

Out-of-Body Experience (OBE)

The out-of-body experience (OBE), the sense of having separated from the body and of viewing it from the outside, is widely reported. A typical account is the following: 'I was lying on my side of the bed. Then I was standing by the side of the bed looking down at myself in bed'.^[1] The experience can sometimes extend to the sense of travelling to other places and of being aware of events taking place, often referred to in occult and esoteric literature as 'astral travelling'. The OBE is a common feature of the near-death experience (NDE), which however has additional facets that make it an experiential syndrome in its own right.^[2]

There are broadly two competing explanations of the OBE: that 'something leaves the body' (spirit, mind, consciousness, etc); or that it is a purely hallucinatory event that can be adequately accounted for in terms of psychology and neuroscience.

Early Mentions

The phenomenon is occasionally mentioned in ancient literature, such as Indian and Chinese writings and those of classical antiquity.^[3] Gaius Plinius Secundus, known as Pliny the Elder (ca 23–79 AD) mentions in his *Historia Naturalis* Hermotinus of Clazomenae, whose soul was

in the habit of leaving his body, and wandering into distant countries, whence it brought back numerous accounts of various things, which could not have been obtained by any one but a person who was present. The body, in the meantime, was left apparently lifeless At last, however, his enemies, the Cantharidae . . . burned the body, so that the soul, on its return, was deprived of its sheath, as it were.^[4]

Cases that occurred under life-threatening conditions were chronicled during the Middle Ages. Examples include Atherton's *The Resurrection Proved* (1680) and the accounts of Hill (1711) and Wiltse (1889).^[5]

The Nineteenth Century

The idea of consciousness leaving the body emerged as an important topic in mesmerism in the first half of the nineteenth century. It was argued, for instance, that that magnetic influence could loosen the link between the body and the soul, allowing for the separation of the latter.^[6] One mesmerist subject, Bruno Binet, said: 'In the state I am now ... I am out of my body, I perceive it seated on the chair; I walk about in my room without being seen or felt by you whom I touch'.^[7]

Interesting work was carried out by mesmerists who instructed their subjects to travel to distant locations. The well-known French clairvoyant Alexis Didier believed that God allowed the soul to travel anywhere. He wrote: 'I can transport from a pole to another with the speed of lightning; I can talk with the Cafres, walk in China, descend on the mines of Australia, enter the harems of a sultan in less than an hour, without fatigue ...'.^[8]

The phenomenon subsequently also appeared in the literature of spiritualism in the second half of the nineteenth century. Samuel B. Brittan argued that 'the soul is not necessarily confined by its corporeal restraints to any specific locality; but ... it is free to traverse the world. ... Indeed, in some essential sense, the soul leaves the body, and makes excursions into remote regions ...'.^[9] A detailed example of an experience, although an unusual one, was recorded by the spirit medium DD Home, who had an OBE after going to sleep thinking about death. He heard a voice telling him not to be afraid and that the vision he was going to have was about death. Among other things, he said:

I felt that thought and action were no longer connected with the earthly tenement, but that they were in a spirit-body in every respect similar to the body which I knew to have been mine, and which I now saw lying motionless before me on the bed. The only link which held the two forms together seemed to be a silvery-like light, which proceeded from the brain ...^[10]

The OBE appears in the literature of Theosophy, a movement born in the second half of the nineteenth century and characterized by a belief in 'subtle bodies'. As described by Helena Petrovna Blavatsky in *Isis Unveiled*:

One phase of magical skill is the voluntary and conscious withdrawal of the inner man (astral form) from the outer man (physical body). In the cases of some mediums withdrawal occurs, but it is unconscious and involuntary. With the latter the body is more or less cataleptic at such times; but with the adept the absence of the astral form would

not be noticed, for the physical senses are alert, and the individual appears only as though in a fit of abstraction ...'^[11]

Later Theosophists also referred to the phenomenon.^[12]

The founding in London of the Society for Psychical Research in 1882 was the first systematic attempt to investigate anomalous phenomena such as mediumship, hauntings and apparitions. At this time, reports of the OBE were few, and so the phenomenon did not engage the attention of researchers. However it makes an appearance in disguised form in *Phantasms of the Living* (1886), a major study of apparitional hallucinations, in relation to reported cases where a person who succeeded in projecting his or her consciousness to a distant location, and perceiving another person there, was in turn perceived by that person (these cases are few in number and are termed 'reciprocal hallucinations'.^[13]

Scientific Research

By the start of the twentieth century paranormal researchers were starting to take a more active interest in the OBE. Hector Durville^[14] worked with sensitives he mesmerized and asked them to project their 'double' to nearby locations to perceive things there or to cause movements. He presented photographs of *silhouettes* of the presumed double at the target location as evidence that the 'double' really had left the body. However, it is not always clear from the accounts whether the person having the experience had felt that he or she was consciously present in the target location.

