Consciousness Unbound

LIBERATING MIND FROM THE TYRANNY OF MATERIALISM

Edited by

EDWARD F. KELLY

and PAUL MARSHALL

Properly advanced science and spirituality serve to strengthen each other, and this *magnum opus* leads the way!

—EBEN ALEXANDER, MD

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PREFACE

Michael Murphy

Since its founding in 1962, Esalen Institute has regularly sponsored research fellowships in fields that mainstream scientific and religious institutions typically neglect or avoid altogether. The present volume is the third major output of one especially productive fellowship of this sort that I initially organized in 1998 with the specific aim of presenting and discussing empirical evidence suggestive of postmortem survival—the persistence of aspects of human mind and consciousness following bodily death. It will probably surprise many, if not most, readers to hear that a large body of such evidence already exists, much of it of very high quality. Literally hundreds of thousands of pages have been published by able investigators, both in book-length treatments and in scientific reports in refereed journals, on topics such as children who seem to remember aspects of previous lives, near-death experiences occurring under extreme physiological conditions, crisis apparitions and hauntings, and apparent communications from deceased persons through the agency of mediums.

This fellowship became known to the Esalen community as "Sursem" (from "Survival Seminar"), but it soon evolved into something much broader in scope—essentially undertaking a systematic reassessment of the physicalist (or "materialist") metaphysics that emerged over the past several centuries in conjunction with the rise of modern science and that has become the received wisdom of the opinion elites of all of today's "advanced" societies.

A first book, *Irreducible Mind: Toward a Psychology for the 21st Century*, sought mainly to assemble in one place large amounts of evidence for a variety of "rogue" psychological and physiological phenomena that resist or defy explanation in conventional physicalist terms (including a number of topics previously visited in my own *The Future of the Body*). The next

book, *Beyond Physicalism: Toward Reconciliation of Science and Spirituality*, took a more theoretical turn and drew on a wide variety of historical and contemporary sources in an initial attempt to present and compare a sampling of richer metaphysical systems (or worldviews or conceptual frameworks) that specifically seek to accommodate phenomena of the sorts cataloged in *Irreducible Mind*.

This third volume of the series continues to develop the main themes of its predecessors, presenting new information regarding some of the most theoretically challenging empirical phenomena and a variety of additional worldviews or metaphysical positions potentially capable of making sense of them, plus reflections on what all this work may mean for contemporary scholarship in the humanities, science, and philosophy as well as for human affairs more generally.

I am hugely proud of this work, both for the light it has brought to its subject matter and for the way it does so. These explorations have necessarily relied on methods and discoveries from many fields, among them physics, neuroscience, depth psychology, dynamic psychiatry, metaphysics, the philosophy of mind, cultural anthropology, the history of science, the sociology of knowledge, comparative religion, meditation research, and the systematic collection of shamanic and contemplative lore provided by living spiritual teachers. As much as anything Esalen Institute has ever sponsored, I believe, this work contributes significantly to our understanding of human nature's higher reaches and destiny. I cannot resist an analogy between this body of work and the exploration of the Louisiana Purchase by Lewis and Clark and their "Corps of Discovery." Please join me in savoring this exciting new report from the undiscovered countries of human consciousness!

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Second, we thank the many colleagues from multiple disciplines—too numerous to name individually—who have participated in the meetings of our Sursem group and thematically related Esalen fellowships, and who helped shape the vision articulated in this series of books.

Third, we thank individuals who have supported the work financially through contributions to Esalen's Center for Theory and Research, including John Cleese, Deb Frost, Christina and Jim Grote, Mary Ellen Klee, Gary Owens, Jerry and Linda Patchen, and Sam Yau, as well as those who have facilitated Sursem and related meetings over the years through their administrative and organizational skills, including Steve Dinan, Frank Poletti, and Max Gaenslen. We are also very grateful to Bob Rosenberg for his meticulous work on the index.

Several publishers/individuals have kindly granted permission for use of material in the present book: Penguin Random House for permission to include in Chapter 3 an excerpt from *Cat's Cradle* by Kurt Vonnegut Jr.; Taylor & Francis for permission to reproduce in Chapter 5 a figure published in 2009 in Max Velmans, *Understanding Consciousness*; and Harald Atmanspacher for permission to reproduce in Chapter 10 a figure published in 2014 in the journal *Mind and Matter*. Full source details are provided in the text.

Last but certainly not least, we again thank Mike Murphy for initially conceiving this project, for bringing us together in the spectacularly stimulating environment of Esalen, and for his apparently limitless reserves of comradeship, wit, and wisdom.

ized fundamentalisms—religious *and* scientific—that have dominated recent public discourse. Both science and religion, we believe, must evolve.

Over the duration of the project, our work has involved more than fifty participants in all, roughly twenty of whom were actively engaged during any given year. Our core membership has remained largely constant, but as the project evolved, some members dropped out for various reasons, while others were recruited to help us address specific new issues and needs as these came into focus. Each year typically included at least one intensive five-day face-to-face meeting of currently active members in the magnificent Pacific Ocean–side ambience provided by Esalen, supplemented by occasional smaller meetings elsewhere and by extensive background interactions among particular members as needed.

Our membership has always been uncommonly diverse, including social, biological, and physical scientists, scholars of religion, philosophers, and historians of science, among others. In general terms, however, most of us are scientifically minded adults with broad interests who think of ourselves as at least somewhat "spiritual" although not "religious" in any conventional sense and who are skeptical of the currently dominant physicalist worldview but equally wary of uncritical embrace of any of the world's major faiths with their often conflicting beliefs and decidedly mixed historical records.

We focused initially on various forms of evidence suggestive of postmortem survival. As Mike Murphy had clearly recognized, this is a watershed issue theoretically because survival beliefs are common to traditional faiths but cannot be true if the physicalist worldview is correct. Moreover, there already exists—largely unknown to believers, skeptics, and the general public alike—a sizable body of high-quality evidence suggesting that survival in personal form *does* at least sometimes occur. We quickly realized, however, that our task was really much larger and that we needed to approach it in two overlapping stages: to assemble in one place many lines of peer-reviewed evidence demonstrating empirically the inadequacy of physicalism and, far more challenging, to seek some better conceptual framework, worldview, or metaphysics to take its place.

The first stage culminated in our publication in 2007 of an eight-hundred-page book titled *Irreducible Mind: Toward a Psychology for the 21st Century* (Kelly, Kelly, Crabtree, Gauld, Grosso, and Greyson; henceforth *IM*). Topics addressed included paranormal or "psi" phenomena; manifestations of extreme psychophysiological influence, such as stigmata and hypnotically induced blisters; prodigious forms of memory and calculation; psychological automatisms and secondary centers of consciousness; near-death and out-of-body experiences, including experiences occurring under extreme physiological conditions,

such as deep general anesthesia and/or cardiac arrest; genius-level creativity; and mystical experiences, whether spontaneous, pharmacologically induced, or emerging in conjunction with transformative practices such as intense meditative disciplines of one or another sort.

Collectively, these phenomena greatly compound what contemporary philosophers of mind have increasingly recognized as the severe explanatory difficulties posed for physicalism by perfectly ordinary, everyday properties of our conscious mental life. These properties include, for example, our ability to grasp word and sentence meanings, including metaphorical meanings; the "intentionality" or "aboutness" of language and thought; the presentation of conscious experience in the form of unified wholes observed from a subjective point of view; and, perhaps most crucially, the qualitative "feels" of consciousness—the "what it's like" to be in a particular conscious state. In a nutshell, *IM* added a rich *empirical* dimension to what appears to be a rising worldwide chorus of *theoretical* dissatisfaction with physicalism as a philosophical doctrine. We seem to be at or very near a major inflection point in modern intellectual history.

Physicalism is definitely untenable, we believe, but what should take its place? We addressed this far more difficult question, the main target of the second phase of our project, essentially by attempting to imagine how we individual human beings and the world at large must *really* be constituted in order that "rogue phenomena" of the sorts cataloged in *IM*—and for the most part systematically ignored or derided by current mainstream science—can occur.

On the psychological side, we were already committed to what historically have been described as "transmission" or "permission" or "filter" models of the mind–brain relation. As developed by great pioneers of psychical research, such as F. W. H. Myers, William James, and Henri Bergson, such models portray the brain not as the *generator* of mind and consciousness, but rather as an organ of adaptation to the demands of everyday life, in large part a sensorimotor interface that under normal conditions selects, focuses, channels, and constrains the operations of a mind and consciousness, inherently far greater in capacities and scope than the everyday conscious mind itself. A central aim of the first phase of our project had been to review and reassess the Myers–James picture of human personality in light of subsequent research, and we had found that the evidence supporting it has actually grown far stronger in the century following their deaths. Myers and James themselves, unfortunately, were soon pushed aside by the rise of radical behaviorism with its self-conscious aping of the methods of classical physics, and that influence persists in modified form even now in mainstream cognitive neuroscience (see *IM*, Chapter 1). In our view, psychology has taken an extremely lengthy, albeit probably necessary, detour and is only now becoming

capable of building on the deeper theoretical foundation that our predecessors had already created so long ago.

The normally hidden subliminal region of the mind, "The More" of William James, is the wellspring of the latent human potentials that historically have constituted Esalen's main practical focus. But it is especially the *transpersonal* aspects of The More, with their deep psychological and historical interconnections—genius in its highest expressions, powerful and transformative mystical experiences occurring under an astonishing variety of circumstances, and the various forms of paranormal or psi phenomena, including postmortem survival—that jointly demonstrate that physicalism must give way to some richer form of metaphysics.

I must also explain more clearly here why for me personally the first phase of our project went a long way toward dissolving what the eminent American psychologist Gardner Murphy long ago called the "immovable object" in the survival debate—the biological objection to survival. To repeat: *if* the prevailing physicalist "production" model of mind–brain relations is correct, so that mind and consciousness really *are* manufactured entirely by neurophysiological processes occurring in brains, then it follows logically and inescapably that survival is impossible, period.

Brain and mind normally seem strongly correlated, of course, and that universally accepted fact has generally been taken as unambiguously supporting the production model. It is indisputable that your consciousness can be radically altered if you get hit sufficiently hard on the head, ingest a psychoactive substance, or develop an invasive brain tumor, and this fact shows unambiguously that physical changes can causally impact your mental life. But what about causation in the opposite direction? Suppose, for example, that you develop an urge to raise your hand and your hand rises into the air—isn't that an example of something mental causing a physical effect? No, says the physicalist, you've simply misunderstood what's actually going on. That intention or idea of yours, you see, was really just a pattern of neuroelectric activity in your brain. That *physical* process is what caused your hand to move—no problem!

The most direct way of countering this sort of argument is to identify psychophysical phenomena that resist or defy explanation in terms of operations of the unaided brain. That's precisely what we set out to do in *IM*, and the evidence we assembled there demonstrates clearly, I believe, that the correlations between mind and brain are in fact much looser than generally supposed and can be conceptualized in the alternative fashion of permission or filter models without doing violence to other parts of our scientific understanding, including in particular leading-edge neuroscience and physics (see especially *IM*, Chapter 9). This clearly dismantles the supposed *logical* barrier to the

possibility of postmortem survival and in turn invites—in fact *demands*, we believe—a more radical overhaul of the prevailing production model of the brain–mind relation and its associated physicalist metaphysics. What is at issue here, I hasten to emphasize, is *not* whether we will have metaphysics—because we inevitably will, whether conscious of it or not—but whether we will have good metaphysics or bad.

As we began to approach these larger issues, we recognized that a central element of our strategy should be to pay special attention to worldviews both past and present that explicitly attempt to accommodate at least some "rogue phenomena" of the relevant sorts. To that end, philosopher Mike Grosso began systematically surveying the long and illustrious intellectual history of filter-type conceptions, focusing mainly on Western thinkers from pre-Socratic and Platonic philosophers up through Myers, James, and Bergson around the beginning of the twentieth century and then on to more contemporary figures, such as C. D. Broad, Cyril Burt, and Aldous Huxley. We also recruited a number of new members having especially relevant skills and interests, including, for example, a number of scholars of religion who specialize in relevant forms of mystically informed religious philosophy. My coeditor here, Paul Marshall, author of several excellent books on mysticism, helped us understand more fully why and how mystical experiences—mostly ignored but otherwise generally pathologized in our Western scientific tradition—provide crucially important pieces of the metaphysical puzzle. Other contributors included Greg Shaw (a specialist in the Neoplatonic tradition), Ian Whicher (Patañjali and the yogic tradition), Loriliai Biernacki (the eleventh-century Kashmiri Tantric philosopher and sage Abhinavagupta), Jeff Kripal (comparative religion generally), and Bill Barnard (another comparativist and author of excellent books on James and Bergson). We approached this comparative material, of course, *not* with the expectation that any of these ancient systems contain all the right answers, ready-made, but rather in the interest of prospecting for common themes and useful clues as to how best to advance our theoretical purposes.

We also devoted considerable effort to relevant parts of the Western metaphysical tradition. Paul Marshall, for example, continued developing his own "monadic" theory, modified from Leibniz's original monadology so as to enhance its power to help make sense of our rogue phenomena. Adam Crabtree investigated the contributions of William James's friend and colleague Charles Sanders Peirce, who took both psi and survival seriously and believed his metaphysics could explain them, and Eric Weiss further elaborated his "transphysical process metaphysics," which combines an updated version of Alfred North Whitehead's process philosophy with insights derived from the modern Tantric philosopher and sage Sri Aurobindo.

In keeping with our general orientation, we also emphasized potential contributions from the scientific side. Neuroscientist David Presti and I, for example, examined permission or filter models from a psychobiological point of view, concentrating on psi phenomena, flights of genius, and mystical experiences as key expressions of the deeper resources of the psyche and trying to understand what sorts of brain conditions might permit or actively encourage access to these resources and why. One of the most exciting practical implications of our project, going forward, is precisely that conventional tools of mind–brain research, skillfully applied, should enable us not only to identify brain conditions conducive to the expression of these normally latent capacities but also to develop improved technological means for instantiating or stabilizing them. What we are doing, that is, also has an important *applications* dimension, potentially contributing to more effective harnessing of these valuable human potentials for personal and public good.

We also recruited several prominent physicists to our team. These included quantum theorist Henry Stapp, who presented his physics-based model of mind–brain interaction and began exploring its possible extensions to rogue phenomena, including psi and survival; Harald Atmanspacher, another quantum theorist, who informed us about the dual-aspect monism of Wolfgang Pauli and Carl Gustav Jung and showed how it leads naturally to a theoretical taxonomy of exceptional experiences matching those actually occurring in clinical practice; and Bernard Carr, a cosmologist and former president of the Society for Psychical Research, who provided expositions of his own and other forms of "hyperdimensional" theory, again emphasizing their compatibility with leading-edge science (in this case with general relativity and string theory) and their potential to help make sense of phenomena such as psi and survival.

These efforts culminated in a second large volume, *Beyond Physicalism: Toward Reconciliation of Science and Spirituality* (Kelly, Crabtree, and Marshall; henceforth *BP*), published in 2015. To cut straight to its bottom line, the overall sense we developed during this second phase of our work is that theorizing anchored to an adequately comprehensive empirical foundation—that is, one that includes challenging phenomena such as psi and survival, genius, and mystical experience—inevitably moves into metaphysical territory shared in part with the world's traditional religious faiths. Specifically, we argued that emerging developments in science and comparative religion, viewed in relation to centuries of philosophy and philosophical theology, point toward some form of "evolutionary panentheism" as our current best guess about the metaphysically ultimate nature of things (for details, see *BP*, pp. 530–539).

In brief, panentheisms in general attempt to split the difference between classical theisms and pantheisms, conceiving of an ultimate consciousness or

conceptual framework with which we have heretofore tried to explain them. As you will see later, this is precisely what some of our idealist theoreticians are now trying to do. The outstanding question that remains to be answered, in my view, is whether a full-fledged idealist monism will ultimately succeed or whether a dual-aspect monism that attempts to extend or supplement the conventional physicalist picture in some less radical fashion will serve us better in the end.

The present volume carries forward the central themes of both previous books. Part I explores frontiers on the empirical side, concentrating on some phenomena that we view as especially challenging for theoreticians, and consists of three chapters. The first, "Near-Death Experiences," by Bruce Greyson, presents an overview of decades of near-death experience (NDE) research, using some impressive recent cases as illustrations. He also discusses evidence for and against prominent physicalist attempts to explain NDEs—including the so-called death surge or brain flash, REM intrusion, and neurochemical and neuroanatomical models—and highlights the remarkable transformative power of NDEs as evidenced by subsequent spiritual growth and development of psi abilities. The emphasis throughout is on key findings from NDE research suggesting that mind can function independently of the brain and thus possibly continue in some form after death.

Next comes "Cases of the Reincarnation Type," by Jim Tucker. Over the past fifty years—beginning with Ian Stevenson, who founded the research group at the University of Virginia, to which Bruce Greyson, Jim Tucker, and I belong—researchers have investigated children's reports of memories of previous lives, cumulatively studying more than twenty-five hundred such cases from around the world. In many of these, the children's statements have proved impressively detailed and accurate for an individual who lived and died in the recent past, someone about whom the family knew nothing before the child began reporting the memories. The children are often very young when they begin describing a past life, and they often show unusual affect or behaviors that appear appropriately related to that life, such as an intense fear of water when the previous personality had died by drowning. Some also display extremely unusual birthmarks or birth defects corresponding to fatal wounds suffered by the previous personality. The chapter also includes descriptions of two recent and strong American cases and some representative findings from the cumulative database.

"Precognition," by Bob Rosenberg, surveys case-study and experimental evidence for precognition and discusses the two great philosophical issues—causality and free will—that lurk behind it. The causal conundrum arises from our conventional view that the future does not yet exist and therefore cannot be the cause of any present perception or intuition, while the problem

about free will arises from the notion of a determinate and hence precognizable future that seems to preclude it. Both concerns are inextricably intertwined with each other and with our understanding of *time*, a key frontier of contemporary physics.

Part II explores further horizons on the theoretical side, introducing five additional nonphysicalist conceptual frameworks or metaphysical perspectives that are closely related conceptually to those previously presented in *BP*. First is "Mystical Experience and the Scope of C. G. Jung's Holism," by Roderick Main. The thoroughgoing holism of Jung's thought, especially with its concepts of synchronicity, the self, and the *unus mundus*, enabled him to accommodate almost the whole gamut of exceptional experiences and states of consciousness. He long appeared to remain skeptical, however, regarding one particular state: the claimed egoless awareness of introvertive mysticism. This chapter reexamines Jung's position on this crucial issue in light of his own late mystical experiences and some late developments in his thinking about the relationship between the ego and the self, and it strengthens the case for his being recognized as an implicit panentheist with views approaching those expressed in *BP*.

Next comes Max Velmans's "Is the Universe Conscious?" Reflexive monism—a contemporary science-driven version of dual-aspect monism with affinities to the Indian philosophical tradition—provides a model of the self-observing universe in which consciousness "real-izes" the lived world, in the sense of making it subjectively real. The model also provides a nonreductive, integrated way of understanding how the first-person phenomenology of ordinary conscious experience relates to the conventional third-person understanding of mind within current psychology and neuroscience. The chapter reviews the main features of reflexive monism and goes on to consider ways in which it can be extended to accommodate extraordinary experiences as well as ordinary ones, thereby deepening the convergence with Indian philosophical thought.

"A Neo-Hegelian Theory of Mystical Experience and Other Extraordinary Phenomena," by Glenn Magee, argues that a modified version of Hegel's metaphysics can provide us with an illuminating, comprehensive, and intellectually satisfying account of the nature of mystical experience. This account of mystical experience also sheds light on paranormal phenomena, which Hegel himself accepted as real. Given Hegel's metaphysics, we should actually find paranormal phenomena to be expected and non-mysterious—a position that in fact was Hegel's own.

"Analytic Idealism and Psi," by Bernardo Kastrup, presents the ontology of analytic idealism, according to which spatially unbound, universal phenomenal consciousness is nature's sole fundamental ground, all natural

phenomena being ultimately reducible to that universal consciousness. He argues explicitly that analytic idealism is superior to physicalism on the basis of internal logical consistency, parsimony, and empirical adequacy, and he points to a broad pattern of empirical observations in psychiatry and neuroscience that is suggestive of idealism and consistent with psychological permission or filter models. Specifically, impairment of ordinary brain function is observed—contrary to what physicalism predicts—to correlate with an expanded sense of self-identity and/or experiential richness. He also sketches how some of the rogue phenomena can be understood as natural occurrences having a coherent basis within his idealist ontology.

The final theory chapter, "Consciousness Comes First," by Federico Faggin, draws on the author's long and distinguished career as a physicist and microelectronics pioneer, in combination with profound mystical experiences that have occurred to him over the past several decades, to sketch another new conceptual framework in which consciousness is ontologically fundamental—a framework that is consistent both with the principles of quantum physics and with insights gained in our most transformative spiritual experiences. He then uses this framework to explicate fundamental differences between natural and artificial intelligence and sketches how it can potentially accommodate some of the most challenging empirical phenomena cataloged in *IM*, *BP*, and Part I of the present volume.

Part III provides concluding reflections on these emerging post-physicalist worldviews and their potential implications for science, the humanities, philosophy, and human life more generally.

In "Expanding a Science of Consciousness," by neuroscientist David Presti, the ongoing development of a science of consciousness is situated within the history of biophysical science as it has unfolded over the past several centuries. An abundance of empirical data has made clear that in order for the science of consciousness to flourish, it will be necessary to expand the metaphysical stage on which that science is conducted. There is nothing "unscientific" or even particularly difficult involved in doing that, and no scientific findings to date are threatened. It does, however, represent a true paradigm shift in the ongoing development of science—a shift that necessarily has profound implications for how we humans view ourselves and our place in the cosmos.

"The Future of the Human(ities)," by scholar of religions Jeff Kripal, expresses with passion and erudition his sense of the need for the humanities in general and religious studies in particular to resist and, if possible, reverse their increasingly destructive colonization by the aggressive and outmoded physicalism that has come to dominate contemporary academia and civilization generally. Only by finding and taking to heart an expanded vision of the

sort developed through this series of books, he believes, will his own discipline and the humanities in general recover their former academic standing and regain their full potential to exert positive influence on the shaping of future human affairs.

"Mind Beyond Brain," by Paul Marshall, provides a comprehensive map of the conceptual territory occupied by mind–body metaphysical systems, situates the contributions of our theoreticians within that territory, and critically reviews philosophical approaches that seem potentially able to answer our central question: What kind of world do we live in if the various kinds of phenomena surveyed in *IM*, *BP*, and Part I of the present volume are what they seem to be? The chapter elegantly and compactly summarizes the current overall state of mind–body metaphysics and amounts in effect to the culmination of our collective theoretical efforts to date.

