

What Is Mind and What Happens to It When We Die?

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Science often advances only when a preferred theory is overturned by new evidence that cannot be explained within the existing theoretical perspective. This article explores material versus non-material theories of the mind within the context of research and logic. It questions aspects of the materialist model and emphasizes a research-based exploration of non-material views of mind, including a brief overview of Buddhist psychology. Questions are raised as to the accuracy of the materialist model and the author proposes that researchers consider all reasonable theories about the nature of the mind rather than holding a bias towards a primarily materialist view.

Keywords: mind, death, mind–body dualism

The scientific method works marvels, but it works slowly, and sometimes leads to mistaken conclusions that are later corrected by the emergence of new data. Theory can guide research, but often theory can also lead to premature conclusions and ignoring data that doesn't fit the theoretical mold. In the history of scientific discovery, how many times have scientists gotten it wrong when placing too much faith in a theory? It is often observations of small anomalies that lead to paradigm shifts in scientific theory. For example, in 1919 Arthur Eddington took pictures of a total solar eclipse in which locations of stars near the sun were displaced from their normal locations. His observations lent support to Albert Einstein's theory of relativity with its postulation of curved space and time, thus calling into question aspects of Isaac Newton's theory of fixed space and gravity (Gilmor and Taush–Pebody, 2021, October 21). Similarly, current researchers might be observing phenomena that poke holes in a materialist view of the mind (i.e., that the mind is an epiphenomenon solely dependent on neural functioning).

In 1949, Gilbert Ryle coined the expression “ghost in the machine” as a way of mocking Descartes for proposing “mind–body dualism” (Cartesian dualism). Ryle defined mind–body dualism as the thesis that “the body and the mind are ordinarily harnessed together, but after the death of the body the mind may continue to exist and function,” an idea that Ryle dismissed as “a myth” (Ryle, 1949, p. 1). Sometimes mind–body dualism is referred to as a non-material view of the mind, which is opposed to the material view that the mind is the embodied brain and therefore will die when the brain dies. In this article, various philosophical views about the nature of mind will be explored along with related research. In particular, the materialist paradigm will be compared to Cartesian dualism, and these two schools of thought will then be explored within the context of Buddhist psychology, which offers a model of the mind–body relationship that counters objections materialists sometimes raise about dualism and within which incidents of mental functioning that seem difficult for materialists to explain can be more easily understood.

An Ongoing Debate

Materialists (also called “physicalists”) and non-materialists have debated about the nature of mind for centuries. As early as 600 BC, the Charvaka school of Indian philosophy posited a materialist view of mind that was contested by Buddhists and Jains (Quack, 2011). Scientific method has occasionally offered evidence supporting one side or the other in this debate, but science as a whole has yet to arrive at a clear answer as to whether the mind is a material or non-material phenomenon. Despite this, some materialists in the scientific community seem to be claiming victory for their side of the debate.

Mario Bunge, wrote in his book *Scientific Materialism*, “Non-materialists have a low opinion of matter and one that is not countenanced by the sophisticated theories of matter elaborated by contemporary science” (Bunge, 1981, p. 3). Bunge asserts that the non-materialist view of mind is not a viable point of view and that only a materialist theory of the mind and brain is accurate. His viewpoint is echoed by Steven Novella, who wrote, “not only is there zero evidence for the dualist hypothesis, it is completely unnecessary, which is a fate in science even worse than being wrong” (Novella, 2020, November 6).

The materialist view seems to have become the dominant theory of mind in the scientific community. In Kuhn’s stages of paradigm change such consensus is referred to as “phase two,” when “normal science” continues to interpret evidence within the commonly held theory, in this case the paradigm is that the mind is an epiphenomenon arising from neural functioning and therefore will cease when the brain dies. During phase two, anomalies that don’t fit the currently held paradigm tend to get assimilated, ignored, discounted, or derided. If the anomalies continue to challenge the existing paradigm, there is an ensuing crisis leading to the possibility of a paradigm shift (Kuhn, 1962).

Researchers have found several anomalies that challenge the materialist paradigm of mind. For example, neuroscientists of the past century made the mistake of presupposing that “the adult mammalian brain is fixed in two respects: no new neurons are born in it, and the functions of the structures that make it up are immutable...” (Begley, 2007, p. 6). This was challenged as science developed more sophisticated tools for observing the workings of the brain and thereby discovered that the brain is constantly generating new neurons (neurogenesis) and demonstrates plasticity in reassigning functions when regions of the brain are damaged and in developing more robust neural connections in response to repeated modes of thought, attention, and behavior (Begley, 2007). The discovery of neural plasticity reveals how mental states and behavior shape our neurology, just as our neurology shapes mental states and behavior.

Evidence of mental awareness occurring despite impaired neural functioning is also difficult for materialists to explain. For instance, one group of researchers were able to detect signs of awareness while a client was in a vegetative state (Owen, Coleman, Boly, Davis, Laureys, and Packard, 2006). Near death experiences (NDEs) also provide evidence of awareness occurring although neural functioning is impacted. Since Raymond Moody published his popular book on NDE accounts, *Life After Life* (1975), there has been a debate between researchers on both sides of the aisle about whether NDEs occur because of neurological changes during the death process or whether they constitute evidence of the mind functioning independently from neurology.

Some areas of research tend to be categorically dismissed by scientific materialists, including studies of people who report out of body experiences, children who remember previous lives, and paranormal experiences. However, evidence of such phenomena continues to emerge despite efforts by many in the scientific community to discount it. Findings across multiple bodies of research, albeit many of them esoteric, might eventually bring a change in scientific thinking about the mind–body relationship in which evidence leads scientists to reconsider the possibility of a ghost in the machine.

A Brief Overview of Materialist/Physicalist Views of Mind

Materialistic models of mind hold that the mind is derived from neurobiological interaction. Materialists see mind as an epiphenomenon that is a byproduct of neurological events. But even materialist scientists who claim they can “show how consciousness... emerges gradually from the operation of elements of physical reality,” qualify their proclamations with statements like, “the nature and genesis of the mind and consciousness remains a mystery to this day, in spite of hundreds of years of philosophical considerations and scientific research” (Korzeniewski, 2011, pp. 7–8). Some point to correlations between neurological events and mental functioning as evidence supporting

the materialist view. For example, Florence Thibaut notes that “recent advances in neuroscience make it more and more difficult to draw a precise line between neurological disorders (considered to be ‘structural brain disorders’) and psychiatric disorders (considered to be ‘functional brain disorders’)” [Thibaut, 2018, p. 3]. Researchers also point out that cognitive functioning is not limited to neural pathways alone but can be shown to network with a vast array of cellular networks in the body (Ciaunica, Shmeleva, and Levin, 2023).

