Chapter 8.5
Consciousness

The first gulp from the glass of natural sciences will turn you into an atheist, but at the bottom of the glass God is waiting for you.

Any honest exploration - Whether through microscope or telescope... when done without bias, will lead you to the Creator of All Things.

Don't let faith shape your science, or let science shape your faith.

Rather, explore the world informed by both and prepare to be astounded.

~ Werner Heisenberg (1901-1976)
Theoretical physicist and one of the key pioneers of quantum mechanics

In reality it is impossible to truly know that the internal experience of one person has any equivalent in the experience of another. But the starting point of any communication has to be some perceived common ground. If experiences are described in detail, it becomes clear that there *is* a common ground of sensory experience – that may be universal across species, though is is not universally identical, and is subject to a lot of individual variation. Some experiences are quite unique, individual and ephemeral, infrequent, whereas others can be agreed by most people. It is perhaps the most unusual and remarkable experiences that are most describable, and therefore shareable; because experienced normality has no particularly remarkable or definitive frame of reference (other than "normal") with which any comparison can easily be made. Paradoxically, these numinous events of immersion may be so out of the ordinary that they cannot be adequately conveyed to anyone who has not themselves experienced something to which they might possibly attribute the same words, images, emotions and perception of internal states[1]. Meanwhile, the question "what is normal?" lingers uneasily in the room like a gatecrashing elephant.

> My mother and I were walking on a stretch of land...known locally as 'the moors.' As the sun declined and the slight chill of evening came on, a pearly mist formed over the ground...Here and there just the very tallest harebells appeared above the mist. I had a great love of these exquisitely formed flowers, and stood lost in wonder at the sight. Suddenly I seemed to see the mist as a shimmering gossamer tissue and the harebells, appearing here and there, seemed to shine with a brilliant fire. Somehow I understood that this was the living tissue of life itself, in which that which we call consciousness was embedded, appearing here and there as a shining focus of energy in the more diffused whole. In that moment I knew that I had my own special place, as had all other things, animate and so-called inanimate, and that we were all part of this universal tissue which was both fragile yet immensely strong, and utterly good and beneficent. The vision has never left me. It is as clear today as fifty years ago, and with it the same intense feeling of love of the world and the certainty of ultimate good. It gave me then a strong, clear sense of identity which has withstood many vicissitudes, and an affinity with plants, birds, animals, even insects, and people too, which has often been commented upon.
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> – RERC[2] Reference: 003039, Female, 1922

In contrast, trying to describe the everyday normal – what water on the skin feels like, what the colour blue looks like, or even the experience of thinking or walking down the street – is surprisingly challenging. Which is why there are so many novelists and poets.

There are lots of ways in which the subject of consciousness is described, but none of them are well defined. Consciousness is apparently a common experience, and so we agree to have a common word based on that assumption of common experience. Just as there is an implicit assumption that the colours each person sees - are seen in the

same way the same way by everyone. Words used to describe experiences around the topic of *consciousness* include :

- "*cognition*" - "thinking/*thought*" (with the "mind"), including ideas of "*rationality*"; and
- "*awareness*" ("*sensing", sensuous, sensitive*), including *self-awareness* - which is not necessarily rational[3], but includes the realm of *sensory experience*
- "*sentience*" (an aware "*intelligent*" *presence*);
- quality of "***attention***" and "*presence*"
- *"altered state*" – anything that might be considered to be not a commonly experienced waking state of consciousness

Many of the above words describe qualities that are experiential, or abstract, or both; and the ideas themselves are ultimately self-referential without really offering anything concrete as a placatory gesture... In addition to personal subjective experience, we can observe the effects of them put into action by ourselves and others. So active attention and presence in the moment are noticeable qualitative states in both ourselves and in others (if we are attentive enough). Or we can compare experiences of several people through the filter of language (inside or outside of a scientifically controlled context). There is no way to measure any of them objectively and directly. It is possible to use laboratory instruments to observe the secondary[4] electrical and electromagnetic phenomena, changes in blood flow and neurotransmitter balance in the brain that accompanies them. But – despite the way that popularised science magazines claim that (e.g.) "*scientists have found the way the brain sees objects*" - the more concrete the measurement, the more it is abstracted and removed from the lived experience and the more impossibly metaphysical dots have to be joined between the measured physical property and the conscious process itself.

There are also slightly peripheral issues around consciousness and thought, related to will, volition and self-actualisation (vs reactivity), because the capacity to exercise *choice is defined as being* one of *conscious-ness*. The idea that animals are purely reactive is one part of the myth that humans are the only conscious beings. In reality, it is true that animals are reactive to a degree, but so are humans. And many humans are as reactive as are animals in certain circumstances – although they retain an illusion of choice and of that definition of conscious-ness because of the assumption that being part of the human species automatically equates to consciousness. Of course, here we are talking about waking consciousness – the capacity to be present and cognitively aware of ones internal and external circumstances, and to translate that into self-actualised action. The tautology of these words is palpable. The idea is that I can make

a choice that is not random (as in being driven by completely random processes such as Brownian motion) and that is a "conscious decision" – i.e. a thought arises before the event that says "I will do this" ("*ich vollen*" in German is more precise). And then the action follows the will to action. If only the processes were so clearly definable. But they are not, *except* through the experience of them. The scientific-objective view has to wade through a tangled jungle of randomness at subatomic and synaptic levels, and presumed causality from habit, Gestalt, "genetic programming", and so on – so the idea of a conscious will – even for a human being – becomes more and more intangible the more we try to grasp it. An experience not a million miles from that of Iain McGilchristt[5,6] who started his working life as a literature critic, and decided to study neurology when he realised that the essentially left-brain critical analysis he was employing reduced works of profundity, inspiration and ineffable beauty to the point that nothing of what made them special was visible any more – the analysis and deconstruction might have had a certain value, but what was of most value to the human soul had disappeared to the point that one had to question how it had existed at all. After devoting over 20 years to the study of psychology and neurology, and becoming a world renowned expert, he published his seminal work "The Master and His Emissary", considered one of the most important books of the century.

