

Near Death Experiences: A New Algorithmic Approach to Verifying Consciousness Outside the Brain

Valerie Laws and Elaine Perry

Abstract

Quantum mechanics arose to explain 'wobbles' in predicted effects of Newtonian physics, such as the stability of electron orbitals. Similarly, scientifically verified phenomena in the field of neuroscience which contradict known theories of brain function, could give weight and credibility to neuroquantology, stimulating new research and discovery. The existence of consciousness outside the physical brain, often recounted anecdotally in various forms, if verified, could be such a phenomenon. Accounts of '*Out of Body Experiences*' (OBEs), often incorporating '*Near Death Experiences*' (NDEs) have accumulated over many years, with believers in the empirical actuality of the OBE/NDE, and sceptics entrenched. After an overview of explanations and theories on both sides, with counter-arguments, we make the case for a new approach, for identifying verifiable cases, if any. This would allow critical appraisal of evidence, according to scientific methodology, though with certain inescapable limitations. Using a specific, much-cited case, we show how distorted accounts of NDEs may be used to support supposedly 'scientific' arguments. We propose an algorithm, to discount unsuitable cases, identify verifiable features, and allow further reputable scientific study, and an online cache, of suitable cases. Verifying out-of-brain consciousness would stimulate new technology, for medical science, and even communication between brains – and new science to explain it, conceivably using quantum models, as it is impossible according to current neuroscience. It would advance arguments about defining death, even survival after death. However slim the chance of verifying OBEs, the potential benefits and advances in scientific and biomedical knowledge make the attempt worthwhile.

Key Words: NDE, near death experience, consciousness, OBE, out of body experience

NeuroQuantology 2010; 2: 142-154

Introduction

'Out of Body Experiences' (OBEs) are episodes, during which a person's

consciousness seems, according to their subjective recall afterwards, to 'leave' the body, and therefore the physical brain, remaining aware of physical surroundings. Reports have accumulated over the years and across many cultures. They often incorporate '*Near Death Experiences*', (NDEs), which seem to transcend physical surroundings and enable subjects to perceive an 'after life' scenario. Such experiences are usually linked to extreme stress, emotional or physical, factors such as drug intoxication, or actual

Corresponding author: Valerie Laws

Address: Valerie Laws, Writer In Residence, Institute for Ageing and Health, Campus for Ageing and Vitality, Newcastle University, Newcastle Upon Tyne, NE4 4pl, UK. Professor Elaine Perry, Professor of Neurochemical Pathology, Institute for Ageing and Health, Campus for Ageing and Vitality, Newcastle University, Newcastle Upon Tyne, NE4 5PL, UK. Email: E.K.Perry@ncl.ac.uk

Phone: + 07949956253

e-mail: valaws@yahoo.co.uk

Received Jan 18, 2010. Revised March 1, 2010.

Accepted March 17, 2010.

short periods of 'brain death' or flat lining. We describe common features of OBEs and NDEs, reviewing some commonly sited arguments for and against their empirical validity, with its inherent implications for the nature of consciousness and the definition of death. We take no sides here, reporting sceptics' and believers' arguments, and commenting on their validity in turn, with counterarguments where appropriate.

OBE/NDEs are reported in increasing numbers, due to improved technology for resuscitation of patients who may now return to tell their stories after suffering from previously lethal injuries and conditions. Possibly increased use of recreational drugs is a factor in the greater numbers of instances reported. We shall isolate specific features of OBEs and specific scenarios when they tend to take place, with a view to a proper way of narrowing down the study of OBE/NDEs to scientifically verifiable features. We shall define what we mean by scientific study, since some conventional shibboleths of scientific methodology will not be possible.

We cite a particular case, the Pam Reynolds case, which has been hailed as 'proof' by believers, and rubbished by sceptics, and look at the resulting distortions by wishful thinking tellers and hearers, with what we call the Chinese Whispers effect. We propose an algorithm for sifting out potentially verifiable features of cases. We further suggest a central collecting point for instances of OBE/NDEs to enable the algorithm to be employed before the CW effect kicks in, to 'freeze' factual details and enable reliable data to be shared.

We examine the hypothetical results of such an approach, and the implications for notions of consciousness, life and death, and the possible benefits for science and the public, and further applications beyond NDE/OBEs. We hypothesise that such serious study of an often-ridiculed human experience, slim as the chance may be of any kind of scientific proof, is worth the effort, and could open new areas of neuroscience using quantum models, analogous to Quantum Mechanics arising in Physics.

A challenge is hereby thrown down: to scientists, to look with closer attention at

OBEs and all they imply; and to believers in their empirical reality, to scrutinise reported instances, to see if there is any hard science within. A new approach is needed, a way of taking research forward, finding verifiable evidence allowing serious-minded scientists, not just believers, to investigate. This will allow critical appraisal of evidence, according to scientific methodology, with certain limitations. We choose to focus on OBEs during flatlining or emergency procedures, as NDEs are less open to fraud, delusion, or contamination by sensory input during minimal consciousness, but the study of other forms of 'out of body' consciousness (eg survival after death, shamanic journeys, telepathy) could also be moved forward if this approach bears fruit.

