CHAPTER 17

Back to That Night in November

I was sitting cross-legged on the floor late one evening. Sleep deprivation had upset my vestibular system, making me feel I was drifting and floating, and had interfered with my right TPJ, disturbing my body schema (Chee & Chuah, 2007, Quarck et al., 2006). Nearly four hours of holding out my arm for the Ouija board had confused my bodily sense even more. REM intrusion threatened (Nelson, 2010) and I was on the verge of hallucinating even without that puff of cannabis; with it my short-term memory was reduced to a brief window in the present moment (Earleywine, 2002).

In the near darkness, with my eyes shut, primary visual cortex (V1) was deprived of useful information. With my hyperexcitable cortex (Braithwaite et al., 2013) already disinhibited by sleep deprivation and cannabis it went into random firing, producing an illusory central light and the form constants of spirals and tunnels (Cowan, 1982). As the light increased, I seemed to move towards it, disinhibited motion detectors adding further illusory movement experiences (IMEs). Memories of that day's cycling through autumn trees drifted by. I was moving through a tunnel of leaves.

My auditory cortex was similarly hyperactive, producing random

low-frequency repetitive sounds that drowned out the music, making sounds like the pounding of horses' hooves; I had visions of galloping down the tunnel towards the light.

When Kevin asked, 'Where are you, Sue?' I was brought up short. I tried to picture my own body and its real location but my disturbed TPJ could no longer combine vestibular and sensory input to create a firm sense of an embodied self (Blanke et al., 2002). Confused, I tried to work out where I was but my logical prefrontal cortex was deactivated as my brain hovered on the edge of sleep (Muzur et al., 2002). As I struggled to look harder to see where I was, a sudden shift from OB feelings to OB vision took place and with the view from above being easiest to construct from memory (Blackmore, 1987b), this became my model of reality: I was near the ceiling and looking down.

The scene became intensely vivid, with the images coming from inside visual cortex, unclouded by defects in my eyes (Luna, 2016). The ordinary world of the senses became ever more remote, while thoughts in the present moment were hyper-present and real (Metzinger, 2005). This new view seemed real because it was the best model of reality my brain could create (Blackmore, 1984b) and with Kevin repeatedly asking questions, my attention was kept on the imagined world. He asked if I could see a silver cord so I saw one and enjoyed playing with it in this flexible, thought-controlled world (Leadbeater, 1895, Muldoon & Carrington, 1929).

My free-floating body seemed quite normal at first, based on the brain's intrinsic model of the human body schema (Melzack, 1989), but dissociated from the senses it began to drift, changing shape along with imagined worlds and actions as I set off and flew above the town. The roofs, gutters and chimneys I saw were just as I imagined them, not as they were. So too were the cities, lakes, oceans and islands I saw. I laughed at the vivid 'star-shaped island with a hundred trees' believing it was a thought form in the astral plane (Besent, 1896, Findlay, 1931) because that was the only theory I knew.

By the time I tried to return all sense of coherent bodily self had gone so I tried to reconstruct an image of myself sitting in the room as I remembered it. After two hours without a functioning body schema

this was impossible. Trying to get inside the body it became too small, producing internal heautoscopy (Blanke & Mohr, 2005). Trying to compensate, it became larger and larger, taking in the room, the world and ultimately everything I could imagine. Self and other became one and all aspects of self dissolved; embodiment, agency and body ownership no longer held any meaning. Without a body to provide a stable first-person perspective, space became meaningless. Without attention to past or future, time became meaningless. Although I did not know it, this was a mystical experience (James, 1902). Everything was perfect, as it must be without a self to give either perspective or desires: the classic experience of nonduality.