The fact is that consciousness cannot adequately describe itself. It is commonly assumed that there is a "normal" waking consciousness common to most people (hence, there is one common word - "*consciousness*"). But we have already seen (Chapter 4) how experience of the self, the present moment and the external world through the senses is hugely variable. And since consciousness is a stream or continuity of experience, most of which (for a human being) is sensory and all of which is dependent on sensory information or memories of sensory information, how can consciousness be fixed into one standardised state? Hypnotherapists – a group of people whose job requires that they understand and work with states of consciousness – consider that most people (if not everyone) moves in and out of many different kinds of consciousness during a typical day... To say that there is *only* consciousness and "altered consciousness" is a misunderstanding. Some forms of so-called altered consciousness are actually commonplace. Daydreaming, remembrance, the spacious sense of being that comes with love or awe, the flow-state of the long distance runner, the unreal and wired immersion of computer-gaming and the (metaphorical!) immersion of fishing on a river bank – are all examples of different and arguably "altered" states of consciousness.

States of consciousness, or at least the portal to those states, is determined by **attention**. What we place our attention on has a huge impact on not only what we perceive, but on everything to do with the experience of being alive and embodied. So you could quite easily move through several different states of consciousness now and notice their

qualitative differences by :

- shifting attention to something in your external environment
- shifting attention to your breath or to something you are touching
- dropping your vision into peripheral/slightly unfocussed, so that the point of focus is resting lightly and effortlessly inside the eyeball
- shifting your point of balance as you stand, or your overall body position/gesture
- touching two fingers together or placing the hands in any other "mudra" (e.g. lightly touching thumb and index finger together on one hand)
- strongly remembering a particular detail of a beautiful place you have visited
- etc...

The effect of these is usually quite subtle, for some to "work" it is necessary to know exactly how to perceive the effect (or *how to place attention on the effects of placing attention!*) – but they are all ways of experiencing the world, the self, and the act of consciousness differently. For instance, the *mudra* of very lightly touching the tips of the index finger and thumb together appears to do nothing if one focusses attention on the finger tips; but an equally light attention on the qualitative background experience of mind/thought and body reveals that the simple touching of skin of these two digits appears to create some kind of short circuit and the mind becomes more quiet. Increase the physical pressure of the fingertips or the forcefulness of attention, and the effect is lost. The fact that this factual detail of how the mind and body are stitched together has been used in Hindu, Daoist and Buddhist traditions for a few thousand years doesn't make it owned by those particular spiritual traditions. Rather, they are simply using something that is already in our makeup. There is for whatever reason a direct connection between the state of mind/awareness (consciousness) and specific gestures made by the musculoskeletal system. If this is not a powerful demonstration of the totality and wholeness of the human organism and the inseparability of mind and body, I don't know what is.

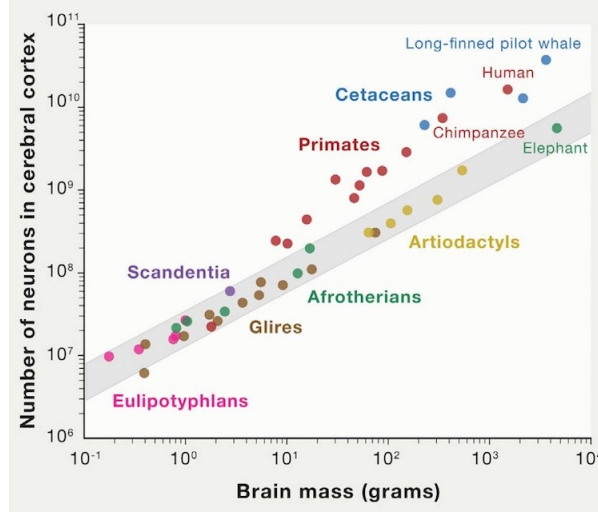
Historically, the capacity of humans to "think", mainly in words (so it also required a language) was taken up as a definition of consciousness. Thought was identified directly with language, because thought is communicated linguistically, even if the thought was originally imaginal (an internally generated image) or somatic (e.g. an emotion or an imagined movement) in nature. Clearly people from China can think – even though their brains operate within a very different language structure. Clearly crows can think how to manipulate their environment logically and in an abstract way when they work out how to displace water in a jar by using stones – even though they do not have a recognisable overt language, which strongly suggests that they have a

capacity for visual thought – and must have somatic experience in order to orchestrate their aerial gymnastics. The focus on the relationship between language and thought resulted in experiments on human babies by the pharaoh Psamtik I c 620BCE (to discover if they innately spoke Phrygian), and more famously by the emperor Frederick II c1200CE in an attempt to identify which language was given to them innately by God. Oddly, it has recently been discovered that babies absorb qualitative tonal and rhythmic (and maybe also explicit) properties of their mothers voice as they develop in the womb, so come out already primed[7] to speak their "mother tongue". Since animals *appeared to* not have a *spoken* language - but instead displayed an apparently unimaginative and inexpressive set of grunts and whistles – language (and therefore consciousness) was identified as a purely human trait. With, of course, some reference back to the definitive Old Testament, language was one way in which the "higher" human soul could be identified.

But what has been recognised many times during the course of human history is that thought may also be visual, somatic, gestural, or dream-like. Whether thought is based on language or image (the imaginal world) or whatever, our experience is sensual, so thought itself requires that attention be placed on a particular stream (or combination of streams of) sensuality. Linguistic thought happens to be an act of placing attention on the inner experience of sound, and visual thought is a placing attention on the inner imaginal sense (the internal version of external vision). So purely linguistic thought tens to be a lot slower than gestural (somatic or mixed) thought, which tends to be a lot slower than purely visual symbolic thought. The speed of thought is affected by the number of parallel processes that can be maintained in conscious attention; so my observation is that people who can temporarily shift wholly out of conscious somatic thought (whilst retaining enough non-conscious connection to it to still have it available) can use those extra active information conscious streams to think very quickly in a conversation.

As medical science progressed, the purported seat of consciousness shifted from the heart (with emotive feeling being an accepted part of the definition of "thinking") - to the brain (at which point emotion and thought were – eventually conceptually separated). This transition from human sentience being an experience of thought-feeling to one of only thinking is often ascribed to Descartes, but in reality it is a very late 19th, early 20th Century neo-Cartesian phenomenon. The final transition of thought to the purely mental realms in everyday Western culture was signalled at roughly the time of the first World War by the medical and dictionary definition of "trauma" shifting from being a disturbance of the heart to a disturbance of the mind. The next step – a relatively modern way of thinking about the mind - would be a conceptual shift to back-associate adult human brain neurology as the only arrangement capable of containing, sustaining, expressing or generating any significant form of consciousness.