Ernesto Bozzano^[15] took a different approach, recording the details of spontaneous OBE cases, and arguing that the person's consciousness really had projected. He also reported phenomena he believed were related to OBEs such as phantom limb sensations, autoscopy (seeing one's 'double'), and the lights and mists that some people have reported arising from the body of a dying person. Bozzano considered that although these reported phenomena did not themselves amount to the OBE experience, they reinforced the notion of a subtle body. Other researchers who believed that something actually leaves the body during an OBE included Emil Mattiesen^[16], Sylvan J. Muldoon and Hereward Carrington.^[17]

During the modern period, the work of several psychologists has been influential in bringing the OBE back both to psychology and to parapsychology as a research topic, expanding our understanding of the phenomena beyond what is available in the occult literature and from the perspective of personal experience. This approach includes, among others, the pioneering psychophysiological studies of Charles T. Tart (1967, 1968), the analyses of cases by Celia Green (1968), the emphasis on imagery and lucid dream, and cognitive maps by Susan J. Blackmore (1982, 1984b), and the work of Harvey J. Irwin with absorption and other psychological variables (Irwin, 1980, 1985b). More recently the work of Olaf Blanke has not only publicized OBEs, but has done much to redefine the topic from the psychological and parapsychological perspectives to neurologically-based ones (e.g., Blanke, Landis, Spinelli, & Seeck, 2004).

Sources of Information about OBEs

The OBE generally occurs just once or twice in a lifetime; however a few authors have described multiple experiences of the phenomenon, and provided details about its circumstances and characteristics.

In his influential book *Projection of the Astral Body* (Muldoon & Carrington, 1929). **Sylvan J Muldoon** tried to identify patterns, for instance reporting that he generally felt shocks in the physical body if he returned too fast, which did not happen if he came back slowly. He also said he experienced confusion and difficulties in moving whenever he remained within eight feet of his physical body. Muldoon believed that the experience came about as a result of an effort of will to leave the body, combined with the presence of a physical 'incapacity' that made him unable to move, an effect of sleep or by illness (a frequent occurrence for Muldoon).

Mathematician **JHM Whiteman** (1961, 1975) had many related experiences, from which he developed a theory in terms of 'multispace'. (The Mystical Life (Whiteman, 1961). For Whiteman, separative experiences did not indicate separation from the physical body in physical space, but rather seemed to occur in non-physical spaces. Based on his experiences and those of others, he wrote about different types of experience. For example, in an early article, Whiteman (1956) wrote about full and half separations.

Robert Monroe first chronicled his many OBEs in his bestselling *Journeys Out of the Body* (1971), which he followed up in later books. Other authors who have described their own experiences include Robert Bruce, William Buhlman, Graham Nicholls, and Waldo Vieira.

Case studies by investigating authors, which combine first person descriptions with theoretical commentary, include

Ernesto Bozzano's *Les Phénomènes de Bilocation* (1934/1937), Sylvan J. Muldoon and Hereward Carrington's *The Phenomena of Astral Projection* (1951), Robert Crookall's *The Study and Practice of Astral Projection* (1961), and Celia Green's *Out-of-the-Body Experiences* (1968). (See bibliography for publication details.)

Modern Research Findings

Prevalence

The best estimations of OBE prevalence among the general population are the few survey studies that used randomly selected samples. In eight such surveys, positive replies to the OBE question ranged from 6% to 14%, with a mean of 9.3%.^[18] Other surveys that do not claim to be representative of the general population have obtained much higher results, as can be seen in studies that surveyed college students.^[19] The results should be treated with caution, however: all the researchers used differently worded OBE questions, and none followed up with interviews to validate the experience the respondent had in mind when answering 'yes', which means there is no guarantee that it could actually be regarded as an OBE by the standards of the field.

Demographic Variables

Attempts by researchers to relate demographic variables to OBEs in survey studies have been inconclusive.