With what little thinking ability remained I assumed this was 'it'; this was all that ever was or ever could be, until Kevin asked what more I could see and something strange opened up, a sense of vast consciousness all around. I was too tired to do more than glimpse this new vastness. In exhaustion I seemed to face a choice; stay in this marvellous, right-seeming, perfect state, or return to ordinary life? The choice made itself and the struggle began. After more than two hours of serious disturbance this brain took some time to reinstate both body schema and self-image and even then confused my own body with others. When I opened my eyes I felt and saw greyish body-shapes around the others as well as myself; displaced body schemas that gradually faded until I was (more or less) back to normal. Yet nothing was ever quite the same again.

Science over speculation

Today I find myself writing happily again, the depression of dealing with NDEs is over. And now the reason seems clear: I loved trying to rewrite my own experience in light of what I've learned from the science; doing so only pushed me to find out more. And I found more. For example, I kept wondering where the cannabis fitted in and whether or not it contributed to the effects. I soon discovered that cannabis shifts the inhibition-excitation balance and can cause cortical disinhibition (den Boon et al., 2015, Yoshino et al., 2011). *Yes!* I tried to work out why my sleep deprivation might have been important and

learned that sleep deprivation affects both the vestibular system and, of all things, the right TPJ (Quarck et al., 2006). *Of course*!

These discoveries are a joy to me but quite the opposite to others. When my long-time friend, NDE researcher Ken Ring read my two accounts he wrote, 'The first is gripping; the second, at least to me, is rather boring. The first experience changed your life; the second seems to have satisfied your quest to understand what happened to you.' (Ring, 2016)

Yes, indeed! But for me, the scientific analysis only adds to the pleasure. It encourages me to keep learning, keep meditating, and keep trying new techniques and drugs. It motivates me to explore further the potential of a mind utterly entwined with body and brain. It reminds me of the words I was left with at the very end of my experience 'However far you go, there's always somewhere further.' This is what happens with science too; the more you learn the more you realise how much you still don't know.

This is what so rarely happens in NDE research. Again and again the arguments come back to whether someone actually saw something they should not have been able to see, or consciously saw anything at all when their brain was silent. And then what? Then, you might believe from reading Morse, Parnia, Fenwick, Rivas or van Lommel, we have 'proof' that the scientists are all wrong, that the materialist, reductionist (and heartless and anti-spiritual?) Western scientific paradigm must be overthrown. And then?

Then nothing. The 'new paradigm' and the 'visions of a new science of consciousness' (Parnia & Fenwick, 2002) are empty. We are told that a few special cases prove the reality of the human soul and its survival of bodily death, that memory is stored outside of the brain and consciousness does not depend upon having a body. And then? What do these new 'theories' predict? If I take them seriously, I want to ask questions such as, 'What is the soul made of?', 'What capabilities does it have and not have? And how can we find out?', 'If memory is stored outside the brain, how is it stored, and what does this tell us about learning, forgetting, or retrieving old memories?', 'What is consciousness and what is left of it when the eyes and ears, visual and

auditory cortices, vestibular system and self-systems are all dead?' And I get no answers. It is not that the research has yet to be done, it is that these theories don't tell us what research needs to be done. They provide no predictions, no interesting questions that can be answered with experiments, and no ways of finding out which of them fits the data better. Like the theory of astral projection, they are empty.

In the philosophy of science there are many descriptions of how science does or should operate: Karl Popper's falsificationism, Thomas Kuhn's idea of paradigm shifts or the anarchism of Paul Feyerabend. But I find Imre Lakatos's (1978) ideas about scientific research programmes most helpful. In asking what makes one scientific theory better than another he describes all theories as having a hard, inflexible core and a more flexible protective belt of ideas and ways of solving problems. Successful research programmes are progressive even if they hang onto a rigid core – that is, they keep moving on. Failed programmes fail to change; they never give up on refuted ideas and never move on.

The new science of OBEs, I am so happy to say, is a thoroughly progressive research programme. From the discovery of how to stimulate OBEs, through the use of brain scans and virtual reality to the neuroscience of the self, research keeps moving on, asking new questions and finding new answers that just raise more questions. Yes, this paradigm more or less depends on an inflexible core of what the critics call 'the Western materialist paradigm' but perhaps it will throw this off, or not. We have to wait and see.