The volume ends with a brief epilogue in which I attempt to articulate concisely and clearly what I personally believe our decades-long project has accomplished and what I envisage as its potential ramifications for the crisis in contemporary civilization.

1

NEAR-DEATH EXPERIENCES

Bruce Greyson

Near-death experiences (NDEs) are vivid, realistic, and profoundly life-changing experiences occurring to people who have been physiologically close to death, as in cardiac arrest, or psychologically close to death, as in accidents in which they feared they would die (Greyson, Kelly, & Kelly, 2009; Kelly, Greyson, & Kelly, 2007). Once thought to be rare, several prospective studies from different countries have found NDEs to be reported by 10 to 20 percent of people who have come close to death (Greyson, 1998, 2003; Klemenc-Ketis, Kersnik, & Grmec, 2010; Parnia, Waller, Yeates, & Fenwick, 2001; van Lommel, van Wees, Meyers, & Elfferich, 2001).

Reports of such events can be found in the folklore and writings of European, Middle Eastern, African, Indian, East Asian, Pacific, and Native American cultures. The phenomenon was first described as a discrete syndrome when Swiss geologist Albert von St. Gallen Heim (1892) published a collection (translated into English by Noyes & Kletti, 1972) of the subjective observations of mountain climbers who had fallen in the Alps (as he himself had done), soldiers wounded in war, workers who had fallen from scaffolds, and individuals who had nearly died in accidents and near drownings. Shortly thereafter, French psychologist Victor Egger (1896) labeled such events *expériences de mort imminente*. Raymond Moody, who introduced the corresponding term "near-death experience" into the English language, defined these experiences as "profound spiritual events that happen, uninvited, to some individuals at the point of death" (Moody & Perry, 1991, p. 11).

NDEs have been reported by individuals who had been pronounced clinically dead but then revived, by those who actually died but were able to describe their experiences in their final moments ("deathbed visions"), and by those who, in the course of accidents or illnesses, feared that they were near

death. Although initial studies suggested that how one came close to death or how close one actually came to death does not influence the occurrence or type of NDE (Ring, 1980a, 1984), more recent research has indicated that physiological details of the close brush with death may play a minor role.

It appears, for example, that NDEs dominated by cognitive features, such as temporal distortions, accelerated thoughts, and a life review, are more common in near-death events that are sudden and unexpected than in those that may have been anticipated (Greyson, 1985). NDEs associated with cardiac arrest resemble out-of-body experiences, whereas those without cardiac arrest are more similar to depersonalization, in which one feels oneself or one's body to be unreal. NDEs occurring to intoxicated persons tend to be bizarre and confused, like hallucinations (Twemlow, Gabbard, & Coyne, 1982). Furthermore, although all elements of the NDE can be reported by individuals who merely perceive themselves to be near death, the incidence of NDEs is higher in persons who have come closer to death (Greyson, 2003; Klemenc-Ketis, Grmec, & Kersnik, 2011), and certain features, such as an encounter with a brilliant light, enhanced cognitive function, and positive emotions, are more common among individuals whose closeness to death can be corroborated by medical records (Owens, Cook, & Stevenson, 1990).

PHENOMENOLOGY OF NDEs

In introducing the term "near-death experience" into the English literature, Moody (1975) identified fifteen elements that seemed to recur in NDE reports: ineffability, hearing oneself pronounced dead, feelings of peace, hearing unusual noises, seeing a dark tunnel, being out of the body, meeting spiritual beings, encountering a bright light or "being of light," panoramic life review, a realm where all knowledge exists, cities of light, a realm of bewildered spirits, supernatural rescue, border or limit, and coming back into the body. He later added four recurrent aftereffects: frustration on relating the experience to others, broadened or deepened appreciation of life, elimination of fear of death, and corroboration of out-of-body visions (Moody, 1977). Moody noted that no two NDE accounts were precisely the same, that no experience in his collection included more than twelve of these original fifteen elements, that no one element appeared in every narrative, and that the order in which elements appeared varied from one experience to another (Moody, 1975). He warned that his list was intended as a rough theoretical model rather than a fixed definition (Moody, 1977).

Several investigators have attempted to classify the common features of NDEs into discrete phenomenological categories. The earliest classifications

of NDE regarded the experiences as unfolding in a consistent temporal pattern. Noyes (1972) described three developmental stages of NDEs: (1) resistance, terminated by surrender and tranquility; (2) review, including out-of-body and panoramic memory experiences; and (3) transcendence, involving a nontemporal dimension of existence. Ring (1980a) classified the unfolding stages of the NDE into (1) peace and well-being, (2) separation from the physical body, (3) entering a transitional region of darkness, (4) seeing a brilliant light, and (5) entering, through the light, into another realm of existence.

Subsequent research, however, has not substantiated a consistent temporal pattern for NDEs (Blanke & Dieguez, 2009; Stevenson & Cook, 1995). In a formal study seeking a fixed chronology of NDE features, Martial et al. (2017) analyzed 154 self-reported written NDE narratives but found no invariable temporal sequence and concluded that NDE features do not appear in any fixed order.

Other researchers have categorized NDE features based on phenomenology rather than temporality. Noyes and Slymen (1979) classified features reported by near-death experiencers into (1) mystical elements, such as a feeling of great understanding, vivid images, and revival of memories; (2) depersonalization elements, such as loss of emotion, separation from the body, and feeling strange or unreal; and (3) hyperalertness elements, such as vivid and rapid thoughts and sharper vision and hearing.

Greyson (1985) classified NDE elements into four components. The first component, cognitive features reflecting changes in thought processes, includes distortions in the sense of time, acceleration of thought processes, a life review or panoramic memory, and a sense of revelation or sudden understanding. The second component, affective features reflecting changes in emotional state, includes a sense of peace and well-being, feelings of joy, a sense of cosmic unity, and an encounter with a brilliant light that seems to radiate unconditional love. The third component, paranormal features reflecting apparent psychic phenomena, includes extraordinarily vivid physical sensations, apparent extrasensory perception, precognitive visions, and a sense of being out of the physical body. The final component, transcendental features reflecting apparent otherworldly phenomena, includes apparent travel to a mystical or unearthly realm or dimension, an encounter with a mystical being or presence, visible spirits of deceased or religious figures, and a border beyond which one cannot return to earthly life.

On the basis of this categorization, Greyson (1983a) developed the NDE Scale, a sixteen-item, multiple-choice questionnaire to quantify the phenomenology of NDEs. The scale has been shown to differentiate NDEs from other close brushes with death (Greyson, 1990) and to have high internal consistency, split-half reliability, and test–retest reliability over both short-term and

long-term periods (Greyson, 2007). A Rasch rating-scale analysis established that the NDE Scale represents a unidimensional measure, invariant across sex, age, intensity of experience, or time elapsed since the experience (Lange, Greyson, & Houran, 2004). Although the NDE Scale was developed as an ordinal scale without quantified anchor points, the fact that it satisfactorily fits the Rasch model suggests that, for all practical purposes, there do appear to be equal distances between measurement points, which gives the scale interval-level measurement properties (Wright & Masters, 1982). The NDE Scale has been translated into more than twenty languages and used in hundreds of studies around the world. It has served to standardize the study of NDEs, permitting comparisons of research across different investigators.

A major methodological advance in recent years has been the accumulation of large databases, such as those curated by the University of Virginia's Division of Perceptual Studies, the NDE Research Foundation, and the International Association for Near-Death Studies. These cumulative databases, incorporating thousands of NDEs, provide the opportunity for sophisticated statistical modeling and analysis of overarching patterns in precipitating factors, phenomenology, physiological and psychological correlates, and aftereffects that are not discernible from the study of individual cases.

Correlates of NDEs

Retrospective studies of near-death experiencers have shown them collectively to be psychologically healthy individuals who do not differ from comparison groups in age, gender, race, religion, religiosity, or mental health (Gabbard & Twemlow, 1984; Greyson, 1991; Holden, Long, & MacLurg, 2009; Irwin, 1985; Ring, 1980a; Sabom, 1982). Locke and Shontz (1983) found near-death experiencers to be indistinguishable from nonexperiencers in intelligence, neuroticism, extraversion, trait and state anxiety, and Rorschach indicators of openness to unusual experience. However, some studies have suggested that experiencers tend to be good hypnotic subjects, remember their dreams more often, and are adept at using mental imagery (Council & Greyson, 1985; Irwin, 1985). They also tend to acknowledge significantly more childhood trauma and resultant dissociative tendencies than their nonexperiencer counterparts (Ring, 1992). It is unclear, however, whether these personal traits and recall of prior experiences are aftereffects of NDEs or whether they are antecedent factors that facilitate NDEs when people approach death.

Expectations likely influence an experiencer's interpretation of certain features of the NDE, but they do not appear to influence the experience itself. Cross-cultural studies show few differences in NDE content from differing

societies (Holck, 1978–1979; Kellehear, 2009; McClenon, 1994), and NDE descriptions are not affected by the experiencer's prior knowledge of NDEs or expectations of the dying process or of an afterlife (Athappilly, Greyson, & Stevenson, 2006; Greyson, 1991; Greyson & Stevenson, 1980). Comparisons of NDE accounts from different cultures suggest that prior beliefs have some influence on the way people describe their experiences. However, variability in reported features may reflect not so much the experience itself as experiencers' ability to process and express an event that is largely ineffable and must be "inevitably cast in the images, concepts and symbols available to the individual" (Roberts & Owen, 1988, p. 611).

Similarity of NDEs and Mystical Experiences

Four years before Moody popularized the term "near-death experience," Noyes (1971, 1972) noted that altered states of consciousness in people as they approached death often have mystical, transcendental, cosmic, or religious features. He included in those features ineffability, transcendence of time and space, sense of truth, loss of control, intensified emotion, and vivid visual imagery.

Many of the experiential features of mystical experiences in general are similar to those of NDEs. The feelings of peace and joy, the ineffability of the experience, the sense of being in the presence of something greater than oneself, and the experience of a bright light or "being of light" are all features common to both NDEs and mystical experiences. Cressy (1994) compared typical NDE phenomenology and aftereffects to the ongoing experiences of Catholic mystics St. Teresa of Ávila and St. John of the Cross and concluded that they shared ecstatic out-of-body travel, visions of God, clairvoyance, loss of fear of death, and healing transformations. She noted that nearness to death has always played a role in the spiritual path and that for St. Teresa and St. John, mysticism was viewed as a preparation for death. She pointed out, however, that unlike mystics, those who have NDEs are thrust suddenly into spiritual consciousness without any preparation and then return to a community in which such experiences are not valued.

Just as with NDEs, the onset of a mystical experience is often signaled by overwhelming feelings of joy, happiness, and peace (James, 1902). People sometimes describe a feeling of sudden release in a mystical experience, and although they may sometimes use the term "release" metaphorically, some reports describe literal out-of-body experiences. Many people also report enhanced mental functioning or heightened perception in mystical experiences, just as in NDEs. A sensory phenomenon that is particularly common to both NDEs and mystical experiences is the sense of seeing a bright light of unusual

In contrast, near-death experiencers show a greater zest for life and more intense appreciation for friendships and nature, and they live more fully in the moment (Noyes et al., 2009).

Even though NDEs are not influenced by prior religious belief or religiosity, they do seem to affect subsequent religious preference, religiosity, and spirituality. Near-death experiencers describe themselves as more spiritual than they were before, but they do not attend church more often than they did prior to their experiences, nor do they participate in other modes of formal religious worship. Instead, they described a heightened inward religious feeling that does not seem to require a conventional religious expression. They overwhelmingly tend to describe themselves as spiritual rather than religious, and when asked an open-ended question about the most significant change resulting from the NDE, the single most common response is "spirituality" or "spiritual growth" (Musgrave, 1997; Sutherland, 1990). Near-death experiencers report having a greater awareness of divine presence in their lives that makes conventional religious observances seem unnecessary. People who survive a close brush with death but do not have NDEs report no change in their religious beliefs (Ring, 1980b).

NDEs tend to foster a shift from ego-centered to other-centered consciousness, a disposition to love unconditionally, heightened empathy, and deepened spiritual consciousness (Flynn, 1982). NDEs, particularly the moral assessment in the life review, provide a firsthand experience with compassionate and empathic understanding of how one's thoughts, feelings, and actions affect others (Lorimer, 1990).

A comparison of people who had come close to death with and without NDEs showed that survivors who had NDEs reported greater spiritual growth than did survivors without NDEs, whereas spiritual decline was comparable in the two groups (Greyson & Khanna, 2014). Additionally, survivors who had NDEs reported greater spiritual well-being than survivors who did not have NDEs (Khanna & Greyson, 2014a). Likewise, following a close brush with death, survivors who reported NDEs described more daily spiritual experiences than did those who did not report NDEs, even though the frequency of daily spiritual experiences of the two groups had been comparable prior to their close brush with death (Khanna & Greyson, 2014b). Furthermore, near-death experiencers reported greater posttraumatic growth than did survivors of a brush with death who did not have NDEs, suggesting that existential reevaluation and challenges to one's assumptive worldview, which are typical in NDEs and other spiritual experiences, are a major stimulus to posttraumatic growth (Khanna & Greyson, 2015).

Following NDEs, some people continue to report alterations in consciousness and extraordinary experiences that could be called psychic or

paranormal. These include extrasensory perception, psychokinesis, periodic out-of-body experiences, encounters with apparitions, perception of auras, apparent communication with the deceased, apparent past-life memories, precognition, healing abilities, and recurring spiritual or mystical experiences (Noyes et al., 2009; Owens, 1995). Near-death experiencers report more such events and abilities than do comparison groups who have not had NDEs (Kohr, 1982, 1983) and more such experiences than they had had before their NDEs (Greyson, 1983c; Groth-Marnat & Summers, 1998; Ring, 1984; Sutherland, 1989). In contrast to these psychic aftereffects, near-death experiencers report having had such paranormal experiences *prior* to their NDEs *less* often than comparison groups (Greyson & Stevenson, 1980) or no more than the general population (Sutherland, 1989). Furthermore, 80 percent of near-death experiencers acknowledge hearing "inner voices" after their NDEs, which they value for their inspiration, guidance, and intuitive knowledge (Greyson & Liester, 2004).

NDEs appear to change not only attitudes but also behavior. Many people report that their lifestyle before the NDE no longer felt comfortable or fulfilling. One-third of near-death experiencers change their occupation as a result of the NDE, and three-fourths report marked changes in their activities. These wide-ranging and long-lasting effects of NDEs constitute one of the most consistent aspects of the experience. From my decades-long experience as a psychiatrist, I know how difficult it can be to make modest changes, often requiring long periods of intensive effort, and yet most near-death experiencers claim their NDEs precipitated immediate transformations of their attitudes and beliefs.

It appears that after people experience a different way of looking at reality in their NDEs, they continue to regard the perceptions and insights of the NDE as "more real" than those of the everyday physical world (Dell'Olio, 2010; Long & Perry, 2010), and they neither can nor want to return to the attitudes, values, and behavior they had before the NDE. Two-thirds of near-death experiencers report that they feel better about themselves as a result of their NDEs, and three-fourths said that they were more likely to help others than they were before their NDEs. More than half report that the effects of their NDEs continued to increase over time. Any comprehensive understanding of NDEs must address their ability to effect such radical change.

PROPOSED PHYSIOLOGICAL EXPLANATIONS FOR NDEs

Several physiological models have been proposed in attempts to explain NDEs and their consistent features in conventional terms.

Decreased Oxygen and Increased Carbon Dioxide

People report similar NDEs no matter how they come close to death, so it is plausible to seek an explanation based on events that occur in all near-death situations. Regardless of the cause of a near-death event, one of the final steps is cessation of heartbeat and respiration, cutting off the flow of oxygen to the brain. Indeed, unconsciousness induced by rapid acceleration in fighter pilots, which reduces blood flow to the head, may produce concentric contraction of the visual field, bizarre visual imagery, a sense of floating, pleasurable sensations, and (rarely) a sense of leaving the body (Whinnery, 1997).

However, decreased oxygen is a highly distressing experience, particularly for those who report perceptual distortions and hallucinations (Breitbart, Gibson, & Tremblay, 2002). The fear, agitation, and belligerence typical of decreased oxygen contrast markedly with NDEs, which are usually recalled as peaceful and positive experiences (Greyson et al., 2009; Kelly et al., 2007; Zingrone & Alvarado, 2009). Furthermore, contrary to the hypoxia hypothesis, empirical research on altered oxygen levels has shown that NDEs are associated with *increased* oxygen levels (Parnia et al., 2001; Sabom, 1982) or levels equivalent to those of non-experiencers (Morse, Conner, & Tyler, 1985; van Lommel et al., 2001). No study has yet shown decreased levels of oxygen during NDEs.

A related model posits that increased carbon dioxide (hypercapnia) is associated with NDEs in cardiac arrest survivors (Klemenc-Ketis et al., 2010). Empirical data on altered carbon dioxide levels in NDEs have been equivocal. Klemenc-Ketis et al. (2010) found marginally increased carbon dioxide levels associated with NDE. However, prior studies with larger samples reported decreased (Sabom, 1982) or normal levels of carbon dioxide (Morse et al., 1985; Parnia et al., 2001) in cardiac arrest survivors who reported NDEs.

The interpretation of these data is unclear, as higher levels of carbon dioxide are indicators of better cardiac output, which would reduce the amnesia usually seen in cardiac arrest (Kolar, Križmarić, Klemen, & Grmec, 2008). Thus, if there were any correlation between hypercapnia and NDE reports, it might reflect only that patients who recall more of their cardiac arrest experience also report more NDEs (Greyson, 2010a). Indeed, van Lommel et al. (2001) found that memory deficits were seven times more common in cardiac arrest survivors who did not report NDEs than among those who did. The interpretation of blood gas alterations is further complicated by the fact that blood gas levels of oxygen and carbon dioxide are not necessarily accurate estimates of levels in the brain (Gliksman & Kellehear, 1990).

It has been claimed that Meduna (1950), using inhaled carbon dioxide as a psychotherapeutic agent, demonstrated all the features of NDEs in his patients (Morse, Venecia, & Milstein, 1989). However, although Meduna's

treatments did yield some experiences that resembled NDEs, these were rare, and he warned that the effects of inhaled carbon dioxide were selective and unpredictable, were similar to those associated with mescaline or other hallucinogenic drugs, and were often associated with anxiety and fear of further treatments. He concluded that some of these phenomena were hallucinations or dreams and that attempting to classify them as real or imaginary would be futile. Meduna further speculated that the pleasant effects of the inhaled carbon dioxide may have been due to suggestions from the administering physician, a speculation that was supported by subsequent research in which participants who inhaled carbon dioxide mixtures reported either pleasant or unpleasant feelings, consistent with what they had been told to expect (van den Hout & Griez, 1982).

In sum, both the clinical and the research data appear to contradict a role for either decreased oxygen or increased carbon dioxide in NDEs.

Neurochemical Models

Some researchers have viewed NDEs as hallucinations produced either by medications given to dying patients or by metabolic disturbances or brain malfunctions as a person approaches death (Blackmore, 1993). However, organic brain malfunctions generally produce clouded thinking, irritability, fear, belligerence, and idiosyncratic visions (American Psychiatric Association, 2013), quite unlike the exceptionally clear thinking, peacefulness, calmness, and predictable content generally seen in NDEs (Zingrone & Alvarado, 2009). Visions in delirium are generally of living persons, whereas those in NDEs are almost invariably of deceased persons (Osis & Haraldsson, 1977). Moreover, although some drugs may on occasion induce experiences that bear superficial similarities to NDEs, comparative studies have shown that patients who receive medications in fact report *fewer* NDEs than do patients who receive no medication (Greyson, 1982; Osis & Haraldsson, 1977; Sabom, 1982). Such findings suggest that drug-induced or metabolically induced delirium in fact inhibits NDEs or at least interferes with their later recall.

NDEs have also been speculatively linked to a number of endogenous neurotransmitters in the brain, most frequently endorphins (Carr, 1982), although other models have implicated serotonin, adrenaline, vasopressin, and glutamate (Jansen, 1997a; Morse et al., 1989; Persinger, 1994; Saavedra-Aguilar & Gómez-Jeria, 1989). All of these models are speculative, and none have been tested.

Neurochemical models derive their plausibility from comparisons between NDEs and spiritual experiences associated with psychedelic drugs.

Researchers have found some overlap between reports of NDEs and reports of hallucinogenic trips, most often those associated with ketamine (Corazza & Schifano, 2010; Jansen, 1997a) and dimethyltryptamine (Strassman, 2001; Timmermann et al., 2018). A comparison using latent semantic analysis of accounts of NDEs and accounts of psychedelic experiences with 165 different psychoactive drugs found that the drug states most similar to NDEs, regardless of the circumstances of the NDEs, the actual proximity to death, and the emotional valence assigned by the experiencer, were those associated with the dissociative anesthetic ketamine (Martial et al., 2019). However, the authors noted that these similarities did not establish a neurochemical cause of NDEs (p. 65), and indeed five of the top ten runner-up substances were serotonergic psychedelics, a very different neurochemical class including LDS, psilocybin, and DMT.

Prior researchers had noted differences between NDEs and ketamine-induced phenomenology, such as the generally blissful nature of NDEs contrasted to the common occurrence of ketamine "bad trips" (Fenwick, 1997; Strassman, 1997). Further criticism of the ketamine model is based on the observation that not all individuals in proximity to death actually report an NDE (Sleutjes, Moreira-Almeida, & Greyson, 2014). Additionally, certain effects of subanesthetic doses of ketamine are not among the features that characterize NDEs, arguing against the reductionist explanation of NDEs as a consequence of NMDA receptor blockade (Adler et al., 1999; Dillon, Copeland, & Jansen, 2003; Martial et al., 2019). Even Jansen (1997b), the most ardent promoter of the ketamine model for NDEs, concluded after twelve years of research that ketamine was best viewed "as just another door" to NDE-like experiences and not as actually producing them (p. 94).

In summary, all the research done to validate or refute neurochemical models has been based on retrospective reports, and no neurochemical analyses or other physical examinations of the subjects were performed at the time of the reported NDEs. Without that kind of direct empirical evidence, we can conclude only that the reported phenomenology of certain drugs is similar to that of NDEs and that those drugs might be effective tools for the induction of experiences that mimic NDEs. It is nevertheless certain that these laboratory-induced NDEs should be considered a mere "reflection" of "authentic" NDEs (Martial et al., 2019).

Neuroanatomical Models

NDEs have also been speculatively associated with a number of anatomic locations in the brain, most often the right temporal lobe (Blanke et al., 2002; Morse et al., 1989) or the left temporal lobe (Britton & Bootzin, 2004). Other

side (Greyson, Fountain, Derr, & Broshek, 2014, 2015). Out of the hundred patients, seven reported having had an experience that was at least vaguely like leaving the body during a seizure. All but one insisted that they knew these experiences were not real. In contrast to these patients with seizures, people who report NDEs almost always insist their experiences were real. Furthermore, most near-death experiencers describe feeling relief or a sense of freedom when they leave their bodies in NDEs. However, patients who described a sense of leaving their bodies during seizures commonly report intense horror or fear (Brugger, Agosti, Regard, Wieser, & Landis, 1994; Devinsky et al., 1989).