However, materialists are stumped by what Chalmers calls the hard problem of consciousness. “It is widely agreed that experience arises from a physical basis, but we have no good explanation of why and how it so arises” (Chalmers, 1995, p. 201). Neuroscience has begun to solve the “easy problems” of linking mental activity to neurological changes, explaining the dynamics of consciousness and its functions, and mapping the structures of the brain and nervous system, but they have yet to solve the hard question of what generates subjective experiences of awareness, feelings, and so forth. Tononi and Koch note that “...as long as one starts from the brain and asks how it could possibly give rise to experience — in effect trying to ‘distill’ mind out of matter, the problem may be not only hard, but almost impossible to solve” (Tononi and Koch, 2015, p. 5).

An interesting reframing of this dilemma was suggested by Max Tegmark, who put forward “the hypothesis that consciousness can be understood as a state of matter, ‘perceptronium,’ with distinctive information processing abilities” (Tegmark, 2015, p. 1). This is not a new idea. In the *Dhatuvibhanga Sutta*, the Buddha mentioned six elements: earth, water, fire, air, space, and consciousness (Bhikku Nanamoli and Bhikku Bodhi, translators, 1995). Within the Buddha’s formulation of the elements, the earth element constitutes solid materials both within and outside the body, the water element consists of fluid and viscous substances within and outside the body, the term fire element refers to warmth and heat within and outside the body, the air element consists of movement and motility both internal and external, the space element is the lack of internal and external obstruction (for example spacial gaps within the body), and the consciousness element constitutes that which knows, perceives, feels, etc.

Though it might be appropriate to codify the mind as an element, the hard problem of consciousness remains. Scientific method has yet to identify the exact nature of mind, what gives rise to it, and whether it is identical to or different from matter. Nor has scientific method settled the question about whether some aspect of mind might survive physical death. Mysterianists, like Colin McGinn, postulate that our minds might not be able to fathom the hard problem of consciousness (McGinn, 1989), but perhaps advances in scientific method will eventually allow researchers to better understand the nature of the mind.

A Brief Overview of Cartesian Dualism and Non-Material Views of Mind

Paul L. Nunez reports that “consciousness manifests at multiple levels of brain organization Some aspects of dualism are ... fully consistent with modern science” (Nunez, 2016, pp.10–11). There are several schools of dualism. Substance dualism offers the theory that mind and body are of differing substances or entities (Cartesian dualism). Property dualists argue that mental events are non-physical properties of brain functions thus ceasing when the brain ceases and are therefore closely allied with a materialist view of the mind. Thomistic dualists (after Thomas Aquinas) are influenced by a theological view that postulates that the body, prime matter, is formed from the soul, substantial form. They believe that at death, the soul stops influencing the body until it is resurrected by a higher power (Eberl, 2004). There are also other dualist theories, for example, the theory of a naturally eternal consciousness (NEC) holds that consciousness is not extinguished at death but becomes “imperceptively timeless” from the perspective of the dying person (Ehlmann, 2022). Another perspective is the theory of non-localized consciousness which “postulates consciousness as the fundamental basis of reality” (Schwartz, 2015, p. 252).

As mentioned above, materialist viewpoints currently dominate scientific publications where there is a tendency to dismiss and mischaracterize dualist views of mind. For example, Mario Bunge, in his book *Scientific Materialism*, attacks psychophysical dualism along three fronts:

1. “The most blatant conceptual defect of psychophysical dualism is its imprecision: it does not state clearly what mind is because it offers neither a theory nor a definition of mind.”
2. “...it detaches mental states and events from any things that might be in such states or undergo such changes.”
3. “...it is consistent with creationism but not with evolutionism” (Bunge, 1987, pp. 11–12).

However, Bunge’s objections do not hold true for the view of mind found in Buddhist psychology, which has descriptions of how various mental states arise in connection with physiology. Furthermore, Buddhist psychology is not based on creationism and its tenets do not contradict evolutionism.

A Brief Overview of Buddhist Psychology

Bunge’s first rebuttal point of a non-material view of mind is that “it does not state clearly what mind is because it offers neither a theory nor a definition of mind” (Bunge, 1987, p. 11). However, Buddhist psychology, which relies on introspection and doctrinal sources to examine the mind and its functions, offers both a theory and a definition of mind. In the Buddhist text, the *Descent to Lanka*

Sutra, it says, “The mind’s nature is luminous clarity” (quoted in Dalai Lama, Dunne, Jinpa, and Rochard, 2020, p. 42). There are various schools of Buddhist psychology, one of which is called the Sautrantika school which employs reasoning. Within this system of thought, mind is defined as “clear and aware” (Tharchin, 2005, p. 188), thus defining it by way of its attributes. In this view, mind’s clarity aspect allows it to assimilate the aspects of whatever appears to it and its awareness aspect allows it to be aware of that appearance. “In general, matter and consciousness are differentiated by whether they are obstructive, established as clear and aware in nature, and capable of knowing objects” (Dalai Lama et al., 2020, p. 39). According to Buddhist psychological thought, mind lacks color and shape, takes on the characteristics of whatever appears to it, is fleeting and constantly moving, and draws many associated factors along with it as it functions.

There are similarities between Buddhist secret/esoteric teachings (Vajrayana) and Western psychological theories concerning unconscious and conscious elements of mental functioning. In particular, different levels of coarseness and subtlety of mental functioning are noted in esoteric Buddhism with waking consciousness described as coarse, sleep/dreams described as subtle, and the mind at the time of death described as the most subtle (Dalai Lama and Varela, 1997). At its most subtle level, mind is thought to be indivisible with what Buddhists refer to as most subtle “wind” (Tibetan: *rlung*, Sanskrit: *vayu*). The “wind” aspect of the most subtle mind is what moves it and causes it to function/activate. Some translate this term as “energy.” Buddhist systems of medicine teach that this subtle energy aspect of the most subtle mind is what allows it to interact with corresponding energy in different aspects of matter. Thus, at its most subtle level, there is no duality between mind and its energy, and the latter energy aspect can interact with material substances. Therefore, this quality attributed to the most subtle wind–mind counteracts Bunge’s second objection to dualist theories of mind: that they detach “...mental states and events from any things that might be in such states or undergo such changes” (Bunge, 1987, p. 11).