Methods

Examination of Commonly Reported Features of OBE/NDEs

OBE/NDEs commonly include the sensation of 'rising' out of one's body, and actually being able to 'hover' above it and look down on it, being still visually and aurally aware of surroundings even if unconscious, from a viewpoint outside the physical body, somehow independent of physical eyes or ears. Sometimes this disembodied consciousness moves to another room or place, even outside. Especially if the subject is in extremis, in a coma or flatlining, the experience may then go on to the classic NDE. The subject moves through a dark tunnel, with a light at the end. They may 'see' their life history, the 'life review' feature. They emerge into this light, to awareness of feelings of peace, happiness, an awareness of a benign intelligence, a state they would wish to stay in. Typically, they encounter loved ones who have previously died, who explain to the subject, that they can't stay but must return to their body until the time is right. These experiences occur in many cultures, indeed, sometimes a culture- or religion-specific figure is present, but generally, the experiences do not conform to the taught dogmas of the subject's religion or culture. There is often a 'boundary' between the subject's state and that of their loved ones, which may be culturally determined, eg a river, a line, a wall, that must not be breached. Instead, the subject is guided or sent back into the body. The conscious

subject typically recalls their experience as very clear, detailed, and coherent. The individual commonly reports this as a life-changing experience, with feelings of peacefulness, lack of fear of dying, and happiness which remain with them and shape the rest of their lives.

It has to be said that sometimes the experience of the OBE/NDE is not so positive. Frightening, 'warning' experiences are also reported. There is a tendency to associate these with would-be suicides, being 'warned' against self-slaughter, or drug-fuelled states, but there are some instances of negative NDEs not associated with these states. These instances are not so often cited, for obvious reasons. We'd all like to think that if consciousness survives death, of which those who have NDEs become subjectively convinced, it will be a pleasant experience. This feature of 'wishful thinking' can become a distorting factor, in the Chinese Whispers effect.

State of the Current Study of OBE/NDES

The increase in reports, and published reports, of OBE/NDEs, has made it widely accepted that such experiences are a genuine feature of certain mental or physical states, though their empirical validity is arguable. Academics are beginning to make serious studies of these reports, with new PhD's in the subject area being awarded. Exponents such as Ornella Corazza (Corazza, 2008) are exploring ways of looking scientifically at this large body of largely anecdotal knowledge. The University of Wales at Lampeter's 'Body Programme' is fostering such studies, which are becoming the focus of international conferences and debate. Peter Fenwick (Fenwick and Fenwick, 1997) has been collecting NDEs and studying them for some years. His latest book with Elizabeth Fenwick (Fenwick and Fenwick, 2008) contains many new reported instances of NDEs.

Several attempts have been made to identify and compare NDE instances. In a seminal paper published in the *Lancet* (Van Lommel, 2001), 62 of 344 cardiac arrest patients reported NDEs. The authors did not identify any factor apart from age that related to the prevalence of reporting NDEs

and asserted that since most of the total population studied were clinically dead a purely physiological explanation such as cerebral hypoxia is apparently inadequate. In a previous *Lancet* paper, Greyson (Greyson, 2000) found that amongst 98 self-reported NDE's (compared to 38 coming close to clinical death reporting no NDE) these were associated with 'dissociative experiences' (which include amnesia, periods of time unaccounted for, feeling unfamiliar with one's surroundings or even one's own body) consistent with a non-pathological response to stress as opposed to a psychiatric disorder. In a later paper, Greyson (Lange, 2004) refers to his NDE scale published in 1983 and 1990. In this survey, with increasing intensity, NDEs reflect 'peace, joy and harmony' and provide new insights. These were invariant of age and gender and independent of external variables. The Greyson Scale² classifies cognitive, affective, paranormal, and transcendental NDE features. It seeks to identify NDE's common features (though only focuses on positive ones!), but not to explain them as such. However, it helped establish a generally agreed set of features, which is now, understood when the term NDE is used.

Valuable as this collecting and collating of data has been, and whatever progress has been made in comparing instances, sheer numbers of cases are unlikely to bring us any nearer to a consensus or verification. Our algorithm will address the first problem, that of verification. The second problem is contamination of case details by hearsay – the 'Chinese Whispers' effect. The algorithm and our suggestion of a posting point for factual details of new cases, address that.

Limitations of Scientific Methodology When Attempting to Verify OBES

Scientific rigour demands objective evidence, which can be obtained by independent observers: traditionally, findings, which can be repeated and recreated with predictable results, in laboratory conditions. However, NDE/OBES are subjective experiences. We

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<http://lucianarchy.proboards.com/index.cgi?board=ndi&action=print&thread=3950> (for Greyson Scale)

cannot make people 'die' in laboratory conditions, and then bring them back. Inducing OBE symptoms, e.g. with drugs, has not brought verification any nearer, since drugs make reported experiences of suspect value or reality. Yet many fields of human experience do not fit into these traditional methods of proof. Maternal love: most people believe it exists, most scientists would say it is essential for normal human development. Try to prove it by making women give birth in cold laboratory conditions, you would be likely to destroy the bonding process and cast doubt on the existence of something we all accept. Besides, as quantum theory tells us that the observer influences, even determines, the observed; so the notion of the truly detached independent scientist/observer is already challenged. What we can do is find a way of isolating features of patients' NDE/OBEs which can be objectively verified by independent (in the sense of being professionally, rather than personally, involved) observers, and recorded somewhere safe from contamination for further study.

A Review of Arguments on Both Sides – Are OBE/NDEs 'Real'?