Beauregard and his colleagues measured brain activity in people who had previously had NDEs while they attempted to re-create their NDEs during meditation (Beauregard, Courtemanche, & Paquette, 2009). The authors found that there was no one part of the brain that was associated with NDE memories. Rather, several different parts of the brain became active when the NDEs were remembered.

All in all, there seems to be scant evidence for any one area of the brain being uniquely involved in NDEs. Despite untested speculations about various regions of the brain being involved in NDEs, the only area that has received significant attention has been the temporal lobe, and the clinical and research data suggest that neither seizures in that region nor electrical or magnetic stimulation of it reliably induce either the phenomenology or the aftereffects typical of NDEs. Penfield (1975) himself, whose meticulous mapping of the functions of the cerebral cortex is often cited as the source of these anatomic speculations, wrote in his final publication, "There is *no* area of gray matter, as far as my experience goes, in which local epileptic discharge brings to pass what could be called 'mind-action.' . . . I am forced to conclude that there is no valid evidence that either epileptic discharge or electrical stimulation can activate the mind" (pp. 77–78).

"Death Surges" or "Brain Flashes"

In the past decade, reports have claimed to find very brief but unexpected increases in human brain electrical activity at the point of death (Chawla, Akst, Junker, Jacobs, & Seneff, 2009) or even after cardiac death during organ donation (Auyong et al., 2010). However, no subjective experiences have been associated with this electrical activity, so it is not clear that it has any relevance to NDEs. Moreover, the findings of increased electrical activity were based not on standard electroencephalograms but on the bispectral index, a derivative measure vulnerable to artifact pollution from a variety of physiological and environmental sources, leading to spurious signals misinterpreted

as brain activity (Dahaba, 2005; Myles & Cairo, 2004). This statistical measure, based on electrical recordings from only two electrodes on the patient's forehead, is particularly vulnerable to false readings coming from electrical activity of the underlying forehead muscle, which even at rest can produce signals that resemble brain waves (Goncharova, McFarland, Vaughan, & Wolpaw, 2003; Yilmaz, Ungan, Sebik, Uginčius, & Türker, 2014).

It was further reported that for thirty seconds after cardiac arrest, rat brains can generate electrical activity that might be related to NDEs (Borjigin et al., 2013). However, this electrical surge was only a tiny fraction of the electrical power prior to cardiac arrest and was completely eliminated by anesthesia, which does not eliminate NDEs (Greyson, Kelly, & Dunseath, 2013).

The speculation that this "death surge" in some rats implies the presence in the human brain of enough electrical activity to produce a vivid and elaborate experience contradicts decades of clinical experience and research. Electrical activity in the human brain decreases within six to seven seconds of the heart stopping, without any surge (Clute & Levy, 1990; de Vries, Bakker, Visser, Diephuis, & van Huffelen, 1998; Losasso, Muzzi, Meyer, & Sharbrough, 1992; van Lommel, 2011). And after ten to twenty seconds, the electroencephalogram (EEG) goes flat, indicating cessation of activity in the cerebral cortex. In fact, analysis of the EEGs of people after life support is withdrawn showed that the brain's electrical activity in such cases actually stops *before* the heartbeat stops and before blood pressure ends, and after the heart stops there is no well-defined EEG activity (Norton et al., 2017). These consistent clinical findings seem to rule out the possibility that NDEs could be related to a "death surge" of electrical activity in the brain.

Rapid Eye Movement Intrusion

Some psychologists have speculated that NDEs are elaborate fantasies or dreams created to distract a person in crisis from the pain and terror of a close brush with death. Nelson, Mattingly, Lee, and Schmitt (2006) restated this idea in testable physiological terms by suggesting that the kind of brain activity associated with dreams—rapid eye movement (REM) brain activity—can intrude into our waking thoughts in a near-death crisis, producing dreamlike thoughts and images. NDEs and REM intrusion share common elements of unusual light and a sense of being immobilized, yet alert to the surroundings, and a sense of being dead. It has been suggested that other aspects of NDEs, including seeing an image of one's own body, visual experience, pleasant feelings, and transcendent qualities, can also occur in other conditions associated with REM intrusion (Nelson et al., 2006).

Nelson et al. (2006) found that near-death experiencers endorsed more symptoms of REM intrusion than did a comparison group. However, the experiencers reported these REM intrusion symptoms no more than did the general population, whereas the "comparison" group reported far *lower* frequencies. The survey on which this correlation with REM intrusion was based drew its NDE sample from people who shared their experiences on the internet, suggesting an unusual willingness to acknowledge anomalous experiences, albeit anonymously. The comparison sample, by contrast, was recruited from medical center personnel and their contacts and queried in face-to-face interviews, possibly inhibiting their endorsement of symptoms they would likely identify as pathological (Greyson & Long, 2006). For example, only 7 percent of the comparison group acknowledged hypnagogic hallucinations, one of the four criteria Nelson and colleagues used to diagnose REM intrusion; that percent was about one-fourth of the percentage found in the general population (Ohayon, Priest, Zulley, Smirne, & Paiva, 2002).

Data arguing against the contribution of REM intrusion to NDEs include features like fear, which is typical in the sleep paralysis seen in REM intrusion but rare in NDEs. Furthermore, NDEs commonly occur under general anesthesia and other drugs that inhibit REM activity (Cronin, Keifer, Davies, King, & Bixler, 2001). Moreover, measurements of REM brain activity in people who have had NDEs show that they actually have less REM activity than do other people (Britton & Bootzin, 2004). Finally, an Italian research team found that experiencers remembering their NDEs did not have brain wave patterns typical of recalling fantasies or dreams, but rather patterns typical of memories of real events (Palmieri et al., 2014).

A correlation between REM intrusion and NDEs, if it were to be corroborated by additional research, might suggest either that REM intrusion contributes to NDE phenomenology or that NDEs enhance subsequent REM intrusion. The latter interpretation is supported by the increased REM intrusion in posttraumatic stress disorder (Husain, Miller, & Carwile, 2001) and the increased posttraumatic stress symptoms following NDEs (Greyson, 2001).

Overall Evaluation of Physiological Models

Many of the physiological hypotheses proposed to explain NDEs in conventional terms do so by selectively emphasizing certain features of the experience and by ignoring more critical NDE phenomena that they cannot accommodate. Some commentators openly acknowledge discounting empirical data on those aspects of NDEs that do not fit their models. Blackmore (1993), for example, acknowledged the challenge that phenomena like

accurate out-of-body perception pose for her physiological model, conceding that if they were convincingly documented, her physiological model would be overthrown, and Watt admitted that in her article with Mobbs discounting such phenomena (Mobbs & Watt, 2011), they intentionally avoided looking for any published evidence of accurate out-of-body perception (Greyson, Holden, & van Lommel, 2012).

None of the neurophysiological mechanisms proposed to explain NDEs has been demonstrated to occur in a near-death state, and some, such as those based on cerebral anoxia, have been contradicted by empirical data. No theory has yet been proposed that can account satisfactorily for all the common elements of NDEs. Many of the neurological hypotheses that have been proposed so far are untestable in terms of currently available methodologies. Neurophysiological studies may someday bridge the gap between NDEs and physiological events, but as Blanke and Dieguez (2009) observed, "there are—at this stage—not even preliminary data on the neurology of the different phenomena associated with NDEs" (p. 320).

Ultimately, even if evidence were found to support a physiological model for the NDE, the interpretation of that evidence would be philosophically ambiguous. Correlating a brain state with an experience does not necessarily imply that the brain causes the experience; the brain state may alternatively allow access to or simply reflect the experience. As Strassman (1997) expressed it, "Understanding how the television set works does not yield any information regarding from where the images and sounds arise" (p. 38).

THEORETICALLY CHALLENGING FEATURES OF NDEs

NDE Features Suggestive of Mind–Body Independence

Some features common to NDEs are difficult to explain in terms of known physiological processes. For example, experiencers typically report that their thinking became clearer and faster and their perceptions more vivid when their brains were demonstrably impaired. Perhaps the most challenging feature is the frequent report that during the NDEs they viewed their bodies from an out-of-body spatial perspective, sometimes accompanied by accurate perception of what was going on while they were ostensibly unconscious (Hampe, 1979; Holden, 2009; Moody, 1977; Sabom, 1982; van Lommel et al., 2001).

More than 80 percent of the 728 experiencers who participated in a study of NDEs at the University of Virginia reported a sense of being outside their physical bodies, and half of those described actually seeing their bodies and observing events around them from a viewpoint above the scene. Some

of the out-of-body visions that experiencers describe are difficult to verify and might plausibly be attributed to the experiencer's imagination or lucky guesses about events that might have been expected to occur. However, others contain accurate information that could not have been expected or imagined.

For example, a fifty-six-year-old van driver started having chest pains at work one Monday morning, and his dispatcher called the rescue squad. He was taken to the hospital, where during diagnostic testing one of the main arteries to his heart became totally blocked. He was rushed to the operating room for what became quadruple bypass surgery and later described an out-of-body experience as follows:

> When I came to, I was looking down on the operating room from above. As I looked down, to my amazement, at the lower left-hand side was, of all things, me! I was lying on a table covered with light blue sheets and I was cut open so as to expose my chest cavity. In this cavity I was able to see my heart. I was able to see my surgeon, who just moments ago had explained to me what he was going to do during my operation. He appeared to be somewhat perplexed. I thought he was flapping his arms as if he was trying to fly. (Greyson, 2021, p. 65)

After the patient regained consciousness and the tube was removed from his throat, he told his cardiologist what he had observed during the operation, including seeing the surgeon flapping his elbows as if he were trying to fly. He demonstrated by placing his palms on his chest and wiggling his elbows. The cardiologist's eyes widened, and he asked who had told him about that. When the patient insisted that he had seen it himself while hovering above the operation, the cardiologist acknowledged that this was a peculiar habit of the surgeon. After he had "scrubbed in" to the operating room and donned sterile gloves, the surgeon did not want to touch anything in the room that might transfer a contaminant, however small, to his hands. For that reason, while he watched his assistants begin the operation, he planted his hands on his chest, flat against his sterile gown, to make sure he didn't accidentally touch anything. He then supervised his team, using his elbows instead of his fingers to point out various things. On a later follow-up visit with the surgeon himself, the patient asked him about this peculiar habit, and the surgeon replied, "Well, you're here, you're alive, so I must do something right!"

His surgeon independently confirmed that that peculiar elbow-flapping behavior was indeed a regular habit of his, and the cardiologist verified that he had never seen any other surgeon do this. A review of the medical records revealed that the patient had first been given a local anesthetic so that a balloon could be inserted into his aorta and was then given a general anesthetic for the surgery itself. That raised the possibility that the patient might have seen his surgeon flapping his arms before he was given the general anesthetic.

stimulation. And it cannot be explained by reconstruction based on observations before and after she was anesthetized because she accurately described people, equipment, and events that were not observable either before or after the procedure.

Beauregard, St-Pierre, Rayburn, and Demers (2012) studied thirty-three patients who underwent this drastic hypothermic circulatory arrest procedure over a five-year period. Nine percent of the patients they studied reported conscious mental activity during their procedures. The authors described one patient who reported feelings of peace and joy, seeing a bright light, leaving her body, and observing details of the operation that were later verified by the surgical staff.

NDE Features Suggestive of Postmortem Survival

Individuals who have these veridical out-of-body perceptions usually claim that their mental processes were remarkably clear when they seemed to be separated from their physical bodies, which they experience as a foretaste of their postmortem survival. However, because near-death experiencers are still alive, even though consciousness may seem to be detached from the body, it may still remain dependent on the body for its continued existence. Thus, although veridical out-of-body perceptions near death may bear on the relationship between the mind and the body while it is alive, they do not necessarily tell us anything about postmortem conditions (Ducasse, 1961).

Almost without exception, however, people who have had NDEs hold a firm belief that some part of them will live on after death. Although their ideas about exactly what might happen after death differ from one person to another, there are some recurring patterns in their descriptions of an afterlife existence. For example, two-thirds of the 229 experiencers who participated in a study of NDEs at the University of Virginia believed that in the afterlife we meet loved ones who had died earlier, and 13 percent of the 553 experiencers in another study reported that in fact they had met a deceased loved one in their NDEs (Kelly, 2001).

Some of these cases may be hallucinatory reflections of the dying individual's expectations or may represent defensive attempts to reduce fear of impending death by imagining a reunion with deceased loved ones. This explanation is less plausible for children, who likely know fewer deceased people than do adults and might more naturally hallucinate their living parents or other protectors in times of stress. In fact, however, children virtually never see their living parents in NDEs, and in some cases they describe meeting persons whom they did not know, in sufficient detail to allow their parents to recognize those persons as deceased relatives. In some cases, the child later

identified the person from the NDE in a family portrait he or she had never seen before (Badham & Badham, 1982).

There are other NDEs that cannot be written off as expectation and that may provide some additional evidence for postmortem survival. Sometimes experiencers meet in their NDEs recently deceased people who were not known to have died, excluding the possibility that the vision was a hallucination related to the experiencer's expectations (Greyson, 2010b). For example, one of our research participants was a twenty-six-year-old technical writer who was hospitalized in his native South Africa with a series of nonstop seizures complicated by pneumonia. He recounted his NDE that occurred during a respiratory arrest:

> I had been taken very ill, and was three or four weeks in an oxygen tent in status epilepticus, then double-pneumonia, and so on and so on. I was friendly with a nurse from the farm lands of the Western Cape. She had told me it was her twenty-first birthday that weekend, and that her parents were coming in from the country to celebrate. She fluffed up my pillows, as she always did. I held her hand to wish her a happy birthday, and she left.
>
> In my NDE, I met Nurse Anita on the Other Side. "What are you doing here, Anita?" I asked. "Why, Jack, I've come to fluff up your pillows, of course, and to see that you are all right. But, Jack, you must return, go back. Tell my parents I'm sorry I wrecked the red MGB. Tell them I love them."
>
> Then Anita was gone—gone through and over a very green valley and through a fence, where, she told me, "there is a garden on the other side. But you cannot see it. For you must return, while I continue through the gate."
>
> When I recovered, I told a nurse what Anita had said. This girl burst out into tears and fled the ward. I later learned that Anita and this nurse had been great friends. Anita had been surprised by her parents, who loved her dearly and had presented her with a red MGB sports car. Anita had jumped into the car, and in her excitement raced down the highway, de Waal's Drive, along the slopes of Table Mountain, into "Suicide Corner" and a concrete telephone pole.
>
> But I was "dead" when all that happened. How could I possibly know these facts? I was told by Anita in my experience. (Greyson, 2021, pp. 132–133)

This patient had no way of knowing that his nurse had died and no yearning to see her on her weekend off with her parents. This was an apparent encounter with a deceased person that could not plausibly be dismissed as wishful thinking, nor is it a unique case. NDEs in which the experiencers are surprised to meet a loved one they had not known had died are not common, but they do occur. Greyson (2010b) described twenty-eight similar cases that had been recorded throughout the ages, from the first-century Roman historian Pliny the Elder to the present day.

NDEs that involve meeting deceased persons not known to have died cannot be attributed to expectations of a reunion. It is possible that some experiencers might have met some being in their NDEs and, only after learning that a loved one had just died, retroactively identified the being they met as that newly deceased loved one. However, in cases such as that described above, the experiencer told other people about the vision, naming the deceased person, *before* learning of his or her death.

It is possible that some experiencers might envision meeting a person in their NDEs who was still living but likely to have died. If that were the explanation, then there were would likely be NDEs where experiencers "guessed wrong" and identified people in their NDEs as deceased who were really still alive. It turns out that there *are* a few NDEs in which experiencers report meeting people who are still alive. Kelly (2001) reported that 7 percent of NDEs involved seeing someone in the realm of the NDE who was still living. But in every one of those rare cases, the experiencer described that person as still living, in most cases pleading with the experiencer to come back. No NDE account has been published in which an experiencer mistakenly thought that a living person he or she had seen in the NDE was deceased.

In some of these cases, the experiencer reported meeting a deceased person he or she *had never met*. For example, van Lommel (2004) reported the case of a patient who, during a cardiac arrest, had an NDE in which he saw a man he did not know. He later learned from his dying mother that he had been born out of an extramarital affair with a man killed during the war. Shown a picture of his biological father, he immediately recognized him as the man he had seen during his NDE. Likewise, Kübler-Ross (1983) reported the case of a young girl who, during heart surgery, had an NDE in which she saw a boy who identified himself as her brother, although she was an only child. Her father, moved by her report, confessed that he had had a son she never knew about who had died before she was born.

These visions of deceased people who were not known to have died are difficult to explain. Experiencers report that these deceased people not only appeared to them but also interacted with them, giving them information. The experiencer's interpretation in every case was that the deceased person was still somehow conscious and able to interact. But that would require that consciousness—the ability to think and feel—continues after the physical body dies.

IMPLICATIONS OF NDEs FOR THE MIND–BRAIN RELATIONSHIP

Over the centuries, a wide variety of theories have been proposed for the relationship between the mind—the sum total of all your conscious thoughts,

feelings, desires, memories, hopes, and so on—and the brain—that organ inside your skull made up of neurons and supporting glial cells. As Kelly noted in this volume ("Background and Overview"), many (but not all) neuroscientists, physicists, and psychologists believe that the mind and consciousness are produced by or are subjective concomitants of brain states. This "production theory" receives support from the correlation between brain changes and mental changes. However, the observed correlation between brain states and mind states is also compatible with the "transmission" or "filter theory"—that is, that the brain may be a vehicle that receives, transports, and transmits (but is not synonymous with) the mind (James, 1898).

Everyday mental functioning may be adequately described in terms of either the production theory or the filter theory. However, cognition under extreme conditions reveals the limitations of the production theory and the need for a more comprehensive explanatory model. For example, there have been rigorous studies of individuals with normal to high cognitive function despite having both cerebral hemispheres reduced by severe hydrocephalus to as little as 5 percent of the normal volume (Lorber, 1983). Additionally, there have been more than eighty documented cases of the unexpected return of mental clarity and memory, shortly before death, in patients suffering from irreversible brain deterioration as in Alzheimer's disease (Nahm & Greyson, 2009). A National Institute on Aging workshop recently reviewed the evidence for this paradoxical lucidity in patients with end-stage, irreversible dementia, concluding that current paradigms of dementia need to be reconsidered (Mashour et al., 2019).

Furthermore, although it had been assumed, based on the production theory, that intense experiences brought on by psychedelic drugs would correlate with increased brain activity, recent research has shown the exact opposite. Brain imaging studies of psychedelic drug experiences, using a variety of drugs and a variety of imaging techniques, have consistently suggested that spiritual psychedelic experiences analogous to NDEs are associated with decreased brain electrical activity and decreased connectivity between relevant brain regions (Carhart-Harris et al., 2012, 2016; Lewis et al., 2017; Muthukumarswamy et al., 2013; Palhano-Fontes et al., 2015; Vollenweider & Kometer, 2010). These findings that mystical experiences are accessible only when brain activity is diminished are compatible with the filter theory but not with the production theory.

Proponents of the production theory have argued that, while electrical activity and connectivity are decreased with psychedelic drugs, the variability or diversity of activity across different brain areas is increased (Swanson, 2018). However, this diversity in activity across the brain runs counter to current neurobiological models of consciousness that require greater integration of

activity across the brain. It is difficult to understand how greater fragmentation or random signal fluctuations in the brain can produce the highly structured and experientially rich experiences that are typically described as the most meaningful in life (Kastrup & Kelly, 2018).

NDE Physiology and Mind–Brain Models

NDEs are often triggered when patients are clinically near death, such as during cardiac arrest or some other, usually sudden, loss of vital functions. In a study of 1,595 consecutive admissions to a cardiac care unit, NDEs were reported ten times more often by patients who had survived well-documented cardiac arrest than by patients with other serious cardiac incidents (Greyson, 2003).

The incompatibility of NDEs with the mind–brain production theory is particularly evident in connection with experiences that occur under two conditions—namely, general anesthesia and cardiac arrest. In near-death research at the University of Virginia, 22 percent of NDEs occurred under anesthesia, and those cases include the same features as other NDEs, such as out-of-body experiences that involved watching medical personnel working on the body, an unusually bright or vivid light, meeting deceased persons, and thoughts, memories, and sensations that were clearer than usual.

Studies that have identified reliable EEG correlates of loss and recovery of consciousness during general anesthesia have established that unconsciousness is associated with a profound reduction in brain activity under anesthesia (Huang, Liu, Mashour, & Hudetz, 2018; John et al., 2001; Lee et al., 2019; Pal et al., 2020; Thiery et al., 2018). Additional results supportive of this conclusion derive from other recent functional imaging studies that have looked at blood flow, glucose metabolism, or other indicators of cerebral activity under general anesthesia (Alkire, 1998; Alkire, Haier, & Fallon, 2000; Shulman, Hyder, & Rothman, 2003; White & Alkire, 2003). In these studies, activation in brain areas thought essential for conscious experience is greatly reduced, along with the coupling between them, thereby providing considerable evidence against the possibility that the anesthetized brain could produce clear thinking, perception, or memory.

The situation is even more dramatic with regard to NDEs occurring during cardiac arrest. In four published studies alone, more than one hundred cases of NDEs occurring during cardiac arrest were reported (Greyson, 2003; Parnia et al., 2001; Sabom, 1982; van Lommel et al., 2001). Like NDEs that occur with general anesthesia, those that occur in connection with cardiac arrest include the typical features associated with NDEs, in-

Such explanations are inadequate, however, for several reasons. As noted before, memory of events occurring just before or after loss of consciousness is usually confused or completely absent (Aminoff et al., 1988; Chen et al., 2016; Gerlai & McNamara, 2000; Parnia & Fenwick, 2002; Pryor et al., 2010; van Lommel et al., 2001). In addition, many NDE reports include perceptions of events that were extremely unlikely to have occurred, such as the surgeon flapping his arms or the nurse with mismatched shoelaces mentioned earlier.

Furthermore, anecdotal reports that adequately anesthetized patients retain a significant capacity to be aware of or respond to their environment in more than rudimentary ways—let alone to hear and understand—have not been substantiated by controlled studies (Ghoneim & Block, 1992, 1997). The phenomenology of awakenings under anesthesia is altogether different from that of NDEs and often extremely unpleasant, frightening, and even painful, typically brief and fragmentary and primarily auditory or tactile but not visual (Osterman, Hopper, Heran, Keane, & van der Kolk, 2001; Spitellie, Holmes, & Domino, 2002). There is no convincing evidence that memories of complex sensory experiences occurring during general anesthesia could have been acquired by the impaired brain itself during the period of unconsciousness. Furthermore, any such explanatory claims are even less credible when, as commonly happens, the specific sensory channels involved in the reported experience have been blocked as part of the surgical routine—for example, when visual experiences are reported by patients whose eyes were taped shut during the relevant period of time.

