

A theory of physical interaction in NDE that explains NDE aftereffects

Solving the “hard problem” of consciousness

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A model of near-death experience relating mind and physical body

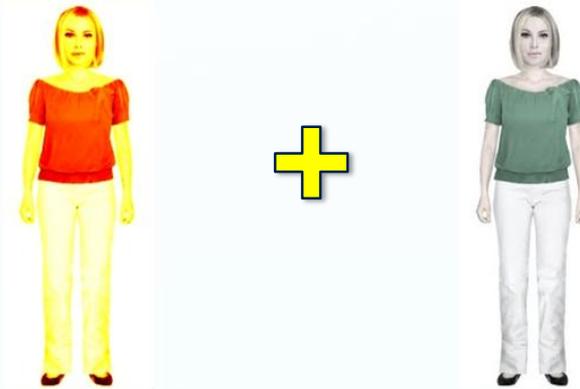


The locus of consciousness appears to separate from and operate independent of the brain

- Particular position in space and particular visual perspective
- Heightened, lucid awareness, logical thought processes, memory
- Vivid perceptions including veridical perceptions of the surroundings

A theory of the mind and brain

1. The human being consists of (1) an energetic, spatially extended, non-material “mind” that is united with (2) a material brain and body



2. The mind is non-material, like a structured energy field that interacts with physical processes, and thus has physical attributes



A theory of the mind and brain...

3. The mind is united with the brain and interacts directly with it, probably via electrical interactions with brain neurons



4. The mind is the seat of conscious experience, but when united with the body, it requires neural electrical activity to be conscious. As a mental agent, the mind can initiate electrical brain activity.



A theory of the mind and brain...

5. When brain structures are damaged, mental faculties dependent on them are partially or totally impaired

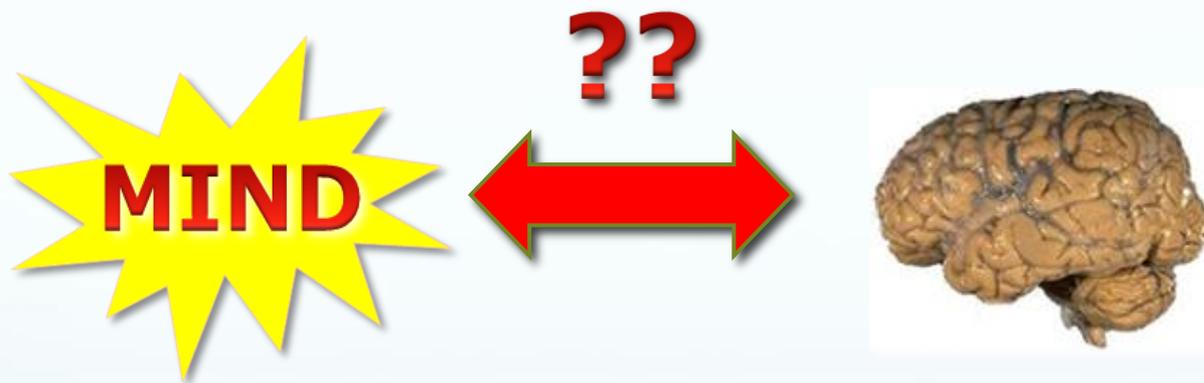


6. The field of the mind has an internal structure corresponding to neural structures in the brain and throughout the body. "Phantom limbs" can result.



The phantom limb appears as a field of sensation extending beyond the body in space. It is a "mind limb".

How does a non-material mind interact with the physical brain?



Is there physical interaction in NDE?

- During NDE, locus of consciousness shifts from within the physical body to outside, with a localized, independent existence with a particular location and perspective
- Many NDErs experience that they have a “body”, appearing either as a physical body form or as a sphere or ovoid form (Lundahl & Widdison, 1997, p. 108; Moody, 1975, pp. 42–50)
- The NDEr “body” appears luminous, translucent or cloud-like in some way to the NDEr, that is, giving off some kind of light of its own (Serdahely, 1993, p. 88)
- In at least some NDErs, the “body” appears to have an intricate, luminous structure (Hands were “composed of light with tiny structures in them ... tubes of light up his arms.” Moody & Perry, 1988, p. 10)