An overview of possible arguments on both believers' and sceptics' sides will clarify the problem of proof. French (French, 2005) reviewed some possible explanations of NDEs: spiritual - consciousness detaches from neural substrate of brain providing glimpse of afterlife; psychological - defense mechanism in extreme danger; biological - cerebral hypoxia, anoxia, hypercarbia ., causing release of endorphins and other brain neurotransmitters inducing hallucinations and temporal lobe hyperactivity.

Sceptical scientists refute the empirical reality of OBEs because it is impossible for consciousness to exist outside the physical brain, how could it? A brain, which shows no measurable activity, 'flatlining' for example, cannot undergo experiences involving sensory impressions, except from physiological effects of hypoxia/anoxia. The fact that similar experiences can be artificially induced by electromagnetic stimulation of the brain,

drugs such as Ketamine, extreme fatigue, etc, means that those resulting from clinical death after cardiac arrest or similar, are not 'real' either. They are hallucinations, induced in a damaged brain.

In New Scientist, (Fox, 2006), many theories based on biological malfunctions were explored, one relying on 'hypothetical molecules'. However, none of these theories has proved NDEs/OBEs are spurious.

There are answering objections to these arguments. Hypoxia is common in near death subjects, yet the reported NDEs are nothing like universal, involving a significant but relatively small number of cases. Hypoxia is characterised by mental confusion and yet NDEs/ OBEs are characterised by great clarity of thought, recall, and ordered narrative. The fact that similar experiences can be induced by drugs etc, does not mean genuine instances cannot exist, any more than synthetic 'pine' disinfectant means that Christmas trees don't exist.

As for the 'impossibility' of out-of-brain consciousness, definitions of death and consciousness have had to be constantly redefined as technology has allowed us more information. In physics, Newtonian mechanics were the whole story for centuries, until gaps appeared, where they just did not 'fit', hence the emergence of general relativity, and quantum mechanics. To deny the reality of something because it does not fit with current dogma is not scientific. There may be whole branches of science awaiting our discovery, which could fully explain NDEs. So the question should surely be, is there a possibility of consciousness outside the brain, which is suggested by a verifiable account of an NDE/OBE? Then, we can ask, how does it come about?

Just one verified account would be a breakthrough.

As for believers in the independent reality of NDEs/OBEs, of course individuals can be convinced by the emotional impact of other peoples' or their own experiences. The sheer volume of cases can seem convincing in itself. The commonly reported features: peaceful 'out of body' experience, the tunnel, the wonderful light holding 'god' like

intelligence and love, deceased loved ones waiting for us, the life review, the feeling that everything that happens actually makes sense: all this is very seductive. In a Japanese study (Yamamura, 1998), 14 of 48 consecutive patients admitted to hospital in a deep coma subsequently reported an NDE. Features included flying in a dark void with a light ahead, encountering relatives and friends, and returning to the world in response to a voice calling. The authors did not identify any background factors that related to those with, as opposed to without, the NDE. Subjects however, they found, assumed more 'sincere values' afterwards, and viewed death as a peaceful calm experience. In a Taiwan study (Lai, 2007), 45 out of 710 dialysis patients reported NDEs with women, younger patients and those participating in religious ceremonies being more likely to be in the NDE group. Out of body, precognitive visions and tunnel experiences were included in the reports and after effects included 'being kinder to others' and being more motivated. This might suggest NDEs have a real psychological or even evolutionary advantage, regardless of their intrinsic reality.

We are all going to die, and would like it to be a pleasant experience. We would like to think our dead loved ones are still around, happy and at peace.

However, some NDEs are negative and frightening, not always confined to drugged or suicidal subjects. In addition, positive experiences involve seeing dead loved ones. What of the unpopular dead? The ex-husband? The cheating girlfriend? The school bully? Do we choose who's in our own private 'heaven'? Does this selectivity in positive NDEs support the 'wishful thinking' camp?

To those who work with the dying (e.g., in hospices, and/or in the new area of 'soul midwifery') as well as to the general public, the scientific verifiability of NDEs may be neither here nor there. If the uplifting, wonderful experience reported by those who return, is common also to those who do not, (and hospice nurses frequently report dying patients' apparent visions of loved ones, mentioned or reacted to as if real, even while such patients are conscious, though often heavily medicated), it matters

little whether NDEs are actually 'real' in the sense that, say, your deceased mother is actually there waiting for you, or whether they are a comforting construct produced by a brain in extremis, trying to comprehend its own extinction and make sense of it. What matters is the quality of the experience and how it helps the dying and those around them. Survivors commonly report positively changed thinking and attitudes to life lasting long after the NDE/OBE. A sense of missions to accomplish. A sense that something good's waiting for them at the end. Anything which harmlessly makes a lot of people happier is a good thing. We do not here dismiss individuals' NDEs or OBEs out of hand: instances which don't get through our algorithmic sieve are simply not scientifically verifiable, and hence less likely to lead to directed, and fundable, research into the nature of consciousness: they are no less valuable to those who undergo and remember them. Similarly, entrenched sceptics are unlikely to be converted: oblivion is as emotionally desirable to some, as survival is to others. Thus we seek a level of verification which would convince scientists, and the informed public, 'beyond reasonable doubt', that something might well be happening outside our existing knowledge of consciousness.

However, if we are to use these reports to measure the comprehensive accuracy of our notions of consciousness, then a more scientific approach is needed.