A third important feature of NDEs is the reported visions of deceased persons, including surprising visions of those not previously known to have died or not previously known at all to the experiencer (Greyson, 2010b). Clearly, if the mind is produced by and totally dependent on the brain, then consciousness cannot persist after death of the brain, rendering such visions impossible. Survival of consciousness after death requires that minds be able to function independent of physical brains.

In sum, the central challenge of NDEs to the mind–brain production theory lies in asking how complex consciousness, including mentation, sensory perception, and memory, can occur under conditions in which current neurophysiological models deem it impossible. This conflict between a materialist model of brain producing mind and the occurrence of NDEs under conditions of general anesthesia and/or cardiac arrest is profound and inescapable. Only when we expand models of mind to accommodate extraordinary experiences such as NDEs will we progress in our understanding of consciousness and its relation to the brain.

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the evidentiary value of the case substantially. In the majority of the cases studied, however, no such link is known.

Some, like the four cases below, show close matches between the child's statements and facts of the life of a previous personality unknown to the child's family. Cases vary in the richness of detail of the purported memories and the quality of documentation of the child's statements. These four, two from Stevenson's early work in Asia and two more recent U.S. cases, serve as good examples of the phenomenon. They are all strengthened by the existence of records of the children's statements that were made before the previous personality was identified. The vast majority of cases do not include such documentation, an issue I will address later in the chapter.

The Case of Kumkum Verma

Growing up in a village in India, Kumkum Verma began talking about a past life when she was three and a half years old. She said that in her last life, she had lived in Darbhanga, a city of two hundred thousand people that was twenty-five miles away from her home village. She named the section of the city where she said she had lived, a commercial district where artisans, craftsmen, and small-business owners lived. Kumkum's father was an educated landowner, and her parents did not know anyone there.

Her father talked about her past-life claims with a friend who was from Darbhanga. He had an employee from the section Kumkum had named, and that person was eventually able to identify a deceased woman whose life Kumkum seemed to be remembering. Her family belonged to a relatively low artisan class and would have been unlikely to have social contact with a family like Kumkum's. In fact, the families had very little contact even after the previous personality was identified. The woman's grandson visited Kumkum's family twice, and while Kumkum's father went to Darbhanga once to meet the previous family, he never allowed Kumkum to meet them.

Six months before anyone attempted to verify Kumkum's statements, her aunt wrote down many of them. Some of her notes were lost, but Stevenson was able to get a partial copy that included eighteen statements. All of them eventually proved to be accurate for the identified previous personality. They included the section of Darbhanga where she lived as well as her son's name and the fact that he worked with a hammer, her grandson's name, the name of the town where her father lived, the location of his home near mango orchards, and the presence of a pond at her house. They also documented small personal details, such as an iron safe at her home, a snake she fed milk to that she kept near the safe, and a sword hanging near the cot where she slept (Stevenson, 1975, pp. 206–240).

The Case of Sujith Jayaratne

Another of Stevenson's cases involved a boy named Sujith, who lived in a suburb of Colombo, the capital of Sri Lanka. As a baby, he began showing an intense fear of trucks. When he became old enough to talk, he described a life in a village named Gorakana, which was seven miles away. A monk made notes of conversations he had with Sujith when the boy was two and a half, and Stevenson was able to get a translated copy of them. The notes document that Sujith said he was from Gorakana and lived in the section of it called Gorakawatte. His father was named Jamis and was missing an eye (Sujith pointed to his right eye to indicate it was the defective one). He attended the *cabal iskole* (meaning "dilapidated school"), where he had a teacher named Francis. He gave money to a woman named Kusuma, who prepared a type of food for him called string hoppers. He suggested that he gave money to the Kale Pansala, or Forest Temple, where there were two monks, including one named Amitha. He also said that his house was whitewashed and had a lavatory beside a fence and that he bathed in cool water.

The monk then went to Gorakana and found that all of Sujith's statements matched the life of one Sammy Fernando, a fifty-year-old man who had died six months before Sujith was born, after being hit by a truck. Stevenson investigated the case a year after the monk's trip to Gorakana and verified the matches, including the previous father Jamis's bad right eye (Stevenson, 1977, pp. 235–280).

The Case of James Leininger

James, the son of an American couple in Louisiana, began having repeated nightmares around the time of his second birthday. His parents would observe him thrashing about and kicking his legs in the air while shouting, "Airplane crash on fire! Little man can't get out." After a few months of this behavior, his parents were able to have several conversations with him about his dreams, usually as he was preparing to go to sleep. He indicated that they were memories of events from the past. He said his plane had crashed on fire and that it had been shot down by the Japanese. He said the plane was a Corsair, which was a fighter plane developed during World War II, and that he had flown it off a boat. When his parents asked him the name of the boat, he said, "Natoma." When asked what his name was then, he would always just say "me" or "James." When his parents asked him whether he could remember anyone else who was there, he gave the name Jack Larsen. Then, when he was two and a half, he pointed at a picture of Iwo Jima and said his plane had been shot down there.

James's father was initially dismissive of the idea of past lives, but he began investigating James's claims. He learned that USS *Natoma Bay* was an escort ship stationed in the Pacific during World War II. It took part in the Iwo Jima operation, during which it lost one and only one pilot: a young man from Pennsylvania named James Huston.

A complete record of James's statements made before Huston was identified does not exist, but various pieces of documentation do, including his father's correspondence as he researched the events as well as a television interview that was recorded before Huston was identified in which James's parents discussed his statements and behaviors. The items described above were all verified to match for Huston, with two caveats: James said he was flying a Corsair; Huston was actually flying a different plane, an FM-2, when he was killed, but he had flown a Corsair previously, being part of the squadron that tested it for the navy. And although Huston was killed during the Iwo Jima operation, his death occurred during a strike against transport vessels in a harbor on a nearby island.

In addition to the above, James said his plane got shot in the engine and crashed in the water. Eyewitnesses confirmed that Huston's plane was hit in the engine, and military records document that his plane hit the water and quickly sank. They also show that one of the other pilots who took part in the strike on the day Huston was killed was named Jack Larsen (Tucker, 2013, pp. 63–87; Tucker, 2016).

The Case of Ryan

Ryan, a boy from the southwestern United States, was four years old when he began describing a past life in Hollywood. He would cry and beg his mother to take him there so he could see his other family. One day, Ryan and his mother were looking at a book on Hollywood when they saw a picture from a 1932 movie called *Night after Night*. Ryan became excited when he saw it. He pointed to one of the men in the picture and said that's who he had been in his past life. The book didn't list the people in the picture, and Ryan's mother later discovered that the man Ryan pointed to had no spoken lines in the movie. She contacted our office at the Division of Perceptual Studies to ask for help in identifying him. That proved to be difficult, and as we searched, Ryan's mother sent frequent e-mails documenting Ryan's numerous statements about his past life. Eventually, a Hollywood archivist went to the library of the Academy of Motion Picture Arts and Sciences and reviewed all the materials there on *Night after Night*. They included one picture that identified the figure Ryan had pointed to, a man named Marty Martyn.

Although information about Marty Martyn is now available online, it came out only after this case had been publicized. At the time we first identified Martyn, there was essentially nothing online about him. Only by interviewing Martyn's family and obtaining records from various places were we able to assess how accurate Ryan's statements were for him. Ryan had said that he danced onstage in New York, and Martyn danced on Broadway. Ryan said he then went to Hollywood to work in movies, which Martyn did, working mostly on dance in films. Ryan said he then worked at an agency where people changed their names, and Martyn started a successful talent agency. Ryan talked of seeing the world from big boats and visiting Paris; Martyn and his wife went to Europe on the *Queen Mary* and visited Paris. Ryan said he lived in a big house with a swimming pool, which Martyn did, and Ryan said its street address had the word "Rock" or "Mount" in it. Martyn's house was on North Roxbury. Ryan also said he was sixty-one when he died, and even though Martyn's death certificate said he was fifty-nine, we eventually found overwhelming evidence that Martyn was in fact sixty-one. In all, Ryan made more than two hundred past-life statements, most of which were details about daily life that were unverifiable. Even so, along with a few statements that were incorrect for Martyn, we were ultimately able to verify that fifty-five of his statements did match Martyn's life (Tucker, 2013, pp. 88–119).

RECOGNITION TESTS

Some of the cases have involved instances in which the children were thought to recognize people or objects from the previous life. Stevenson (2001) wrote about three kinds of recognitions. In one type, the child unexpectedly or spontaneously recognized someone from the past life during a chance encounter—seeing the person walking down the street, for example. In the strongest of these, no one with the child knew that individual, so, for example, one girl in Thailand was with her mother when she recognized an aunt of the previous personality who was unknown to the girl's mother (Stevenson, 1973).

In a variant in some cases, the previous personality is identified because the children see people or places and say they remember them from their previous life. Ryan, in the case above, identified himself from a picture of Marty Martyn, and it was only later that Ryan's claims about a past life were found to match Martyn's life. Similarly, Gamini, a boy in Sri Lanka, talked repeatedly about a past life without naming a place or giving a last name. After six months, he and his family were on a bus trip when, during a brief stop, Gamini said that the place where they were stopped had been his home. His mother's cousin, a well-known monk, then looked into the matter, eventually

taking Gamini back to the area, where he was judged to recognize a number of people and places (Stevenson, 1977, pp. 43–76).

Other cases have included uncontrolled tests, usually by the child's parents. As Stevenson (2001, p. 113) wrote, they may take the child to meet members of the previous family, and after they ask such leading questions as "Do you see your wife here?" the expectant stares of the assembled group toward the previous personality's wife can make it nearly impossible for the child to answer incorrectly. In other cases, participants have tried tests that were at least *more* controlled than those. In an American case, a boy was thought to be his paternal grandfather reborn. His grandmother died when the boy was four and a half. His father returned from disposing of her belongings with family photos the boy had not seen before. His mother showed him a class picture from when his grandfather was in grammar school and asked him to pick himself out. The picture showed twenty-seven children, including sixteen boys, and the boy correctly pointed to his grandfather (Tucker, 2005, pp. 141–143).

Investigators have rarely been able to test the children firsthand. Doing so requires that the investigators get to the children while they are young enough to still report significant memories of the past life and also before they have seen the people from that life.

The Case of Gnanatilleka Baddewithana

Gnanatilleka was a girl in Sri Lanka whose case was originally investigated by a journalist, H. S. S. Nissanka (2001), with the assistance of a Buddhist monk and a teacher. The three of them met Gnanatilleka when she was four and a half. She had talked about a past life in Talawakelle, a town sixteen miles from hers. The men went to Talawakelle and learned of a teenage boy who had died a couple of years before Gnanatilleka was born. His life matched the details Gnanatilleka had given, so the men arranged for her to meet members of the boy's family at an inn in Talawakelle without telling her the purpose of her trip there. They had members of the boy's family come in one by one as well as a man the boy had not known.

Gnanatilleka was able to identify the relationship the boy had with each individual—"she's my Talawakelle mother," for example—including both parents, his brother, and his two sisters. She also gave details about them that were not obvious from their appearance, saying that she went to school by train with one sister and that the other one lived in a house below the family's. She said she remembered going there to sew clothes, which the boy had done. When presented with a man who had moved to Talawakelle after the boy had died, Gnanatilleka said she did not know him.

attachment to figures from the previous life, with the child repeatedly begging to be taken to the location of the previous family. Their reactions to members of the previous family can vary, consistent with the relationship the previous personality had with the different individuals. Gnanatilleka, described earlier, was very friendly with the previous personality's sisters and one of his teachers, but she showed real disdain for his brother, who had reportedly treated the previous personality poorly. Similarly, a girl in Thailand was thrilled to meet the previous woman's daughter but indifferent and even hostile toward the previous husband, with whom the previous woman had barely spoken in the last years of their unhappy marriage (Stevenson, 2001). The attachment the child shows toward previous family members usually (though certainly not always) lessens as the child grows up. In at least one case in Burma, the child grew up and married the widow of the previous personality (Stevenson, 1997a, pp. 212–226).

One behavior that is frequently present is a phobia (Stevenson, 1990). In cases in which the previous personality died by unnatural means, 35 percent of the children show an intense fear toward the mode of death (Tucker, 2005). One girl in Sri Lanka, for example, hated being immersed in water essentially from the time of birth. It would take three adults to hold her down to give her a bath when she was an infant. When she became old enough to talk, she reported memories of being a girl in a nearby village who had drowned in an accident a year and a half before she herself was born (Stevenson, 1977, pp. 15–42).

Although they don't necessarily have the full syndrome, the children can show features of posttraumatic stress disorder (Haraldsson, 2003). James Leininger, cited earlier, didn't have a phobia of planes—he instead had a great interest in them—but, along with his nightmares about a crash, he would repeatedly take his toy planes, say, "Airplane crash on fire," and slam them into the family's coffee table, eventually producing dozens of scratches and dents (Tucker, 2013). This kind of compulsive repetition is often seen in children who have survived or witnessed a major trauma and is known as posttraumatic play (Terr, 1981). James had experienced no such trauma (in his current life), and yet he inexplicably showed features of a traumatized child. Stevenson (2001) described other children who seemed to reenact the previous death, including a boy in Burma who recalled the life of a man who hanged himself and would walk around his village with a rope around his neck.

Other children show themes in their play associated with different aspects of the previous life, often the occupation of the previous personality. In one series of 278 cases, 24 percent engaged in play that was unusual for their families and that appeared connected to their past-life memories. In some cases, the child engaged in the play before voicing the memories. The play

occupations corresponded to the ones from the past life, and cases included a boy who played so compulsively at managing a biscuit and soda water shop that he fell behind significantly at school; two girls in middle-class families who played at being "sweepresses" (women who sweep streets and clean latrines); and the son of an unskilled laborer in Turkey who played at managing a nightclub, enlisting a neighborhood girl to serve as the singer by holding a stick to represent a microphone and putting out two chairs for the two wives of the previous personality, a nightclub owner in Istanbul (Stevenson, 2000).

Another aspect of play in these cases can involve gender. In the 10 percent of our cases in which children recall a previous life as a member of the opposite sex, many of them show striking gender nonconformity (Tucker & Keil, 2001). Most young children in various cultures in the general population show gender-typical behaviors, such as stereotypical preferences of trucks for boys and dolls for girls. Gender nonconformity, in which a child shows behaviors more commonly associated with the opposite sex, is a nonpathological trait that by age seven is seen in up to 3 percent of boys and 5 percent of girls (van Beijsterveldt, Hudziak, & Boomsma, 2006). A recent analysis found that 80 percent of the children who reported memories of a life as a member of the opposite sex showed gender nonconformity, compared to only 5.8 percent of children with memories of a life as a member of the same sex (Pehlivanova, Janke, Lee, & Tucker, 2018).

Some of the children show likes and dislikes that are similar to those of the previous personality. Stevenson and Keil (2005) studied twenty-four cases of Burmese children who claimed they were Japanese soldiers killed in Burma during World War II. They showed various associated behaviors, and some of them complained about the spicy Burmese food and asked for raw fish instead. Likes and dislikes can also include fondness for addictive substances if the previous personality was a heavy user. For example, Sujith, described earlier, would ask for cigarettes and arrack, a liquor that the previous personality transported in illegal trade, with one neighbor even obliging him until Sujith's grandmother put a stop to it. In addition, Sujith had shown an intense fear of trucks before he could even speak, and the previous personality died after getting hit by a truck.

Some children can show multiple behaviors that individually may not be overly impressive but are part of a consistent pattern of behaviors and statements that together suggest a child who is being affected by memories of a life in the past. In other cases, the behaviors can be so striking and the emotions so intense that they contribute to the sense that something very much out of the ordinary is occurring. They also contribute to the sense that the process of carryover from a past life (if that is what the cases are) is a multidimensional one, seemingly involving much more than just information transfer.

BIRTHMARKS AND BIRTH DEFECTS

As soon as Stevenson started investigating CORT, he began to learn of instances in which a child with a birthmark or birth defect reported memories of suffering a wound in a past life, usually a fatal wound during a violent death, that corresponded to the mark or defect (Stevenson, 1993). He eventually published a two-volume set of more than two hundred such cases (Stevenson, 1997a).[1] He noted that the birthmarks are often different from the common, small discolorations that many people have. They can be unusual in shape or size, and they are often puckered or raised rather than flat. Other researchers have subsequently documented additional cases (Haraldsson, 2000a, 2000b; Pasricha, Keil, Tucker, & Stevenson, 2005).

In these cases, the researchers have examined the child in question and photographed their marks or defects. They have interviewed the child's family and asked them about when they first noticed the lesions, whether other family members have similar ones, and whether the mother was exposed to known causes of defects while she was pregnant. The researchers have then interviewed the previous personality's family. They judged how well the child's statements matched the previous life and asked whether the family knew of any access the child might have had to the relevant information. They also attempted to determine with as much precision as possible what wounds the previous personality suffered in order to assess how well they corresponded to the child's marks or defects. They obtained autopsy records when possible, but these were often unavailable or never even existed. Stevenson (1993) reported that he was able to obtain an autopsy report in 49 out of 210 cases. In the other cases, the researchers have typically interviewed firsthand eyewitnesses who saw the wounds on the body of the previous personality. Their efforts have produced cases in which birthmarks or defects add significantly to the evidence for a link to the previous life.

The Case of Chanai Choomalaiwong

Chanai Choomalaiwong is one of eighteen cases that Stevenson (1997a, pp. 933–934) listed in *Reincarnation and Biology* in which a child was born with *two* birthmarks that corresponded to the entrance and exit wounds on the body of a gunshot victim. Chanai was born in Thailand in 1967. He had two birthmarks, one on the back of his head and one above his left eye. When he was three, he began talking about a past life, saying he was a teacher named Bua Kai who had been shot and killed one day on the way to school. He gave the names of various family members and begged to be taken to his previous parents' home in a place called Khao Phra, which was fifteen miles from his

village. He and his grandmother eventually took a bus there, and he then led her to a home where he said his parents lived. It belonged to a couple whose son, Bua Kai Lawnak, had been a teacher who was murdered on his way to school five years before Chanai was born. Chanai identified Bua Kai's parents, who were present among other family members, and he later recognized one of the teacher's daughters and asked for the other one by name. He insisted that Bua Kai's daughters call him "Father," and if they did not, he refused to talk to them. The previous family tested Chanai by asking him to pick out Bua Kai's belongings from others, which he was able to do.

Stevenson was not able to get an autopsy report on Bua Kai, but he talked with several of his family members, who said he had two head wounds from being shot. Bua Kai's wife stated that the doctor who examined his body told her he knew Bua Kai had been shot from behind because he had a characteristically small, round entrance wound on the back of his head and a larger, more irregular exit wound on his forehead. These matched the appearance of both of Chanai's birthmarks, the small round one on the back of his head and the larger, more irregularly shaped one on his forehead. The second one was higher up on Chanai's forehead by the time he was photographed at age eleven than Bua Kai's described wound, but his family said it had been lower when he was younger and then migrated up as he grew (Stevenson, 1997, pp. 300–323).

The Case of Purnima Ekanayake

Haraldsson (2000a) studied the case of Purnima Ekanayake in Sri Lanka. She was born with a group of lightly colored birthmarks over the left side of her chest and her lower ribs. She began talking about a past life, and when she was four, she saw the Kelaniya temple on television and said she recognized it. When she later went on a school trip to see the temple, which was nearly 150 miles away, she said she had lived on the other side of the river that flowed beside the temple grounds. By the age of six, she had made some twenty statements about a past life. A new teacher began working in Purnima's town while spending his weekends in Kelaniya, where he and his wife lived. Purnima's father told him about Purnima's talk of a past life, and he and his brother-in-law decided to investigate to see whether Purnima's reported memories were accurate.

The teacher told Haraldsson that Purnima's father had given him four items to check: she had lived on the other side of the river from the Kelaniya temple, she made Ambiga and Geta Pichcha incense sticks (brands that were not available in Purnima's area and that her parents had never heard of), she was selling incense sticks on a bicycle, and she was killed in a collision with a

big vehicle. He and his brother-in-law found that there were three small family incense businesses in the area across the river from the Kelaniya temple. The owner of one of them called his brands Ambiga and Geta Pichcha. One of his associates had been hit by a bus and killed while taking incense sticks to the market on his bicycle two years before Purnima was born.

Haraldsson was able to get a copy of the man's autopsy report. It showed that he had fractured ribs on the left, a ruptured spleen (in the upper left part of his abdomen), and abrasions running diagonally from his right shoulder across his chest to his left lower abdomen. These corresponded to Purnima's birthmarks over her chest and ribs.

Along with such *birthmark* cases, Stevenson documented numerous examples in *Reincarnation and Biology* of children with *birth defects* thought to be connected to a previous life. Although the child's parents either knew (or at least knew of) the previous personality or were related to that person in most of the cases, they can include some compelling aspects.

The Case of Semih Tutuşmuş

Semih Tutuşmuş was a boy in Turkey who was born with a severely deformed right ear, with the external ear being only a linear stump, plus an underdeveloped right side of his face, a condition known as hemifacial hypoplasia. Semih's father had known a man who was killed by a shotgun blast to the right side of his head in what was said to be an accident when a neighbor was hunting and said he mistook the man for a rabbit. Semih's mother did not know the deceased man personally but had heard about his death.

By his parents' report, Semih began talking about a past life when he was around one and a half years old, when he stated the name of the man who had shot the previous personality. He made a number of subsequent statements, giving details about being shot and stating the names of the previous personality, his wife, and all six of his children. After he met the family, he visited them frequently, sometimes several times a week, and he wept at age eleven when he learned that the previous personality's widow had died. He also expressed great animosity toward the neighbor who shot the previous personality, claiming he did it intentionally (Stevenson, 1997a, pp. 1382–1403).

This case illustrates how the available evidence can sometimes lend itself to interpretation in radically divergent ways. On the one hand, here is a child who was born with an extraordinary birth defect soon after the death of a man from an injury that was quite similar to the defect. If we accept the family's report at face value, the boy then gave numerous names and details from the life of that man and showed emotions the man would have felt. This certainly seems to suggest a connection of some kind to the previous life. On the other

start talking about a past life at an earlier age, and they also tended to show more emotion in recalling the life.