Buddhist medical texts and esoteric schools of Buddhism describe both a course and a subtle body, saying that within the subtle body the mind functions within channels or nerves/veins (Tibetan: *rtsa*, Sanskrit: *nadi*). Mind is said to be carried through these channels by associated wind or energy like a rider on a horse. Moving with the mind and its wind are subtle drops (Tibetan: *thig le*, Sanskrit: *bindu/tilaka*) that are referred to as “messengers.” These subtle drops are described as vital essences composed of wind, mind, and white and red constituents (Tibetan: *khams dkar dmar*), some of which move and some of which abide within specific nodal channel locations. It is said that changes in the mind’s focus alter the flow of the winds and drops and where they localize in the body’s network of channels. Buddhist medical texts describe a vast network of channels within the body, details about how the channels, drops, and winds develop within an embryo, and specifics about how the channels network with the brain

to support sense perception and other mind–body functions (Dalai Lama and Jinpa, 2017, pp. 339–415).

While this model of the mind–body connection may hold similarities to and differences from current neurological models, Buddhist practitioners have used the Buddhist model effectively for centuries. Advanced forms of Buddhist meditation attempt to manipulate the subtle physiological supports of mental functioning outlined above. For example, one Buddhist meditation technique called inner heat, which focuses on the nerves, energies, and subtle drops, was studied by Western researchers with interesting findings. The researchers found that practitioners of inner heat yoga were able to raise their core body temperature, with temperatures in the extremities like fingers and toes rising by as much as 8.3 degrees Celsius (Benson, Lehmann, Malhotra, Goodman, Hopkins, and Epstein, 1982). In one recent study, researchers also found that, “Using systematic approaches to produce increasingly higher arousal, Vajrayana practitioners ... seem to be in control of their sympatho-adrenal system” (Kozhevnikov, Strasser, McDougal, Dhond, and Samuel, 2022, p. 12). This ability to alter physiological systems by focusing on nodal points described in the Buddhist model might be of interest to mind–body researchers. In the debate over materialist vs. nonmaterial views of mind, it offers an example of mind exerting control over physiology.

There are different categories of cognition posited in Buddhist psychology including direct perception, inference, mistaken conceptual and non-conceptual consciousnesses, non-mistaken conceptual and non-conceptual consciousnesses, sense consciousness versus mental consciousness, as well as primary and secondary aspects of mind (Dalai Lama et al. 2020). “Consciousness is defined to be the main mind, which is established through holding the basic nature of its object” (Tharchin, 1979, p. 145). In his text *Treasury of Knowledge*, Vasubandhu (4th to 5th century C.E.), says “primary consciousness is the bare discernment of discrete entities” (Gyentsen, translated by Montenegro, 2010, p. 17). The Sautrantika system of Buddhist psychology mentions six types of primary consciousness: mental, visual, auditory, olfactory, gustatory, and tactile (Tharchin, 1979), each of which has its own unique supporting faculty. For example, visual consciousness relies on a functioning eye faculty, etc. Each of these primary minds also has its own unique field of experience that arises based on its “dominant condition,” which is its sense faculty. For example, olfactory consciousness arises from the sense faculty of the nose and only experiences smells. There must also be an objective object of a scent in order for it to perceive a smell. In contrast, mind consciousness can function with or without objects of sensory experience. While various objects of engagement appear to their respective sense faculties, whether these sense objects are apprehended depends on the focus of the mind consciousness, which can cognize both external things like sensory experiences and internal things like thoughts, concepts, memories, feelings, and emotions. Therefore, in this system it is the mind consciousness, not

the respective sense consciousnesses, that judges, categorizes, labels, and reacts to sensory experience.

Unlike the materialist view that the mind arises from neural functioning, the Sautrantika view is that the faculty that gives rise to a given moment of mental consciousness is “the immediately preceding consciousness” (Tharchin, 1979, p. 149) including any form of sensory or mental awareness. Matter and mind are considered substantially different within the Sautrantika school of Buddhist psychology: “furthermore, although anything that is not consciousness, such as something physical, cannot be the substantial cause of consciousness, both matter and consciousness are mutually dependent on each other” (Dalai Lama et al., 2020, p. 46). In other words, mind and body interact and affect each other, while being substantially different in their fundamental natures.

The Buddhist logician Dharmakirti (600–660 C.E.) asserted that only a previous moment of mind can give rise to mind, and that mind cannot be caused by matter. He further argued that mind and body influence and interact with each other, but also have their own separate continuums of causality: “The same is true of mind and body. They coexist with each one’s cause assisting in the arising of the other’s result, like fire and the liquidity of copper” (Dharmakirti, translated by Engle, 2009, p. 53). In other words, fire’s heat melts copper when they interact, yet fire is not materially caused by copper, nor is copper materially caused by fire. They influence each other but have distinct and separate substantial causes. Previous moments of copper produce current moments of copper and previous moments of heat produce current moments of fire. Similarly, our physiology/neurology affects our minds, and our minds affect our physiology/neurology, but the direct causes of mind and body are substantially different. Any moment of mind must be produced by a previous moment of mind. Any moment of the material aspects of our physiology/neurology must be produced by previous moments of a material nature.

Secondary aspects of mind, according to the Sautrantika viewpoint, are mental factors that share a similar basis, object of focus, aspect, time, and cognitive quality with the primary mind that they accompany. These include five “ever-present mental factors”: feeling, discernment, intention, contact, and attention. This system also mentions 46 other mental factors that are not necessarily present in each moment of awareness, but that can alter a primary mind when engaged with it in a positive or negative way depending on the specific mental factor(s) involved (Gyentsen, translated by Montenegro, 2010). Five of these mental factors help in ascertaining objects of awareness: intelligence, aspiration, one-pointedness, memory, and will; eleven are considered positive mental states; six are called root afflictions; twenty are called related mental afflictions; and four more are referred to as variable (Tharchin, 1979).

