taking into greater account phenomenological data. But that raises the question of whether the events occurring in people's experiences are what they appear to be. Do we really know what is in our minds? Are there really presences that can be sensed? Do some dreams really foretell the future? Did hypnotically recalled perinatal events happen? Are people really being abducted by aliens? Does time really change during intoxication with ayahuasca? Are insights that occur during transcendent states really true? Can people really see what is happening in the environment around them during OBEs? Is an NDE really a preview of death? Are there previous lives to be remembered? Or are these all delusions? Or are some of them delusions and some of them veridical? If some of them are veridical, which ones? Our

beliefs about consciousness and reality will likely determine our answers to these questions. We need to follow the empirical evidence as far as it will take us. But we also need to learn more about introspection to determine if there are ways of discriminating between that which is imaginary and that which is real. Maybe some of what we think is imaginary will turn out to be real, and some of what we think is real may turn out to be imaginary. Is the ordinary, everyday world actually real, or is it imaginary?

Mundane Versus Extraordinary Phenomena

Directly related to the question of the veridical nature of experiences is that of whether the phenomena occurring in alterations of consciousness are mundane or extraordinary. Are the correspondences between precognitive dreams and subsequent events incidental or actual? Is hypnosis just more ordinary cognition triggered by a particular social situation, or is it a special state? Are the phenomena associated with physical mediumship the result of hoaxes, or is there some other explanation? Sometimes it seems to me that there is an attitude within scientism that the world is a boring place and that anything interesting that appears to be happening can be explained in mundane terms. That may often be true but should not be used as a judgmental heuristic for evaluating individual events.

Meaningless Versus Meaningful Events

Maybe something is not happening in the real world, and maybe there is a mundane explanation for it, but is it nonetheless meaningful? Are fantasies during daydreaming meaningful? Are dreams meaningful? Are NDEs meaningful? Given that hypnagogic imagery appears to be autonomic, are there nonrational sources of information about ourselves? Are hypnopompic images answers to questions? What about intuition? Can we account for the presence of intuition in mundane terms as a heuristic used in reasoning, or is there something extraordinary about it? Does it stem from the superconscious? Do we have a superconscious? What is transcendental awareness such as that found among near-death experiencers? Research is needed to understand any ways in which nonrational meaningfulness and knowledge can occur. Such research is necessary to understand the potentially symbolic interpretation of events in alterations of consciousness.

Lateral Versus Vertical Meaningfulness

Not only could we extend the periphery of what is meaningful laterally through consideration of the use of ways of knowing other than the rational, but in some cases there could also be an apparent vertical extension through

the deepening of meaning such as with Merrell-Wolff's introception. Existential questions have purportedly been resolved in some transcendent states of consciousness precisely because of the noetic quality of such states. But in what sense is such enlightenment really knowledge? We can recall the cases of DMT intoxication and distressing NDE in which there was absolute conviction that the world is a terrible place. What are the cognitive and physiological correlates of the deepening of meaning? Is it possible to develop meditation techniques that could be used by scientists to facilitate the occurrence of transcendent experiences for themselves as an investigative method? Perhaps something along the lines of mathematical yoga? Given the significance of the deepening of meaning for those for whom it occurs, it is important to know more about it.

Psychopathology Versus Well-Being

We have considered actual psychopathology in this book such as schizophrenia, sleep disorders, DID, and impairments associated with drug use. There has been a tendency in the past to regard some altered states as pathological, such as shamanic soul journeying and transcendence, even though they are quite different in character from psychological disorders. And some alterations of consciousness that look as though they should be some kind of psychopathology, such as alien abduction experiences, cannot be accounted for in terms of known mental disorders. It is important in trying to understand alterations of consciousness not to instinctively label as pathological that which we do not understand but rather to leave the question open as to whether or not some form of mental disease is present until more is known about it.

We have also considered alterations that are characterized by exceptional well-being. Most notable among these are transcendent states such as flow, peak experiences, and mystical experiences. In many cases, it is not the type of alteration but the nature of an individual's experience in an alteration of consciousness that determines whether that experience will be felicitous or not. We have seen that occur with daydreams, sensory deprivation, hypnagogia, dreams, trance, drug-induced states, and near-death experiences.

Dangerous Versus Beneficial Alterations

Related to questions of psychopathology and well-being are those concerned with the dangers and benefits of phenomena in alterations of consciousness. Are psychoactive drugs such as fluoxetine and LSD dangerous or beneficial? Under what conditions does sensory restriction cease to be

therapeutic and begin to be dangerous? Are alien abduction experiences dangerous and, if so, what can be done to stop them?