NDE interactions with physical energies and processes

- **Light:** NDEr “sight” interacts with light giving veridical perceptions with normal colors, dependent on the ambient light (Ritchie & Sherrill, 1978, p. 37)
- **Sound:** NDEr “hearing” interacts with sound vibrations from heart monitors, fluorescent lights, etc. to provide veridical auditory perceptions (Ring & Valarino, 1998, p. 63; Sabom, 1982, p. 100)
- **Solid objects or surfaces:** NDErs report –
 - feeling a slight resistance or a little change in denseness in passing through objects
 - the ability to “bob” against the surface of the ceiling or feel the support of the hospital roof
 - the ability to “touch” and feel an object or sense the texture of surfaces of objects by “touch”

References: Blackmore, 1982, p. 52; Corcoran, 1996, p. 80; Fenwick & Fenwick, 1995, p. 180; Gabbard & Twemlow, 1984, p. 158; Casebolt, personal communication, August 3, 2008.

Can be “seen” by other NDErs and by animals

- NDErs can see their own “body” and can see other out-of-body individuals during the NDE, who also have a bodily form (Eulitt & Hoyer, 2001; Gibson, 1999, p. 128; Moody & Perry, 1988, p. 173)
- The NDEr’s “body” can apparently be seen by animals

Jerry Casebolt (NDE at age 7) hovered above and just out of reach of a dog on a playground, with the dog repeatedly wagging its tail, jumping up and barking at him.

(Corcoran, 1996, p. 81; Casebolt, personal communication, August 3, 2008).



Interaction with an in-body person which is felt

- NDEr can feel interaction with another person's physical body

When a cardiac arrest NDEr passed her hand through Moody's arm, she felt it had a "very rarefied gelatin" consistency, with an electric current running through it (Moody & Perry, 1988, pp. 8–9).

- NDEr interaction can be felt subtly by the other person

Jerry Casebolt (NDE at 7) playfully tickled another patient's nose, touching her just once and she sneezed. He repeated this another two times.

(Corcoran, 1996, p. 83; Casebolt, personal communication, August 3, 2008; see also Cook, Greyson, & Stevenson, 1998, p. 399 – Al Sullivan's surgeon reacting to being "touched").

Apparent interaction with fog

A man driving outside Portland, Oregon in late October around midnight. It was foggy; he swerved on black ice on a hairpin curve and crashed into a tree, severing his arm (Atwater, 2011, p. 241-242, and personal communication, March 7, 2008)

- In his OBE, he saw that he would die if he didn't get help.
- He sought help from a house a distance away, outside the second story window, he jumped up and down and shouted to “call the police, there’s been an accident!”
- The man inside later told the police that the fog outside his window was jumping and seemed to have the shape somewhat like that of a person.
- The second man heard “in both ears” that there had been an accident, went outside with a flashlight and found the wrecked car.

“Merging” with an in-body person

The NDEr “body” appears to “merge” with another person’s physical body and apparently can also communicate information to the person

- During an NDE, a 5-year-old boy who was suffering from meningitis briefly “went into” his sister’s head and saw the world through her eyes. (Morse & Perry, 1990, p. 177)
- A 48-year-old man was despondent and attempted suicide by hanging. During his NDE OBE he desperately sought help from his wife. She could not hear his cries, so he “went into” her body and could see and hear with her eyes and ears. When he made contact with her, he heard her exclaim, “Oh, my God!” Apparently she knew what was needed, because she grabbed a knife, ran out to where her husband was hanging, and cut him down. (Greyson & Bush, 1992, p. 105)



During his NDE, George Rodonaia was “inside his wife's head” as she was picking out his grave and heard all of her thoughts. She was making a mental list of eligible men to date, with their characteristics as possible future husbands. Rodonaia later repeated all these details to her. (Atwater, 1994, pp. 81-83; 2011, p. 236; personal communication, March 7, 2008)

Physical interactions in shared death experiences

- “Body” of the deceased passes through a person at the bedside
 - Mild electrical sensation, pulse of energy, surge somewhat like an electric current, jolt of energy (pp. 11, 40, 93, 99)
- An apparently deceased person appeared and touched the hand of a person attending his dying friend (pp. 125-126, account from William Barrett, 1926)
 - Felt “as though I had touched a low electric charge”
- A mist forming over the dying person’s chest or head (pp. 101-103)
 - Has depth and complex structure with layers with energetic motion in it
 - Some kind of electricity, like an electrical disturbance
- NDEs, SDEs and other near-death phenomena form a continuum