The number of reports of NDEs is not scientifically convincing in itself. Assuming subjects are telling the truth, they could still be 'sure' of something that is a hallucination. Many people are convinced of their lovers' fidelity, until they find out otherwise! Comparing statistics of which features are found in differently caused OBE/NDEs is of limited use in verifying any of them. OBEs and NDEs are reported in cases of extreme stress, such as traumatic childbirth, or the use of shamanic plants, drugs, meditation... Subjects, sometimes after undergoing fleeting 'brain death', say that they could 'see' people, light, rivers, walls... how could someone 'see' without functioning physical eyes, let alone a functioning cortex? One can suggest possibilities, which would also

account for cultural and religious differences.

Religious figures are commonly seen, though NDEs are rarely described as being wholly in accord with the tenets of any one religion. It is interesting, if they are constructs, that the brain of a faithful religious adherent does not simply create the expected picture, a possible point for the believers. However, if some form of consciousness operates outside the body, possibly it perceives in more dimensions than our usual three (as string theory has postulated there are ten dimensions). We cannot step outside our brain to examine such a possibility. We are 'of' three dimensions; mathematical points and lines, supposedly in one and two dimensions, are actually three dimensional models of notional one and two dimensional concepts... perhaps the returning patient's brain 'translates' what was perceived 'outside' three dimensional perception, into 'normal' three dimensional terms, using their own culturally influenced imagery: we naturally think metaphorically. Perhaps William Blake's challenging and prophetic, 'How do you know, but every bird that cuts the airy way, is an immense world of delight, closed by your senses five?' (Blake, ca.1790-93: Blake, 1997) applies here. So tunnels, god figures, relatives, could be perceived in other ways and recounted in the only way the normally conscious brain can both hold and express them.

However, there are other arguments against the veracity of NDEs. Investigators may state the duration of a given example of clinical death, as if the length of the accompanying NDE is somehow comparable to the time slot available. Nevertheless, we all have dreams of astonishing complexity, only to jerk awake and find we had just nodded on the train, and a few seconds have encompassed a mental odyssey! Commonly, NDE subjects report being 'sent back' from the light and returning to their body just as the nurse is patting their cheek and calling their name. If the NDE is purely a construct of the brain, perhaps the patient *was* clinically dead and totally devoid of consciousness or awareness, until just coming out of the unconscious state, and the whole NDE happened in the seconds as

consciousness returned? As the brain tried to make sense of the hiatus in self-awareness? Sceptics could argue it might be a tendency of the afflicted brain, developed through natural selection, to help the species live less traumatised lives after major trauma. That argument does not take into account, that very few would ever have come back before modern technology and resuscitation, and that the very many more who experience less drastic but severe trauma and pain, respond with PTSD, which is often disabling and life-threatening. Our fear of death (*'timor mortis conturbat me'*) has presumably evolved to stop us 'wimping out' at the first sign of pain, famine, threat.

However, we can argue back and forth, and neither empirically prove, nor disprove, most features of NDEs and OBEs. If 'real', or if at least some of them (or parts of some of them!) are 'real', the implications are huge – so huge, they could lead to new branches of science analogous to the development of quantum mechanics in physics. Indeed, it's suggested that the brain itself uses quantum processes, possibly measured in femtoseconds, as well as currently detectable functioning on a 'slower' scale. Schwartz et al (Schwartz, 2005) propose, "Contemporary basic physical theory differs profoundly from classic physics on the important matter of how the consciousness of human agents enters into the structure of empirical phenomena. The new principles contradict the older idea that local mechanical processes alone can account for the structure of all observed empirical data." Persinger and Koren (Persinger and Koren, 2007; Persinger *et al.*, 2008) suggest that 'brain space could contain inordinately large amounts of information reflecting the nature of extraordinarily large increments of space and time.' Hameroff (Hameroff, 2006) has pioneered this approach, introducing quantum events as a basis of consciousness, with neurotubules as quantum 'mediators' of consciousness (Jibu, 1994).

Dean Radin (Radin, 1997; Radin, 2006) has included quantum reality in his search for scientific explanations for psychic phenomena, while Schwartz et al., (2005) have used quantum physics to set up a neurophysical model for mind-brain

interaction. Therefore, there are new avenues being explored, which might yet explain the currently inexplicable.

Neurones communicate by exchanging packets of chemicals across the synapses, but also by direct electrical spread, rather like the wave/particle duality of light. If we can find just one in this mass of reported OBE/NDE cases, which we cannot explain away as a hallucination, construct, lie, coincidence; in which we can verify something independently, in which we are forced to consider seriously that consciousness (and awareness) is not always or necessarily housed in or of the brain, but can exist outside it, then all sorts of possibilities open up. Together with hard challenges to scientists to find out how to understand and explain them. A chance, surely, too good to miss by merely dismissing all this human experience as wishful thinking.

Isolating Possibly Verifiable Features of OBE/NDES

So what does a sufficiently convincing case involve? We cannot know for sure if someone's dead mother was actually there during an NDE, if they 'really' 'saw' a life review, or a light through a tunnel. Nevertheless, some of the NDEs and OBEs have involved remote viewing – such as rising out of the body and 'seeing' the doctors and nurses in the ICU. This is the kind of detail that might potentially be independently verified. Similarly, the most convincing state for a subject to have an OBE/NDE would be when they are in fact near death, and in surroundings where their life signs, brain function, consciousness etc can be monitored. Therefore, cases arising during clinical death before resuscitation, (e.g., cardiac arrest) when by orthodox thinking, no coherent thoughts or experiences can occur, would seem to be the best for closer study.