For myself I am not a materialist (though many people seem to assume I must be). I reject dualism because it does not work so I could better be described as a neutral monist (though that term too has its confusions). All I mean is that I believe the universe consists of only one kind of stuff and I do not know what that stuff is – is it ultimately material, is it purely mental, is it mind and matter in some way combined, or is it something else altogether from which mind and matter emerge? I do not know – hence my endless struggles with the mind-body problem and the mystery of consciousness (Blackmore, 2005, 2010, 2011). Whatever the solution to this mystery, OBE research is moving on apace.

Endless consciousness, non-local consciousness, notions of souls and astral bodies may pander to the way many people would like things to be, but they inspire no exciting new questions that can be answered by experiment. They keep searching for evidence to prove that the current scientific paradigm is false but put nothing in its place. This is the sure sign of a failing research programme.

Back to those three theories

I am finally going to reject the Type A theories I described at the start – those dualist *something leaves the body* theories that invoke a soul or astral body; and accept Type B – that *nothing leaves the body* in an OBE because both logic and the evidence (or lack of it) firmly tell us so.

Should we still consider that third possibility, Type C, that there might be two quite different kinds of OBE: the 'fake' sort which are hallucinations, and the 'real' sort in which a spirit or soul travels free in this world or the next?

No, because whether we look at classic astral projectors such as Sylvan Muldoon and Oliver Fox, modern astral projectors such as Robert Bruce and Robert Monroe, the OBE and SP accounts of ordinary healthy people, or the NDEs of people who nearly drowned or suffered a cardiac arrest, we find far more similarities than differences. Even those few special NDEs that seem to provide evidence for life after death do not stand out from the rest as any different. All can include tunnels and lights, and be tinged with fear or joy. All can begin with bodily distortions and vestibular sensations. All describe their experiences as extraordinarily real and vivid, whether they saw this world, visited fantastical scenes in the 'astral plane', or 'went to heaven'. All can lead to lives transformed.

Separating 'real' OBEs from 'fake' OBEs is impossible.

I can understand why people are unwilling to accept this conclusion and move on; why they want to hang on to the natural and ancient idea of a soul or spirit or inner conscious self. The consequences of giving it up are terrifying. There is no heaven awaiting us after death. None of our loved ones will be there to greet us, they are dead. We

will be dead. There will be no retribution for the murderers, rapists and torturers who caused such terrible human misery and suffering, and no reward for the kind, quiet people who selflessly devoted themselves to others all their lives. We are biologically evolved creatures on a small planet revolving around an ordinary star and our consciousness arises and falls away as our little bodies are born, live and die.

Douglas Adams puts it better than I can, in *The Hitchhiker's Guide to the Galaxy*, when he talks about our 'insignificant little blue green planet' and our primitive love of digital watches.

Yes, it's that stark. But the proponents of life after death use a strange inversion of logic that we find again and again in NDE research. Take this widely repeated comment from Kübler-Ross's (1975) introduction to Moody's famous book: 'It is research such as Dr. Moody presents in his book that will enlighten many and will confirm what we have been taught for two thousand years – that there is life after death'.

They imply that we will be amazed and surprised, that we will be enlightened by the wonderful discovery that 'we', our real and everlasting conscious selves, will survive. But there is nothing surprising or enlightening about this ancient idea: people have believed it for two thousand years because it comes naturally to us as children to think this way, and major religions have built on this to encourage their believers and capture new ones. Their threats of hell and promises of heaven have no power without a dualist belief in life after death so our scientific discoveries are overturning an old and pernicious view of human importance. This is what is truly enlightening.

Yet rejecting the conventional belief is still hard – indeed painful – until you get used to it and accept the consequences. The Buddha knew this when, more than two thousand years ago, he taught that enlightenment comes in the realisation that self is as impermanent as everything else. A monk once asked him, 'Sir, is there a case where one is tormented when something permanent within oneself is not found?'