Clearly this was already present in a rudimentary form in the 19th Century. The "science" of phrenology was as arm-waving in its generalities about brain function as most modern science fiction is about the laws of physics, or zombie films are about the basic laws of biology. The phrenological idea of specific lobes of the brain having specific function (such as the mid-lateral coronal suture reflecting an individual's mirthfulness) comes from a constructed model of reality – ironically one that is now recognised as being associated with left-brain dominance! Since science forms itself within the social milieu of its era, so were scientific views of how the brain functions influenced by this model of a constructed world. And, given that the brain was now the seat of the mind, of consciousness (and therefore of the soul), the search for its structure – which part has what function – became one of the aims of the new science of neurology.



There has been a longstanding anthropocentric fashion to attribute consciousness to brain, and particular to brain size, because humans have a large brain. And the few animals with bigger brains can be dismissed because they also have bigger bodies, leaving humans supreme by default. There is no doubt that humans are something special, and the human brain is in many ways unique. The figure[8] (right) shows that certain kinds of mammals (humans, primates, cetaceans) are unusual in that they have a proportionately greater number of cortical neurons compared to brain mass. This should be treated cautiously because Glia (the brain's immune cell sub-base) rather than neurons appear to be the basis of intelligence (at least for Einstein), so the rather "size matters" paper this figure is from may be based on some rather dodgy *a priori* assumptions. Studies so far seem to have found that human brains have an unusually high connectivity, with over 150,000 kilometres of white myelinated axons and an average of 164 trillion synapses organised in a topology that may be able to connect in up to 11 dimensions[9]. So the specialness of humans is not disputed. That doesn't mean that consciousness itself is a unique human trait.

If consciousness *has* to be associated with the brain (a moot point that I will discuss later), in essence there are really only two ways of conceptualising consciousness, with many different shades of grey (and other hues) lying in between. On the one hand western science has constructed a brain-centred neurological model of consciousness in which consciousness may be "special", but it is **emergent** from neurological complexity (i.e. it requires a complex central nervous system – a brain) – and specifically adult human neurological complexity. In this model, the changes in

neurotransmitter balance, in electrical activity at synapses, in EEG activity and in blood flow to various parts of the brain are equated with thought, awareness and consciousness. This is largely the viewpoint of the predominantly secular-skeptical scientific establishment. The theory is that if only we can look closely enough and deeply enough into these electro-biochemical processes inside the brain, we will "see" consciousness and thought taking place. The inherent difficulty with this anthropocentric and brain-centred model is that – at some point of lesser complexity animals have to necessarily be declared non-conscious, because consciousness is emergent from the (superior) complexity visible in the human brain. But this is clearly not the case, since very obviously intelligent behaviour may be observed in in other animals – dolphins, elephants, corvids, octopuses, parrots and cockatoos, dogs, non-human primates, etc. And it is difficult to deny some degree of intelligence existing in mice, or squid, or in fact many many other life forms, including slime mold. If one is to assume that intelligent adaptation to a complex environment is an expression of some degree of consciousness, there is a real difficulty in explaining consciousness when there is not a substantial or recognisable cortex, and no clear lower cutoff point.

Studies of intelligence indicate that it comes with two almost universal factors. Firstly there is a requirement to adapt in complex ways to the environment, to learn on-the-hoof and to seal with a multitude of different scenarios. So organisms with very simple feeding patterns – such as fleas and ticks – don't need to know very much. The second factor that is common to intelligent behaviour is community – so the organism extends its identity across other similar organisms (or in the case of humans – other creatures, such as dogs and other pets). Communal living by ants and bees, or kin-selective behaviour in plants – requires an adaptive intelligence that is hard to imagine without what one would normally think of as "consciousness" if only because – as an extended self - there is a need for communication. Generating meaningful communication (an extension of the internal communication systems) in the kind of complex environments we are thinking of here (and not just chemicals in a test tube) and then noticing it and responding intelligently to that meaning – is an act of intelligence and requires consciousness. So of the insect world, beetles (that have to negotiate complex environments, and social animals (ants, bees, termites, and perhaps even butterflies) tend to be the most intelligent[10]. But plants also can discriminate between shade from their own leaves and shade from other plants – an act of intelligence that requires a sense of self[11]. Both insects and plants (and octopuses) have distributed "brains", indicating (amongst other things) that a centralised nervous system is not the only way to organise intelligence.

The real difficulties in absorbing this (given our anthropocentric attitudes to large brains) start to arise when behaviours indicating choice, decision making and memory can be observed in single celled organisms. As has been documented in previous

Chapters - quasi-intelligent behaviour is universal to all scales and forms of life, so the existence of a brain is an arbitrary distinction. The presence or absence of a brain does not wholly define behavioural capacity, and so cannot be so significant when defining the lower bounds of consciousness, awareness and intelligence. The brain and nervous system must now be viewed as more sophisticated adaptations and ways of integrating vast numbers of already conscious and intelligent cells - rather than *necessarily* being the cause or seat of certain functions. The only workaround to this is to assume that even humans are biochemical automatons – a very slippery ethical and moral slope.

> In the first place, it is interesting that, in the late nineteenth and twentieth centuries, both mathematics and physics (for example, Cantor, Boltzmann, Gödel, Bohr) and philosophy (I am here thinking particularly of the American pragmatists, Dewey and Kames, and the European phenomenalists, Husserl, Heidegger, Scheler, Merleau-Ponty, and the later Wittgenstein), though starting absolutely from the premise of the left hemisphere that sequential analysis will lead us to the truth, have ended up with results that approximate far more closely – and I fact confirm the validity of – the right hemisphere's way of understanding the world, not that of the left.
>
> – Iain McGilchrist[12]

At the other extreme there is the *Idealist* viewpoint, as found in the writings of Goethe[13] and Steiner, various Spiritual traditions of the world, or the Quantum mechanics formulations and writings of physicists such as Amit Goswami[14] or David Bohm[15]. It is the world of Shamanism, where humans are not that special after all, and exist in a complex web of interdependent co-conscious Life. Consciousness is not restricted to neurons, but rather is a field phenomenon – one that has local effects, but one that is also connected to all other conscious beings in the world – or even in the entire universe. It is a means of common awareness and communication rather than being something isolated and imprisoned in each persons head. Consciousness being a field means that anything can contain or inhabit, or express (the words are quite inadequate to describe exactly what happens) consciousness – including rocks and atoms and subatomic particles. The Idealist view of Consciousness gives it a capital "C", since Consciousness is the ground of existence and precedes matter.