Also considered was the possibility raised by critics that enthusiastic parents promote and enlarge their children's claims and end up making the cases appear stronger than they really are. If this were true, we would expect an initial positive attitude by the child's parents toward the claims to correlate with the apparent strength that the case eventually attained. When the initial attitude of each parent was compared to the case's strength-of-case score, however, no correlation was found, lending no support for such a possibility. The strength-of-case score did correlate with the amount of acceptance of the child's claims by the family of the previous personality, implying that those families use criteria similar to ones in the scale in assessing the legitimacy of a case.

Another analysis looked at cases in which the children said they remembered events that occurred during the intermission between lives. These intermission memories can include an initial transitional stage that may contain activities such as observing the previous family as they grieve or witnessing the previous personality's funeral, sometimes with verified details. A second stage can follow that usually involves a stable existence either in an earthly location or in another realm. A final stage can include moving toward their current life. For example, some of the children say that before being born, they observed their current parents, and they sometimes give accurate details about their behavior. For example, in the cases above of James Leininger and Ryan, both boys related facts that startled their parents.[2] The analysis found that the cases in which children reported intermission memories tended to be stronger for past-life memories than ones in which they didn't. The cases with intermission memories scored higher on the strength-of-case scale, and the children made more statements about the identified previous life that were verified to be accurate and also recalled more names from that life. This suggested that the intermission reports should be carefully considered since they seem to be part of a pattern of a stronger memory for items preceding the children's current lives (Sharma & Tucker, 2004).

As noted earlier, when cases in which the child recalls a previous life as a member of the opposite sex were assessed more recently, it was found that 80 percent of those children exhibited gender nonconformity compared to only 5.8 percent of children reporting same-sex memories. To assess whether the children's gender nonconformity could have led them to fantasize a past life as a member of the opposite sex, the analysis was repeated using only the cases in which a previous personality had been identified whose life matched the child's statements. In this sample involving only actual lives from the past

rather than potentially imagined ones, the statistics remained essentially unchanged. In addition, scenarios that might lead parents to incorrectly interpret their child's gender nonconformity as an indication of a past life as a member of the opposite sex were considered: situations in which a family member of the opposite sex had recently died, the presence of birthmarks on the child that were similar to fatal injuries a family member or acquaintance of the opposite sex had recently suffered, and cases in which a parent had dreamed during the pregnancy that an opposite-sex family member announced a plan to return as the baby. None of them showed a significant association with the presence of gender nonconformity (Pehlivanova et al., 2018).

We plan to continue conducting such analyses, which provide an important complement to the traditional intensive study of individual cases. They offer the potential not only to evaluate the evidence that the phenomenon provides for a connection between a previous life and a current one but also to consider patterns that may be involved in the processes associated with such a connection.

EVALUATING AND INTERPRETING THE CORT DATA

As Stevenson began publishing finely detailed reports of his cases, his work received some positive reactions in established places. The *American Journal of Psychiatry* reviewed his first book on the phenomenon, *Twenty Cases Suggestive of Reincarnation*, and noted that it included "cases recorded in such full detail as to persuade the open mind that reincarnation is a tenable hypothesis to explain them" (Laidlaw, 1967, p. 128). The *Journal of the American Medical Association* reviewed his next book, *Cases of the Reincarnation Type, Volume I: Ten Cases in India*, and stated, "In regard to reincarnation he has painstakingly and unemotionally collected a detailed series of cases in India, cases in which the evidence is difficult to explain on any other grounds" (King, 1975, p. 978). The *Journal of Nervous and Mental Disease* devoted most of one issue to Stevenson's work. In one commentary, Harold Lief (1977), a noted figure in the field of psychiatry, described Stevenson as "a methodical, careful, even cautious, investigator, whose personality is on the obsessive side" (p. 171).

Stevenson's case reports were met with criticism as well. Wilson (1981) faulted him for working in some places with associates who had strong beliefs in reincarnation, feeling that might have tainted their work. He noted inconsistent tendencies in the cases and also observed a pattern in which many of the children claimed to remember a past life in a higher station, such as a more prosperous family or one from a higher caste. Stevenson

(2001), however, reported that while many of the children in India who described past lives in socioeconomic conditions that were substantially different from their own claimed to have lived in better conditions previously, a third of them described worse conditions in their past life. One example was a girl in India named Swaran Lata, who was born into a middle-class Brahmin family. She was one of the girls mentioned earlier who reported memories of being a sweepress, and she happily cleaned up the feces of younger children. She also resisted going to school, saying, "We are sweepers. Nobody studies in our family, and I never sent my children to school" (Pasricha & Stevenson, 1977, p. 38).

Both Rogo (1985) and Angel (1994) criticized Stevenson's handling of particular cases but reached very different conclusions. Rogo stated that, despite various concerns, Stevenson's best cases tended to hold up well and were compelling. Angel, writing in *Skeptical Inquirer*, focused on one of Stevenson's early cases from *Twenty Cases Suggestive of Reincarnation*, a little boy named Imad Elawar, whose case was complicated by "baffling complexities," as Stevenson himself noted. This atypical case had the advantage of Stevenson's documentation of the child's statements before the previous personality was identified, but it was complicated by Stevenson's conclusion that his statements about an automobile accident referred not to the previous personality, as the boy's parents had thought, but instead to the death of a relative of the identified previous personality. Angel had various criticisms, to which Stevenson (1995) was given only limited space to respond. Angel had written that the verification of many of the facts in the case hinged largely on one witness he felt was unreliable. Stevenson pointed out that although Angel had written that the man was the verifier of twenty-eight items, he failed to state that Stevenson made a second trip to Lebanon in order to interview additional informants, leaving only five of those twenty-eight items dependent on the first informant's testimony. An analysis of Angel's complete critique and Stevenson's full response is available online (Barros, 2004).

Philosopher Paul Edwards (1996) devoted a chapter to Stevenson's work in a book critical of reincarnation. The chapter was marred by Edwards's occasional tendency for name-calling, along with a first page where he managed to misquote one reference and misstate the journal name for another. Despite that, he raised some legitimate concerns about the work. He criticized the dearth of Western cases, a reasonable point at the time but now invalidated by subsequent studies. He also questioned Stevenson's methodology based on criticism from one of Stevenson's former associates. Champe Ransom worked with Stevenson in the 1970s and wrote a critique for him at one point that detailed concerns he had about the research. Ransom gave Edwards a summary of that critique, reviewing what he saw as methodological flaws,

including the use of leading questions during interviews as well as periods of questioning that were too brief and occurred too long after the primary events of the case. He thought that Stevenson didn't show adequate concern about the children's inclinations for storytelling and didn't adequately investigate what the children's playmates knew about the events in question. He also thought Stevenson neglected potential distortions of memory among the witnesses who related the events of the cases.

Almeder (1997) pointed out that none of Stevenson's richer, verified cases included the sorts of methodological problems that Ransom cited. Some of Ransom's concerns have also been specifically addressed by subsequent work. The children's tendency for storytelling (or at least their suggestibility) has been assessed by Haraldsson, who found that the children in these cases from two different cultures did not confabulate more than their peers on a test of suggestibility (Haraldsson, 1997, 2003; Haraldsson, Fowler, & Periyannanpillai, 2000).

More critically, as more cases have been studied that include documentation made before the previous personality was identified, concerns about poor questioning by investigators, storytelling tendencies by children, or faulty memories of witnesses become irrelevant. Thirty-three such cases had been studied by 2005 (Keil & Tucker, 2005) and more since. They demonstrate that children's claims about a life in the past can be recorded and then verified to be accurate.

Possible Explanations for the Cases

Any effort to explain this phenomenon must take into account the different lines of evidence in the cases: the knowledge about the past life the children show, the ability of some of them to recognize people or places from that life, the birthmarks and birth defects in some cases, and the behavioral and emotional aspects many of the children demonstrate. As the mixed reactions to this work indicate, such efforts fall into two groups: those that reject the validity of the cases and those that accept them as valid. Attempts to explain this evidence away in conventional terms have typically invoked methodological issues of the sorts above to suggest the cases may be produced by fraud, fantasy, acquisition of information through normal means, faulty memory by informants, or some combination thereof.

Regarding fraud, cases that were determined to be hoaxes have occurred on rare occasions (Stevenson, Pasricha, & Samararatne, 1988). But there is no evidence—or reason to think—that fraud is involved in significant numbers. The families typically have little or no motivation for inventing the stories, as the vast majority have no hope of gaining any benefit from them, material or

otherwise. Although occasional American families seem to enjoy the prospect of publicity about their cases, most of them insist on absolute confidentiality. As a practical matter, a lot of the cases involve multiple witnesses who would have to be part of a conspiracy, and many also include information from the child that the families would have no way of knowing.

Another possibility to consider is that the children are merely fantasizing about another life. In cases in which the information provided by the child is unverified—that is, when no previous personality has been identified whose life matches the child's statements—there is indeed little evidence to ensure that the children's claims are not fantasy. This explanation, however, clearly fails for the hundreds of cases in which the child's statements are in fact verified. For those, coincidence would need to be added, the idea being that the child's fantasies just happened to match the life of a previous personality by chance. Precise odds for this cannot typically be quantified for a case, but in the most detailed cases the specificity of the statements, along with the large number of them, argue strongly against such an explanation.

A third possibility to consider is that a child who gives accurate details about a previous life gained knowledge about that life through ordinary means, such as overhearing people talk about it. When the previous personality is a deceased family member or part of the local community, this possibility warrants serious consideration. In such cases, the families at times feel their children provided details about events from the life that they could not have learned about through normal means, but there is usually no way to exclude the possibility. For cases involving a previous personality unknown to the family who lived and died some distance from them, however, such an explanation is clearly not sufficient.

An explanation that requires more serious consideration is the possibility that the children did not demonstrate as much knowledge about the previous life as their parents later recall they did. Stevenson (2001, p. 154) wrote that if he were going to coach a critic of these cases, he would advise concentrating on evidence of the unreliability of the informants' memories. Clearly, this explanation wouldn't cover the birthmarks and birth defects, which are still there to be seen, but it could be used to challenge any statements the child made about the previous life that were not documented before the previous personality was identified.

In this scenario, children, particularly those from cultures with a belief in reincarnation where they are encouraged by their parents, fantasize about a past life. The parents then find a family with a deceased member of the same general description. The two families exchange information and, following that, come to believe the children had previously expressed more accurate and more specific details about the past life than they in fact did (Brody, 1979).

Alternative interpretations are possible, however. For example, Roll (1998) agreed that the children's memories, birthmarks, and birth defects often match the previous personality too well to be accounted for by mere chance but postulated that the birthmarks and birth defects could be caused by a psi process involving only living persons rather than a surviving previous personality. This would be through a mechanism of telepathically derived maternal impressions.

"Maternal impressions" refers to the idea that a stimulus during and perhaps even before pregnancy—a stimulus that had a significant psychological impact on the future mother, such as the sight of a deformed individual—could cause a corresponding birthmark or birth defect on the child (Stevenson, 1992). It largely faded in the late nineteenth and early twentieth centuries since such a process conflicted with accepted scientific concepts. Telepathic impressions involve changes in one person induced by someone typically at a distance (Stevenson, 1970). Along with the thoughts usually involved in telepathy reports, impressions or feelings, it is believed, can be transferred as well, so, for example, someone might experience physical symptoms that match those of a loved one experiencing some medical event at the same moment.

Roll suggested that cases of maternal impressions—transfers of a mother's mental images to her fetus—are similar to ones of telepathic impressions, except for the much smaller spatial distance between the two individuals. This raised the question of whether extrasensory perception is the source of maternal impressions. If so, the mother need not have seen the critical image of the defect herself. It could become lodged in her mind after someone she was emotionally connected to saw it. Alternatively, Roll said, this other person could affect the developing fetus directly rather than through the mother, again by telepathy.

Stevenson (1999a) responded that the cases involve much more than just the transfer of information, whether cognitive in the form of memories or more purely biological in the form of birthmarks or defects. Along with those, most of the children manifest attitudes and purposes of the previous personality. Stevenson cited the example of Chanai, described earlier, who showed proprietary attitudes toward the previous personality's possessions and who expected members of the man's family, especially his children, to treat him with respect as an adult and father. Stevenson argued that many of the cases show evidence of continued purpose, suggesting survival rather than paranormal communications.

Looking at the overall phenomenon, if the strongest cases are valid (as they appear to be), they would seem to require a nonphysicalist explanation. If one accepts the cases but tries to argue from a physicalist side that memories are encoded in some sort of material carrier that leaves the dying body

and exerts an influence on the biological and psychological development of a subsequent life, the scenario quickly conflicts with current physicalist understandings. What material process could conceivably include disembodied memories that continue to exist for decades before reemerging in a child born hundreds of miles away?

The nonphysicalist alternatives are psi-based interpretations that can be broken down into two competing types, as they are with other similar phenomena: living-agent psi (LAP), on the one hand, versus survival of bodily death, on the other. Two authors who have explored the LAP hypothesis extensively are Griffin (1997) and Braude (2003). Griffin stated that it was hard to deny that some form of paranormal explanation is needed for the cases, and he approached them from the perspective of Alfred North Whitehead's process philosophy. He considered an LAP interpretation he called "retroprehensive inclusion," a term that indicates prehending (or taking in) the experiences of someone's life in the past. His exploration was detailed and complex and bears consideration, but, in brief, one summarizing point he made was that since all of the good evidence for reincarnation involved souls whose bodies had died, this strongly suggested that bodily death causes a change that makes reincarnation possible. In his view, this supported a theory of literal reincarnation, in which a soul continues to have experiences after separating from a body, over any LAP theory, including retroprehensive inclusion.

Likewise, Braude concluded in his thoughtful analysis that the best reincarnation cases raise a major problem for the LAP hypothesis. He said that explaining them with LAP might require either implausibly successful psychic links between a child and multiple sources of information or even more implausible psi on the part of the parents, which would involve not only information gathering but also telepathic influence over the child.

Keil (2010) argued that most (perhaps all) cases can be fitted into a framework of psi rather than reincarnation or survival. He presented the example of an unpublished case he investigated in Turkey. A boy gave few details about his past life except for his previous name, which matched that of a nine-year-old boy who had died in another village seven miles away. When he was taken to the home of the previous boy, he failed to recognize anyone or to answer any questions about his life, leading the boy's relatives to reject him as the rebirth of their deceased family member. He also said, however, that he remembered where he had collected water from a well and carried it to his house some distance away. The well was no longer in use and the path to it no longer visible, and yet the boy found it with little hesitation or help.

Keil (2010) used this case to ask whether some of the children have paranormal information but are not rebirth cases. He proposed a framework of "pre-personality psychic absorption from a past life" (p. 84), meaning that at

a very young age, before developing a personality structure with boundaries, a child absorbs information that persisted from a past life. He suggested that "thought pools" or "thought bundles" might persist for some time after a person dies. He viewed the enduring entity as not just a fixed printout, but rather a container with information that can respond in various ways depending on how the child connects with it. He thought it would not have awareness of its surroundings or the ability to generate new thoughts, so it would be viewed as persistence rather than survival. That persistence might include getting attached to objects, localities, people, or situations, leading eventually to a connection with the child.

Nahm and Hassler (2011) responded and, building on the work of Griffin, Braude, and others, raised a number of objections. Among them, they considered the establishment of the link between the thought bundles and the child. They asked who would select the link—who is active and who is passive—and how the children would develop such strong identifications with the thought bundles. They also wondered why, in a cohort of forty-two cases involving twin pairs, there was not a single case in which both twins absorbed the same thought bundles and recalled the same life (Stevenson, 1997a). In addition, they discussed the issue of memories from the intermission period between lives, pointing out that there have been numerous reports of apparently veridical perceptions, and wondered how those perceptions could be attached to the thought bundles of a dying person.

Stevenson (2001) also considered the possibility of psi-based explanations not involving survival. He pointed out that children in the cases rarely show any extrasensory perception abilities apart from their past-life memories.[3] He also noted the behavioral features of the cases and the strong emotion the children can show in response to stimuli related to the previous life, such as tears after receiving bad news about previous family members or, in one case, clapping with joy on learning that the previous personality's killers had been hanged. He argued that some of the children showed a syndrome of behaviors that essentially amounted to a facsimile of the previous personality and stated we have no grounds to think a process of paranormal cognition could produce that.

He also pointed out the issue of birthmarks and birth defects. He acknowledged that advocates of a psi explanation might cobble together the concepts of extrasensory perception and maternal impressions to produce an interpretation that does not require survival. But as in his reply to Roll, he noted such an interpretation would have difficulty explaining the intense identification of the child with the previous personality: the mother would have to acquire information about the previous personality by telepathy and then impose on

her child not just the physical marks but also the memories and behaviors the child demonstrates. In his view, such a scenario was not believable.

In the same discussion, Stevenson, though acknowledging flaws in the cases, said he thought reincarnation was the best interpretation for some of them. These included in particular ones in which the two families involved were previously unknown to each other and for which a written record was made of the child's statements before they were verified, two cases of monozygotic twins in which the twins had divergent memories of previous lives and showed behaviors consistent with these memories (Stevenson, 1999b), and cases in which a medical record showed a close correspondence between a child's birthmarks or birth defects and wounds on the body of the previous personality.

That seems to be a fair summation of where the work stands. Regardless of whether we use the term "reincarnation," "survival after bodily death" fits the evidence better than the alternative explanations. Although many of the weaker cases can be plausibly ascribed to conventional processes, the group of strongest cases cannot be. And attempts to explain them with psi-based interpretations other than survival appear to be inadequate. The findings from the CORT work combine with those in a number of other areas, as outlined in *Irreducible Mind* (Kelly et al., 2007), to demonstrate the need for a post-physicalist conceptual framework that can incorporate the results into a larger understanding of reality. Steps in that direction are included in *Beyond Physicalism* (Kelly, Crabtree, & Marshall, 2015) and the following parts of this volume. Such a framework should at least allow for some type of continuation of experience after bodily death, one in which memories and emotions from a life that has ended become associated with a subsequent life. These memories and emotions exist along with the apparent ability to encode observations or experiences during the interval between the two lives and the continued ability to recognize people and places from the prior life. Such a continuation clearly challenges us to reach toward new understandings.

NOTES

1. He also published a shorter synopsis of the two-volume set (Stevenson, 1997b).
2. James said that when he first found his parents, they were eating dinner on the beach at a large pink hotel in Hawaii, something they in fact had done during their first week of trying to get pregnant. James was conceived a couple of months later. Ryan gave details about the day his mother learned the sex of her baby, accurately describing how much she cried since she very much wanted a girl.
3. There are exceptions, however, including Ryan's case.

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3

PRECOGNITION

Bob Rosenberg

> Surely, therefore, ignorance of future evils is more advantageous than knowledge of them.
>
> —Cicero, *De Divinatione*[1]

> The only thing that makes life possible is permanent, intolerable uncertainty: not knowing what comes next.
>
> —Ursula Le Guin, *The Left Hand of Darkness*[2]

> It is quite fortunate . . . that we can know nothing of the future. Because, truly, not knowing the future is one of the reasons for living.
>
> —Charles Richet, *L'avenir et la prémonition*[3]

> I never said it was possible, I only said it was true.
>
> —William Crookes, *Researches in the Phenomena of Spiritualism*[4]

The problems of precognition are restricted largely to a simple set of topics:[5] time, causality, and free will. Each of these subjects has a rich history of philosophical argument stretching back millennia; not surprisingly, those arguments have almost never mentioned, much less accounted for, precognition. Nevertheless, the past century and a half has provided a rich collection of varied evidence that has laid an empirical foundation for thinking about this thorny triad, and as a result, a number of thinkers have seriously approached them with precognition in mind.

In order to move ahead with a serious discussion about precognition, we are accepting its reality. The evidence for its existence is overwhelming. The

case for precognition has been carefully and convincingly made several times at this point, partly through reviews of collected cases and partly from the experimental work of the past half century (e.g., Barušs & Mossbridge, 2017; Dunne & Jahn, 2003; Jahn & Dunne, 1987; Mossbridge & Radin, 2018b; Radin, 2006a, 2016; Rosenberg, 2016; Roy, 1990; Targ, 2012; Targ, Katra, Brown, & Wiegand, 1995; Wargo, 2018).

Precognition, or prophecy, has a history as ancient as humanity's written record. But when the systematic study of psychical phenomena began in the last quarter of the nineteenth century, the British researchers at the heart of the Society for Psychical Research were reluctant to admit it to the catalog of common things.[6] Eleanor Sidgwick (1889), perhaps the most critical intellect among the founders, felt that precognition involved "new and vast difficulties peculiar to itself" that made it far more difficult to accept than telepathy or clairvoyance (p. 289). In the next decade, Frederic Myers (1895a, 1895b) presented a reasonable case for both retro- and precognition, but he found no way, in thinking about precognition, around the "iron collision between Free Will, and 'Fixed Fate, Fore-knowledge absolute,' from which no sparks of light have ever yet been struck" (1895a, p. 337).[7]

Several researchers collected cases as the twentieth century wore on, and the evidence for spontaneous precognition quietly piled up (Rosenberg, 2016).[8] The British aeronautical engineer J. W. Dunne (2001), in *An Experiment With Time* (originally published in 1927), detailed his own precognitive dreams. The book drew wide attention in scientific and literary circles, but it was swimming against a tide of behaviorism and materialism, and its impact faded despite an attempted replication a few years later (Besterman, 1933).

Moreover, with the systematic laboratory work begun by J. B. Rhine in the late 1920s, attention turned largely away from spontaneous cases as scientific evidence.[9] Unfortunately, whatever "proof" regarding precognition came out of the laboratory, it was stripped of the human context, rich detail, and psychological information that makes spontaneous cases so compelling for both the investigators and the people who experience them.[10] And although it seemed easy to set up a laboratory experiment in which a subject attempted to foresee a forced-choice target[11] or list of targets before the target was ever generated, in fact it turned out to be anything but easy to ensure that precognition was behind the results. In 1982, when a leading parapsychologist wrote an article about the laboratory work, he titled it "Assessing experimental support for true precognition" (Morris, 1982). Morris used "true" in the context of the laboratory experiments, where some mix of psychokinesis, telepathy, and clairvoyance might have masqueraded as statistically observed manifestations of precognition (Honorton & Ferrari, 1989, p. 283).[12]

There is no such ambiguity, however, in a report such as this one:

> I was going to spend the day with my sister at Roehampton, and the night previous, just as I was going to sleep, I was startled by a vision before me of the carriage, which was to meet me at Mortlake Station, being upset in the road close by her house. This quite woke me up, and I tried to forget it, but on going off to sleep again the same vision returned, exactly as at the first, and I then began to feel very nervous about my visit of the next day; but eventually I went to sleep, and it did not come back to my mind. When I woke in the morning it was as a dream, quite gone.
>
> I went by train to Mortlake, and had to wait at the station for a few minutes. Then the groom drove up quickly with a pony carriage, and apologised for the carriage not being there, but the order had not been given in time to get it ready.
>
> Everything went on smoothly till we were driving up the lane to my sister's house, when the horse became very restive, the groom got down, but could find nothing wrong, so we went on; this happened a second and a third time, but when he was examining the horse for the third time my vision of the night before suddenly came back to me, and I told the groom I would get out and walk to the house; he tried to dissuade me, but I felt nervous and insisted upon walking, so he drove off by himself, and had only got a very short distance from me when the horse became quite unmanageable. I hurried on some men in the road to help him, but before they reached him the carriage, horse and groom were all in a confused broken heap in the hedge, just as I had seen it the night before, though not exactly in the same spot. The groom managed to extricate himself, but when I got up to him he said he was so thankful I insisted upon getting out, for he could not possibly have saved me from a dreadful accident.
>
> I had no fear of horses. I should certainly not have left the carriage but for the forewarning of the previous night. (Sidgwick, 1889, pp. 313–314)

Or this one, challenging no matter how it is interpreted:

> Over 20 years ago I was working as an investigator for an investment insurance company. As our company insured cars and trucks I made enemies in the underworld. In consequence I usually had a good firearm within reach. One morning I was awakened at 4:00 A.M. by a policeman who was a close personal friend. The guy looked like he had seen a ghost. He asked me to loan him my pet pistol, a 44 calibre Smith & Wesson special. He handed me his own gun, a 38 Colt police, saying, "For God's sake don't carry this gun. I can't tell you why. You would think I am crazy."
>
> About 10:00 A.M. that same morning I received a call to the Memorial Hospital. My policeman friend had stumbled into a hold up. He had killed two hoodlums and wounded a third with five shots from my 44 before suffering a minor chest wound himself.