(Moody and Perry, 2010)

Observed phantom limb interactions

1. When M.G. **“touches” other subjects**, especially in region of the brain, it evokes distinct, unusual inner images and subtle but definite physiological sensations – not reported by other researchers

- Colors, shapes (black circle with white ring), objects (tree, sea gull, fire hydrant, sail boat)
- Objects accompanied by smells, tastes, textures (purple grapes, custard, strawberries)
- Personal memories
 - not considered in a long time – time spent at a beach with siblings
 - only vaguely remembered – running in the grass and stung on feet by bees
- Definite physiological sensations
 - warmth, pressure in head, face or limbs
 - distinct flushing of the face and neck



Observed phantom limb interactions...

2. When M.G. **“touches” an object**, it evokes physiological sensations and reactions (increased skin color, twitching of the finger buds) in M.G. – not reported by other researchers
3. **Phantom limbs are “felt”** by energy healing therapists and others, and their “touch” on the phantom is **felt by the patient** (Leskowitz, 2000 and 2001). Also reported by M.G.
4. **Phantom limbs can be “seen”**: “In darkness, I have noted a faint glowing of my phantom body parts” (Brugger, Kollias, Müri, Crelier, Hepp-Reymond, & Regard, 2000). Also reported by M.G.

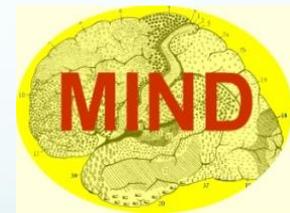
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- Our results imply that interactions are present but are very subtle or weak
  - The best detectors are probably other living organisms
  - A sensitive photomultiplier will be needed to detect light emissions
- Phantom limbs appear to be objectively real extensions beyond the physical body, similar to the NDE “body”

# Mechanism for physical interactions by a non-material mind

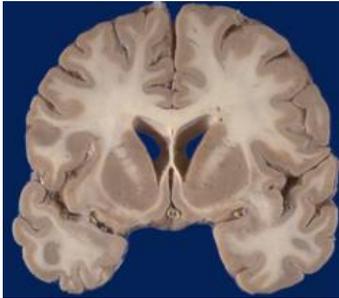
- Mind-brain interaction must ultimately resolve to physical processes. The energetic mind must:
  1. Interact with electromagnetic (light) waves to produce perception
  2. Interact weakly with atoms and molecules (air, solid surfaces, solid objects) to produce sensations (sound, slight resistance) and emit ultraviolet light
  3. Interact readily with neurons evoking sensations in others and allow NDE merging
  4. Have a structure closely matching the finely differentiated neural structure of the brain and nervous system

**The mind's structure mimics brain structure**



- Promising possibility: finely differentiated structures of minute oscillating electric or magnetic dipoles – first proposed by J. K. Arnette (1995 and 1999)
  - **This model can explain all of the apparent forms of interaction reported**

# A possible neural mechanism: background



Neural activity associated with consciousness occurs mostly in the outer 3 mm “**gray matter**” of the cortex, including in the “folds” or “sulci”.

The most common brain cell is the “**pyramidal**” cell which has a pyramid-shaped **cell body**, a long vertical “**apical**” **dendrite**, many shorter “**basal**” dendrites, a long “**axon**” extending below