Goswami and Bohm might be considered by some to be fringe, but in fact their position is hardly any different from that of Iain McGilchrist and the various respected philosophers, scientists and mathematicians that he lists (see quotation above). The point McGilchrist makes is that whilst the left brain's analytical, abstractive, linguistic and deconstructive powers are the basis for our present society, actually the most important part of the brain is the right hemisphere – that deals in concrete reality but also the bigger picture, wholeness, relationship between living beings and between physical objects and places in 3-D space. We need both hemispheres, but both should

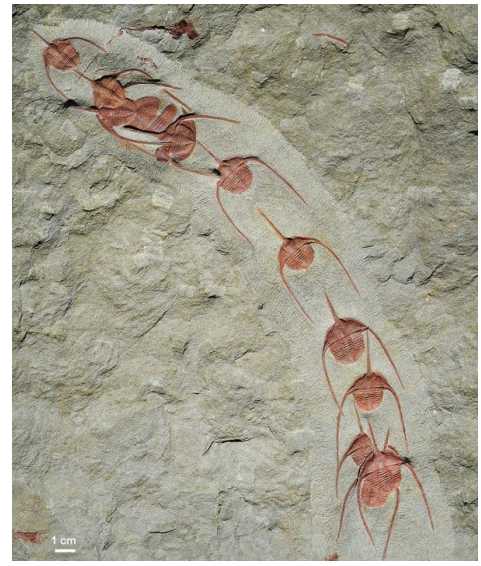
be used, and the "Master" hemisphere is in reality the right-hand one. Experiences from this position are sometimes indescribable (because the right hand side is not in charge of the western language with its heavy dependence on nouns), but nevertheless are real. Ironically, that experiential, incommunicable, ineffable quality of reality is rejected by secular neo-Cartesian ways of thinking, for the same reasons that inspired McGilchrist to investigate the brain. It is also ironic that this rejection of right-hemisphere experiences is purported to be "scientific", for one can add many other names to the list of scientists who chose to embrace a more holistic world view (instead of a purely reductionist one), including historic figures such as Newton, to the creators of modern physics such as Einstein, along with Heisenberg, and many other developers of Quantum theory. The fact that overt recognition of this layer of phenomena is/was culturally difficult led to the "Copenhagen interpretation" – a formulation of Quantum Mechanics that rejects the more spiritual and essentially right-brained nature of the world pointed to by non-locality and the background quantum field that is so much like the "Ether" in all but name.

This rationalist trend has pushed the popularised understanding of consciousness and experiential reality in very strange directions, and sometimes used a very forceful shoe-horn to do so. There has been some attempt in recent times to take the Buddhist philosophy of the emptiness and groundlessness of existence, to join it with quantum mechanics and use that to also argue a materialist brain-centred model of secularised emergent consciousness. This does not work on several levels. One is that Buddha was not secular, and a belief in a God was so fundamental that is was hardly mentioned – just as the idea of "spirit" was so rarely mentioned in medieval texts, because the spiritual nature of existence was taken for granted. The emptiness or void (Śūnyatā) was not literally a nihilistic empty nothingness, but rather was potent and took the mind into an indescribable vastness for which "emptiness" is a poor but perhaps the only possible description. There are again similarities with the medieval view of God, in which some Christian, Moslem and Judaic sects refused to name God because any label was misleading and inadequate. And the meaningless flurry of an unconscious background of subatomic activity is infinitely far removed from the awe-filled (awe-full) Love and Compassion that arises when this ground of being is encountered by a smaller, human consciousness. In fact, the image invoked by the word "encounter" is incorrect. A better analogy would be to say that as human fish, we became aware of the ocean.

And I have felt
A presence that disturbs me with the joy
Of elevated thoughts; a sense sublime
Of something far more deeply interfused,
Whose dwelling is the light of setting suns,
And the round ocean and the living air,
And the blue sky, and in the mind of man;
A motion and a spirit, that impels
All thinking things, all objects of all thought,
And rolls through all things.

William Wordsworth
Lines Written a Few Miles above Tintern Abbey, July 13 1798

Consciousness is by definition the basis of experience, and maybe other aspects of consciousness should have a different name. Experientially it is quite clear that consciousness has many layers. There are *more conscious* versions of consciousness, and there are *less conscious* versions – commonly described as the *sub-conscious* or even the *non-conscious,* the physically embodied aspects of which I refer to as the "*body-mind*". Whilst quite clear boundaries have been defined for conscious/non-conscious, in reality it's not so clear at all. What is clear is that consciousness is always defined by comparing it to states which consist of a loss of (or lack of) consciousness. You, I and anyone else cannot stand outside the box of consciousness – our personal consciousness, human consciousness, or Consciousness in general - to look at it, so there is never a complete view. Without that clear external (objective) view, all we can really do is define consciousness according to our individual experience. i.e. there is no possibility of the pure objectivity required by a neo-Aristotlean scientific method. And because consciousness is by definition experiential, any attempt to make such a definition must necessarily draw heavily from and refer back to subjective experience. However, as described earlier, personal experience varies. Taking consciousness down to its lowest common denominator (consider McGilchrist's experience of literary criticism) also fails to provide and answer, because one has to initially set a bar above which lies consciousness, and below when lies something else. So the lowest common denominator is pre-defined by the pre-existing ideas of what consciousness might be.



The work of Guenter Albrecht-Buehler on the intelligent behaviour[16] of unicellular organisms has called into question the very idea that a brain is necessary for intelligence and consciousness. Similarly, whilst the Ventral Vagal (VV) system is the driver for socialisation in mammals, the point is that the VV provides for a sophistication and nuance rather than being absolutely necessary, since socialisation can also be observed in very primitive creatures that have no brains, including plants such as grasses and trees. And indeed, the only reason that multicellular organisms exist is that single celled organisms form colonies and communicate with each other. One can even look at a slime mold – an apparently undifferentiated mess of cytoplasm without cell walls – that usefully organises the intra-cytoplasmic fluid by means of saccharides into volumes of greater and lesser viscosity - and recognise many of the same self-organising capacities that exist in colonies of cells are also present where there are no such clear boundaries.