Indeed, replied the Buddha. When someone realises, '"I will be annihilated, I will be destroyed, I will be no more", he mourns, worries himself, laments, weeps, beating his breast, and becomes bewildered.

Thus [. . .] there is a case where one is tormented when something permanent within oneself is not found,' (Rahula, 1959, p.56).

So Morse, Ring, Parnia, Fenwick, van Lommel and many more are following in the footsteps of ancient people who found it hard to relinquish their idea of self and sought to defend it. Of course they might be right but I shall not believe them unless and until they provide a new and progressive research paradigm to challenge that of the new science of OBEs.

Remaining mysteries

Have we come to the end of the journey? Have I come to the end of my own personal journey to understand completely that one experience that changed my life? No, not yet. The new theories are far better than what went before. In my 'psychological theory of the OBE' (Blackmore, 1984b, 1993) I was right to emphasise the reduction in sensory input and proprioception; to see OB worlds as 'reflections of the structure and organization of the brain' (1993, p.251), and that 'What is needed is a split between the imagined position of the self and the input from the senses' (1993, p.247), but I was wrong in thinking this depends on having especially vivid imagery. It doesn't; it depends on disruption to self-processing at the TPJ. This is just a small example of the importance in science of giving up ideas that don't work and moving on to new ones. Modern neuroscience has given us the tools that none of us had back then.

Yet some fascinating questions remain. For example, what causes those vibrations of astral projection lore? The same sensations were reported by Blanke's patient when her TPJ was stimulated too weakly to produce a full OBE (Blanke et al., 2002). They also appear when the vestibular system is upset during space missions and parabolic flights (Whinnery & Whinnery, 1990). Are they just the result of a failed attempt to find a stable location for the body schema? Are they something to do with REM? I doubt the latter because from my own assessment the vibration is not at the same rate as rapid eye movements. So there is more to be discovered here.

What about another of my long-unanswered questions: why do so many OBErs rise up and then flip over, ending up about two metres

above the body and looking down? This happens with vestibular disruptions and in virtual reality as well as OBEs. Perhaps it is no more mysterious than that we tend to find views from above easier to adopt than ones from the floor looking up – or that as soon as we seem to leave the body we want to turn over and look to see if it's there, but we do not know. I bet there is a lot more to learn about that mental flip-over.

And what about the other self – the floating one? Why do some people have another body, sometimes complete with clothes and glasses and shoes, while others are just a floating point of view – a formless perceiving self? In my own case I progressed from a parasomatic OBE, complete with arms, legs and head, to an asomatic OBE with no other body, and then to no self. What determines these shifts? I guess when we learn more about self-systems and the models they construct we may find out.

Another fascinating question concerns that shift from OB feelings to OB vision. Is this the same as that delightful flip from ordinary imagination into 'seeing with eyes closed'? And what casues this shift that feels like the opening of an inner eye? Irwin (1986) suggested that disembodied feelings are translated into visual form by synaesthesia. I am weakly synaesthetic and enjoy seeing colours to music or thinking with complex moving 3-D structures, but these are not the vivid visions of that OBE. Yet synaesthesia might be relevant because people who have visual OBEs are more often weak synaesthetes than those who have only OB feelings (Terhune, 2009). Indeed there's an interesting possibility here; since synaesthesia is thought to depend on hyperconnectivity between different sensory areas of the cortex it is possible that something similar underlies OBEs too; that global disinhibition means activity in one brain area spilling over into others with OB feelings immediately translated into visual impressions. There are a lot of 'maybes' and 'possiblys' here, but that means lots of exciting possibilities too.

An obsession with realness

One further question still obsesses me after all these years: why is the OBE so utterly vivid and realistic? My own experience was probably

the most intense of my whole life and I have never forgotten it. This intense realness was partly to do with vision, with a wonderful visual quality that is hard to describe. In addition was a wider sense of realness: I seemed more alive, more awake, more really 'me' than ever before. There was a 'rightness' and immediacy about everything that made ordinary waking life seem dreamlike in comparison.