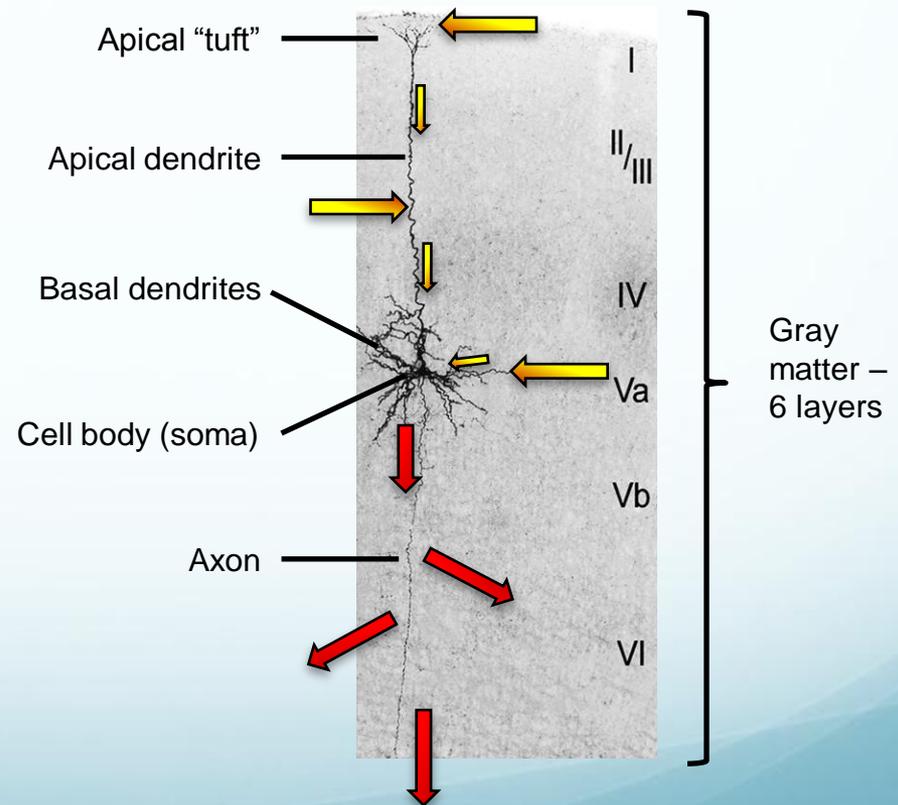
**Impulses from other neurons** are received at the dendrites and **cause the neuron to “fire” impulses down its axon** to still other neurons



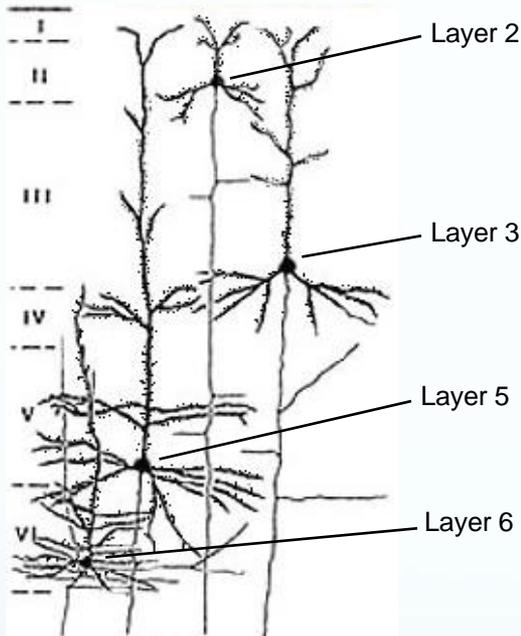
Impulse from another neuron



Impulse (action potential) from this neuron to others



# A possible neural mechanism: background ...

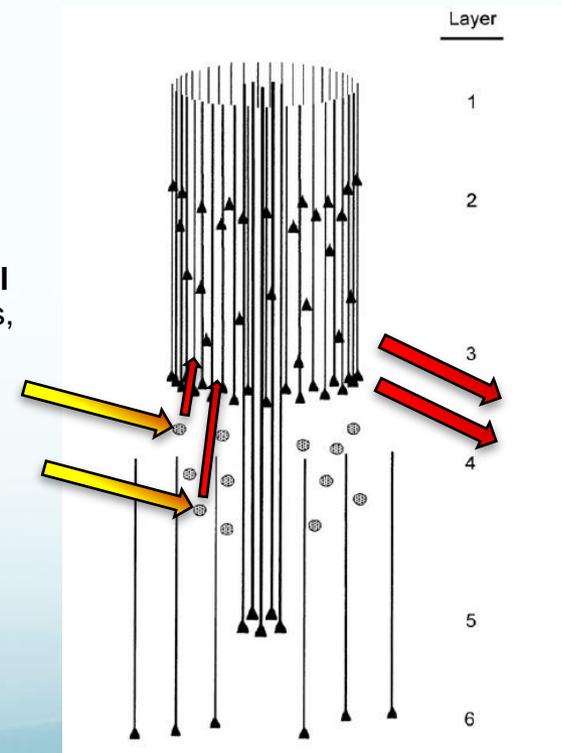


Different types of neurons are located in the **different layers** of the gray matter. For pyramidal cells in layers 2, 3 and 5, their apical dendrites extend to layer 1 and terminate in intertwined “tufts”. Layer 4 cells (not shown) are a different type called “stellate” neurons.