In this tradition, the description of mental factors as positive versus negative is given depending on whether the specific mental state is considered to bring

well-being and happiness or whether it afflicts the mind and brings suffering. For example, hatred is one of the six root afflictions and is defined as “a total animosity towards beings, suffering, and the basis of suffering. It acts as a support for wrongdoing and prevents one from remaining in a state of ease and happiness” (Tharchin, 1979, p. 169). There is a debate in Western psychology and mental health over whether or not anger is a healthy emotion. Some research indicates that a high level of anger is linked to heart disease (Kawachi, Sparrow, Spiro, Vokonas, and Weiss, 1996; Krantz, Whittaker, and Sheps, 2011), premature death (Barefoot, Dahlstrom, and Williams, 1983), various health problems (Staicu and Cuțov, 2010), as well as to decreased life satisfaction and increased conflict with family and work (Williams and Williams, 1993).

As for Bunge’s remaining assertions that dualist views of the mind are based on creationism and are not consistent with an evolutionary view (Bunge, 1981, pp. 11–12), this is simply not accurate in regard to the view of mind found in Buddhist psychology. No creator apart from cause and effect (Sanskrit: *karma*) is asserted in Buddhism, and many texts can be found within Buddhist literature that describe beings evolving and/or devolving over time depending on their individual and collective actions. While this is not based on a genetic view of evolution, it is not antithetical to it. There is a stance within Buddhist logic to accept observable and logical truths over doctrinal tenets, which makes the tradition amenable to scientific method. In addition, the esoteric schools of Buddhism describe details of the psychophysiological stages of the dying process that have yet to be thoroughly investigated by scientific inquiry (Dalai Lama and Varela, 1997). An understanding of the Buddhist texts describing the stages of the death process might be useful for researchers of near-death experiences.

Phenomena Difficult to Explain Within a Materialist View of Mind

The intangible nature of the mind has contributed not only to the debate over whether it is material or non-material, but it has also made it difficult to define. The Merriam–Webster dictionary gives several definitions including:

- “a: the element or complex of elements in an individual that feels, perceives, thinks, wills, and especially reasons
- b: the conscious mental events and capabilities in an organism
- c: the organized conscious and unconscious adaptive mental activity of an organism” (2023, December 1).¹

¹ The Cambridge, Oxford, and Macmillan dictionaries have similar definitions.

Our sense faculties can perceive forms, colors, sounds, smells, tastes, and tangible phenomena, but not the mind itself. It seems that only the mind is capable of being aware of itself. Advances in technology are now allowing researchers to trace neural responses in relation to cognitive events. fMRI scans have been honed to the point of being able to non-invasively decode neural activities into a text stream that approximates a person's stream of thoughts (Devlin, 2023). Despite such advances in tracing neural functioning in relation to mental events, the mind itself continues to elude direct scrutiny through neuroimaging. Areas of research that are often ignored or dismissed because they indicate instances of mental events that are not explainable within the materialist paradigm will be explored below. If research on anomalies that do not fit the current paradigm of mind remains unconsidered, the resulting conclusions about the nature of the mind in the scientific community will likely be flawed. Logically, if there is even a single instance in which the mind can be shown to function independently of neural processes, it undermines the materialist assertion that the mind is an epiphenomenon that is completely dependent on neural functioning.

Near Death Experiences (NDEs)

According to the International Association for Near Death Studies (IANDS, 2007, July 24), "Surveys taken in the United States, Australia and Germany suggest that 4% to 15% of the population have had near death experiences (NDEs)." The Parnia Lab of the New York University Grossman School of Medicine has conducted a series of studies looking into the relationship between the experience of death and conscious awareness. In particular, the lab has conducted studies of cases of resuscitation after heart failures shut down brain functioning, during which time there are no clinical signs of mental functioning. In one study, 11.1% of 63 cardiac-arrest survivors reported memories of their unconscious period (Parnia et al., 2001). "A prolonged, detailed, lucid experience following cardiac arrest should not be possible, yet this is reported in many NDEs. This is especially notable given the prolonged period of amnesia that typically precedes and follows recovery from cardiac arrest" (Long, 2014, p. 373). In the Parnia Lab's AWAness during REsuscitation (AWARE) study, a team of researchers conducted a four-year study of cardiac arrest (CA) events. Among the 2060 cardiac arrest events that were studied, 140 survivors completed stage 1 interviews, and of them, 101 also completed stage 2 interviews. Researchers found that, "46% had memories with 7 major cognitive themes: fear; animals/plants; bright light; violence/persecution; deja-vu; family; recalling events post-CA and 9% had NDEs, while 2% described awareness with explicit recall of 'seeing' and 'hearing' actual events related to their resuscitation. One had a verifiable period of conscious awareness during which time cerebral function was not expected" (Parnia et. al., 2014, p. 1799).

Clear, lucid moments of awareness should also not be possible under sedation, yet Jeffrey Long “reviewed 613 near-death experiences ... and found 23 NDEs that appeared to have occurred while under general anesthesia” (Long, 2014, p. 375). Another unusual phenomenon that can occur during NDEs is when a blind person reports having been able to vividly see shapes and forms. “Vision in near-death experiencers that are blind, including totally blind from birth, has been described in many case reports” (Long, 2014, p. 375). Long also reports that NDE life review experiences tend to be historically accurate, young children report similar NDE experiences to adults, accounts of NDEs are similar across different cultures, and people who experience NDEs tend to find them deeply transformative.

There are various explanations put forward by researchers about NDEs. Psychological models suggest that reactions at the threat of dying cause symptoms like depersonalization, dissociation, and fantasies. However, comparative studies suggest that the vividness and persistence of NDE memories make them unlikely to be fantasies (Moore and Greyson, 2017). Biological/materialist models argue that NDEs are due to physiological reactions and remnants of neural functioning during the death process. In one study of four dying subjects, researchers discovered a transient burst of electrical activity in the brain just before death (Xu, Mihaylova, Li, Tian, Farrehi, Parent, Mashour, Wang, and Borjigin, 2023). The researchers suggest that this burst of activity might indicate that the dying human brain can be activated and recommend further investigation of covert consciousness during cardiac arrest. A materialist perspective might hold that this burst of electrical activity in a dying brain is responsible for vivid subjective experiences during the death process (Costandi, 2023), whereas a non-materialist perspective might offer additional interpretations of the same data. For example, perhaps the burst of activity is caused by the winds supporting grosser levels of mental activity transitioning to more subtle levels of wind–mind activation. Esoteric schools of Buddhism state that during the dying process the airs supporting various elements of the body and mind sequentially lose their capacity to function, followed by the dawning of increasingly more refined mental states. Yet another possibility is that a download of the person’s life events occurs during the burst of electrical activity, which more subtle levels of mind carry forward through the death process. Simply stated: it’s hard to know.