It may be that as first Dana Zohar[17] and then Hameroff and Penrose have suggested, the point of contact between consciousness and living forms is largely focussed around microtubules, which provide exactly the right conditions of confinement to allow quantum states to suspend and control the collapse of their wave function ... maybe even to choose between the life and death of Erwin Schrödinger's cat. Neural cells are particularly rich in microtubules, as are all motile cells that rely on beating cilia (cilia *are* microtubules). But life also exists in forms – even in the human body - that does not include microtubules, and so it would seem that consciousness is not so much emergent, but that it is a field within which we swim, and there are various ways (some more optimal than others) by which it may be transduced into physical / chemical / electrical potential and connected with through physical processes. When one applies deep principles of inner listening, even landscapes and rocks have a form of consciousness that can make their presence known. It's rather like owning a radio set that has the capacity to tune into many frequencies, but most people choose to only listen to BBC Radio 1 (or maybe also 2,3 & 4). The radio world – and the world of consciousness – is far bigger than that. So consciousness may be more shared than a superficial inspection of animal brains might lead us to believe. But this is a rather exciting prospect that confirms Shamanic experiences, because one way or another brains and most other structures that transduce consciousness into some kind of useful biological function must operate similarly, just as there are other common biological solutions found across the whole tree of life. And if the structures are common, then (even ignoring the commonality of the ground of a field of Consciousness) something about the experience must also be qualitatively common and sympathetically

recognisable.

The human brain grows with, arises out of, and is therefore fully integrated into the body it is in. But that mutual self-origin does not exclude body tissue from conscious processes, and the general experience of bodyworkers is that Consciousness also arises from (and exists in) soma. In fact, this is recognised in the language in common usage. We talk of "listening to our hearts", or having a "gut feeling". When we take in factual information, we "digest" it, and "absorb" or "assimilate" it. And when we talk about our choice of decision, we often invoke senses, and say something like "that feels the best thing to do" or "that looks good" or "that sounds about right". These everyday phrases are not accidental – but rather, they indicate where our decisions are really coming from.

The moment of Now

> Time is conceived as a line along which a point travels from the past toward the future. That point is the present moment. Being a point, it is necessarily infinitely short. Clearly the physicist's time has no experiential reality. An infinitely short time cannot be experienced. Since the present is all that exists, the past having gone and the future not yet being here, such a concept of time is inadequate even for the description of inanimate reality. But it is the best of which we are capable.
>
> M. Clynes -- Sentics -- the Touch of the Emotions[18]

There are many conceptual difficulties in thinking of consciousness other than human consciousness. So for instance, is the cellular "intelligence" identified by Albrecht-Buehler or the intelligence exhibited by trees based on consciousness? If so, the structures that sustain consciousness must be very different form that of a human being's brain, so although the internal "message" may have a universality, it also may not. Similarly, all of our sense of meaning is based on the world as viewed not only through linguistic, societal and historical filters, but also on a particular configuration of senses and somatics, because as was described in Chapter 5, much of our sense of *meaning* is based on an interpretation or internal modelling of equivalent movement – i.e. movement of a human body. The delicacy of this arrangement was made crystal clear by the case of Phineas Gage, whose entire personality changed when an explosive accident forced a 1¼ inch diameter steel bar through his brain in 1848. So there is no doubt that the specific arrangement of the brain determines how we determine the meaning of events around us and how we respond (or react) to them. As humans we have possibly one of the most sophisticated central nervous systems. The fact that it is so complex and that it grew itself *as a whole* and as an integrated but nevertheless specialised part of the whole human organism would necessarily indicate that damage would alter its function. So Phineas Gage's transformation of personality

should not be surprising. However, the assignment of function to specific areas of the brain is something of a cultural follow-on from the lobes of phrenology, because it is based on the idea that specific parts do specific things, and the effects of damage to them defies that function. Remove Julius Caesar's pronounced latero-frontal prominences and he would no longer be a statesman. If one looks at McGilchrists work, he has considered the largest possible division of the brain – into its two cortical halves, and has demonstrated that they can really only be understood in by asking the qualitative "how" of their process rather than asking "what" their function is. So the mapping of the brain according to its putative function as is currently being done using high definition 3-D scanning techniques is probably something if a dead end, because whilst not totally incorrect, it is missing the point. If the answer to the question of the two halves of the brain is "how?" instead of "what?", maybe that also applies to the other particular architectural sub-domains that lie inside (and outside) the vault of the skull?

In fact, one conclusion of these scans and other research is that important cognitive and supposedly neurological functions are *also* carried out or supported by non-cortical, non-neural parts of the brain. For instance[19], Glia are the collection of various types of immune cell that support, protect and service the matrix of neural tissue. It has recently been discovered that microglia prune synapses, and so are vital for the formation of memory and the development and microstructuring of the infant brain; and Astrocytes appear to be critical in development of motor skills. And some cognitive, emotional, behavioural, social and autonomic functions[20] are at the very least assisted by the cerebellum – part of the supposedly "reptilian" and therefore "unintelligent" hindbrain. Which rather leads to ask how intelligent and emotive fish and reptiles might actually be. We have known for many years that removal of the spleen or the tonsils or the appendix, or in fact many other organs is possible with no major apparent problem. The assumption is traditionally that they must be in some way redundant. In reality what was revealed was the capacity of the entire body (and for most of these, the immune system) to reorganise itself should some single part – even one so major as the spleen – be affected. Certain organs – such as the heart or pituitary – are so critical that major damage is fatal, and they cannot be replaced. But much of the body is integrated and labile and "redundant", in that functionality is to some degree transferrable.

There is often a conflation between consciousness and intelligence (or even cognitive perception), and in fact it would seem that consciousness does not rely on complexity – and that it is intelligence (or perhaps something along the lines of "processing power") that is emergent. We are so far ignorant of the possibilities for consciousness and intelligence posed by e.g. root systems extending over several tens of square miles. The

strange thing about the film Avatar is that the kind of Gaia-like consciousness it was based on, requiring a whole different planet in a different part of the universe - might actually exist much closer to home in the soil of the English landscapes or the great grasslands of North America, or the forests and bogs of Siberia. The animal communication of Anna Breytenbach[21] and the landscape intelligence tapped into by Dorothea MacLean[22] are just two modern examples of the kinds of interactions that Shamen have had with the conscious intelligence of the "natural world" for millennia.