Neurons are arranged in “**mini-columns**” where layer 5 cells are arranged in a central column surrounded by layer 2/3 cells.

Each minicolumn is sensitive to **specific aspects of the perceptual field** – vertical versus diagonal lines, red versus blue color.

Impulses from “downstream” minicolumns are received by the layer 4 cells, which then excite or activate the layer 2/3 cells. The layer 2/3 cells in turn activate layer 4 cells in adjacent minicolumns, which serves to **further refine and analyze the signal** received.



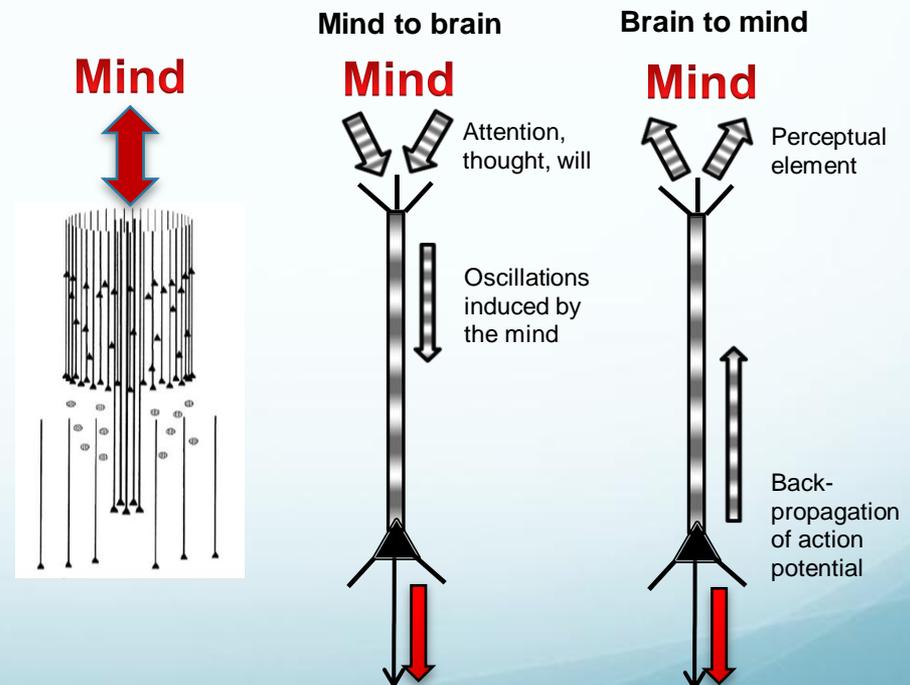
# A possible neural mechanism: hypothesis

Facts of brain cell structure and physiology:

- The neural activity associated with consciousness is concentrated almost entirely in the outer 2.5 mm of the neocortex, the gray matter
- The apical dendrites have a unique linear structure perpendicular to the cortical surface
- The apical dendrites terminate in intertwined dendritic tufts in layer 1

Suggest the hypothesis:

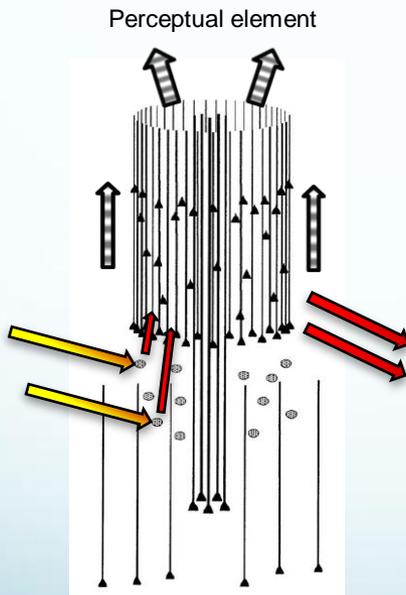
1. The interface with the mind must be at the cortical surface (including in the sulci folds), interfacing with layer 2/3 and 5 pyramidal neurons, probably in the layer 1 dendritic tufts.
2. Oscillatory electrical pulses occur within the apical dendritic shafts and are probably associated with consciousness (first suggested by LaBerge, 2001 and 2007).
3. Oscillating dipoles in the energy field of the mind can induce the oscillations in the apical dendrites and be induced by them