Let's take that extraordinary visual quality first. This is nothing like imagination, nor like ordinary dreaming, nor like most hypnagogic or drug induced hallucinations. When some sceptics claim that OBEs are 'just hallucination' or 'only imagination' they completely miss this point.

Lucid dreams are closer but, at least in my experience, not quite the same. The only two states that really compare are first, hallucinations with DMT, and second, 'seeing with eyes closed'. In both cases the images are not only extremely colourful and vivid but they can be scanned with eye movements as though they were real. The OBE world is like this too: you can shift your attention and look around in a most realistic way. What is going on?

Luis Luna (2016), an expert in ayahuasca both through long personal experience and through research, suggested an answer: when we look at a green tree we see it with all the imperfections of our visual system; light scattered inside the eye, imperfect lenses, chromatic aberration, less than perfect combining of the two images, haze in the atmosphere or dust in our eyes. Luna explains, 'since visions are not mediated by the cornea, iris and lens, everything in the inner field of vision seems to be equally sharp, which may contribute to the "more real than real" feeling that is so frequently reported in ayahuasca experiences' (Luna, 2016, p. 259).

My brief and simple ayahuasca visions also had this other odd quality of seeming fully three-dimensional. Luna goes much further, describing how he moves into the visions, not letting them remain as though on a screen in front of his eyes, but going right inside them. Then, he says, he can look all around, even turning right round to see what lies behind him. I hope one day I might have the chance to learn to do this for myself – this really does sound like the OBE world.

There is so much I still don't understand about this kind of vision. I think it's the same as what I have been calling 'seeing with eyes closed' and some just call 'Seeing'. I think it's the same as that flip into clarity that was such a feature of my OBE. Fox reported it when projecting from the waking state, and Whiteman (1956), who writes about the mystical life and higher transformations, described 'seeing through the eyelids' when 'separating' from his physical body. In occult circles it may be described as the opening of the 'third eye'.

Where in the brain is this being generated? My first guess was extrastriate visual areas such as V4, which has orientation-selective cells and processes both colour and forms associated with colour. It is easy to see how rows of bright green trees might be generated in such cells. I thought of this because primary visual cortex, V1, is suppressed during dreaming but then this isn't like dreaming and I may be quite wrong. A clue for a different idea comes from a paper interestingly entitled 'Seeing with the eyes shut' (de Araujo et al., 2012). Using fMRI, a research team in Brazil investigated the vivid 'seeings' after drinking ayahuasca. They found increased activation in temporal and frontal areas (both of which are relevant to OBEs) and levels of activity in V1 were as high as during normal vision with open eyes. They concluded, 'By boosting the intensity of recalled images to the same level of natural image, Ayahuasca lends a status of reality to inner experiences' (de Araujo et al., 2012, p.2550).

I think we may be creeping up on the occultists' 'opening of the third eye' and the vividness and 3D quality of the OBE world, but we've a long way to go.

An unfolding experience

Here's another question I cannot yet answer: why do OBEs and NDEs so often unfold in a particular sequence? My own experience was fairly typical, beginning with vestibular sensations, moving on to the tunnel leading towards the light, then to an OBE and to other worlds and finally, a mystical experience of no time, space or self. As we saw with NDEs, the sequence is not fixed but there is a tendency for the earlier features also to be the most common (Ring, 1980) and for OB feelings

to precede OB vision (Cheyne & Girard, 2009), suggesting some driving force behind this sequence.

Something similar appears in descriptions of mystical and religious experiences. They can begin with a trance or deep meditation state leading to visions, being enveloped in light, 'wrapped in a flame-coloured cloud', or taken up out of the body, but once they begin the mystic feels as though his own will is in abeyance (James, 1902); that states unfold as they will, whether this leads to the 'transcendent' type of mystical experience with God, spirits, or a completely impersonal being, or to the 'immanent' type which involves the complete loss of self or its fusion with everything else (Fontana, 2007).