There is an interesting phenomenon explored by many different meditation techniques which might be as close as it is possible to get to understanding what conscious might be like without necessarily having a complex brain. The "watcher" is the internal state of observation in which human experience of conscious presence is reduced to its basic level. Although we can never truly be separate from the body and nervous system that we live in, it is possible to drop into a state of consciousness in which the process of experience and thought can be observed "as if" from an external frame of reference, as a stream of ideas, thoughts, perceptions, experiences, emotions, responses, and actions. However, this is just another layer of thought, although with far less ego - and we are still forced to experience the world through our physical body and nervous system, and particularly the sensory system. The answer found in Buddhist practice and Shamanism is to fully inhabit that physical being and to fully participate in Life, whilst letting go of all attachment to specific needs (including the need for normality). With genuinely full participation and release of identification (not a trivial action, but something that may take decades to accomplish – if ever), a different capacity for conscious emerges. Maybe this is actually a state of transcending perceptual Gestalts?

> To see, we must forget the name of the thing we are looking at
>
> - Claude Monet

One issue about consciousness is the problem of "now-ness". It might seem a little trivial, in that any raw sensory information is directly related to now. However, Now always needs a context, and any information without context is meaningless. Higher animals such as humans use their Insula to retain a memory of the last few seconds of Now, so that there is a temporal context. For humans the Insula[23] holds about 40 seconds of past events in normal states of consciousness. Just as "Here" carries an implicit "everywhere else" which includes many possibilities for "there", and "cat" implicitly defines "not-cat"; "Now" implicitly implies a multiplicity of "then"s. Since even single celled organisms[24] have a memory of where they have been, clearly the Insula is not the only mechanism by which this context is stored. However, for humans the continuity of meaning allows us to (e.g.) know that one syllable has been said before another, so we can take in a multisyllabic word to understand a full meaning of

that word. An experience is not actually complete and capable of being recognised by the entire human organism unless the memory of the Insula has been filled by that experience, so transient experiences do not usually register as being particularly important unless they are flagged as being important. Looking at how memory works in normal life and in trauma, this "importance/context flagging" can apparently be triggered by curious and/or appreciative/grateful conscious attention (such as might be given to a very positive experience), or by fear and other heightened emotions such as might occur during a life-threatening experience. In creatures where consciousness does not have such a sophisticated neural mechanism but there is still evidence of a memory such as for a bee, or an amoeba, the lack of immediately obvious complexity (that might allow for an emergence of consciousness) points to consciousness as being a ground state in its own right that does not have to be created – but rather is something that plays itself out through the various forms (including life-forms) that it permeates.

> As wide as is this space [around us], so wide is this space within the heart. In it both sky and earth are concentrated, both fire and wind, both sun and moon, lightning and the stars, what a man possesses here on earth and what he does not possess: everything is concentrated in this [tiny space within the heart].
>
> – Chandogya Upanishad, 8.1.5.

If we are to look at the infinite variegation of Life as an expression of Consciousness, then although there may be an underlying Consciousness that unifies everything, it is also possible to experience consciousness as being individual, contained, separate, distinct, associated with a specific *identity*. The trend towards individuation of the self has apparently gone as far as it is possible to go in 21st Century Western European / American culture. The cult of the individual identity shows how consciousness itself can be fragmented on a scale of individual physically discrete organisms. The whole journey that I have brought you along so far is founded on a few principles, one of which is that – as a living organism, *everything that we can do can only be done because the capacity to do it serves some useful purpose and therefore is in principle an expression of health*. Or - *we do it because we can*, and *we can because at various times in our evolutionary past this has kept us alive*.

This separation of consciousness into individualised and largely non-communicative packets must have a use. Its use can be seen in the way that Life itself has divided itself and diversified into a glorious kaleidoscopic display of variety. Division has the capacity to increase functionality, provided that division is constrained and is just enough to ensure a complementarity. So there are two partially divided halves of the brain, and it is the degree of separation that determines the potential of this

arrangement. Too deeply divided (as in a chicken that has to look with each eye in turn to make sense of something unfamiliar), or not divided enough, and something is lost. A single cell increases its complexity by dividing. Two different species of bacteria can interact with each other in a manner that makes them immune to antibiotics in a way that they most definitely are not when on their own. Greater biodiversity in any ecosystem increases the total energy efficiency and resilience of that ecosystem, no matter how delicate and fragile its individual creatures might seem to be. It seems that Nature deliberately throws the dice to induce randomness, because from that randomness sometimes arises extraordinariness. Even personality appears to be at least partly controlled by random fluctuations in neural development[25]. Goethe recognised this characteristic of "multiplicity in unity" of life, where it is the infinitely diverse and subtle individual variation that makes life special, and the application of curious attention to that detail *whilst retaining a sense of the bigger whole* puts us more in contact with the processes of life itself.

So through multiplexing, Consciousness divides itself just enough to increase its the capacity of the Life that it holds to exist. This capacity to self-divide is not constrained to the outside world, to the space between physically dissimilar organisms, but is also part of the means by which *internal* optimisation of individual organisms takes place. A digestive tract can exist as *almost* a separate animal inside its greater body, living its life by absorbing nutrition and eliminating waste, and in turn receiving oxygen and sugars stored in other parts of the body. A tongue can tease out a fish bone from a mouthful of food without its "owner" having to pay much attention to the details of the operation. Eyes can perform saccades to integrate lots of transient fragments of light into a whole picture. These are not separate processes from the whole, but are *separate-enough – or autonomous-enough*. They are loosely coupled *enough* to the whole organism so that they are integrated into and can usefully, efficiently contribute to its overall trajectory. But at the same time their very existence and functionality requires a certain and variable degree of separation in a manner reminiscent of a Holacratic organisation.

This variability of degree of control and variability of degree of conscious engagement is also a common waking experience. I can continue to breathe without paying my breath any attention *and* can choose to deliberately, "consciously" control the breath. I can walk without paying attention to what my feet are doing or I can meditatively take control of my walking. These so-called internal programs are Gestalts, and in Hawaiian culture they were called "Unihipili" – small headless (i.e. non-thinking) but immensely powerful entities that had something of a life of their own, but who also served the Uhane – the conscious mind. This capacity to be loosely coupled, to de-couple or to act together in a fully integrated manner – the capacity to vary the degree of integration of almost any "part" of the Holacratic whole of a living organism is a fundamental

aspect of its optimisation of inner resources.