Researchers have begun to study incidents of *Tukdam* (Tibetan: *thugs dam*), a rare phenomenon in which a dying meditator is able to maintain meditation during the entire death process. Often, the bodies of such meditators, who continue to sit upright throughout the death process, do not show signs of decomposition for several days after clinical death even in hot weather (Thompson, 2017; Whitaker, 2020). One team of researchers was able to use EEG to monitor electrical activity in living meditators and compare that data to EEG data retrieved from meditators in the state of *Tukdam*, finding no evidence of electrical activity even in the brain stems of the *Tukdam* meditators (Lott et al., 2021).

Materialists might interpret the lack of neural functioning in *Tukdam* meditators as evidence that their minds have ceased to function, but an understanding of esoteric schools of Buddhism provides an alternative explanation for the same data. According to esoteric Buddhist traditions, when advanced meditators reach the state of *Tukdam*, grosser levels of internal winds and mind have completely dissolved, leaving only the most subtle level of wind–mind, which is called “the clear light of death.” At that point in time, esoteric traditions maintain that the meditator’s mind has separated from their physiology and therefore no correlate of physiological functioning would be expected. The body is dead, but the most subtle level of mind is said to survive.

Out of Body Experiences (OBEs)

“About 45% of near-death experiencers report OBEs (out of body experiences) which involves them seeing and often hearing ongoing earthly events from a perspective that is apart, and usually above, their physical bodies. Following cardiac arrest, NDErs may see, and later accurately describe, their own resuscitation” (Long, 2014, p. 373). Various estimates have been made on the frequency of OBEs in the general population. One group estimated about 17% (Zingrone and Alvarado, 2009) while other surveys have estimated between 6%–14% (Alvarado, 2015) with studies of rates among college students being higher (Alvarado, 2000). Occasionally, following an OBE, people give accurate accounts of what they witnessed happening around them while outside their body. For example, in one famous case, a patient receiving invasive brain surgery, Pam Reynolds, accurately reported details of surgical procedures and surgical instruments she said she observed from outside of her body during her surgery (Sabom, 1998).

Recent neurological studies have begun to map what happens in the brain during voluntary OBEs (Andra and Claude, 2014), but researchers concede that voluntary OBEs might be different from involuntary OBEs. Research on involuntary OBEs indicates a link between such experiences and disruptions in the temporo-parietal juncture (Blanke, 2004). Involuntary OBEs have been found to occur during life threatening situations like when there is severe physical trauma, during near-death experiences, or when subjected to physical and/or sexual abuse, but OBEs can also occur in relaxed situations like when falling asleep, dreaming, or meditating. There are also incidents reported that seem drug induced, for instance, when exposed to Ketamine (Wilkins, Girard, and Cheyne, 2011). OBEs sometimes occur when someone is in a coma or when physically exhausted (Alvarado, 2015). OBEs can be voluntarily or mechanically induced, for example by direct stimulation of the vestibular cortex (Cheyne and Girard, 2009). OBEs often occur during lucid dreams (Palmer, 1979) or during episodes of sleep paralysis, and are more frequently reported by people who also report other psychic experiences (Alvarado and Zingrone, 2007).

Various explanations are proffered by scientists to explain OBEs. Some take a psychological stance that OBEs are a form of fantasy, hypnogogic imagining, or hallucination caused by abnormalities in neural functioning. Others think of them as paranormal phenomena and use words like astral projection or see them as evidence of a subtle body. Indeed, there may be various forms of OBEs as there are various causes and contexts. A central research question has been whether subjects can accurately see objects and events outside of themselves during OBEs. In one study, survivors of cardiac arrest were asked to describe details of their resuscitation. Those who reported NDEs with OBEs gave much more accurate descriptions of their resuscitations than those who did not report NDEs or OBEs (Sabom, 1982). A study by Penny Sartori (2008) supported Sabom's findings that cardiac arrest survivors who report having had NDEs with OBEs give much more accurate reports of events that occurred during their resuscitations than survivors without NDEs or OBEs. Also, Janice Holden studied 107 cases in the NDE literature in which patients recounted details of events that they remembered observing from outside of their bodies during cardiac arrest. Of these 107 cases, 92% of the patient accounts of the observed details were later verified as accurate by hospital staff (Holden, 2009).

Sometimes NDE/OBE cardiac arrest survivors report observations of highly unusual events, for example one NDE/OBE cardiac arrest survivor recalled seeing their surgeon "flapping his arms as if trying to fly," which the surgeon later verified as corresponding to holding his hands flat on his chest after scrubbing them and using his elbows to point out instructions to co-workers (Cook, Greyson, and Stevenson, 1998, pp. 399–400). Materialists try to disregard such reports, attributing them to cardiac survival patients hearing events around them during their resuscitations. However, there are incidents reported in the research where NDE/OBE cardiac arrest survivors give accurate details of events that occurred at distances far away from where they were at the time of the NDE episode in which no sensory awareness of the observed events would have been possible (Cook et al., 1998; Kelly, Greyson, and Stevenson, 2000). For the above reasons, non-materialists can logically maintain that it is simpler and more likely that such incidents are examples of the mind temporarily functioning outside the body.