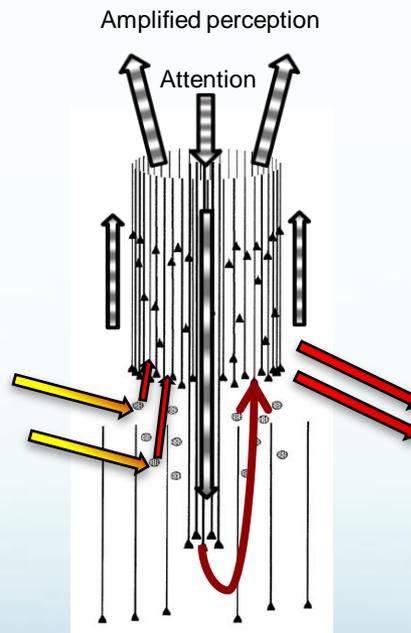
(Mays & Mays, 2011, submitted for publication)

# A possible neural mechanism: hypothesis...

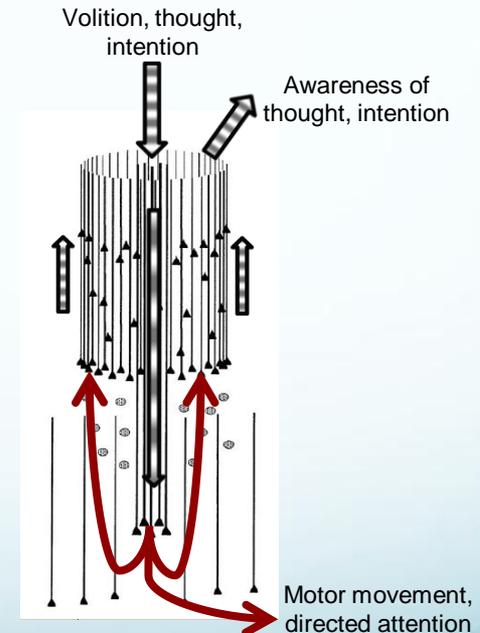
Oscillations from layer 2/3 cells result in perceptual awareness



Attention causes oscillations in layer 5 cells, boosting layer 2/3 cells to give amplified perception \*

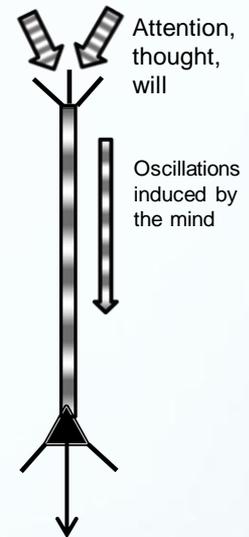


Volition, thought or intention cause oscillations in layer 5 giving motor movement, directed attention, and awareness of thought



# A possible neural mechanism: observations

- We propose a second form of neural activity in addition to action potentials – apical dendritic oscillations induced by the mind
  - Energy would be consumed in generating and sustaining dendritic oscillations
  - Thus, added energy is needed for the mind-brain interface
  - Evidence: the focus of attention requires more blood flow (more energy) than needed for the associated action potentials
    - Attention increases neuron action potentials only mildly in primary visual (V1) area, but...
    - Measures of blood flow in V1 had “large and robust attentional effects” (Koch, 2004, p. 179)
- We propose that memory is stored in the field of the mind
  - Episodic memory is facilitated by pyramidal neurons in the hippocampus
  - Memory formation: as experiences occur, the sensory, motor and mental neural components activate the hippocampal cells and induce memory formation in the mind
  - Memory recall: hippocampal cells interface with the mind and reactivate the same sensory and mental neural components, but at a lower intensity



# Aftereffects of NDE

Major NDE aftereffects include, among many other things –

- Increased sensitivity to light, loud sounds, touch, electricity
- Interference with electronic equipment, watches, clocks, etc.