> The so-called unity of consciousness is an illusion. It is really a wish-dream. We like to think that we are one; but we are not, most decidedly not. We are not really masters in our house. We like to believe in our will-power and in our energy and in what we can do; but when it comes to a real show-down we find that we can do it only to a certain extent, because we are hampered by those little devils the complexes. Complexes are autonomous groups of associations that have a tendency to move by themselves, and to live their life apart from our intentions. I hold that the personal unconscious, as well as the collective unconscious, consists of an indefinite, because unknown, number of complexes or fragmentary personalities.
>
> Jung -- Analytical Psychology -- its Theory and Practice

The degree to which this balance between separation and integration is embedded in Life's mechanisms suggests that an ability to multiplex and divide and then de-multiplex - may be a qualitative attribute of Consciousness itself. Thus, Consciousness is perhaps comparable to an ocean in which smaller and transient consciousnesses manifest as ripples and standing waves of various sizes, with various – let's say – frequencies that may entrain them, sometimes to the point of coherence, or be inimical to their mutual communication. Consciousness likes to produce noise in itself, because that reverses Entropy. Noise is a form of internal division or separation, and it is separation that optimises energy conservation along with richness and variety.

And, as we shall see in later Chapters, this capacity for consciousness to divide is not only a benefit, but also comes with potential penalties, and is the root cause of many forms of dissociation. Although whatever self-organisation capacity might reside in consciousness, in physiological systems, in a whole living being – is meant to be used, because it is there – division is also meant to be *adaptive*. Once any adaptation (internal de-coupling) of the field of consciousness that defines a a particular life-form (such as a human being) is frozen in time and cannot return to the pool of possibility, then we have pathology.

> *I began to think of the soul as if it were a castle made of a single diamond or a very clear crystal, in which there are many rooms, just as in heaven there are many mansions.*
>
> *– Theresa of Avila*[26]

One could say that this description has wondered so far from what might be provable that it is just an idea. However, there are several sources of experience that all point in the same direction – that consciousness is not an emergent phenomenon of some biological structure – in the case of humans, the brain. Rather, living organisms, their various physico-chemical structures – and especially the brain - have evolved to make

best use of something that already suffuses the whole organic being, is the foundation for all of what we call the material world, and that is not necessarily linked into the physical body. Animal communication (along with communication with plants and landscapes) is one experience of our common ancestors that pushes the boundaries of consciousness and questions whether it can really be emergent from the brain. The Anna Breytenbach documentary, "To Hear the Angels Sing" by Dorothea MacLean[27], and various works by Stephen Harald Buehner[28] are just a small selection of the many accounts of this interspecies communication that cannot really be easily explained without the presence of a field of consciousness that connects everything. Pim van Lommel[29,30] is a cardiologist who has collected accounts of near-death experiences (NDE's) from people who have suffered cardiac arrest, and found that about 18% of cardiac arrest patients do have these experiences, many of a very similar nature. Michael Newton[31] used hypnosis to regress volunteers to a life between lives, and again found a remarkably consistent account across several hundred interviews.

What is important for all of these instances of the experience of altered states of consciousness is - they give a picture of consciousness that is both complex and coherent. It is remarkable that hunter-trackers from indigenous cultures on three continents all give a recognisably similar account of the process of merging consciousness with the animal they are hunting, and how humans have somehow specialised in the capacity to merge their minds with their prey...

"When you feel the kudu is with you, you are then controlling its mind. Its eyes are no longer wild. You have taken the kudu into your own mind."

This merging of consciousness and communication between species really only makes sense if there is field of consciousness that at least has the capacity to extend beyond the body. But actually, it makes more sense according to the accounts of how the hunter tunes into his prey if there is a more universal field of consciousness, and that "tuning in" is almost literally a tuning-in to a different frequency of being that has a resognisable species-presence as well as a recognisable individual presence that the hunter can connect with and track – without the need to follow physical spoor. The barriers to communication are for the most part only the ones we choose. That choice is for most people made collectively based on collectively shared ideas as to what is "normal" or "possible". Animals don't suffer from these hang-ups (but do frequently suffer from the secondary effects of human hang-ups).

> *One day I was walking through the Stanford University campus with a fiend when I saw a crowd of people with cameras and video equipment on a little hillside. They were clustered around a pair of chimpanzees – a male running loose and a female on a chain about 25 feet long. It turned out that the male was from Marine World and the female was being studied for something or*

other at Stanford. The spectators were scientists and publicity people trying to get them to mate.

The male was eager. He grunted and grabbed the female's chain and tugged. She whimpered and backed away. He pulled again. She pulled back. Watching the chimp's faces, I [a woman] began to feel sympathy for the female.

Suddenly the female chimp yanked her chain out fo the male's grasp. To my amazement, she walked through the crowd, straight over to me, and took my hand. Then she led me across the circle to the only other two women in the crowd, and she joined hands with one of them. The three of us stood together in a circle. I remember the feeling of that rough palm against mine. The little chimp had recognised us and reached out across all the years of evolution to form her own support group.

– Fran Peavey (Heart Politics}

What particularly strikes me about that is that the chimp was clearly aware of the compassion, sense of fellowship and empathy coming from Fran Peavey, just as Peavey was aware of her distress. Of course, there is a universality of body language, particularly understandable between primates (and the pets) – but it seems that rather more was going on here than "only" body language that allowed the chimp to home in and pick Peavey out of a crowd. What we think and feel is not only internal – there is an emanation, a field, an influence, that extends beyond the skin.

The capacity to extend consciousness outside the body is taken one further step by the NDE's documented by van Lommel, in which consciousness is not necessarily bound to the body. The Daoists describe *Shen* ("Spirit") as a light, fast buoyant presence that resides, as it were, in one corner of the range of types of consciousness available for access by the human mind. It penetrates the denser consciousnesses of *Chi* and *Jing*, and can extent outside the body and is also our connection to everything that exists. And just like a radio set, if one tunes into *Shen* by placing attention on it's presence, then one is aware of *Shen*, and if one places attention on *Chi* or *Jing*, then one is aware of something denser, more physical, viscous and slow in its working, or with a quality something more like a small motor vibrating its energy throughout the body. Place attention on the qualities of *Shen*, and one is almost exclusively aware of the lightness, brightness and insubstantiality of Shen.

The "trick" (similar to that described by the hunter-trackers in the Breytenbach documentary) is that – if one tries to focus too directly on the Shen (the less physical layers of consciousness), then they evade awareness. They simply cannot be grasped, a process that once more recalls McGilchrist's Left-Right brain experience of literary criticism. It would seem that there is something about the less physical side of consciousness that cannot be stared at or analysed, so the Left half of the brain that

likes to know and put things in neat boxes can never experience this world first hand. Maybe it (i.e. more Universal fields of Consciousness) literally doesn't like attention – which is something I have experienced in my work, and during walks in nature. This level of existence responds only to loving heartful curiosity, and hides when presented with intellectual curiosity for the sake of knowledge. Maybe also the very act of engaging the Left analytical brain makes these things intangible because they simply cannot be analysed; and an analytical perception cannot perceive them because they are made of something transcendent. The constant chatter of the analytical Left brain as it tries its best to be helpful must be deliberately filtered out from the reality exposed by the awareness of an inter-relational complexity that goes beyond description.