Jahn, 2003, p. 207). There were many earlier spontaneous cases (e.g., Myers, 1895a, pp. 379–389; Osty, 1923, pp. 104–109) that sound like remote viewing, without the formal protocols that SRI and PEAR developed. Stephen Braude (2011) observed that "some ganzfeld and remote viewing hits . . . are so spot-on or so reliable that it's simply absurd to attribute the successes to chance" (p. 5).[16] In other words, precognition research has reached the stage where experiments don't need to prove that the phenomena are real. They can probe the how and wherefore.

Another branch of recent experimental research has also yielded remarkable results. In the 1990s, Dean Radin inaugurated a series of presentiment[17] experiments, laboratory work in which subjects view varied, emotionally loaded images—peaceful, neutral, erotic, violent—on computer screens and their psychophysiological *anticipations* are measured before the images appear (actually, before they are selected!). The effects, which generally appear a few seconds before the stimulus, are not large, but they are consistent and replicable. A meta-analysis (Mossbridge, Tressoldi, & Utts, 2012) of some three dozen studies that used photographs, flashes of light, loud sounds, and other potentially evocative events revealed staggering confirmation, leaving no doubt of the reality of the phenomenon (see also Bem, Tressoldi, Rabeyron, & Duggan, 2016; Mossbridge & Radin, 2018a).

Although presentiment experiments do not carry the gut-level psychological impact of, say, viewing a secret National Security Agency facility located by latitude and longitude, their announcement to the world was a boulder dropped into the limpid metaphysical pool of modern materialist science. Daryl Bem (2011), an internationally renowned social psychologist, published a paper in the respected *Journal of Personality and Social Psychology* extending Radin's work. The *New York Times* noted the scheduled publication of the article, and publicly visible intellectuals of all stripes, from cognitive scientist Douglas Hofstadter to astrophysicist David Helfland, declared Bem's work the "end of science" (Braude, 2011; Cardeña, 2015; Dossey, 2011; Mossbridge & Radin, 2018a; Mossbridge et al., 2014). Sadly, it was more true that "the often shrill and ill-informed criticisms of the study reflect[ed] stupidity, conceptual panic, dishonesty, or intellectual cowardice within the scientific establishment" (Braude, 2011, p. 1).

The paper was published. Science did not end. However, psi research wasn't suddenly institutionalized in university departments and laboratories, either.

THEORIES

The greatest obstacles to precognition are not evidential—they are conceptual.[18] How are we to understand the perception of something that has yet to

happen? How are we to reconcile the possibility of perceiving that something and yet having the free will to change it? How are we to reconcile the logic of changing that something and thereby eliminating the very thing perceived? Why does precognition happen at some times to some people and not at other times or to other people? Why does it sometimes involve burning houses or disasters and other times trivial or seemingly meaningless episodes? These quandaries have befuddled thinking about precognition for thousands of years. (Of course, the human race used fire for hundreds of thousands of years without understanding combustion—but we did slowly better understand how to create and use it.)

Any theory must cover not just the laboratory work but also the spontaneous cases, many of which contain puzzles not to be found in the laboratory. We have strong cases in which the perceived future is apparently averted (Rhine, 1955; 1961, pp. 175–189).[19] This one, first used by Myers (1895b), was subsequently pointed to by others to illustrate the possibility of intervention as a result of precognition:

> On the second occasion my warning in dream did probably prevent a rather serious accident. We were living in about 188—, in Hertford-street, Mayfair. One day I determined that on the morrow I would drive to Woolwich in our brougham, taking my little child and nurse, to spend the day with a relation. During the night I had a painfully clear dream in vision of the brougham turning up one of the streets north of Piccadilly; and then of myself standing on the payment [*sic*] and holding my child, our old coachman falling on his head on the road,—his hat smashed in. This so much discomposed me that when in the morning I sent for the coachman to give him his orders, I almost hoped that some obstacle to the drive might arise, so that I might have an excuse for going by train. The coachman was an old and valued servant. I asked him if he would have the carriage ready to drive to Woolwich at ten. He was not given to making difficulties; but he hesitated, and when I suggested eleven instead, he said that he would prefer that hour. He gave no reason for his hesitation and said that the horse was quite well. I told him almost eagerly that I could quite well go by train; but he said that all was right.
>
> We went to Woolwich and spent the day. All went well until we reached Piccadilly on the return journey. Then I saw that other coachmen were looking at us; and looking through the glass front of the brougham I saw that the coachman was leaning back in his seat, as though the horse were pulling violently, of which, however, I felt no sign. We turned up Down-street. He retained his attitude. My dream flashed back upon me. I called to him to stop, jumped out, caught hold of my child, and called to a policeman to catch the coachman. Just as he did so the coachman swayed and fell off the box. If I had been in the least less prompt, he would have fallen just as I saw him in my dream. I found afterwards that the poor man had been suffering from a serious attack of diarrhœa on the previous day, and had gradually fainted from exhaustion during the drive

> home. He was absolutely sober; and his only mistake had been in thinking that he was strong enough to undertake the long drive. In this case my premonitory dream differed from the reality in two points. In my dream we approached Down-street from the west; in reality we came from the east. In my dream the coachman actually fell on his head; the crushing of his hat on the road being the most vivid point of the dream. In reality this was just averted by the prompt action which my anxious memory of the dream inspired. (p. 497)

There are at least two ways to think about such a situation. On the one hand, we can say that the percipient saw a probable future, one that was averted by her action, as a result of which the world took a different path. But another way to look at it is that the percipient subliminally apprehended the coachman beginning to fall and completed the image with the perfectly reasonable expectation that he would fall all the way to the street. It is significant in this regard that the coach was going the wrong way on the street, just as the carriage taking the woman to her sister's house was not upset in the location foreseen the night before. If we are going to have our lady's intervention with the coachman's fall take us down a different possible future in which everything up to the intervention was as foreseen, where does the wrong direction of travel on the street enter the picture? That happened before any intervention on her part. Do we need the different future to begin with the coachman's decision to take a different route, one that led to the coach turning onto the street in the direction it did? The idea of a partially constructed precognition seems to fit better: our lady perceived the fall but supplied both the direction of travel and the conclusion. It is in fact extremely difficult to find a spontaneous case that cannot be explained by a subliminal prevision, augmented as it is brought to conscious awareness by the fears or expectations of the percipient. Both G. M. N. Tyrrell (1953, pp. 101–102) and Louisa Rhine (1955, p. 30) discussed the construction of psi impressions from subliminal veridical information and the psyche of the perceiver. In nearly every case of apparent intervention, it is not hard to construe the averted part of the vision as having been supplied by the perceiver.

There seems often to be an unspoken, unreasonable burden on precognition in that it is expected to be filmlike in its literal representation of the future. If that expectation is removed and precognitions are, like apparitions or other telepathic impressions, acknowledged to be partially accurate and partially constructed by the percipient, much of the concern about possible or averted futures evaporates.

But then we have a few previsions that leave little room for interpretation and that do seem very filmlike:

> While still living in Brunswick Square I had a strange experience. I slept in a very small bedroom, if I stretched out my arm in bed I could just touch a chest

> of drawers. I woke one morning, lying facing this chest of drawers. I was wide awake: suddenly the room changed: I was facing a large fireplace in front of which stood two men, both dark. They kept turning in my direction and I noticed what beautiful teeth one of them had. They were talking but I could hear no sounds. Then a fair man, whose face I could not see, walked across between them and me. I was so anxious to see him that I jumped out of bed, knocked my head on the chest of drawers and everything disappeared. I told everyone at breakfast, and my family when I went home. Years after I went back to the station in Central India where I had lived as a child. The evening after I arrived I went to the Club. As I went in, the same two dark men were standing at the same fireplace just in the same positions—then the fair man walked across. I started forward to see him and knocked into a man who laughingly asked why I was so eager! I found out afterwards that the two men had been boys at Eton at the time of my vision and the Club house not built. It was all absolutely unimportant which makes it all the more strange that it should have occurred. I wrote home at once and told my family. (Lyttleton, 1937, pp. 121–122)

This episode (which I will refer to as the "bright smile") is evidentially rich for several reasons. First, it is finely, accurately detailed—what Herbert Saltmarsh called "a rent in the veil," as opposed to a vague premonition or half-correct dream.[20] Second, it is a prevision of an event years in the future. And, third, as the percipient so observantly said, it is "all absolutely unimportant which makes it all the more strange that it should have occurred." The utter triviality of so many recorded precognitions is confounding[21] if we would like previsions to be of significant events—something significant enough to be worth the trouble to precognize, significant enough to cast its shadow before. (Saying it is significant because it was precognized simply begs the question.)

There have been a few serious, specific attempts at a theory of precognition. Most have drawn on physics to describe time in a way that afforded a perspective on the future.[22] J. W. Dunne (2001), in his *Experiment With Time*, developed a model that allowed a view of time from an added (fifth) dimension, but that addition led to an infinite regress, as C. D. Broad (1953) pointed out. Despite any failings, though, it was a thoughtful attempt and attracted attention across Western culture, from novelists and playwrights to philosophers. Broad (1953), in rejecting Dunne's idea, proposed multidimensional models, and since then there have been a number of others that cosmologist Bernard Carr (2015a, 2015b) surveys in developing his hyperspatial theory. An advantage of extra dimensions is that events separated by space or time in our normal three-dimensional world can be contiguous in the higher ones, just as two-dimensional paper can be folded through the third. The question for all these models, no matter how internally consistent, is how they connect multidimensional location in space and time to human perception or consciousness.

Physicist Ed May, who took over the remote viewing work of Targ and Puthoff in the 1980s, worked with psychologist Sonali Marwaha to develop a theory they called the multiphasic model of precognition. They argue for a fundamentally mechanistic model that has two parts: one physical that covers the acquisition of information and one neurobiological that covers the bringing of that information to conscious awareness. "Right from its inception," they write, "the SRI-SAIC program has taken a physicalist position." They deliberately declare that "there is absolutely *no* mention of terms such as consciousness (except stray references to consciousness as a general term), non-local consciousness, spirituality, dualism, or religion in the SRI-SAIC reports" (Marwaha & May, 2019, pp. 2–3; see also, e.g., May & Marwaha, 2015, Vol. 2, Chapters 1, 6, 7, 10, 15).

In the early twentieth century, quantum mechanics both dematerialized the physical world and (in some interpretations) required an observer—consciousness in some form. Those developments have been very attractive to parapsychology, and for half a century theorists have been trying to understand how they might connect (e.g., LeShan, 1974; Oteri, 1975; Radin, 2006a; Stapp, 2007, 2015). There have been countless attempts to square precognition with the more abstruse, time-bending habits of quanta and cosmos, a recent example being Sheehan (2015) or even Radin (2015, p. 322).[23] But it is one thing for physics to admit a need for mind and quite another for it to *explain* mind. Modern science/physics from its inception deliberately excluded mind as an object of study—and has sometimes even denied its existence. Marshall (2005) said, "Physics was the route by which mind was excluded from conceptions of the world at large, and physics may be the route by which mind finds its way back in" (p. 278). But only the most remarkable serendipity could lead such a restrictive system to provide deep insight into that aspect of the world it originally abandoned. It seems clear that any physicalist interpretation of precognition is bound to be incomplete at best. The two previous books in this series, *Irreducible Mind* and *Beyond Physicalism*, have made that point repeatedly about consciousness in general.

Another aspect of Marwaha and May's (2016) theorizing is the notion that all psi phenomena can be reduced to precognition, an assertion I find contradicted by the evidence. The psi literature shows that the labels we use—telepathy, clairvoyance, precognition, and even psychokinesis, cases of the reincarnation type (CORT), and survival research—are perhaps convenient but not, finally, limiting. They shade one into the other; there are no firm boundaries any more than there are between colors in a rainbow (which is why not all the cases I cite are necessarily strictly precognitive). Still, red is not green; differences in degree become differences in kind, and clairvoyance and precognition, for example, are sometimes easily distinguished, even if related.

> In consequence, and quite contrary to my custom, I arranged to take my children for a short walk, without their nurse accompanying me, and as their favourite walk was up Nightingale-lane, (Holland-lane), past another lane enclosed by the high walls of Argyll Lodge, the residence of the Duke of Argyll, I agreed to take them there, and when we arrived at Argyll Lodge, what was my horror to see on the roof of the coach-house the very monkey of my dreams! In my surprise and terror, I clasped my hands and exclaimed, much to the amazement of a coachman waiting outside, "My dream! My dream!"
>
> This I suppose attracted the attention of the monkey and he began to come after us, he on the top of the wall, we beneath, every minute I expecting he would jump upon me, and having precisely the same terror I experienced in my dream. One of my children being very young we could not go fast, which added to my distress, but we succeeded in escaping it, and on my return home I sent a servant to enquire if a monkey had been seen there, for my state of nervousness was extreme. She was informed that that morning a rare and very valuable monkey belonging to the Duchess had got loose, and so the incident was explained. But my dreaming of it previously remains unexplained. (Myers, 1895b, pp. 488–489)

This kind of causal loop might offer a helpful way to think about cases like the pistol that failed after two shots or the dreamed debt (below). But it falls woefully short in elucidating so many, and I'm afraid that, even apart from his reliance on a materialist metaphysics, the clear, ingenious theoretical side of Wargo's work is inadequate. Any hypothesis regarding precognition, no matter how beautiful, must defend itself against ugly facts.

TIME

> What, then, is time? I know well enough what it is, provided that nobody asks me; but if I am asked what it is and try to explain, I am baffled.
>
> —Saint Augustine, *Confessions*[26]

Much ink has been spilled over the years about time's many facets, the many ways it presents itself to human beings. Two sprawling collections have been published in the past decade about the philosophy of time (Bardon & Dyke, 2016; Callender, 2013). It is hardly surprising that neither has a word to say about precognition.

Although precognition requires a sense and model of time that is nonordinary, our normal experience of the world requires that our discussion generally use conventional language.[27] When we are looking at precognition, we are looking at the relationship of psi to time. The difficulty of pinning that relationship down is evident in the first great work of the Society for Psychical

Research, *Phantasms of the Living* (Gurney, Myers, & Podmore, 1886). Cases are detailed that occurred across a twenty-four-hour span, twelve hours before to twelve hours after a crisis—usually a death—and if anything is clear, it is that there is no differentiating across that span. The authors interpreted the phenomena as telepathic, delayed or slightly in advance of the actual event, but as cases have been collected over the years, it has become evident that there is no differentiating across a much larger span of time—retrocognition and precognition reach across days, months, and years.

The greatest coherent challenge to a theory of precognition has to do with the demands it puts on our everyday conception of time and, with it, causality. Simply put, how can something in the future—something that hasn't happened yet—have an effect on the present? The question is framed from a simple, commonsense point of view, a commonsense definition of time. It takes as a given that time flows forward, that the past is gone and fixed, that the present is wherever we are right now and is constantly moving, and that the future is still unformed and yet to take shape—que sera, sera. But precognition tells us that thinking this way about time is fruitless. Every serious investigator of spontaneous precognition has come to the same conclusion. (This is not arguing from authority;[28] it is arguing from experience.)

> As we get some further glimpse into the laws which underlie our varied phenomena, we see more clearly that retrocognition and precognition . . . cannot safely be set aside as isolated problems. . . . Their relation to time is as unknown to us a priori as is their relation to space or to physical causation. (Myers, 1895a, p. 336)

> What we can say, with some confidence, is that our ordinary idea of the nature of time is clearly inaccurate, and that the odd and bizarre phenomenon of precognition must make us prepared to accept radical, and possibly fantastic-seeming, modifications of it. (Saltmarsh, 1938, p. 101)

> It is very hard to resist the view that the subliminal self exists outside temporal conditions as we know them, or, at any rate, exists in a different kind of time. Time, as we know it, may be a special condition applying only to the physical world or to our conscious appreciation of it. . . . Perhaps we ought to try to understand some of the characteristics of the subliminal self before tackling the problems of time and precognition. (Tyrrell, 1946b, p. 96)

> In a world governed by the causal and temporal principles as presently conceived, it is sufficiently difficult to figure out a way by which a nonexistent future event could cause a present one, without also trying to account for its possible avertibility. . . . Such redefining would seem to necessitate the altering

> of established concepts of causality and time, and that need may be the heart of the present difficulty. (Rhine, 1955, p. 32)

> Thus true precognition may occur and may require some of the more recondite explanations that upset our habitual notions of causation and time. (Stevenson, 1970, p. 196)

> If the facts of precognition are in conflict with our customary ways of thinking about time, then our ways of thinking about time need changing. (Thouless, 1972, p. 140)

> If we accept . . . that experiences involving precognition do occur it follows logically that we must abandon the concept of one-dimensional time . . . , i.e. time as represented by a straight line, with the past behind us, the present as the moment in which the eye and brain take in what is written here, and the future as all that stretches before us. (MacKenzie, 1974, p. 146)

In one marvelously confounding episode at SRI, a talented psychic (Pat Price) sat in the laboratory in 1974 with the experimenter (Russell Targ), while two other experimenters traveled to the target destination: a public swimming pool complex (Rinconada Park) about five miles away (Targ, 2012, pp. 60–63). When the time came for Price to describe the target, he described much of it accurately but went on to call it a "water purification plant." He drew nonexistent storage tanks and machinery. Targ assumed that Price had layered his own interpretation onto the existing pools of water, which remote viewers sometimes do.[29] Twenty years later—long after Price had died—Targ "was stunned to read" in a newly published centennial celebration of Palo Alto that "'in 1913 a new municipal waterworks was built on the site of the present Rinconada Park.' The photograph . . . [showed] two water tanks exactly where Price had drawn them! Rinconada Park had only replaced the water treatment plant in 1922" (p. 61). In this case, Price had described something long gone, without any psychological differentiation from his descriptions of present or future targets.

There are several ways to approach this incident. One way is to consider that the photograph Targ eventually saw was already in existence and that Price somehow accessed that image. Another is that there were certainly people who remembered the water purification plant, and Price somehow accessed their memories. Yet another is to adopt the stance that there is some sort of permanent record of just about everything (the "akashic record," or collective memory), accessible to certain people under certain conditions.[30] But what seems simplest is that Price just saw the park at the wrong time. This is something that happened occasionally in remote viewing when the

instructions to the viewer were not specific enough, and it has happened to other sensitives as well (e.g., Osty, 1923, p. 224). If the viewers sometimes cannot detect any telling difference in the perception of past, present, and future, why should we insist that the difference exists?

Imants Barušs and Julia Mossbridge (2017, pp. 53–81) incorporate the rogue phenomena of psi—particularly precognition—into an exploration of time. Based on the reality of subjective experience, they

> assume that conscious awareness of subjective time has its own validity, without assuming anything about the nature of physical time outside of conscious awareness. With such an assumption, we can investigate apparent subjective time independently without worrying about whether what we are examining is illusory relative to a physicalist framework. (p. 60)

For physicists, relativity theory produces a spatialization of time expressed in the block universe. Three dimensions of space are joined by a fourth dimension of time. The result is a static model of reality, with the past, present, and future determined and unchanging. The ramifications and implications of this model have led to considerable debate (Barušs & Mossbridge, 2017, pp. 55–56). There are also psychological situations—altered states—in which time is spatialized; that is, it is perceived in a two- or even three-dimensional form (see below).

It seems unwise, however, to equate (or conflate) these physical and psychological notions of spatialization. Physicist Richard Feynman proposed a theory that involved particles moving backward in time, but, as fellow physicist Henry Margenau (1954) wrote,

> the word time, in its peremptory sense, means temporal awareness, time immediately experienced; in the other sense it means the time of physical theory, stabilized by axioms of structure and by a special choice of clocks. To say that the two are the same will be recognized as nonsense. . . . It is therefore unwarranted to take Feynman's theory as asserting anything at all about the "true," experienced direction of time. (pp. 88–89)

Many near-death experiencers (see Greyson, Chapter 1 in this volume) have a life review in which they perceive some past moments or even (they feel) their entire lives. Some of them talk about this as happening all at once, sometimes as if projected on a screen from beginning to end. But their description of time in these cases is not simple and linear—it can be instantaneous and all-encompassing (Barušs & Mossbridge, 2017, pp. 72–75; Ring & Valarino, 1998, pp. 149–150; Stevenson & Cook, 1995): "An NDE [near-death experience] appears to take place within some sort of subjective

deep time. It is almost as though a person has 'popped out of' subjective apparent time for a while" (Barušs & Mossbridge, 2017, p. 74). The same sort of spatialization showed up in a very different environment in the early twentieth century when Eugene Osty (1923) was working with a group of sensitives adept at precognition:

> Errors of time are . . . common; for except in the few cases in which mental representation or automatic expression of a date and a number of days or years arises spontaneously, the sensitive has to estimate time, both as to its mode and extent, by interpreting the artifices of the imagination, variable in different sensitives and always of doubtful import.
>
> M. de Fleuriere, for instance, derives his ideas of time by vision on a semicircular screen on which the events of a life are symbolically projected. The events pertaining to the present are in the middle, straight before the eye, those of the past to the left, and those of the future to the right; and the distances from the centre indicate their approximate position in the life.
>
> Mme Morel . . . knows that an event is in the past when her informative hallucinations are, as it were, behind her; a present event is at her side and a future one in front, all in a perspective corresponding to some sort of spacing in time. This symbolism, however, suffices so well to her conscious interpretation that during twelve years I have never known her place an event in the wrong mode of time. (p. 224)

Reports from near-death experiencers, mystics, and others present time in a mode very different from our standard linear world. Elizabeth Krohn, for example, had an NDE after being struck by lightning (Krohn & Kripal, 2018).[31] She tried to describe the way time presented itself during the NDE. On the one hand, during the experience, time was instantaneous and eternal; on the other, she felt that two weeks passed, although her body lay on the pavement for just minutes. She learned of things that were yet to happen, both personal (a third child, a divorce) and public (an election result, a Super Bowl contestant):

> I know this is confusing. I honestly do not know if the near-death experience itself was linear, or whether I just need to remember it in those terms in order to decipher it. My gut feeling is that (a) time there was not linear, but (b) linear time is my only frame of reference here. . . . I comprehended this concept of simultaneous time while I was in the Garden much more clearly than I do here. (pp. 28–30)[32]

As Rosalind Heywood, a researcher and psychic herself, said of a deep mystical experience, "One can't hold the attitude, of course. But one can faintly, very faintly, remember it, or rather an echo of it" (quoted in Marshall, 2019, p. 184).