OBE Features

Following early case collections such as those of Bozzano^[20] and Muldoon and Carrington^[21] - in which descriptions of OBEs were the primary research data - other researchers analyzed different features of OBEs. In one study^[22] some of the features reported were awareness of the sensation of leaving the body (34%), awareness of being connected to the body (26%), and shock on return to the body (33%). Less commonly reported features were seeing a 'cord' connecting the out-of-body projection with the physical body (0%); encounters with 'spirits' (7%); hearing music (8%); and remembering earlier life events (15%).

A commonly reported feature was seeing the physical body, which is one of the ways people realize they are perceiving their environment from a different position. High percentages of this feature have been reported in various studies, such as the ones authored by Green^[23] (82%), and by Palmer,^[24] whose two samples recorded 56% and 62%.

Other features include perceiving oneself in a replica of the physical body, with no body at all, or in some indeterminate form such as points of light and nebulous forms. In one study these forms obtained percentages of 36%, 22%, and 14%, respectively.^[25] As described by a frequent experiencer: 'I may feel myself to be a ball of light floating in space ... or simply a point of awareness that either focuses upon a particular area or merges, to varying degrees, with the surrounding environment'.^[26]

Experiencers respond to the event in different ways. Some stay close to their physical body, while others, particularly frequent experiencers, seem to go far from it. Among the latter are those who say they visit realms different from the usual surroundings, which they may interpret as spiritual places or as non-terrestrial dimensions.

Variations are reported in features such as the speed and control of movement, the distance of separation from the body, and the duration of the experience. Most people do not seem able to induce the experience, but there are exceptions. There are also reports of various other visual, auditory and tactile perceptions, such as seeing lights, encountering apparent spiritual entities, and feelings of energy or vibrations. In Green's survey^[27] the most frequently reported sensory modality was vision. Similarly Terhune^[28] found that 70% of the persons he studied experienced visual perception. OBE vision has interesting features. Osis reported:

Although 68% said they maintained a continuous visual environment, only 12 per cent reported 'seeing' in brief, few-second snatches, and the rest reported that vision fluctuated: sometimes continuous, at other times impressionistic. The majority of respondents claimed to 'see' in a normal perspective; however, 40% stated that the usual perceptual habits periodically broke down: seeing around corners, 360-degree vision, *etc.*^[29]

Veridical Perception

Particularly important for theoretical reasons is the claim of veridical perception. Experiencers may insist that during the out-of-body state they witnessed actual objects or events in the real world that their body was in no position to observe –

being asleep or comatose and/or in a separate location – and that, on waking, these objects or events were corroborated as corresponding to reality. These may include seeing unusual things or hearing conversations that later were found to be true. Several studies have reported a range of 10% to 40% of these reports, although the claims of veridicality were not followed up beyond questionnaire responses, which weakens their evidentiality. In some cases such a claim appears problematic when written accounts are examined.^[30]

The following is an example of veridical perception:

One night in bed I was lying in a relaxed and quiescent state preparatory to falling to sleep, when I found myself leaving my physical body and moving or floating toward the house of a friend ... I stopped at her house and wandered about outside, and then suddenly found myself in the scullery where I saw my friend walking up and down the room in great pain and very ill. I felt very distressed and tried to help her, but on finding I could not do so, was so frightened that with a violent rush I was back in my body again, shaking violently and suffering from shock. The time was exactly 11:30 p.m.

The following day, feeling uneasy I called upon my friend and on questioning her she admitted that she had been ill in precisely the manner and at the exact time when I visited her in my astral body.^[31]

Such cases are frequently found in the NDE research literature.^[32] A well-known example is the case of Pam Reynolds, a brain surgery patient who following a successful, and highly invasive, operation to remove a brain aneurysm made accurate descriptions of surgical procedures and instruments which she said she observed during the out-of-body phase of her experience.^[33]

On rare occasions the person who is having an OBE is seen or perceived in some way by someone else (a topic that has received even less systematic attention than the study of veridical perceptions). This case involved a female hospital patient, who wrote:

One day another patient was brought in, operated upon, and placed in a ward some distance from me. . . . Her moans were pitiful and during the night I felt I wanted to go to her and say something to comfort her. I felt myself leave my body. I left that body in the bed and went down the ward to her side. I spoke to her for a little while, and then said: 'I must leave you now or my body will be cold.' I then went up to my own bed and saw my body lying upon it. . . . I told the sister [nun] about it later on, and she was very interested and said she would take me to see the other patient when I was able to go. . . . When she did so, as soon as we saw each other we both knew we had met before. . . . Then the woman said: 'Oh – now I know you – you are the one who came in here to cheer me up that night after the operation when I was so ill.'^[34]