There have been attempts at this, like placing objects or messages on high surfaces in operating rooms, to see if OBE/NDE subjects report seeing them. This is currently one aspect of Dr Sam Parnia's AWARE project (Stephey, 2008), described below. On the one hand, this might give a falsely high instance of apparently spurious OBEs

as patients might not report these features; one would expect that in a moment of near death, a momentous life-changing experience, an encounter with the divine or sublime, a patient would be unlikely to notice and recall a random object on a shelf or a note saying 'Hi there, floater!' On the other hand, if staff in the room know about such 'plants', they might mention it to each other while the patient is not as unconscious as they think, eg just about to regain consciousness, ('Maybe this guy'll see the blue teddy bear I put on the top shelf!') and the words might register with the patient and become part of an OBE recall.

What is needed is a case, which can withstand the most demanding scrutiny. The patient would preferably be clinically dead, with all measurable brain function ceased, while in a room equipped with monitors and independent medical personnel. Subjects ideally should return to consciousness and report (the sooner the better) an OBE/NDE which includes physical events or details which other people witnessed – a doctor dropping something, a nurse's remark, which happened during the time they were clinically dead, or a feature of the room either high up or that they could not have seen when conscious, e.g., if they were outside the room when they regained consciousness. The more detailed and specific, the better, the less likely to be explicable by 'coincidence', that useful catch-all for the unexplained. We are looking for subjects undergoing literal 'near death experiences', and during the classic NDE, 'seeing' or perceiving real objects or people, when it is not physically possible for them to do so, according to orthodox views of consciousness. The algorithm that follows below will further refine this narrowing down of verifiable features. Researchers have tended to concentrate on NDEs, possibly, as they carry the most emotional freight – the suggestion of survival after death. Nevertheless, physical clinical death of a patient who has an OBE with concrete objects or events 'viewed' would be best for attempting verification. Are there any such cases extant? Difficult to know due to the effect described below.

The Chinese Whispers Effect and The Need for Verifiable Facts and Timelines Outside the Subject's Experiences, With Reference to The Pam Reynolds Case

The second problem, that of the contamination and muddling of case facts, is illustrated below by one much-discussed case.

The Pam Reynolds case, 1991, is often cited online and in discussions, lectures and books as an example of a convincingly genuine OBE/NDE, in a patient undergoing a 'standstill' procedure, in which the body is deeply chilled, the brain is drained of blood, the heart is stopped, for brain surgery to take place. Reynolds recovered, and recalled an OBE, observing (hearing instruments and conversations of medical staff, seeing procedures) her operation or part of it from outside her body. She described the bone saw, recalled remarks made on the smallness of her veins, described procedures, before she apparently moved into a classic transcendental NDE scenario. Michael Sabom (Sabom, 1998) described her case, and published a clear timeline of events in the operating room, and Reynolds's reported experiences. Believers have hailed her case as the longed-for proof of survival, medically monitored. Sceptics have, to their own satisfaction, trashed the case as flawed. This case is a perfect illustration of the Chinese Whispers effect in action. Sabom, who is a believer, makes it clear in his timeline that Reynolds was awake when taken into theatre, under general anaesthesia rather than 'near death' when she 'heard' and 'saw' the potentially verifiable and timeable components of her experience. Medical personnel recalled the procedures and her state during her reported perceiving of them. The actual 'standstill' and flatline period was only a few minutes. Sabom asserts as fact that Reynolds' NDE afterlife experience took place during flatline: there is no evidence that this is the case, nor can there be, except faith and hope. Further distorting the account, many believers assert as fact that her 'remote viewing' of her operation, bonesaw, etc, coincided with the standstill period, which is often quoted as much longer than it was. Sabom has championed the 'survival' explanation despite his own timeline, and the distortions of that timeline

have gone on being used as 'proof' of survival and an afterlife. Sceptic Keith Augustine (Augustine, 2007) has explained Reynolds' hearing, as due to incomplete anaesthesia, and earplugs, which were not soundproof. Her visions, which have certain inaccuracies even by believers' accounts, are put down to her brain providing pictures to go with the sounds – the bone saw, like an 'electric toothbrush' (Reynolds) or a dentist's drill, is described like one. In addition, we can mention here that as she was awake on entering the room, she may have seen the instrument and not registered it, or in fact as the operation was elective, she may have researched the procedures and instruments – or at least, these cannot be ruled out, from a scientific point of view, seeking verification. Augustine³ quotes two accounts which distort Sabom's account: Van Lommel et al (Van Lommel, 2001) mention 'subsequently verified observations during the period of the flat EEG' and Braude (Braude, 2003) reports 'During that time her heartbeat and breathing stopped, and she had both a flat EEG and absence of auditory evoked potentials from her brainstem.... Apparently during this period she had a detailed veridical near-death OBE.'

Sabom is quoted by the Christian Research Institute⁴ as stating that the NDE took place during standstill, and further, the Christian Universalist Webring⁵ quotes Reynolds' experience in her own words, going on to state that her brain death state was confirmed according to three criteria – as if her whole OBE experience took place during flatline. These distortions are the more regrettable, as the account can seem 'medically' supported and thus attain scientific credibility.

Believers stress the degree of accuracy of her visions, as opposed to the element of inaccuracy. Ian Lawton⁶ states 'Pam's experience continues to provide highly convincing evidence for the

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http://www.infidels.org/library/modern/keith_augustine/HNDEs.html#pam Hallucinatory Near-Death Experiences.(2003, updated 2008).