> and full present moment. The moment continues to grow, expand, fill, until it contains all things, all events. (p. 64)

If, in these unusual states of consciousness, there is no significant differentiation between past and future, then why make so much trouble about it when we are talking about precognition? This is not a physical phenomenon—this is a phenomenon rooted in human consciousness (or something larger).[38]

Standard psychology does not treat experienced time in a way that is helpful to our understanding of precognition. It does not, for example, treat the experience of atemporality. According to Benny Shanon, a psychologist who has studied the Ayahuasca experience scientifically and personally,[39] time doesn't get slower and slower until it stops—in fact, it seems to go faster when it stops, another statement that in ordinary language is senseless. We encounter "an altered semantics of time. Essentially, the experience is not of time passing slower, but of time ceasing to be relevant. It is not that one moves more slowly in time, but rather, one enters a frame of being which is, so to speak, outside of the province of time" (Shanon, 2001a, p. 46). In this "frame of being,"

> everything that has ever happened, as well as everything that will ever happen, all have an equal temporal status. In a certain sense, they are all there and one only has to look at them. . . . A perspective is taken by which all that will have happened at all times is co-present. In this limit situation, the temporal may, in a fashion, be reduced to the spatial. (p. 47)

This is not language we can apply to our normal experience of the world. But it is language that describes a temporal framework made for retro- and precognition. Precognitive experiences are rarely accompanied by this kind of altered perception of time. But it is a perspective available to a human being, and, like the descriptions offered by Osty's sensitives, it is too potentially meaningful to be ignored.

This psychological time has two aspects, one that seems symmetrical from the present and the other that has a directed arrow.[40] The symmetrical aspect is what we have been describing: the way certain gifted sensitives or mystics see time as a continuum, past, present, and future, or the way they apprehend the past and the future as undifferentiated sources. Neither past nor future is easier or harder to access, and in fact they are sometimes confused, one for the other.

But there is another puzzling aspect of time in the world that bears indirectly on precognition: no one, in any state of mind—psychic, mediumistic, or mystical—except psychedelic, ever reports perceiving time moving *backward*.[41] Someone experiencing an NDE may go through a life review, and

that life review may run from the percipient's current age back to his or her childhood, but what it shows is a series of scenes in reverse sequence (or on a "screen"), each individual scene playing from beginning to end in proper chronological fashion. No one has ever reported a scene in a life review playing from end to beginning.[42] This says something important about the world and our experience of it. For example, the Minkowski block universe is often referenced as a way of making the future or past accessible to "current" observation. But if indeed there exists some four-dimensional representation of our space and time in which we can observe (or experience) moments other than the present, why can't we observe a scene from end to beginning? When Stefan Ossowiecki related the retrocognitive impressions he received from a document he was holding, he would describe the circumstances under which it was written, from the physical layout of the room to the frame of mind of the composer to the people who interrupted the document's composition. He observed from a third-person perspective, and he went back to the beginning of the scene and told the story in the order in which it occurred. Why should this be the case? Why shouldn't a percipient sometimes "land" at the end of the scene and work through it backward?[43]

Philosophers have argued about the arrow of time for millennia, and physicists have joined them in the past couple of centuries. But all these arguments were based in either logical abstraction or the material world of physics. Any argument we make or entertain here must answer to the phenomena of psychical research, particularly retro- and precognition. Clearly, there is something about the way our consciousness inhabits the world (or vice versa) that compels our experience to move forward in time. Perhaps it is simply that, like scrambled eggs or nuclear decay, human consciousness "works" in only one temporal direction. Our bodies work that way, our minds work that way, and our experience of the world—except in extraordinarily rare instances—works that way.

There are metaphysical systems—from the Neoplatonists and Patañjali to neutral or dual-aspect monism to panentheism—that have room for psi (and precognition).[44] Our empirical investigation of time and consciousness has the potential to proceed, and the results can be considered against those systems. As Myers (1895a) wrote,

> I imagine that the Continuity of the Universe is complete; and that therefore the hierarchy of intelligences between our minds and the World-Soul is infinite; and that somewhere in that ascent a point is reached where our conception of time loses its accustomed meaning. . . . The idea, of course, is familiar enough to philosophical speculation. The novelty is that this, with many other ideas which have hitherto floated gaseously *inter apices philosophiæ* [among the peaks of philosophy], like helium in the atmosphere of the sun, may now

> conceivably be tested in earthly laboratories and used as a working explanation for undeniable facts. (p. 340)[45]

The directed aspect of time takes a little more explaining and will move us into an examination of causality as well.

CAUSALITY

Is there anything in current science that might help us with causality and precognition?[46] When we approach questions of causality in the ordinary world, discussion takes place in the context of the forward-flowing time of everyday physics.[47] If we are going to broaden our understanding of time, as the previous section suggests, we will do well to look in places other than physics for models and hints that can help us make sense of precognition.[48] Physics is a rich source of analogy[49] and can be shown to accommodate parapsychological phenomena,[50] but it has little direct to say about them.

Aristotle devised his four causal categories—efficient, formal, material, and final—to account for the physical world (Falcon, 2019), and when we think about psi, they can be a tough sell (as we saw with the investigators' quotes earlier). That causality does not hold in exotic physical realms is well known (Mossbridge & Radin, 2018a, p. 114), but even before quantum mechanics, more than a century ago, Bertrand Russell (1913) challenged its very existence as a scientific tool:

> The reason why physics has ceased to look for causes is that, in fact, there are no such things. The law of causality, I believe, like much that passes muster among philosophers, is a relic of a bygone age, surviving, like the monarchy, only because it is erroneously supposed to do no harm. (p. 1; see also Price & Corry, 2007; Radin, 2006b, pp. 392–393)[51]

Russell, arguing from the deterministic, mathematical nature of late nineteenth-century physics (Friederich & Evans, 2019), was hardly unchallenged himself. Scriven (1975), for example, refers to "the enormity of Russell's misconception" (p. 5). But we can let that battle rage; regardless, when the cat pushes something off the table, it falls, and we can consider everyday causality in our everyday world.

The idea of "retrocausality," or the future acting on the past, can be postulated only in the context of linear time. Should we get excited about retrocausation at the subatomic level? Physics offers spectacularly rational possibilities for backward causation at the quantum and cosmological scales, but they shed little light on the real-world phenomena of pre- and retrocogni-

tion.[52] Stephen Braude (1991) has done a masterful job of demolishing the idea of backward causality in everyday events (pp. 256–277). Forward causality in the ordinary world involves any number of causal streams coming together and then ramifying into the future. By laying out the complexity of how we construct normal, *forward* causal relationships, Braude shows the emptiness of the entire notion of retrocausality. Radin (2006b, pp. 391–397) discusses causality, forward and backward, but inclines to an acausal model (Radin, 2006a; see below).

Discussions of backward causality involve simple concepts with a peculiar, unspoken feature: the retrocausal influence propagates backward in time and stops at the beginning of the present event that is the supposed effect of the future cause. The present event then proceeds in a proper time-forward fashion (as we saw earlier with retro- and precognitive perceptions of events). That's convenient but indefensible. (And would we even be able to tell if retrocausation played through the scene backward?)

Besides the logical vacuity of such an explanation, there is the further problem that although the future may exist to be perceived, future "events" do not. As Braude (2011) says, "Events are not items in a perspective-independent warehouse of ontological furniture" (p. 3; see also Braude, 1991, pp. 256–277). In the world of precognition, we might take it for granted that tomorrow's automobile accident is an event, but why shouldn't the event begin with or simply be what came before (or after)—a driver in tears or a small child screaming in the backseat or a plumbing mishap that made a driver late for work? Why should it be two people standing in front of a fireplace years off in a distant land? What is the event? An event does not exist until someone delineates it, beginning and end, in our case by precognizing it. Even something as apparently defined as an automotive accident is a moment in a continuous series of occurrences. (And we cannot even use "meaning" to define a precognized event since some are so utterly meaningless.[53]) Invoking retrocausality results in a situation where some undefined future episode causes something in the present through a mechanism that makes no sense.

It is true that in presentiment experiments, the future events are in fact carefully defined,[54] and they are also defined (if less precisely) in remote viewing, but episodes of precognition in the wild do not have that preparatory foreknowledge on anyone's part. In every case—presentiment, remote viewing, and spontaneous cases—the "target" is indeterminate at the time of the feeling or perception. In the presentiment work, there are clearly defined (if unknown to the subject) future events that the subject is working toward, but the anticipation never rises to consciousness and must be statistically inferred from the full result.[55] In remote viewing, there are also defined targets, even if they are cognitively impenetrable to the subject, such as obscure geographi-

cal coordinates given to participants in the SRI work. (In one case, a viewer was given the latitude and longitude of a tiny island in the South Indian Ocean, which he drew and described with startling accuracy [Targ, 2012, pp. 27–29].) And finally, there is the undifferentiated future—without defined events—into which the spontaneous cases take us.

Eastern logic and metaphysics offer a possibly helpful perspective. According to Bryan Van Norden (2017), a scholar of Chinese philosophy and culture,

> Buddhist metaphysics regards the world as composed of transient states and properties that are causally dependent on other states and properties. It does away with the notion of metaphysical substances or prime matter as explanatorily useless. This ontology of states rather than things has substantial (pardon the expression) implications for how we think about ourselves. (p. 44)[56]

That change of ontological perspective is well beyond the scope of this chapter, but it might hold out the hope of an interesting, serious approach to psi, something that Western philosophy has found so difficult and that Kelly et al. (2015) and this volume are trying to rectify.[57]

Finally, though, the whole notion of cause and effect in precognition is misplaced. When we are talking about precognition, injecting causality into the picture is a category mistake:[58]

> The mechanism for access into the hypothesized great storehouse of memory external to ourselves is not likely to be in prescriptive, mechanistic terms, and may be in terms that are beyond the reach of our understanding. Considered another way, requesting an explanation might be to commit a category error, like asking how, in a dream, when you were riding a bicycle one moment and then found yourself immediately riding a horse, how did you get from the bicycle to the horse? The answer will not be in terms of time and motion. (Barrington et al., 2005, p. 149)

Dunne and Jahn (2003) found that their habitual use of causal language and reasoning blinkered their understanding of possible contexts for remote viewing and that the evidence "is more compatible with an acausal, or synchronistic, model than with a causal one" (p. 234). In fact, they were led to conclude "that objective linear causality may not prevail under these circumstances" (p. 235; see also Jahn, 1989) and that trying to shoehorn precognition into a causal frame is a waste of effort.

A short discussion of Carl Jung's acausal "synchronicity" would not be out of place here. Jung rooted his idea in the apparently acausal, statistical world of particle physics. He felt that the end of causality at the subatomic level could be extrapolated into the larger world and that it was a useful description of meaningful coincidences otherwise not causally related (Jung, 1973;

. . . would have been likely to have presented it" (pp. 402–403). A man who had bought a house dreamed that he encountered a sheriff who told him that the house was going to be sold for an old unpaid judgment against a former owner, now deceased. On his way to work the next morning, the owner stopped in to see the son of that former owner, thinking he might find the dream interesting. The son was more inclined to be amazed: his father had once owed a debt to the man whom the sheriff (in the dream) had mentioned, but it had been paid in the regular course of business. His ledger showed that the debt had been slightly less than the amount the sheriff mentioned in the dream—but had the debt not been settled and interest allowed it to accrue up to the time of the dream, it would have been exactly that amount.

It is difficult to make sense of the tangled details that make up this situation, but Myers was never afraid of such cases. For us, is it retrocognition of a possible past? Or was the dreamer's subliminal mind good at both grasping the past and doing math while asleep?

I have argued against the idea of intervention changing a foreseen future, instead using the psychology of subliminal perception to make the percipient responsible for the construction of the prevision to a greater or lesser extent. And cases like the bright smile (above) would seem to indicate a definite future. But perhaps I am wrong; perhaps the future exists as probabilities and precognition sometimes sees a probable path, not a certain one. Reports of the temporal perceptions of mystics, seers, and near-death experiencers sometimes support the notion of a probable future. When near-death experiencers have "life previews"—future-oriented versions of the more common life reviews—"the precognized events . . . are sometimes reported as alterable, conditional on choices to be made, or sometimes as 'already there,' as fully existent as the present from which they are viewed" (Marshall, 2015a, p. 51; see also Grey, 1986, pp. 117–121).[67] In an interview, Anita Moorjani (Bolsta, 2011) said of her NDE, "Time seems to have a completely different meaning on that side. What I felt was that all possibilities exist simultaneously—it just depends which one you choose. Sort of like being in an elevator, where all the floors of a building exist, but you can choose which floor to get off on."[68] If these nonordinary perspectives possess any truth, different possible futures may indeed be available—at least sometimes. (Elizabeth Krohn, we saw, returned from her NDE with several straightforward "facts" about the future.) Sadly, we lack a vocabulary and conceptual scaffolding that would allow us to analyze such perceptions.

The idea of a probabilistic future is seductive. It makes room for the reality and role of free will. But it collides with such distant, clear, definite previsions as the bright smile case. Moreover, in cases where a precognition seems to result in an averted event, we often find annoying, unaccountable

details—like the actual direction of travel of the carriage before the coachman fell off or the location of the other carriage accident—that do not match the precognized scene and are difficult to understand in a probabilistic scenario. Once we move away from insisting on a filmlike literalness in every detailed precognition, we see the percipients inserting themselves in a scene's construction. However, at the same time, it is necessary to allow for the precisely accurate previsions, the rents in the veil. We must have it both ways!

The nature of time and causality may be just as puzzling as the apparent contest between free will and a foreseen future, but we feel this dilemma personally. Like time and causality, it has been the subject of debate for millennia (as Milton observed earlier).[69] For Aristotle, free will was pitted against fatalism ("when your number's up, your number's up"); for theologians a thousand years later, it faced an unalterable future foreseen by an omniscient God; for post-Newtonian scientists and philosophers, it was torpedoed by simple mechanistic determinism. And yet, as willing as philosophy and science in general were to embrace the metaphysical implications of the Newtonian universe, they have proven equally unwilling to embrace the implications of the early twentieth-century physical universe that replaced it. Causal determinism still rules the broader scientific roost. Today's neuroscience assures us that free will is an illusion, and mainstream psychologists follow in lockstep: "From a psychological point of view, discussing free will is like asking a zoologist to lecture on unicorns" (Kelly, 2010, p. 241).[70] That confidence rests, of course, on the metaphysical bedrock of materialism. If we discard that fundamental assumption—and the evidence against materialism seems quite sufficient to discard it—the arguments lose their foundation. Determinism can no longer be taken for granted. Free will is still in play; if it doesn't exist, the evidence will not come from a materialist argument.

Some philosophers defend free will as "hard-core" common sense (Griffin, 1998, pp. 16–21, 34–41)—one of *"those notions that all human beings inevitably presuppose in practice, even if and when they deny them verbally"* (p. 18)—as opposed to "soft-core" commonsense notions, such as "the Earth is flat."[71] A strong case can be made this way—it makes sense to me—but it does nothing on its own to eliminate the problem of determinism. Philosopher John Searle (Griffin, 1998) puts it plainly: "We don't navigate the earth on the assumption of a flat earth, even though the earth looks flat, but we do act on the assumption of freedom. In fact we can't act otherwise than on the assumption of freedom, no matter how much we learn about how the world works as a determined physical system"—and then he plows ahead with his version of causally bound physical theory, giving the laurel to determinism and rejecting free will (pp. 39–40). Griffin (1993) himself accepts free will,

but he denies the possibility of precognition because in the Whiteheadian world the future is entirely potential and therefore cannot be apprehended.

When someone has a vague foreboding or a dream about a plane crash and so decides to delay a business trip, therefore not getting on a flight that crashes, it's easy enough to see it as a prevision of the plane crash itself leading to a freely made choice that produces a happy ending. But in the case of the bright smile seen so far ahead, we have an occasion preceded by years of decisions, thousands of choices on the parts of many people, all leading to a foreseen moment. It feels impossible to avoid the word "determined." We are not concerned with deterministic arguments from nineteenth-century physics or with those from a psychology or neurology steeped in that physics. For our purposes, precognition itself is the root of the dilemma. It is enough that the future can be foreseen, sometimes in detail. In such a world, can we make free choices?

Absolutely. Let us consider a "determinate" world (Sprigge, 1993, pp. 478–486; 2008, pp. 491–495).[72] In a "determined" world, causality reigns. In a determinate world, precognition can show you something that is indeed going to occur, but the steps leading to that occurrence need not be a strictly determined causal sequence—free will is perfectly reasonable. The past is determinate: we know that last Saturday night after dinner, you read a particular novel, but that knowledge says nothing about whether your exercise of free will led to that action. Similarly, I may accurately precognize your falling into a lake next week, but that says nothing about your freely made choices between now and then.

What that differentiation actually does is *allow* free will in a universe where the future can be foreseen; it neither guarantees nor requires it. If causal determinism rules in that universe, free will is gone; if there is no free will in the past, there's none in the future.

But when most people consider free will in the context of precognition, they are asking whether the determinate, foreseen future can be averted by the exercise of free will. Is that even an answerable question? Without an impossible cast-iron guarantee that a prevision was wholly accurate, how would you know it did not include supplied events, like the coachman's hitting the pavement? There are anecdotal cases in which individuals make decisions they think will help them avoid a foreseen event only to find themselves fulfilling the prediction regardless, but none rise to the evidential standard of most cases investigated by the Society for Psychical Research.[73] More to the point, there is no reason not to see the choices made as *contributing* to the foreseen result—since that is exactly what happens—although the individual thought otherwise when making the choice. Too often we speak of some

action *changing* the course of events when we actually mean *affecting* (or even creating) that course. To say a decision changes the future implies altering a set course, but although we may foresee a moment in the future, we don't know how we're going to get there—or even if it is an accurate prevision or just a hypothetical construction of our own consciousness. We understand neither time nor psi well enough to say.

Free will and an accurately foreseen future are not opposites; the opposite of free will is causal determinism. Pre- and retrocognition tell us nothing about free will, and they tell us nothing about determinism. They can tell us only that the world is determinate: that something will or did happen. Whether that something is as precise as two men talking in a club in India, as almost precise as a coachman falling off his seat, or as vague as an uneasy feeling about upcoming train travel, we do not necessarily know what events or decisions led or will lead to it. Determinationism—as opposed to determinism—leaves the question open. If we combine a hard-core commonsense view of free will with a determinate picture of time, we can construct a reasonable world with agents who act freely and a future that can be foreseen. Moreover, this is a world that plays well with our previous discussions of time and causality.

CONCLUSION

Where are we left with our simple set of problems: time, causality, and free will? Our understanding of time is woefully inadequate to cope with precognition. We must reframe it if we are to have a chance. We have signposts left for us from NDEs, mystical experiences, and other altered states. William James (1897) wrote,

> In psychology, physiology and medicine, whenever a debate between the mystics and the scientifics has been once and for all decided, it is the mystics who have usually proved to be right about the *facts*, while the scientifics had the better of it in respect to the theories . . . he who will pay attention to facts of the sort dear to mystics, while reflecting upon them in academic-scientific ways, will be in the best possible position to help philosophy. (pp. 302–303)[74]

Are we to start with physics, as is the modern habit, and force mystical time into it? Or are we to start with mystical time, NDE time, and the temporal slippage of remote viewers and sensitives, and try to make a coherent framework out of those "facts"? Perhaps we are at a point where such experiences can be taken seriously enough on their own. Perhaps one of the worldviews offered in Part II of this volume will afford the scaffolding needed to create an adequate temporal model.

Perhaps.

Causality as an obstacle for precognition is a red herring. It is the wrong way to approach the phenomenon, and it is based on an outdated notion of the cosmos. Even the physics beloved of determinists has abandoned causality at its foundations. When we examine psi, we find ourselves in a realm lacking the comfort of ordinary space and time, without the assurance of the simple Boolean logic we learned in high school. Move along; nothing causal to see here.

Finally, we have free will and precognition, which turns out to be a false dichotomy. Free will is opposed to determinism. It is enough to declare the world determinate, with a future as definite and real as the past, a world in which individuals can make appropriately free decisions.

So making sense of precognition comes down to how little we understand time and how little we know about psi (or consciousness itself). It is encouraging that creative research in the past half century—on CORT and NDEs, for example—has revealed aspects of consciousness never systematically explored before. Recent experimental techniques, particularly in remote viewing, seem to offer means to probe precognition in equally far-reaching ways, potentially revealing equally novel prospects. We study magma in the laboratory to help us understand volcanoes, not to prove that they exist. It is time to give precognition its due.

As has been acknowledged again and again, accommodating the research done and the data collected—much less what might come—will require an epochal shift in the metaphysical foundation of scientific education and practice: the *foundation*, not the work itself. Statistical analysis, smartphones, osmotic membranes, cloud chambers, and polymerase chain reactions will all function as they have, but the world in which they function will be a very different place:

> Most scientists are willing to accept new empirical data and to recognise new results, provided they fit into their philosophical framework. But in the course of scientific progress it can happen that a new range of empirical data can be completely understood only when the enormous effort is made to enlarge this framework and to change the very structure of the thought processes. In the case of quantum mechanics, Einstein was apparently no longer willing to take this step, or perhaps no longer able to do so. The letters between Einstein and Born . . . movingly demonstrate the degree to which the work of the scientist, which in its subject matter seems to be so far removed from all things human, is fundamentally determined by philosophical and human attitudes. —W. Heisenberg (Einstein et al., 1971, p. x)

We are allowed to hope.