> Study me as much as you like. You will not know me. I differ in a hundred ways from what you see me to be. Put yourself behind my eyes and see me as I see myself. For I have chosen to live in a place you cannot see.
>
> – Rumi

So far as the lived experience of being an embodied human being, attention is everything, and where (and how) we place attention determines the entire experience. States of consciousness – the mental background textures, the warp and weft of moment-by-moment experience of being alive - are not about thinking. They cannot be thought – they come about through experiencing through conscious (or non-conscious) direction of attention. They are not intelligible – they are sensible[32], and the general quality of background mental presence can be thought of as one of the somatic senses (or equivalent to). The more physical layers of consciousness are not so flighty or elusive, and instead tend to be a little sticky. When conscious attention connects with them too strongly, it can be difficult to separate again without physically moving quite vigorously to break the connection. Place attention on *Jing*, and one is almost exclusively aware of the physical body and its physical energies, it's flow of oxygenated blood and the quality of charged muscle. Which in turn *is different from again* the sensations of physical body tissue.

As an example, it is possible to choose to place attention on the microbiome of the body, and the resultant experience is one of density and a certain viscous sluggishness. Then one can choose to place attention on the mitochondria – and the experience is one of a bright, quicksilver weightlessness of being with a residual joyful excitement – something surprisingly similar to the *Shen* state in Daoist Qigong practices! And attention on human DNA gives an impression somewhere between these – not unlike the experience of the *Chi* (mid-level of consciousness/energy) – of something comparable to the connective tissue of the body, a mesh or web whose presence weaves the various aspects and parts of the human body and mind together.

All of these phenomena are not only possible experiences within the ranges of health, but are also common experiences (and *absences* of experiential range) within the spectrum of of dissociation. The secularisation and rationalisation of the western world view and the subsequent shrinking of the possibilities of consciousness and sensory capacity has, however, consigned these experiences to make them special – "altered" (from some pre-assumed norm), or even "extra-sensory" or "super-sensory" – as if anything sensed could fall out side the possibility of the senses. So when they arise out of dissociation and cannot be ignored or switched off (or cannot be switched on to the extent that their absence is palpable) they are unintelligible, strange, even frightening in terms of the common pool of understanding of what it means to experience the self and the world. But in fact, one cannot experience what the sensory awareness and the field of consciousness has not evolved to be capable of experiencing. To use a very mechanistic analogy, one cannot expect a camera to pick up infra-red or ultra violet or x-rays or or sound - unless it has been designed to do so.

Amongst all the other things that might possibly be happening – one aspect of dissociation is that the layers that we collectively call consciousness are locked not only onto the present flow of time, but are connected to other times, to memories as if those memories are real, and the events in them are still happening in our current reality. These embodied memories "frozen in time" are dense forms of consciousness, and so have a certain sticky quality to them. These dense memory-beings in the field of consciousness may often be related quite strongly to the dense collective consciousness that exists in the microbiome. The microbiomal agenda is quite simple – that of survival, and its survival is dependent on the survival of the human organism it exists within.

On the other hand, the relationship between the physical body and consciousness may (also) have been altered - so the Consciousness that a dissociated person is aware of may not be so strongly coupled to the body, leading to sensations of floating or dizziness, loss of proprioception, loss of physical energy and sense of being in the body (or having a body), a stronger than usual connection to other conscious-nesses outside the physical body, and so on. Here the waking attention is drawn to a nexus that is for some reason not aligned with and oriented towards the spine and the core of the body, but which is displaced – the person is "beside themselves" or "out of it".

And consciousness naturally occurs in multiple interweaving, interpenetrating layers. The idea of multiplexing is perhaps a useful analogy - except that multiplexing in telecommunications is not only about simultaneous parallel states, but is very much keeping those strands of information separate. In contrast, natural parallel arrangements of consciousness are supposed to "leak" into each other and carry information or influence, or maybe entrain. Dissociation occurs when they can no

longer do this because they *have* been somehow separated, or one layer that should not be dominant starts to take over. We are probably normally aware of several layers of consciousness simultaneously all of the time, and it is usually possible to travel through and between various layers by use of trained (or untrained) intention. Some exercises will be presented in later chapters to provide this experience. But during dissociation we are stuck in certain states of consciousness, and only have access to certain senses or combinations of senses at any one time. It is as if a door that should normally close has been jammed open, and at the same time, other doorways that we should normally have access to have been sealed.

> Co-consciousness (is)...the existence within a single human organism of more than one consciously experiencing psychological entity, each with some sense of its own identity or selfhood relatively separate and discrete from other similar entities, and with separate conscious experiences occurring simultaneously with one another within this human organism ... The theory of co- consciousness assumes that each part of any human individual has some sense of selfhood of its own, discrete from that of other parts and the Self proper... Co-consciousness assumes that each part of this "unconscious" must have its own ongoing conscious experience. There can be no such thing as an unconscious, in any absolute sense. "Unconscious" can only be relative to one particular part.
>
> John O. Beahrs -- Unity and Multiplicity[33]

Notes : Chapter 8.5

1 Note that I am very carefully allowing for the commonly shared description to also describe two very different internal experiences that were mistaken by at least one of the two people as being similar...

2 he archives of the Alister Hardy Religious Experience Research Centre (RERC), housed at the University of Wales Trinity Saint David in Lampeter

3 The idea of "Rationality" is complex. "Ratio" refers to the Platonic idea that the universe is based on numbers and geometry, and particularly integers (which express as Ratios). This Rational universe is also a divinely created universe, and so Rationality originally implied that the Rational thought was implicitly in tune with a Divine (mathematical) order. This will be recognised from Chapter 6 as being a "Really Real" and necessarily abstracted world, of which the mundanely "Real" world is a lamentably poor copy.

4 The position I take throughout this book is that consciousness is primary and brain activity is therefore secondary – a means to connect consciousness to physical sensory organs, physiological processes and the musculoskeletal system (rather than the brain itself being the source/generator of consciousness).

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