Memories of a Previous Life

Ian Stevenson studied over 2500 cases of children who claimed memories of a previous life during 40 years of international field work. Stevenson and fellow researchers found that cases of children who claim to have memories of a previous life can be easily found in various parts of the world including South Asia, parts of Western Asia, and West Africa (Stevenson and Samararatne, 1988). One sample of the cases he and fellow investigators researched is the case of Sukla, daughter of Sri K. N. Sen Gupta, born in Kampa, West Bengal in 1954: as soon as she began

talking at one-and-a-half years old, she began cradling a block of wood or pillow and calling it “Minu,” who she said was her daughter. She said Minu lived with “he” (her husband) and his two younger brothers, Khetu and Karuna, at Rathala in Bhatpara (about 11 miles away from Kampa). Sukla insisted on going there with or without her family’s help, so her father investigated through his friends and their relatives, one of whom discovered that there was a man named Khetu who lived in Rathala. Khetu reported that his sister-in-law, Mana, had died a few years previously leaving behind a daughter named Minu. Several details given by Sukla of her previous life were later verified as accurate, and during a visit to Bhatpara, Sukla was able to identify the route to her previous life’s home and recognize many members of her previous life’s family including Mana’s father-in-law, her daughter Minu, Mana’s husband, her brothers-in-law Khetu and Karuna, and her stepmother-in-law (Stevenson, 1974). Again, this is just one of over 2500 similar cases (Tucker, 2007). Weaknesses in one case are balanced by strengths in others.

Stevenson was eventually able to develop a network of research affiliates around the world making it possible in some instances for investigators to record a child’s account of memories before trying to verify the historical accuracy of their memories. For example, in one case, a young girl born to schoolteachers (Subashini Gunasekera, born January 13, 1980) described being trapped by a landslide during a rainstorm. She said she had a family member named Vasini, that they lived on a tea farm next to a hill in a town called Sinhapitiya, Gampola, and she gave several other details of her life and memories of the landslide that ended it. When Subashini’s parents learned from a relative that there had been a tragic landslide in that town, her father took Subashini there, but she became so frightened when they approached the site of the tragedy that her father curtailed the visit before he could ask people in the area for details about what had happened. Later, investigators interviewed Subashini and her family, recording details of her memories, before researching the site at Sinhapitiya where they interviewed survivors of the tragedy. Researchers were able to verify all but seven of the thirty-two details that Subashini had given of her previous life as accurate for a young girl, Devi Mallika, who died in the landslide. One verified detail was that Devi Mallika had a younger sister whose nickname was Vasini (Stevenson and Samararatne, 1988).

Similar cases of children with memories of a previous life have been reported in various cultures throughout history. Usually, children who report such memories are between two and five or six years of age. Fairly recently, a young boy, James Leininger, reported memories that were later verified of having been a United States fighter pilot shot down in World War II, and another young boy, Ryan Hammons, had memories that were later verified of having been a Hollywood extra and a talent agent (Tucker, 2013). In another case, Rylann O’Bannon, born in Bartlesville, Oklahoma on March 11, 2008, began talking at about 27 months old of having been “bigger” than she appeared in a photo of her in her mother’s office. A year later, Rylann said to her mother, “You know when I was bigger in

that picture? I was nineteen in that picture. You know, how big Ashlen is.” Ashlen was Rylann’s nineteen-year-old sister. Over time, she slowly added details of her memories of having died and gone to heaven, of a house she had lived in, having had the name Jennifer, and eventually started recalling details of a plane crash, burning on the back of her neck, and she drew a picture of plane with a blue blob on its tail that her mother later discovered to correspond with the blue-and-white insignia of Pan Am, an airline that had gone out of business in 1991. Her mother was able to piece together many of the various details Rylann had given her as fitting the description of Jennifer Schultz, an 11-year-old girl in Kenner, Louisiana who died in 1982 when Pan Am Flight 759 crashed into Kenner’s Morningside Park killing eight people on the ground including Jennifer Schultz as well as all 145 of its passengers (Matlock, 2019).

Often it is the parents of children describing memories of a previous life who do the initial research into their child’s disclosures, which critics point to as a possible source of bias. But, in many such cases, the child’s parents do not believe in rebirth and are reluctant to accept it, only becoming convinced of it once the historical record supports their child’s reported memories. Parental skepticism about child disclosures of past-life memories might be a reason that fewer incidences of past-life memories are reported in some cultures than in others. Despite this, cases of children who recall a previous life continue to appear around the globe (Matlock, 2019). Materialists cannot explain such occurrences and tend to dismiss them or imply that the researchers and/or the subjects reporting such memories and those around them manipulated the data or that the researchers did sloppy work. However, researchers like Stevenson have been vigilant in their approach to such investigations, openly discussing weaknesses in their methods, the data, or suggesting alternative explanations for their findings. In frustration at the reluctance of fellow scientists to be objective about his research, Stevenson (2008, p. 132) once wrote, “A surprising number are scared to death of new ideas. They have attacked major discoveries without even glancing at the evidence. And their distrust of un-conventional experiments may now be hampering scientific progress.”

Stevenson found that in about 35% of the cases that he and others researched on children with memories of a previous life, children had birthmarks and/or birth defects that corresponded with wounds (usually fatal) they recalled having incurred during the previous life. For example, one man, Maha Ram, with a cluster of discolored pigment patches on his chest, recalled dying in his previous life from a shotgun fired at close range. In another case, a Thai man with a large deformity on the left side of his head recalled as a child that he had died in his previous life from a blow to the head with a heavy knife. A Turkish boy with a deformity to his right ear recalled dying in his previous life from a shotgun blast to the right side of his head fired at close range (Stevenson, 1993). When taken as a whole, the research on children with memories of a past life is compelling and supports non-material theories of mind. Any evidence of a mind traveling from

one body into another offers support that the mind is not necessarily always tied to neurology.

Details of psycho-physical factors in the dissolution process at the time of death, during the time between lives, and into the process of taking a new birth are described in various esoteric Buddhist texts (A-kya Yongs-'dzin Dbyangs-can Dga'-ba'i Blo-gros, 1985). The Buddhist logicians Dignaga (~450 C.E.) and Dharmakirti (600–660 C.E.) offered logical arguments for the existence of rebirth (see Engle, 2009; Tharchin, 2008), including the following:

1. Unlike panpsychism, which holds that everything, including matter, arises from mind, Buddhists maintain that matter cannot give rise to consciousness. Otherwise, even rocks, sand, and/or other material/physical elements would spontaneously give rise to awareness. There is a unique relationship between causes and their effects. Śāntarakṣita (725–788), a Buddhist philosopher who integrated Dignaga's and Dharmakirti's logic with the Middle Way philosophy of Nāgārjuna (~150–250 CE), wrote that "Consciousness arises in a way that is opposite to anything in the nature of matter" (quoted in Dalai Lama et al., 2020, p. 44). Material causes give rise to material effects, but only something of a mental nature can serve as the substantial cause for the arising of a moment of mind. Our bodies assist in the functioning of our minds but are not the substantial cause for it. The substantial cause for a current moment of mind is a previous moment of mind. The relationship between body and mind is similar to how soil assists but is not the principal cause of sprouts.
2. Since a moment of mind can only be produced by a previous moment of mind, the first moments of mind in a developing fetus must be produced by a substantial cause with a mental nature that precedes conception. Therefore, for a human conception to occur, in addition to the sperm and egg which combine to form the substantial causes for a child's developing body, there must also be a substantial cause of a preceding moment of mind to produce a child's developing mind. That preceding moment of mind must have another preceding moment of mind to produce it, and so on. Thus, it is illogical to assert a beginning to a continuum of mind.
3. Assertions that mental states are completely determined by the body are unsupported by observation: actions of mind determine one's behaviors and the increase or decrease in knowledge, wisdom, and other mental states. The body can impact mental health, but mind also can impact mental and physical health.
4. Our ability to acquire new knowledge over time depends on a continuum in which one moment of mental awareness and understanding evolves out of a previous moment of mental awareness and understanding. Previous experiences shape our current understanding of ourselves and our world. In the Buddhist environment, our continuums of mind are thought to

precede our current lives, so some instinctual behaviors we develop in this life are thought to be from habits learned in previous existences. For instance, an infant's natural instinct to suckle might be considered as a survival strategy learned over many lifetimes.

5. Buddhist logicians also argue that, since viable causes produce their respective results, the last moments of the mind of a dying person who craves continued existence produces a cause in their mental continuum that will inevitably give rise to a corresponding result: a future life.

There are many other traditions besides Buddhism that accept past and future lives. The hidden nature of the mind and what happens to it during the death process and afterwards makes it virtually impossible to study through scientific method at this point in time, but the research of Stevenson and others seems to offer a rare glimpse behind the curtain.

Paranormal Experiences

Paranormal experiences are reported fairly often. For example, in one study conducted in the United States, at least one paranormal experience was reported by 89.3% of the general population, 89.5% of scientists and engineers, and 97.8% of paranormal enthusiasts (Wahbeh, Radin, Mossbridge, Vieten, and Delorme, 2018). Despite this, scientific studies of phenomena like precognition, remote viewing, telepathy, and clairvoyance are considered by many as a pseudoscience and unfortunately have a history of dubious and/or falsified claims (Boudry, Blancke, and Pigliucci, 2015). However, some fairly reliable evidence of remote viewing and other paranormal phenomena has emerged.

For example, in a covert United States government funded research study with the code name STARGATE, which was de-classified by the CIA in 1995 (Miyamoto, 2018), remote viewers were given only latitudes and longitudes of targets. In a trial case, a person being remotely viewed happened to visit a windmill farm before proceeding to the study's targeted area, an Electron Accelerator at the Lawrence Livermore National Laboratory (LLNL). The remote viewing was rated overall as 77% accurate for target elements described correctly by the remote viewer but was 100% reliable for correct responses by the remote viewer in the description of the windmill farm. In an operational case assignment, a remote viewer was able to accurately describe details of a super-secret Soviet atomic bomb laboratory at Semipalatinsk. In another case in which precognition seemed evident, a remote viewer named Joe McMoneagle in September 1979 gave exact details of the building and launch of a giant Soviet submarine including a description of the building of a special waterway for its launch. This was not something foreseen or predicted by intelligence sources. Yet, "In January 1980, exactly as predicted by Joe, spy satellite pictures confirmed the launching of the world's biggest submarine after

construction of an artificial channel connecting the building to the water. It had 20 missile tubes, a large flat deck etc exactly as described by Joe!” (Srinivasan, 2002).

While the STARGATE research showed some evidence of incidences of clairvoyance, the overall results were not considered dependable enough to make them strategically useful in military operations and questions were raised about inter-judge reliability. Therefore, the government discontinued the study. However, for the purposes of the debate between materialists and non-materialists, the above examples show instances of the mind functioning beyond the range of normal sensory awareness. This supports the stance that the mind is not material in nature because there are instances in which it appears to be capable of functioning outside the boundaries of neurology and normal sensory fields. In response to critiques by skeptics about the methodology in early studies of remote viewing, more recent researchers have used rigorous double blind and tripple bind studies of non-localized perception and have found similar results validating instances of remote viewing (Tressoldi, 2011).

Many reports of psychic events come in the form of impressions or intuitions, which are therefore difficult to study scientifically. Researchers like Stevenson have attempted to do so via analyzing anecdotal accounts of telepathic impressions. For example, in one case James Carroll reported experiencing a sudden depression when thinking of his brother and later discovered that the timing of his “strange sadness” coincided with the first day of his brother’s fatal illness. Often in such cases the person who experiences the intuition is emotionally close to the focal person of their impression (Stevenson, 1970).

In recent years, paranormal research has often included the use of neuroimaging. For example, in one MRI study, when healers were instructed to make an intentional connection with a sensory isolated person, correlated changes in brain function were observed in the specific individual of the healer’s focus (Achterberg, Cooke, Richards, Standish, Kozak, and Lake, 2005). In another study, neuroimaging was used on a famous “mentalist” and a control subject who were separately attempting to copy an image drawn remotely by a researcher. Significant activation of the right parahippocampal gyrus was noted in the mentalist immediately after they successfully rendered an approximation of the researcher’s drawing as compared to the control subject, who was unsuccessful in their attempt to render an approximation of the researcher’s drawing and who showed activation of their left inferior frontal gyrus (Venkatasubramanian et al., 2008). Researchers concluded that there might be a limbic base for telepathy. A materialist might see the accuracy of the mentalist’s drawing as a lucky coincidence or assume that the experiment was flawed and that the mentalist either used trickery or was having hallucinations of clairvoyance because of abnormal areas of neural activation. A non-materialist might see the accuracy of the mentalist’s drawing as evidence of their mind functioning beyond the bounds of normal perception, and that perhaps the difference in regions of neural activation between the mentalist and the control subject shows

evidence of their minds activating differing neural pathways as they approached the task at hand in different ways and with differing mental capacities.