But many of the alterations of consciousness lend themselves to therapeutic efforts. Guided imagery has been utilized to try to improve physical and psychological functioning. Dreams have been interpreted for the sake of self-understanding and, in the form of lucid dreams, harnessed for self-development. Hypnosis has been used in a wide range of situations, such as analgesia during surgery. DID may in and of itself be a healthy response to an unhealthy situation. Psychedelics have been given to addicts to treat their addictions and have also been given to the dying to help them with intractable pain. Meditation has been used to counteract stress. And past-life regression has been part of some psychotherapists' repertoires of therapeutic strategies. The volume of research concerning the effectiveness of these efforts is varied, with numerous studies for some of them, such as hypnosis, and almost none for others, such as past-life regression. It would make sense to carefully examine the therapeutic potential of all of the procedures that could be developed in any of these alterations of consciousness.

The Nature of the Self

The question of the nature of the self has certainly been opened up in this book. Is the self a thought that appropriates to itself previously aggregated ideas about what it is like? Is it just a representation of the biological organism within its own information-processing system? How is it that self-identity can change so readily for hypnotic virtuoso's? What gets disconnected during dissociation? Does the self leave the body during soul journeying and out-of-body experiences? Who is the self for a person with DID? What is happening during the double consciousness of marijuana intoxication? Is the self eternal as it appears to be during transcendent states of consciousness? Have we lived previous lives? Does the self survive death? I think that there needs to be research aimed at better understanding the nature of the self in light of the changes of self-identity in alterations of consciousness.

Closed Versus Open Psyche

At the root of much of the disparity concerning consciousness is the question of whether the psyche is open or closed. Is consciousness bound by the skull, or does it extend spatially and temporally? The answers to these questions depend on the answers to questions about the extent to which phenomena associated with alterations of consciousness are what they appear to be. Are we being deluded, or are some of the events occurring in some of these alterations veridical? Are the results of the ganzfeld studies

valid? Are sensed presences objective in some sense? Do precognitive dreams foretell future events? Can perinatal events be known through hypnotic regression? Do shamans encounter spirits? Does intoxication with ayahuasca lead to liberation from the constraints of time? Are NDEs a preview of death? Do mediums give voice to the dead? In other words, is consciousness a product of the brain, or is the brain a vehicle of expression for consciousness?

ALTERNATIVE EXPLANATIONS OF REALITY

Where does consideration of the thematic threads leave us? We are used to thinking that the only objective reality that exists is the reality that we encounter through our sensory modalities. Of course, we know that there is more to physical reality than what we can perceive, because our physical senses are attuned to only a narrow range of physical events. Visible light, for instance, is only a fraction of the spectrum of electromagnetic radiation. Perhaps objective reality, whether we call it physical or not, is more extensive than we ordinarily think. And, as our consciousness is altered away from attending to sensory impressions in an ordinary way, perceptual abilities may emerge that allow us to glimpse aspects of reality that we cannot apprehend with our physical senses. Such perceptual possibilities are suggested by the transcendent awareness that appears to occur during the out-of-body component of near-death experiences. Although it is possible that it could give us knowledge that would ordinarily be acquired through physical sight, it may be that transcendent awareness is more oriented to the perception of aspects of reality that are not available to the physical senses. It may also be that, just as we have a perspective from which we perceive the physical world with our physical senses, so we may have a perspective, our interpretation of reality, from which we perceive other aspects of reality so that their appearance conforms, in part, to our expectations.

It may also be that in addition to directly perceiving aspects of an extended objective reality, events that occur in such a reality could intrude into our ordinary world. Such a possibility is suggested by physiological changes accompanying shifts among alters in DID, physiological correlates of alien abduction experiences, birth defects of children who remember previous lives, and phenomena associated with physical mediumship. I want to stress that I am speculating in making these suggestions. Our brains may be devices that give us access to a range of phenomena that result in our having ordinary waking experiences, but, simultaneously, constrict our consciousness unless we can put our brains out of commission or modify them so as to act as transducers between different aspects of reality.

I think that studying alterations of consciousness forces us to examine our beliefs about reality. Maybe there is more to it than we ordinarily think.

Perhaps transcendent states really do reveal something about the nature of reality. Maybe alterations of consciousness are a doorway to nonordinary aspects of reality. The richness of phenomena associated with alterations of consciousness provides us with an interesting spectrum of human experiences. It is my hope that this overview of alterations of consciousness has helped to expand the reader's understanding of the human psyche, raised some questions about the nature of consciousness and reality, and inspired a deeper appreciation of the mystery of life.