⁴ <http://www.equip.org/articles/did-pam-reynolds-have-a-near-death-experience->

⁵ <http://www.neardeathsite.com/reynolds.php>

⁶ <http://www.ianlawton.com/nde2.htm>

independence of consciousness from the physical brain' and further, that the afterlife hypothesis is a more likely explanation. Both believers and sceptics stress points which support their stance. Sceptic Gerald Woerlee⁷ goes on to claim that the spiritual and psychological after-effects often reported of NDE subjects, are due to brain damage during hypoxia!

Pam Reynolds had a verifiable, or at least supportable by witnesses, timeable, out of body experience while under anaesthesia and not near death. The classic NDE afterlife scenario, cannot be shown to correspond with the few minutes she was flatlining. What is needed to make progress towards verification, and away from distortion of facts, is a case unlike Reynolds'. We need an instance of an NDE, in the sense of an experience when near death, or preferably clinically dead or flatlining. Nevertheless, we need features of this NDE to be remote viewing, or remote perception – an out of body and therefore out of brain, perception, of real events, or sights or sounds, which can be externally verified.

We suggest our algorithm below will allow cases to be reported more accurately before being contaminated by the 'Chinese Whispers' effect of repeated tellings, and plain old wishful thinking. Existing reported cases such as the Reynolds case could be put through the algorithm: but there would have to be, on record, verifiable details of the original circumstances, (eg dates, times, medical records of procedures, personnel, incidents, etc.) and it would be these which would be used for sifting. Hence the need for a 'first posting' system, some sort of central point for registering patients' recalls of OBE/NDEs with verifiable features, which could then be used by researchers worldwide. A dedicated website would serve the purpose. The University of Southampton has recently launched AWARE (AWAREness during REsuscitation), led by Dr Sam Parnia, now of Weill Cornell Medical Center in New York, who has been studying NDEs for some years (Parnia, 2007). AWARE hopes to collect reports of cases across the UK, the US

and Europe. Although cases such as Pam Reynolds' are often described online and in literature as 'convincing', do any stand up to close examination of the original facts surrounding the case? The publicised nets being spread by AWARE et al suggest that the search goes on.

We would hope that someone would offer a home for such 'first postings' in response to this article. By simply posting a comment on an accessible part of a dedicated (or existing) website, with little or no expense, medical staff could record patients' reports of OBEs/NDEs (preserving patient anonymity where appropriate), with accompanying facts (times, procedures, number of witnesses of events or sights, medical condition of patient). Cases could then be studied, in greater depth, with appropriate funding, by qualified scientists in this area. To prevent frivolous and spurious reports by bored surfers, perhaps the report could be simultaneously, or instead, posted on the website of the hospital concerned, by bona fide staff. All instances are of interest to researchers, no doubt, but cases could be clearly marked as 'first postings' of the report, the original anyone could go back to, to check the details and draw conclusions from them. They could then be put through the algorithm we propose, which is attached as an **appendix**.

Summary and Outlook

The Pam Reynolds case would not get through the algorithm. It would not get beyond the first question as she was having elective surgery. Even if starting at Question 2, she was awake entering the operating room, so the case fails there too. She was interviewed by Sabom more than a year after her operation, by some accounts, three years.

If any cases exist now, or are reported in the future, of a patient who, eyes taped, saw an event, or some other verifiable sight, in an unseen room, which can be timed by observers to a period of the brain measurably flatlining or deeply unconscious, which the patient reported as soon as they woke up in the recovery room, and staff posted the report somewhere safely retrievable in its original form, then possibly a) the brain is actually conscious in some hitherto unmeasurable way when we believe it is not,

⁷ Woerlee, Gerald. The Unholy Legacy of Abraham. Downloadable free from website <http://www.unholylegacy.woerlee.org/index.html>

and/or b), consciousness and perception can exist outside the brain, in which case, serious efforts can begin to find out, how?

What 'gates of perception' could open from that question! Does consciousness have physical mass? (Do neutrinos, a million million of which go through your head while you read this sentence? Does memory? Does gravity, which acts at a distance and instantly?) And the possibility of survival beyond physical death would receive a shot in the arm too.

Or, equally significantly, we'd have to consider the possibility that the brain we thought was 'dead' or not showing any function, was actually functioning during clinical death, and that there are forms of consciousness at present undetectable (perhaps relating to quantum processes at subatomic levels or superfast speeds). After all, presently measurable phenomena such as gamma brainwaves were unknown fairly recently, until advances in technology allowed their detection. There would be implications for further refining definitions of life and death, including decisions of when to switch off life support machines.

Clearly NDEs by definition go hand in hand with traumatic and tragic experiences for relatives and the patient themselves, so verifying their experiences is probably low on their list of priorities at finding themselves suddenly face to face with death, and just as suddenly relieved. But it would be valuable if ICUs, hospices and such like could be on the alert for such cases, which would ideally be reported speedily and verified before being muddled by other contacts, second hand reports, impressions and so on. If just one case can be verified, or not discredited at least, then all sorts of possibilities blossom. 'Death bed coincidences', in which family members some distance away, 'see' the loved one at the moment of death, and which are also widely reported: astral projection, telepathy, and all those other embarrassing, ne'er do well poor relations, will clamour for attention and a seat at the table of conventional wisdom, a disturbing prospect to those who like order and Newtonian certainty to prevail. But let's just find out, scientifically, whether there are biological equivalents of quantum tunnelling, the uncertainty principle, or

string theory, which might just be here with us all along.