17. Pre*sentiment* studies unconscious foreknowledge ("feeling") rather than conscious knowing ("pre*cognition*") (Radin, 2016). The experimenters are careful to differentiate presentiment (predictive anticipatory activity [PAA]) from precognition: "In contrast to PAA, precognition may be defined as a perception or a behavior (not a physiological measure) that is influenced by future events. . . . Though it seems plausible that precognition is related to PAA, examination of that possibility is beyond the scope of this article" (Mossbridge et al., 2014, pp. 1–2). Because both presentiment and precognition insult our sense of time, I am treating them together here.

18.

> Tiger got to hunt,
> Bird got to fly;
> Man got to sit and wonder, "Why, why, why?"
> Tiger got to sleep,
> Bird got to land;
> Man got to tell himself he understand. (Vonnegut, 1963/2006, p. 182)

19. Or in which the apparently perceived future is averted.

20. "It is as though a rent suddenly appeared in the veil which covers the future, and then closed again after permitting the subject to take a fleeting glimpse at what lies ahead" (Saltmarsh, 1938, pp. 104–105).

21. And noted by others, such as Richet (1923, pp. 200, 395), Saltmarsh (1938, pp. 66, 104–105), and Sidgwick (1889, p. 344).

22. Exceptions would be those drawing on the monadology of Gottfried Leibniz or Alfred North Whitehead (Marshall, 2015b).

23. At the end of his article, Sheehan uses statistical mechanics to demonstrate the near-zero likelihood that yesterday occurred. "Although this is unpalatable to most of us," he writes, "it highlights one of several fundamental problems squaring the nature of time with the laws of physics" (p. 106). Indeed.

24. And see, for example, Krohn and Kripal (2018, p. 86).

25. Ossowiecki's clairvoyance was not simply visual. He "saw a live film, with all the internal and external detail, being aware of what was happening both to the people and inside their minds and souls. . . . It was as if he was seeing everything from a bird's-eye view, from somewhere in space, although he could not pinpoint his position—but, finally, he found it impossible to find the appropriate words to describe the experience" (Barrington et al., 2005, p. 18). It was an ordinary psychic experience, not an extraordinary visual experience. At the same time, it was at least sometimes clearly not telepathic, as when he was given a message written in invisible ink. He could tell that it was invisible ink, and he could envision the person writing it, but he could not read it or get the words from the mind of the writer, even though that person was with him (pp. 55–57, 144). He was also capable of looking farther into the past, using archaeological objects as gateways to ancient cultures (Schwartz, 1978, pp. 57–107).

26. "quid est ergo tempus? si nemo ex me quaerat, scio; si quaerenti explicare velim, nescio" (Augustine, 1982, p. 264; 2016, p. 216).

27. Heisenberg (1958) addresses the linguistic dilemma faced by physicists describing the quantum world: "The Copenhagen interpretation of quantum theory starts from a paradox. Any experiment in physics, whether it refers to the phenomena of daily life or to atomic events, is to be described in the terms of classical physics. The concepts of classical physics form the language by which we describe the arrangements of our experiments and state the results. We cannot and should not replace these concepts by any others. Still the application of these concepts is limited by the relations of uncertainty. We must keep in mind this limited range of applicability of the classical concepts while using them, but we cannot and should not try to improve them" (p. 44). In the same way, we will be describing aspects of "the future," "knowing," and "seeing" for which our common understanding of these concepts have a "limited range of applicability." Perhaps we will someday be able to improve them.

28. As Whitehead (1929/1985) said, "ultimately nothing rests on authority" (p. 39).

29. The problem of conscious interpretation of subliminal offerings is noted in the presentiment experiments as well, affecting fast-thinking responses less than slow-thinking ones (Mossbridge & Radin, 2018b, pp. 84–85).

30. As Targ (2020) wrote, "Two thousand years ago Patanjali said that we obtain psi data by accessing the akashic records that contain all information past, present and future. One accesses it, he says, by 'becoming it,' with a single-pointed focus of attention. These views of the collective unconscious are called by many names, and have been with us for millennia. This picture of psi functioning suggests that the information is always with us and available. It is not a new theory, but it seems to fit the data better than the information transmission model. Can this picture of omnipresent data be tested?"

31. Krohn's life changed dramatically after her NDE. She had any number of remarkably nonordinary episodes, but she especially had regular precognitive dreams.

32. Paul Marshall (2015a, pp. 48–54; see also 2011) probes the nature of mystically experienced time and the relationship of mystical experience and psi. He also highlights the commonalities of NDEs and mystical experience (2011, p. 8). The nature of mystical time is often confronted by students of psi—for example, LeShan (1974, pp. 36–37).

33. This notion is teased apart in Kelly (2015, pp. 526–530).

34. Although there were fewer cases at greater distances forward or backward in time, those perceptions were no less accurate than were those closer in time. This compares interestingly with Eugene Osty's (1923) sensitives, whose perceptions of the future—always delineating individual lives—he likened to viewing a distant landscape that shows more detail as you approach it (pp. 174–177).

35. Braude (1982) also mentions this problem with memory (pp. 150–152). This is in contrast to CORT, which present as real memories, not retrocognitive glimpses of the past. And, although NDE reports sometimes include glimpses of future lives, CORT never involve *memories* of future lives parallel to those of past lives, which is perhaps a clue about the arrow of time, the nature of memory, or both. Jenny Cockell (1998), who claimed knowledge of a future life, made the point that her knowledge of the future did not feel cognitively like her past-life memories (p. 106).

Eileen Garrett said, "I do not simply 'see' certain future events; I actually appear to 'live' them. I find that it is easy for me to pass from the 'now' into what may be called the timelessness of the future." But when she says, "The actual experience of precognition is difficult to convey because it so closely resembles an actual current happening" (Osborn, 1961, p. 8), she is comparing precognition not to an ordinary, everyday experience but to a psychic experience of a concurrent event.

36. It is an interesting aside that precognitive personalities, such as Osty's sensitives or Ossowiecki, can rarely apply their ability to their own lives (Barrington et al., 2005, p. 19; Osty, 1923, p. 186). And yet most spontaneous precognitive episodes, which happen to otherwise psychologically unexceptional people, are personal.

37. Marshall (2015a, pp. 50–51; 2005, p. 139).

38. Two areas of psi research reveal another interesting temporal conundrum. The CORT collected by Ian Stevenson, Jim Tucker, Erlendur Haraldsson, Antonia Mills, and others (surveyed in Matlock, 2019) present situations where memories—or personalities, depending on the case or its interpretation—are available for days, months, or years, waiting to be tapped or reincarnated. Yet in NDEs, experiencers commonly encounter deceased personalities, some of them long departed and others newly unminted. If we are to take postmortem survival of personality seriously, as these and other phenomena indicate, how can we have it both ways? Do some individuals wait around to welcome loved ones after death while others reinsert themselves into the land of the living? Or, as NDE researcher Bruce Greyson mused (personal communication), does time mean something quite different in that incorporeal realm? That seems perfectly reasonable, given the reports of mystics, near-death experiencers, and the occasional CORT subject—travelers who say they have, contra Hamlet, returned from that "undiscover'd country"—and the demands of pre- and retrocognition.

39. There is a long tradition of psi phenomena linked to psychedelic use (e.g., Kelly & Grosso, 2007, pp. 542–553; Luke, 2012, 2017; Luke & Kittenis, 2005; Tart, 1993).

40. The arrow of time as a result of irreversible processes and thermodynamics is commonly known and discussed. Barušs and Mossbridge (2017, pp. 53–81) discuss it and time in general in the light of psi phenomena.

41. I am aware of only three reports, all involving LSD. "What she saw—not thought or contemplated but saw, such was LSD's curious power—was the flower fully open up, go through its cycle and wither, but also she watched the flower reverse this same flow, recovering from its dried state, re-flowering and returning to being a bud. She could see it go in both directions, forward and backward in time, dancing its own birth and its own death" (Fadiman, 2008, p. 93; see also bigolrandyorton, 2020; Spiderman, 2019). There are doubtless others, but I have never encountered one that did not spring from psychedelic use. From reading the accounts, it seems safe to assume that the individuals' metabolisms did not reverse—only their perceptions. Even so, there they are.

42. Although, in their discussion of NDE life reviews, Barušs and Mossbridge (2017, p. 72) say that "like film, a life review can run forward or backward," to my knowledge there is no report of a literally backward experience in the NDE literature. This also says something about the limited role of culture in an NDE,

since a large proportion of the Western world has watched visual recordings played in reverse and it wouldn't be unreasonable to expect someone, somewhere, to have reported something similar in an NDE. But they never have. Osborn (1961, pp. 201–202) observes this as well.

43. Normative statements—"should" or "ought to"—are pernicious in psychical research, since we lack a fundamental understanding of what is going on or at least a way to discuss it cogently and meaningfully with ordinary language. In this case, however, because it virtually *never* happens and there are so many different extraordinary temporal perceptions from psychics, mystics, and others, it seems a fair question.

44. Kelly, Crabtree, and Marshall (2015) and several chapters in this volume.

45. Braud (2002) wrote, "Alfred North Whitehead . . . suggested that the European philosophical tradition consisted of a series of footnotes to Plato. It might not be inappropriate to suggest that much within the traditions of psychical research and of explorations of the unconscious, since 1901, is but a series of footnotes to Myers and Du Prel" (p. 16n1).

46. Causality with an eye to precognition is explored nicely by Radin (2006b, pp. 391–398). Like time and free will, the literature on causality is vast.

47. Although it is true that relativity abolished absolute time, in the sense that two events perceived as simultaneous by one observer might not be perceived that way by another and that two events might even be perceived in reverse order by different observers, the events *must be spatially separated*. That is, if one observer watches someone (Wile E. Coyote, say) light the fuse on a stick of dynamite and then sees the consequent explosion, that order of events will always be preserved for any observer.

48. As physicist Henry Margenau noted earlier. Physicists argue vigorously about time but always in the absence of precognition. Most of them accept the notion of a static, determinate block universe, but that does not mean they think there is any way to perceive a future state of that universe. And those who aren't acolytes of the block universe make statements about "the reality of time" like "The future is not now real and there can be no definite facts of the matter about the future" (Unger & Smolin, 2015, p. 416), which does not comport well with precognition.

49. Mary Hesse (1970), a philosopher of science, observed that "most of those who attempt to theorise in parapsychology have long reached the conclusion that theories of physical type are unhelpful and that some new explanatory concepts are required. But new explanatory concepts are always drawn by analogy from some other conceptual system, and since physics has provided the comprehensive framework for so long, it is difficult to know where else to look" (p. 302).

50. Carr (2015a, 2015b); Stapp (2007, 2015).

51. The question of causality can look quite different outside the Western tradition. "The general tendency in China has been to think of things as being connected not in linear chains of cause and effect, but in networks of mutual dependencies and reciprocal interrelatedness" (Marchal & Wenzel, 2017, p. 384).

52. Even for presentiment, "one problem with a quantum biological explanation . . . is that retrocausal effects *on the order of seconds* would have to be explainable via quantum processes, and we know of no evidence so far that these effects can occur at that time scale" (Mossbridge et al., 2014, p. 5).

53. From a slightly different perspective: "The future necessarily only has meaning in relation to human beings" (Osborn, 1961, p. 80). More provocatively, Shanon (2001a; see also 2001b) says that "psychological time is defined in terms of events. As such, human time is intrinsically semantic" (p. 41). The importance of meaning is tackled in nearly every serious approach to psi, as can be seen in the many varied models in Kelly et al. (2015) and May and Marwaha (2015).

54. The results of the presentiment experiments have lent themselves to some very interesting analyses (e.g., Radin, 2006b) that may be due to the specificity of the events. And Radin makes retrocausality seem plausible for presentiment in that same article.

55. This has been a defining characteristic of laboratory psi, although there have been exceptional cases in which the subject has been able to specify correct calls (Palmer, 1978, pp. 177–180).

56. Whitehead's process philosophy might also be described this way.

57. There is no monolithic "Eastern" philosophy, of course, but there are tendencies and streams that are far less pronounced in the West (see, e.g., the analysis of Buddhist causality in Kalupahana, 1975). This is, after all, the reason so many psychical researchers have explored Eastern thought, both professionally and personally. And "an ontology of states rather than things" is perhaps why philosophically inclined theorists of quantum physics—a science of states rather than things—have found it so attractive.

58. Magidor (2019).

59. Although in his foundational work on synchronicity (Jung, 1973) he included several trivial coincidences as evidential, he generally took it to mean more, involving fundamental psychological entities he called "archetypes" (Jung & Main, 1999).

60. Primas (2017) notes that "a comprehensive understanding of the notion of time is impossible within the framework of Boolean [true/false] logic alone" (p. 3) and that "while classical physics is based on propositions that are either true or false, the non-Boolean logic of quantum physics leads to new phenomena such as complementarity, nonlocality and entanglement" (p. 93). Nevertheless, a philosopher writing in May and Marwaha (2015) on "ESP, causation, and the possibility of precognition" (Corry, 2015) can ignore that and insist that the law of noncontradiction is still a fundamental property of the world (p. 122). I am not suggesting that we abandon Boolean logic. We live in a world that seems subject to binary logic locally, just not as a whole, in the same way that geometry on Earth can be treated locally as if the world were flat, whereas on a large scale it can't (Primas, 2007, p. 16).

61. It is difficult but important for those of us not philosophers to realize the depth and extent of philosophical arguments. For example, the law of noncontradiction—"no proposition is both true and false"—seems straightforward. And yet "fixing the precise formulation is itself a topic of debate" (Priest et al., 2018). Such uncertainty in what to the layperson seems common sense is to be found everywhere in browsing the professional literature, such as the authoritative and readily available (online) *Stanford Encyclopedia of Philosophy*.

62. See also Barrington et al. (2005); Kastrup (2019, pp. 196–197); Kastrup, Stapp, and Kafatos (2018); and McMoneagle and May (2014). The notion of a "higher," shared

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II

FURTHER THEORETICAL HORIZONS

4

MYSTICAL EXPERIENCE AND THE SCOPE OF C. G. JUNG'S HOLISM

Roderick Main

In February 1944, in his sixty-ninth year, Carl Gustav Jung (1875–1961) broke his foot and, while laid up in hospital, suffered a heart attack. He then had a near-death experience during which he found himself floating a thousand miles above the earth (over Ceylon, now Sri Lanka). He underwent a painful process in which he was stripped of all his earthly attachments and was about to enter a stone temple on a meteorite where he would discover the meaning of his life, when he was called back to the earth by the spirit of his doctor (Jung, 1963/1995, pp. 320–324). Over several nights while recovering in hospital, he experienced a series of further visions in which he felt himself to be "in the womb of the universe" (p. 324) and witnessed, participated in, or in some way "was" the "mystery of the conjunction," expressed in Jewish mystical (Kabbalistic) terms as the marriage of Tiphereth and Malchuth or Rabbi Simon ben Jochai's wedding in the afterlife, in Christian terms as the "Marriage of the Lamb," and in Greek mythological terms as the consummation of the sacred marriage (*hierosgamos*) of Zeus and Hera (p. 325). He described the visions as "extremely strange" (p. 320), "the most tremendous things I have ever experienced" (p. 326), and "utterly real" (p. 327).[1]

From his student days in the late 1890s until his death in 1961, Jung experienced, observed, and studied an astonishing range of paranormal and mystical phenomena (Main, 1997, 2012). His personal experiences included apparently telepathic, clairvoyant, and precognitive dreams and fantasies (Jung, 1963/1995, pp. 159–160, 200–201, 333–335); psychokinetic and poltergeist activity (pp. 125–127, 178–179); apparitions and hauntings (pp. 215–216; 1950/1977d); meaningful coincidences (1952/1969i, paras. 843–845; 1963/1995, pp. 207–208); altered states of consciousness involving both spontaneous and induced visions (2009); and the above-described

near-death experience and accompanying mystical visions (1963/1995, pp. 320–329). As a psychiatrist and psychotherapist, Jung heard accounts of similar experiences from his patients (1952/1969i, para. 816). Through attending séances, he witnessed the apparent possession of mediums and the materialization of spirits (1902/1957; 1973, pp. 100, 511). And in his last decade, he assiduously collected documents about the then emerging phenomenon of UFOs (1954/1977g, para. 1431; 1958/1970b). Throughout his life, he read extensively in the literature of psychical research and parapsychology (1952/1969i, paras. 830–839; 1963/1995, p. 120; 1973, p. 166), and he carried out parapsychological experiments of his own, including laboratory tests of mediums (1905/1977h) and collecting and statistically analyzing astrological data (1952/1969i, paras. 872–915). Based on his experiences, observations, and studies, he published three books on such phenomena (1902/1957, 1952/1969i, 1958/1970b) as well as numerous shorter papers.[2]

Jung's openness to extraordinary experiences profoundly influenced the development of his psychological theory not only at the outset of his career but also at key points throughout it (Charet, 1993; Main, 1997, pp. 1–44). His openness also consolidated his opposition to materialism (1916/1948/1969b, para. 529; 1952/1969i, para. 960; 1955–1956/1970a, para. 763), to narrowly rationalistic approaches to science (1963/1995, p. 336), and to the pervasive cultural condition of disenchantment (Weber, 1919/1946, pp. 139, 155), or, as he called it, the "despiritualization" (Jung, 1938/1940/1969g, paras. 140, 141) or "desacralization" of the world (McGuire & Hull, 1978, p. 230; see Main, 2012, pp. 25–27)—all of which, he felt, were incompatible with the kinds of data he had encountered. The pivotal concept that emerged specifically from Jung's engagement with these topics and issues was synchronicity, a principle of acausal connection through meaning (1952/1969i), which he then deployed to establish the reality, explain the dynamics, and, not least, interpret the meaning of extraordinary experiences (Main, 1997, 2004, 2007, 2012).

THE RECALCITRANT CASE OF INTROVERTIVE MYSTICAL EXPERIENCE

About one extraordinary phenomenon, however, Jung long remained skeptical: the claimed egoless and contentless awareness of introvertive mysticism (1939/1968e, para. 320; 1939/1954/1969e, paras. 774, 817–818). This may appear to be a small limitation in an otherwise strikingly open system of thought. But it does seemingly put Jung at odds with an extensive body of empirical data about mysticism, including many impressive first-person accounts (Stace, 1960/1973, pp. 88–111), and in *Irreducible Mind* (Kelly et al.,

> degree that they transcend consciousness. I cannot imagine a conscious mental state that does not relate to a subject, that is, to an ego. The ego may be depotentiated—divested, for instance, of its awareness of the body—but so long as there is awareness of something, there must be somebody who is aware. (para. 774)

Later in the same paper, Jung describes yoga, "India's most important exercise," as "an immersion in what we would call an unconscious state" (para. 911). "It makes no difference," he asserts elsewhere, "whether [the yogis] call our unconscious a 'universal consciousness'; the fact remains that in their case the unconscious has swallowed up ego-consciousness" (1939/1968e, para. 520). Jung acknowledges that "a correct application of the methods described in the Pāli Canon or in the *Yoga-sūtra* [can induce] a remarkable extension of consciousness" but immediately adds that "with increasing extension, the contents of consciousness lose in clarity of detail" such that "consciousness becomes all-embracing, but nebulous; an infinite number of things merge into an indefinite whole, a state in which subject and object are almost completely identical" (para. 520).

Kelly and Grosso (2007) draw a contrast between Jung's model and that of Frederic Myers:

> The ingredient crucially absent from the Jungian model . . . is precisely Myers's central theoretical move, his repudiation of that identification [of consciousness with the ordinary ego] in favor of his [Myers's] own core conception of the Subliminal Self—"a more comprehensive consciousness, a profounder faculty, which for the most part remains potential only," but which expresses itself in greater or lesser degree as a function of fluctuating conditions in the organism. (pp. 557–558, citing Myers, 1903, Vol. 1, p. 12)

Later, in *Beyond Physicalism* (Kelly, Crabtree, & Marshall, 2015), Kelly (2015) acknowledges that in fact "Jung makes a structurally equivalent distinction between ego and Self [to that made by Myers]" (p. 545n20). However, the self that Jung postulates is still inferior to that postulated by Myers (and similarly by William James) in terms of its ability to account for mystical experiences. Writes Kelly,

> Jung's Self . . . lies within the collective unconscious, which later became the *unus mundus* . . . and unlike the Myers–James Subliminal Self it is inherently dark, unconscious, and inaccessible except by way of its symbolic products. Allegiance to this conception caused Jung to describe mystical experiences consistently, and in flagrant contradiction with the first-person reports, as a dimming or darkening of everyday consciousness as it becomes flooded or overwhelmed by unconscious contents. (p. 545n20)

The above criticisms of Jung's model are serious ones, not least as they have been made by attentive readers of Jung who are generally very favorable about his thought (Kelly & Grosso, 2007, p. 555; Kelly et al., 2007, pp. 334, 479, 481; Kelly et al., 2015, pp. 195–226). Similar criticisms have also occurred to other sympathetic scholars examining the ability of Jung's psychology to account for mystical states, especially as articulated in Indian philosophy (Coward, 1985; Kakar, 1994, pp. 268–272; Schipke, 2019; Whitney, 2017). In this chapter, I assess to what extent these criticisms might be answerable. I do so in three stages. First, I look at Jung's own mystical visions experienced late in his life, which, I argue, contain elements of introvertive mysticism. Second, I consider how Jung's mature psychological model might be able to account theoretically for introvertive mystical experiences. I attend in particular to Jung's characterizations of the archetype of the self as well as to some late formulations of the relationship between the ego and the self that suggest how experiencing "pure consciousness" might after all be compatible with Jung's claim that consciousness depends on the ego. Third, despite Jung's own reservations about philosophy, I argue that the apparent contradictions in his theorizing of mysticism can be resolved—or at least eased—by viewing his thought as underpinned by an implicit metaphysics of panentheism.

JUNG'S MYSTICAL NEAR-DEATH EXPERIENCE OF 1944

Before looking at Jung's mystical near-death experience in more detail, it will be helpful to clarify further Stace's distinction between extrovertive and introvertive mystical experiences as well as to supplement it with a more recent taxonomy. One of Stace's main aims in *Mysticism and Philosophy* was to identify a common core of mystical experiences. Accordingly, most of the specific features he identifies of extrovertive and introvertive experiences are shared. Thus, both types are characterized by a sense of objectivity or reality; by blessedness, peace, and similar strong positive emotions; by a feeling of the holy, sacred, or divine; by paradoxicality; and by ineffability (1960/1973, pp. 131–132; Kelly & Grosso, 2007, p. 504). However, as already noted, the two types differ in how they characterize the experience of unity, which, according to Stace, represents "the very inner essence of all mystical experience" and is deemed by mystics to be "in some sense ultimate and basic to the world" (1960/1973, p. 132). In extrovertive mysticism, the unity is experienced as a "Unifying Vision" in which "all things are One" and there is "the more concrete apprehension of the One as an inner subjectivity, or life, in all things" (p. 131).[4] In introvertive mysti-