Interactions Between Mind and Body

Much research has been done on the impact that changes in neurological functioning have on the mind. For example, an aging brain, genetics, environment, and lifestyle factors can contribute to developing Alzheimer's disease which impacts memory and other mental functions (NIH, National Institute on Aging, 2019). Significant research has also emerged showing that mental and behavioral changes impact neurological functioning and physical health. For example, excessive worrying can heighten stress which has a negative impact on physical health, adversely impacting our musculoskeletal, respiratory, cardiovascular, endocrine, gastrointestinal, nervous, and reproductive systems (American Psychological Association, 2023). Simply stated, physical and neurological changes affect the mind, and mental changes affect neurology and physiology. Behavioral changes have been shown to modulate key neurobiological systems, thus impacting health outcomes. Multiple studies have shown that areas of the brain involved with threat/stress, pain, rewards, and self/regulation can be modulated by cognitive-behavioral interventions, hypnotherapy, mindfulness practice, dietary changes, and other forms of behavioral change (Dutcher and Creswell, 2018).

Functional neuroimaging studies have shown that mindfulness practice engages areas of the brain's frontoparietal network and other associated networks affecting behavioral-change capacity, it helps decrease the amygdala's reactivity, thus moderating fight/flight responses, and enhances capacities like interoception while reducing impulsivity (Schuman-Olivier, Trombka, Lovas, Brewer, Vago, Gawande, Dunne, Lazar, Loucks, and Fulwiler, 2020). Mindfulness meditation has also been shown to reduce negative rumination, improve working memory, enhance focus of attention, and reduce emotional reactivity; and it has been linked to better self-observation and insight, enhanced relationship satisfaction, fear modulation, improved processing speed, as well as numerous health benefits (Davis and Hayes, 2012). In one study, mindfulness-based stress reduction (MBSR) worked as well as medication for treating anxiety (Hoge, Bui, Mete, Dutton, Baker, and Simon, 2023). Meditators show an increase in compassion (Condon, Desbordes, Miller, and DeSteno, 2013). In addition, mindfulness meditation has been linked to increased thickness in certain parts of the brain associated with concentration, self-regulation and empathy (Lazar, Kerr, Wasserman, Gray, Greve, Treadway, McGarvey, Quinn, Dusek, Benson, Rauch, Moore, and Fischl, 2005). Regular meditation practice is also associated with other long-lasting neurological changes, altering organization and connections in the frontal lobes, temporal lobes, the amygdala, the caudatus, occipital lobes, and right hippocampus (Lardone et al., 2018).

Another Buddhist practice called “mind training,” which is a systematic approach to reducing narcissism and enhancing compassionate insight, has been secularized and researched. Studies on one approach called Compassion Cultivation Training (CCT) showed that participants improved in self-compassion, compassion for others, and in the ability to receive compassion (Jazaieri, Jinpa, McGonigal, Rosenberg, Finkelstein, Simon–Thomas, and Goldin, 2013; Jazaieri, McGonigal, Jinpa, Doty, Gross, and Goldin, 2014). Studies on another similar approach called Cognitive Behavioral Compassion Training (CBCT) showed that participants reported reductions in anxiety as well as enhanced positive emotions and empathic accuracy (Mascaro, Rilling, Negi, and Raison, 2013). Pilot studies at George Mason University and the University of Maryland were done on a third similar approach called Compassion and Analytical Selective Focus Skills, COMPASS (Hurley, 2014, 2022). Participants in the George Mason University studies reported an increase in positive emotions (e.g., empathy, compassion), decreased fear of compassion, and positive anticipated increases in empathy and compassion (Goodman, Hurley, Pruzinsky, and Rietschel, 2016). Participants in the University of Maryland study showed an increase in mindfulness and reported that the centering exercises supported a positive state of being, self-care, and self-reflection (Hunt, Goodman, Hilert, Hurley, and Hill, 2021). In one neurological study, researchers found that “greater altruistic behavior after compassion training was associated with altered activation in regions implicated in social cognition and emotion regulation, including the inferior parietal cortex, dorsolateral prefrontal cortex (DLPFC), and DLPFC connectivity with the nucleus accumbens” (Weng, Fox, Shackman, Stodola, Caldwell, Olson, Rogers, and Davidson, 2013, p. 1171). These and other similar findings give support to a non-material view of the mind in that they show interactions in which mental activities impact neurology and physiology.

Conclusion

Evidence mentioned above of the mind impacting neurology, functioning beyond its bounds, and functioning independently of neurology creates reasonable doubt about the materialist stance that mind is an epiphenomenon that is totally dependent on neural functioning. While neuroimaging shows that mind is intimately tied to our neurology and physiology, the above research shows instances of the mind impacting neurology and apparently functioning independently from it, which offers credibility to the nonmaterialist stance that the mind is a continuum substantially different from matter and therefore might survive somatic death in some form. Observable manifestations of mental functioning through verbal and physical actions have been shown to be tied to neural functioning and mind–body interactions, but empirically, the ultimate nature of mind itself is an unresolved question.

The three theories of mind mentioned briefly above — materialist, dualist, and Buddhist — offer three different ways to view the mind. They have points of similarity and areas of divergence. Scientific method involves developing a theory based on current evidence and then testing it empirically. The invisible nature of the mind makes it a challenging object of study, especially when current research designs tend to focus on how neurology works with an underlying assumption among materialists that the mind is exclusively dependent on the neurology. If the mind is not an epiphenomenon of neural workings, how will this approach uncover its real nature? Instead, such an approach might merely reconfirm materialist bias.

Materialists seem quick to imply bias in research that shows the possibility of mind functioning independently of neurology — but are reluctant to admit bias when assuming that all mental states are necessarily tied to neurology. A reductionist insistence that things do not exist if they take place outside of one's ability to see them is not scientific. A willingness to abandon or modify one's theory in the light of new evidence is the hallmark of a true scientist. The true spirit of science is towards objectivity and inquiry into the unknown. Therefore, bias on either side of a question as challenging as understanding the nature of mind will surely obscure the truth and be an obstacle to new empirical knowledge. Advances in neuroimaging are an amazing and helpful tool for exploring the mind–body connection. Such advances in scientific methods might eventually reveal the mysteries of the mind if researchers keep open and unbiased minds.

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