OBE/NDEs which pass through the algorithmic sieve, occur in emergency cases of clinical flatlining, and so are unlikely to be 'set up' in advance fraudulently. If we can show that perception is possible outside a conscious brain, we may find explanations for how it is possible, which prove, or disprove, the possibility of some of these other forms of out-of-body experiences, such as shamanic journeys, telepathy, and telekinesis, which do involve a functioning brain.

In fact, scientific evidence, obtained as a result of experimental observation under carefully controlled conditions, already suggests there are small but statistically significant effects of mind on mind (Sheldrake, 2005; Schmidt, 2004), or mind on matter (Radin and Ferrari, 1991) which do not involve direct interactions (non local) and are not explicable in terms of currently understood mechanisms.

However, most scientists are not aware of the evidence or, worse, refuse to accept it – mainly because there is no scientific explanation. Yet physicists accept the principle, indeed the inescapability, of 'the influence of the observer on the observed', as a cornerstone of quantum theory. One verifiable case of out of body consciousness could revolutionise biomedical science as quantum theory did to Newtonian physics.

APPENDIX

PROPOSING AN ALGORITHM TO SIFT VERIFIABLE CASES.

This approach could sift new or existing reported cases and come up with a gold nugget, which might enable progress in the ongoing debate. It is an algorithmic series of questions, rather like the Eratosthenes Sieve for prime numbers.

THE ALGORITHM

THE 'SIEVE' OF QUESTIONS TO FIND OPTIMUM CASES for study.

QUESTION 1

WAS THE PATIENT'S PROCEDURE, (DURING WHICH THEY REPORTED AN NDE/OBE) AN EMERGENCY/UNPLANNED?

YES – GO ON TO QUESTION 2.

NO – DISCARD. Any procedure, however critically important for survival, which was elective and the patient pre-warned about, could involve the patient being given information about the procedures, equipment, personnel, location etc, or having the chance to look them up online, which could crop up in their reported OBE/NDE, either through fraud, wish for notoriety or publicity, wishful thinking, or subconscious memory producing a construct of the brain.

QUESTION 2

WAS THE PATIENT WHEELED INTO THE ROOM (EMERGENCY ROOM, OPERATING THEATRE, ETC, WHERE THEIR BODY WAS WHEN THEY EXPERIENCED THE OBE/NDE,) ALREADY UNCONSCIOUS, EITHER THROUGH ANAESTHESIA OR OTHERWISE?

YES – GO TO QUESTION 3

NO – DISCARD. The patient could have taken in some physical details of the room and surroundings and personnel, even if drowsy, very ill etc, which they might recall as part of an NDE/OBE.

QUESTION 3

DID THE PATIENT REPORT AN OBE WHICH COMPRISED OF OR INCLUDED,

FEATURES WHICH COULD POSSIBLY BE VERIFIED BY OTHER PERSON(S) PRESENT? E.g., physical features of the room, personnel, equipment, events, which someone also present, but conscious, could also perceive. Preferably more than one.

YES – GO ON TO QUESTION 4

NO – DISCARD. Features such as life review, seeing and speaking to deceased loved ones, tunnels and bright lights, etc, or individual experiences, could be, even if a genuine experience, a construct of the brain trying to understand its own near demise. No way of verifying (except in some very unlikely event) whether someone 'really' saw their dead mother, or if she was 'really' there.

QUESTION 4

COULD ANY OF THESE CONCRETE OBSERVATIONS ('SEEN', HEARD, FELT, ETC) BE TIMED, BY THE AGREEMENT OF RELIABLE AND INDEPENDENT WITNESS(ES), TO A PERIOD OF FLATLINE/CLINICAL DEATH/NO MEASURABLE BRAIN ACTIVITY?

YES – GO TO QUESTION 8

NO – GO TO QUESTION 5

We need to pin down the events observed to coincide with an apparently totally unconscious brain by our measurement standards.

Sounds heard, voices, remarks, etc, and possible sensations of touch, have been reported by patients who are abnormally resistant to anaesthesia and are not as deeply unconscious as medical staff think they are. Ideally we are looking for timeable SIGHTS in the operating room, seen while the patient is unconscious, in which case;

QUESTION 5

WERE ANY SUCH FEATURES OF THE OBE, REPORTED AS 'SEEN' (AS WELL AS, OR INSTEAD OF, HEARD/FELT)?

YES: GO ON TO QUESTION 6

NO: DISCARD

QUESTION 6

WAS THE PATIENT, AT THE TIME OF 'SEEING' SUCH FEATURES, IF NOT

FLATLINING, AT LEAST UNCONSCIOUS /UNDER ANAESTHESIA?

YES: GO ON TO QUESTION 7

NO – DISCARD

QUESTION 7

WERE THE PATIENT'S EYES TAPED SHUT WHEN THEY WERE WHEELED INTO THE ROOM

UNCONSCIOUS/ANAESTHETISED/FLATLINING (AS IN Q1)?

YES: GO TO QUESTION 8

NO: DISCARD. Taped eyes make a further safeguard against accidentally seeing something, perhaps while almost unconscious, later reported as part of NDE/OBE.

QUESTION 8

DID THE PATIENT REPORT THEIR NDE/OBE SOON AFTER REGAINING CONSCIOUSNESS? In the recovery room? To a member/members of staff?