- Generating unusual electrical sparks



- Elevated psychological dissociation / absorption
- Enhanced psychic / intuitive / paranormal abilities – precognition, telepathy, healing abilities, psychokinesis, etc.

# Aftereffects of NDE...

- After NDE, the energetic field of the mind is **not as “tightly united”** with brain and body
  - Extends further beyond the physical body
  - Interacts with the physical environment
  - Permits NDE-like perceptual abilities

- One NDEr has described three states:

“**Body focused**” – doesn’t occur that often, doesn’t like feeling that way very much



“**Partially expanded**”



“**Completely expanded**” – not very often, in the extreme it is something like during the NDE, hard to find words in that state, hard to remember details of the experience



# Aftereffects of NDE...

In the “partially expanded” state:

- The senses include both physical senses and direct NDE-like senses → increased sensitivities
- The mind’s energetic field can directly interact with objects, electrically and in other ways → interference with electronics, sparks, psychokinetic effects
- The mind has direct NDE-like access to thoughts, insights, images → psychological dissociation: absorption, daydreaming, intuitions



In the “completely expanded” state:

- The mind has direct NDE-like access to “non-local” aspects of reality → enhanced psychic / intuitive / paranormal abilities



# Localized versus “non-local” consciousness

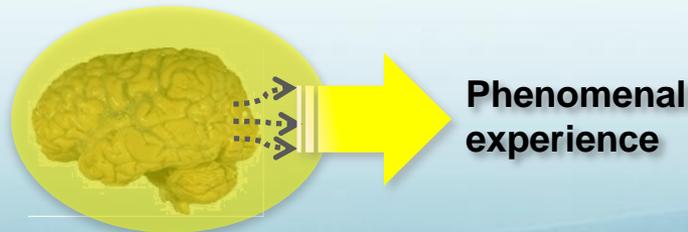
- Pim van Lommel (2010) holds that the fundamental property of consciousness is “non-locality”, that is operating outside of space and time
  - Evidence: non-local aspects of NDE:
    - life reviews involving knowledge of others’ experiences
    - knowledge of future events
    - the sense of unconditional love and acceptance
    - contact with universal knowledge and wisdom
  - Consciousness is received by and transmitted from the brain in indestructible wave functions that are not localized in any place, not even in the brain – they are everywhere
  - Possible quantum processes that could link non-local consciousness to the physical brain

# Localized versus “non-local” consciousness...

- However, the overwhelming evidence from NDEs is that the NDEr is a localized, individualized entity
  - Locus of conscious experience always has a particular location in space and perspective, even when in transcendent realms
  - Conscious experience is still individualized, even when “becoming one” with God or the All
  - The NDEr encounters other entities (deceased relatives, other deceased humans, transcendent beings) who are also localized and individual
  - In addition, NDE phenomena include definite interactions with physical processes
- The fundamental aspect of the mind is the localized individuality or beingness of the person
  - In our view, the mind’s individuality is fundamental and the transcendent or non-local aspects are secondary properties of the mind
  - The mind is localized and has both physical attributes and non-local attributes.

# Solving the “hard problem” of consciousness

- The “hard problem” is that subjective phenomenal experience can’t be explained solely from physical phenomena (Chalmers, 1996)
- Conscious experience depends on a *second entity* with physical attributes – the conscious mind
  - The mind is the seat of consciousness as is evident in NDEs. Wherever the mind entity is located, the person’s phenomenal experience and particular visual perspective occurs (case of Joseph McMoneagle, 1997, p. 30)
  - Neural electrical activity in specific regions of the brain causes subjective experiences *in the mind*
  - Conscious experience arises necessarily within the mind’s field of phenomenal experience, through the direct interaction of the mind with the brain



# Mind is a fundamental entity

- Mind as a structured energetic field does not fit any known physical phenomena or physical laws
  - When phenomena are discovered which imply new physical entities or forces, the domain of what constitutes physical reality has been expanded
  - The mind as a new aspect of reality is no different



- The mind entails new fundamental properties and is a fundamental aspect of reality, namely the source of consciousness
  - The essential property of the mind is the phenomenal experience of a particular individual
  - The mind is the seat of the essential selfhood of the person; it is the person

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