In a 1975 questionnaire study by John Poynton this kind of apparition was reported by 4% of respondents.^[35] In a later study by Karlis Osis the figure was 6%,^[36] and in two studies by John Palmer it was 9% and 10%.^[37] Such cases might be seen to relate to apparitions of living people, in which most of the appearers have no awareness of being 'out of the body'. Or else they may be thought more to resemble the more complex cases of 'bilocation' reported with such individuals as Mother Yvonne-Aimée.^[38]

Circumstances of Occurrence

Surveys have shown that OBEs typically occur in life-threatening circumstances such as accidents and severe illnesses. But they may also occur in other conditions: relaxed states (meditation, resting, sleeping, falling asleep, use of drugs), or more tense states such as non-life-threatening accidents and physical abuse. In an early compilation of twenty published cases by Bozzano^[39] OBEs happened during anesthesia (five cases), hypnosis (2), illness (2), and one case each when the person had been shot or had inhaled smoke; was suffocating; was in labour; was depressed; was falling asleep; was sleeping; was in a coma; was experiencing stress and extreme exhaustion; was falling; had fallen; and was performing automatic writing. The most frequent circumstances found in a more recent study were: physically relaxed (79%), mentally calmed (79%), dreaming (36%), meditating (27%), and emotional stress (23%).^[40] But there were more rare circumstances such as childbirth (4%), having an orgasm (3%), drinking alcohol (2%), and driving a vehicle (2%).

OBEs can take place during physical activity when the person walking, running, dancing or talking.^[41] The following experience is described by a 36-year old police officer on her first night out patrolling, who found herself in pursuit of an armed suspect:

When I and three other officers stopped the vehicle and started getting [to] the suspect ... I was afraid. I promptly went

out of my body and up into the air maybe 20 feet above the scene. I remained there, extremely calm, while I watched the entire procedure – including watching myself do exactly what I had been trained to do.^[42]

When the suspect was arrested the OBE abruptly ended.

Psychological Variables

Most of the research that explores patterns of cognitive and personality variables comes from surveys.^[43] OBEs have obtained higher scores than non-OBEs in somatic dissociation^[44] as well as in measures of experiences of absorption, fantasy, hallucination, and schizotypy.^[45] Ever since Palmer's pioneering survey,^[46] OBEs have been related statistically to lucid dreams and reports of such phenomena as ESP experiences, apparitions and auras.^[47] Work carried out by Blackmore^[48] was also influential in associating OBEs to lucid dreams and other experiences.

Similar relationships have been found with fantasy proneness^[49] hypnotic susceptibility^[50], and distortions of body image^[51]. Generally, OBEs report more ESP and other psychic experiences than non-OBEs.^[52] In one study, those who reported spontaneous OBEs also reported more frequent experiences of losing track of time and awareness of their surroundings in a ganzfeld laboratory experiment, as compared to non-OBEs.^[53] However, the findings in relation to personality variables in these studies have not been consistent.

Psychopathology

Gabbard and Twemlow argued that OBE features differ from those of autoscopy, depersonalization and body boundary disturbances. They also found that 'the OBE group was significantly healthier than a variety of other normative groups in the population and did not have the constellation of symptoms often equated with character disorders, such as psychosomatic disorders, alcohol and drug abuse, or stimulus seeking'.^[54] Others have found no differences between OBEs and non-OBEs in various psychosis-related symptoms,^[55] with neuroticism,^[56] and with various aspects of psychiatric history.^[57]

With the exception of schizotypy,^[58] which may predict psychotic problems, there is no clear evidence of relationships with pathological variables. But this depends on the model of schizotypy that is followed, some of which do not emphasize pathology.^[59] Interestingly, McCreery and Claridge reported that their OBEs had low scores in a questionnaire about physical anhedonia (the tendency not to experience pleasure from various activities) than did non-OBEs. For this reason they referred to OBEs as 'happy schizotypes,' or individuals who are 'functional despite, or perhaps even in part because of, his or her anomalous experiences.'^[60]

Medical and Neurological Variables

On other issues, equivocal results have been found with headaches and epilepsy.^[61] Others have reported evidence consistent with a relationship between with temporal lobe instability^[62] and with lesions in the temporoparietal junction and vestibular disturbances.^[63] In one study by Blanke and colleagues, regarding OBEs and autoscopy (AS), they noted:

We show that OBE and AS are frequently associated with pathological sensations of position, movement and perceived completeness of one's own body. These include vestibular sensations (such as floating, flying, elevation and rotation), visual body-part illusions (such as the illusory shortening, transformation or movement of an extremity) and the experience of seeing one's body only partially during an OBE or AS.^[64]

Veridical Perception

As mentioned before, several cases have been recorded in which the person having an OBE has perceived things he or she did not know about but which were verified later, and as well as cases in which OBEs have been seen as an apparition at the location they were 'visiting'. This line of research would benefit from greater efforts to discover relevant cases and to document their veridicality. But the number of cases reported over the years clearly suggest there is a phenomenon to study here, one that should be limited neither to *post hoc* assumptions of conventional perceptual explanations, nor, on the other side, to the continuous retelling of cases that have not been investigated in detail.

The issue of veridical perception has been studied in the laboratory. Probably the best known example was reported by Tart^[65] who tested a young woman 'Miss Z' for four consecutive nights in the laboratory. Tart placed a five-digit randomly selected number on a shelf out of Miss Z's reach while she was lying down in a bed in the same room connected to electrodes measuring her EEG pattern. On the last night the participant said she had an OBE and that she was able to read

the number, which she reported correctly. Research in this area is somewhat scant,^[66] but the problem has been recently addressed by Patrizio Tressoldi and his associates.^[67]

There have been at least two systematic attempts to detect an individual's presence physically while out of the body, something that has a long history in the experiential literature.^[68] In one such study, with Stuart Keith Harary as the subject, a variety of physical detectors failed to detect some kind of presence at the time of an OBE. Other tests were done measuring the movements and meows of a kitten in order to detect a 'visit' from the OBEr. Changes were observed during some of Harary's 'visits', however the overall results did not achieve statistical significance.^[69]

Osiris and McCormick^[70] argued that if a person experiencing an OBE was present in some measurable way at a particular location, the detection of their presence should coincide with veridical perceptions obtained in the same area. To test this they carried out experiments with the psychic Alex Tanous. A viewing window was constructed in such a way that the target pictures contained within could be seen only by looking through it from a close distance; it was also surrounded by strain gauges that detected nearby vibrations. Consistent with their expectations, the experimenters found that the sensors showed more responses during the trials in which Tanous obtained correct information from the window as compared to those trials in which he did not seem to perceive veridical information.

AfterEffects

Researchers have tested the anecdotal claim that an OBE can change a person's beliefs and outlook. In a survey by Susan Blackmore^[71] 10% of respondents said they experienced changes in beliefs and quality of life as a result. The incidence was higher in other studies. Gabbard and Twemlow^[72] found that 66% of the experiencers they questioned developed a belief in life after death after their OBEs, while others reported an enhanced 'awareness of reality' (86%), and other long term improvements (78%). In a more detailed study by Alvarado and Zingrone, that specified possible areas of life in which the changes might have occurred, respondents indicated changes in their views of themselves (61%), the meaning and purpose of death (51%), the nature of human beings (42%), and religious beliefs about God (39%), among others.^[73] This feature is also strongly present in the literature of the NDE.^[74]

Psychophysiology

Attempts to measure this in the laboratory have been few and do not allow much generalization, apart from indicating a tendency for relaxation and states of low physiological arousal. In a study of Robert Monroe, Tart^[75] found that during his OBEs he was in borderline states that presented 7–8 Hertz alpha waves, as well as theta waves of high amplitude. Monroe also showed EEG patterns typical of Stage 1 sleep. In the study with Miss Z (*see above*) Tart (1968) registered an increase in alpha (7–8 Hertz).

McCreery and Claridge^[76] (1996) did not take measurements during OBEs, but compared previously registered physiological data of OBErs to that of controls. They found that OBErs had higher measures of skin conductance lability, activation of the right-brain hemisphere, and coherence of the amplitude between both hemispheres. QUERY

In a recent study with a single participant using imaging techniques, changes were found that suggested the presence of 'unusual' kinesthetic imagery. 'Activations were mainly left-sided and involved the left supplementary motor area and supramarginal and posterior superior temporal gyri, the last two overlapping with the temporal parietal junction that has been associated with out-of-body experiences. The cerebellum also showed activation that is consistent with the participant's report of the impression of movement [during the OBE].'^[77]

Theories

In terms of explanations, two general concepts dominate the OBE literature. Projection theories postulate the existence of a vehicle for consciousness, referred to in occult and esoteric literature by such terms as 'soul', 'spirit', 'subtle body' and 'astral body', that is capable of projecting from, or literally 'leaving', the physical body. Psychological theories by contrast maintain that the experience is purely hallucinatory, involving a combination of visual and kinesthetic imagery, dissociation and neurological aspects, and that nothing actually 'leaves the body'.