Another unfolding sequence is found in the Buddhist jhanas, a series of eight increasingly absorbed states said to be reached through deep concentration. From their descriptions they sound like a series of 'discrete altered states of consciousness' (Tart, 1975), each deeper than the next. When I first read about them I was intrigued by the idea that thousands of years ago people had developed techniques for inducing particular mental states, but I didn't imagine I would ever be able to learn them myself. Then I met the American jhanas teacher Leigh Brasington, decided I had to learn and sat two ten-day retreats with him. Even in this short time I began to learn that if you follow the instructions these states do indeed unfold as described.

The first jhana involves raising a kind of energy called, in the ancient suttas, *piti*. This is very much like descriptions of kundalini in the occult literature and like Fox's 'Pineal door' method for inducing OBEs. It can come in a rush with shaking, vibrating, hot flushes and noises in the ears. The skill is then to drop down from this hyper-excited and joyful state into a happy but calmer state, and then to an equanimous state, converting the *piti* into *sukha*, and then to a deep, emotionally neutral state without thoughts. All these states are rooted in the body but the next four are referred to as the 'immaterial' or 'formless' states and for me they ring loud bells, even if I cannot reach them.

The first of these is limitless, infinite or boundless space and one technique for reaching it is to imagine expanding. Forms are said to slip away, leaving only the space as the object of concentration.

Cannabis can have this same effect, as well as shrinking and expanding, with one user saying, 'I have lost all consciousness of my body and the external world and just found myself floating in limitless space' (Tart, 1971a, p.106).

Was this where I found myself after I'd expanded and expanded into everything? At the time I thought this was all that could ever be, but when Kevin urged me on I found I was wrong. I entered a new state in which there seemed only to be a vast, impersonal awareness all around. The sixth jhana is that of infinite consciousness. Had I been led inexorably from one to the next in some kind of naturally unfolding sequence?

I might be completely deluding myself and I certainly intend to keep on with my jhana practice to learn more. But I mention this not only because of the unfolding nature of these states but because of Brasington's (2015) speculations that the techniques amount to self-stimulating the reward system. This begins with a flood of dopamine, leading to increased noradrenaline and then to endorphins, each neurotransmitter accounting for the various emotions and sensations of what the ancients called *piti* and *sukha*. Finally, the opioids fade, leaving the neutral state of the fourth jhana.

Although speculative, these ideas can and have been tested. When meditating in the lab, both EEG and fMRI scans showed different patterns corresponding closely to when Brasington entered and left each jhana (Hagerty et al., 2013). In further studies, increased activation of the nucleus accumbens was found to correspond to the extreme joy, which makes sense because this is part of the dopamine/opioid reward system. If it turns out that the jhanas are a naturally occurring sequence of brain-based states perhaps the same is true of OBEs and NDEs and we might one day work out why each stage leads to the next.

Perhaps global disinhibition affects some areas more quickly than others. Perhaps a disturbance in one brain system spreads in a particular order to others. Perhaps release of a certain neurotransmitter affects some areas more quickly than others. Perhaps there is a cascade of neurotransmitters, with one breaking down into another to cause

the sequence of events. We simply do not know. At least, *I* do not know. But this is just the kind of constructive exploration that the science of OBEs can embark on, and the hunt for consciousness beyond the brain cannot.

People sometimes ask whether I am not upset to think my amazing experiences all come down to the firing of this set of neurons or the release of this or that neurotransmitter. Not at all. Everything in my life and yours, from making a cup of tea to falling in love, has to have some kind of basis in the body and brain. That does not belittle the experiences one jot.

I am so grateful for those strange few hours all that long time ago; hours during which 'I' felt more real, more thoroughly alive, more really 'me' than in ordinary waking life. How can this be? That of course depends on who or what 'I' am.