YES: GO QUESTION 9

NO- DISCARD: OR PROCEED TO 9, NOTING THE TIME LAPSE. Some leeway here!

It's desirable that the patient reported their experience asap, to a detached observer eg medical staff rather than emotionally involved relatives, and preferably before any relative who was present during the procedure has a chance to speak about it to

them, information which might be taken in by a person regaining consciousness without being aware of it and then incorporated into their report. In fact while still drowsy they might hear staff talk about problems or events to their relatives or each other: it's desirable for staff to be aware of this. NDEs may take place as the subject is waking up, rather than while flatlining.

QUESTION 9

WAS THE PATIENT ALREADY/PREVIOUSLY INVOLVED IN NDE RESEARCH OR SIMILAR STUDIES?

YES: PROCEED TO 'SIFTED', BUT NOTE THE FACT AND BEAR IN MIND. BE WARY OF POSSIBLE PATIENTS' URGE TO PLEASE RESEARCHERS, AND KNOWLEDGE OF WHAT TO EXPECT. HOWEVER THIS ISN'T A DEFINITE DISQUALIFICATION.

NO: PROCEED TO 'SIFTED'.

SIFTED: THE CASE IS NOW THROUGH THE SIEVE.

ACTION: REPORT IN PUBLIC FORUM EG WEBSITE, ASAP, PRESERVING PATIENT ANONYMITY UNTIL CONSENT CAN BE GAINED.

References

- Augustine K. Does Paranormal Perception Occur in Near-Death Experiences? *Journal of Near-Death Studies* 2007; 25 (4):203-236.
- Blake, William. *A Memorable Fancy*, in: *The Marriage of Heaven and Hell*. (ca.1790-93) *Complete Poetry and Prose of William Blake*. Anchor, 1997.
- Braude S. *Immortal Remains*. Lanham, MD: Rowman & Littlefield Publishers, Inc.; 2003: 274.
- Corazza O. *Near Death Experiences: Exploring the Mind-Body Connection*. Oxon & New York: Routledge, 2008.
- Fenwick P, Fenwick E. *The Art of Dying*. London: Continuum International Publishing Group Ltd.; illustrated edition, 2008.
- Fenwick P, Fenwick E. *The Truth in the Light: An Investigation of Over 300 Near-Death Experiences*. New York, NY: Berkley Books, 1997.
- Fox D. Light at the end of the tunnel. *New Scientist* 2006; 2573:48-50.
- French CC. Near-death experiences in cardiac arrest survivors. *Progress in Brain Research*. 2005; 150:351-67.
- Greyson B. Dissociation in people who have near-death experiences: out of their bodies or out of their minds? *Lancet* 2000; 355: 460-3.
- Hameroff SR. The entwined mysteries of anesthesia and consciousness: is there a common underlying mechanism? *Anesthesiology* 2006; 105: 400-12.
- Jibu M, Hagan S, Hameroff SR, Pribram KH, Yasue K. Quantum optical coherence in cytoskeletal microtubules: implications for brain function. *Biosystems* 1994; 32: 195-209.
- Lai CF, Kao TW, Wu MS, et al. Impact of near-death experiences on dialysis patients: a multicenter collaborative study. *Am J Kidney Dis* 2007; 50: 124-32
- Lange R, Greyson B, Houran J. A Rasch scaling validation of a 'core' near-death experience. *Br J Psychol* 2004; 95: 161-77.
- Parnia S, Spearpoint K, Fenwick PB. Near death experiences, cognitive function and psychological outcomes of surviving cardiac arrest. *Resuscitation* 2007; 74: 215-21.
- Persinger MA, Koren SA. A theory of neurophysics and quantum neuroscience: implications for brain function and the limits of consciousness. *Int J Neurosci* 2007; 117:157-75
- Persinger M, Koren SA, Lafreniere GF. A Neuroquantologic Approach to How Human Thought Might Affect the Universe. *NeuroQuantology* 2008; 6 (3): 262-271.
- Radin D. *Entangled Minds: Extrasensory Experiences in a Quantum Reality*. New York: Paraview Pocket Books; 2006.
- Radin D. *The Conscious Universe - The Scientific Truth of Psychic Phenomena* San Francisco: HarperEdge; 1997.
- Radin DI and Ferrari DC. Effects of consciousness on the fall of a dice. *J Sci Exploration* 1991; 5:61-84.
- Sabom M. *Light and Death*. Grand Rapids, Michigan: Zondervan; 1998: Ch. 3; page 37.
- Schmidt S, Schneider R, Utts J, Walach H Distant intentionality and the feeling of being stared at: two meta-analyses. *Br J Psychol* 2004; 95:235-4.
- Schwartz JM, Stapp HP, Beauregard M. Quantum physics in neuroscience and psychology: a neurophysical model of mind-brain interaction. *Philos Trans R Soc Lond B Biol Sci* 2005; 360: 1309-27
- Sheldrake R, Smart P. Testing for telepathy in connection with e-mails. *Percept Mot Skills* 2005; 101: 771-86.
- Stephey MJ. *What Happens When We Die?* Time Magazine, 18th September, 2008.
- van Lommel P, van Wees R, Meyers V, Elfferich I. Near-death experience in survivors of cardiac arrest: a prospective study in the Netherlands. *Lancet* 2001; 358: 2039-45.
- Yamamura H. Implication of near-death experience for the elderly in terminal care. *Nippon Ronen Igakkai Zasshi* 1998; 35: 103-15.