Projection Theories

Defenders of projection point out that experiencers who find themselves 'outside the body' often consider themselves to be in a form similar to the physical body. They also argue that claims of veridical perception - where the experiencer becomes aware of unexpected information that could not have been perceived by the physical body, yet is later found to

be true – could not occur if the experience was purely hallucinatory.^[78] Against this, some parapsychologists have suggested that veridical perception might equally be explained by ESP, in which the experience of being outside the body is actually a psychological construction, and the experiencer becomes aware of circumstances occurring at a distance by means of clairvoyance.

Some theorizing about OBEs has centered on the idea of some physical or quasi-physical entity projecting something into physical space. A leading proponent of this view was Robert Crookall, who presented a ‘subtle body’ model in several of his books.^[79] In general, Crookall postulated the existence of a True Spiritual Body (with mystical and spiritual attributes). In relation to OBEs Crookall postulated two other bodies: a ‘Vehicle of Vitality’, a non-conscious, semi-physical body that animated the physical body with vital energy; and a ‘Soul Body’, that carried consciousness but had little relation to time and space. Most projections, Crookall wrote, are a combination of the two: ‘the Soul Body goes out accompanied by a tincture of substance from the Vehicle of Vitality.’^[80]

Other versions of projection ideas have been presented by other experiencers, among them Robert Bruce^[81] and Sylvan J. Muldoon.^[82]

Others see the OBE as the experience of consciousness in non-physical space. Michael Whiteman wrote: ‘In some cases the space revealed may appear to resemble physical space in character and content. But even then, the sense-organs by which the phenomena are observed are not located in the physical body, nor are they visible to other people normally conscious in the physical world. So in all cases one is justified in regarding the conscious self as functioning, at those times, in a non-physical space’.^[83] Ideas similar to these have been presented by Bernard Carr,^[84] who approaches psi from a multi-dimensional perspective.

Psychological Theories

The hallucinatory model has also been pervasive^[85] and has predominated in academic circles in recent years.^[86] The many psychological relationships found in survey work between OBEs and hallucinations, dissociation, schizotypy, and other psychological measures support the idea that the OBE is a mental construction, having no basis in reality other than the experiencer’s perceptions. Harvey Irwin’s model emphasizes dissociation,^[87] while Susan Blackmore’s approach involves cognitive models of reality. In her view

altered states of consciousness ... in general and OBEs in particular are best understood in terms of ‘models of reality.’ Two central proposals are that (1) the cognitive system builds many models at once but at any time one and only one is taken to represent external ‘reality’ and that (2) this is the most complex, stable, or coherent model. Normally the chosen model is built largely from sensory input, but when deprived of sensory information . . . this can break down, allowing other models to take over. In an attempt to regain input control, the cognitive system may build the best model it can of the surroundings it thinks it should be seeing. This has to be built from information in memory and imagination. . . Memory models are often more abstract and schematic than perceptual models and may take a bird’s-eye view. The theory suggests that if such a model becomes more stable than the input model, it takes over as ‘reality.’ The imagined world then seems real, and an OBE has occurred.^[88]

Some previous findings, such as the finding that OBEs tend to have hallucinatory experiences and lucid dreams have been cited in support of this model.

A recent, influential contribution from neurology comes Olaf Blanke and his collaborators, who suggest the OBE is based on functional problems in the temporoparietal junction generally related to pathological processing of body-related perceptions. In this view, the phenomenon is related to

a failure of integration of proprioceptive, tactile, and visual information of one’s body (personal space) ... This may lead to the experience of seeing one’s body in a position (that is, on the bed) that does not coincide with the felt position of one’s body (that is, under the ceiling).^[89]

The final explanation for OBEs still escapes us. Many people remain unconvinced about projection (and for ideas of multi-dimensional space), both from the lack of empirical evidence and unresolved conceptual problems. But there are problems also with hallucinatory models, which likewise assume processes that have not been identified; nor do they explain all the features of the experience.

It is also important not to ignore the veridical aspects of OBEs. While the quality of the evidence for their occurrence could be improved, there is enough to consider that at this stage in the research purely hallucinatory explanations are not

sufficient.

Carlos S Alvarado

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