



Brains and Realities

by Jay Alfred

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Other Books By Jay Alfred

Our Invisible Bodies
Between the Moon and Earth

Prologue

This distinction between past, present, and future is only an illusion

Albert Einstein, Physicist

Conventional neuroscience assumes that there is a real objective world ‘out there’ and that the brain constructs a world that is representative of this world. But how do we prove that? Do we use our three- dimensional instruments to probe and our three-dimensional consciousness to verify?

What exactly is out there?

Contrary to the conventional neuroscientific three-dimensional model, cutting-edge physics tells us that the world ‘out there’ is multi-dimensional and not solid but a cacophony of waveforms. The three-dimensional world constructed by the brain is a reduction and a limited interpretation of what is really out there. In Eastern religious philosophy and certain Western philosophies, there is a bold assertion that what is out there is a paradoxical ‘full-void’ —i.e. a nothingness which contains everything. Apparently, this void has been ‘experienced’ by mystics and advanced meditators—as recorded quite extensively in religious scriptures and the metaphysical literature. In this void, space and time are meaningless. The Surangama Sutra of the Buddhists emphatically point out that location in space is illusionary. Saint Augustine believed in an ever-present eternity which was not accessible to humans. Both space and time may be illusions.

Ultimately, all moments are really one. Therefore now is eternity.

David Bohm, Physicist

For a long time it was assumed that space and time were fundamental to the underlying reality; but Einstein's Theory of Special Relativity toppled this assumption. What we observe as space and what we observe as time are now regarded as two aspects of a more fundamental spacetime continuum. To what extent this continuum manifests as space and how much of it manifests as time varies according to the relative motion of the observer. In other words, they are both subject to our perception within specific frames of reference which provide three-dimensional frameworks to structure our mental image of the world. But we are perhaps deceiving ourselves when we assume that they are also fundamental to the underlying reality.

Space and time are like the two lenses in a pair of glasses. Without the glasses we could see nothing. The actual world, the world external to our minds, is not directly perceivable; we see only what is transmitted to us by our space-time spectacles. The real object, what Kant called the 'Thing-in-Itself', is transcendent, beyond our space-time, completely unknowable... Perceptions are in, in a sense, illusions. They are shaped and colored by our subjective sense of space and time.

Martin Gardner, Mathematician

Advances in Brain Science

Recently, Science has made significant advances in studying the brain during meditative states. Using cutting-edge medical imaging methods, observations have been made of specific areas in the brain which are activated or deactivated during meditation. It has also been widely observed that many meditative traditions emphasise the activation and development of the right hemisphere of the brain. In fact, certain studies have shown that various areas in the right hemisphere grow thicker with regular meditation.

Is it possible to modify the operation of the brain to allow a meditator to experience a totally different reality? Can we bypass the brain's constructions to reach a more fundamental reality? It is becoming increasingly evident that we are blocked by our perceptual apparatus from experiencing a more primordial reality. Hence, it would make sense to look at how the human brain processes information to understand better the models that it uses to construct its interpretation of the underlying reality; while being limited by its own processing power and capabilities.

...our senses cannot be fully trusted especially when it comes to such fundamental questions as the dimensionality of the world ...there is nothing three-dimensional in the objective world...the three-dimensionalist view contradicts [Einstein's] Special [Theory of] Relativity and more importantly the experiments which confirm its consequences. ...spacetime is not merely a mathematical space but represents a four-dimensional external world which is not directly reflected in our perceptions.

Vesselin Petkov, Physicist

The Journey

We will begin the journey by first discussing the different methods of processing sensory information in the right and left hemispheres of the human brain. We will then explore what happens to the brain during mystical experiences as revealed by recent medical studies. After this, we will take a look at what modern physics tells us of the nature of the universe or multiverse, comparing it with what mystics have said about it.

We will then propose the astonishing hypothesis that the experiences of mystics are reconcilable to modern physics; and that the brain can be made to experience a more fundamental reality where space and time do not operate. Descriptions of this reality recorded in religious and metaphysical literature will be reviewed, alongside descriptions from modern physics.

Then we will proceed to see how the human brain connects to parallel universes and review its non-local nature. Readers will however note an undercurrent of questions regarding the nature and future of Science and how it can be reconciled to the totality of human experience. Science parted ways with Religion more than 500 years ago, shaking-off the dust of centuries of non-verified claims and superstitions. Will it be reunited with Religion's inner essence and wisdom in the next 500 years?

I still believe the universe has a beginning in real time, at the big bang. But there's another kind of time, imaginary time, at right angles to real time, in which the universe has no beginning or end.

Stephen Hawking

CHAPTER 1



Right vs. Left Brain

Our brain, like many other parts of our anatomy, is made up of two halves, a left brain and a right brain. They are connected to each other by a thick cable of nerves at the base of each brain, called the corpus callosum. It is analogous to a cable or network connection between two incredibly fast and immensely powerful computers, each running a different program to process basically the same input. When Roger Sperry severed the corpus callosum in the sixties, which connected the left and right brains, he was stunned by the fact that his ‘split-brain’ patients behaved as if they had two minds and two persons in one body!

He found that the patient could *name* an object but could not explain what it was used for when the object was shown only to the right eye (the left ‘verbal’ brain processes data from the right visual field). When shown to the left eye (the right ‘non-verbal’ brain processes data from the left visual field), the patient could explain and demonstrate its use, but could not name it. Roger Sperry received the 1981 Nobel Prize for his work in this area. It appears that when a normal person names an object and explains its purpose, both halves or hemispheres of the brain, which are connected by the corpus callosum, participate in this final conclusion.

Split-brain vs. Normal People

Split-brain studies imply but do not prove that ordinary people have two minds. However, there is abundant scientific evidence that demonstrates

the relevance of split-brain findings for ordinary people with intact brains. In split-brain patients the left brain uses different strategies from the right brain.

Scientists have found that ordinary people have the same differences in cognitive abilities between sides as split-brain patients. If an ordinary person is seated in front of a screen and asked to look forward and an object is flashed very briefly to his right side (i.e. his left brain), he will respond faster and more accurately if the task involves language. If you flash a spatial task, for example, asking the subject to identify if a dot is within a circle, he will perform better when flashed on his left side (or to the right brain).

Ordinary people are also shown to be better at seeing the overall picture if an image is flashed to the right brain. These studies and others involving hearing through the left and right ears have been repeated many hundreds of times in ordinary people, and the findings are consistently similar to those in split-brain patients. The findings mean that the cognitive abilities of the left and right brains of split-brain patients are similar to those of ordinary people.

PET scans show that even when normal people (with intact brains) talk, the blood-flow pattern changes in their brains, and there's more activity in the left brain than in the right. When they imagine space, the pattern reverses. One study on occupational preferences in cognitive styles showed that those who declared English as a major had a greater blood flow in the left brain (the verbal brain); whereas those who majored in architecture had a correspondingly higher level in the right brain.¹

When all the evidence is sifted and weighed, we are reminded that our 'ordinary' minds are more similar to split-brain minds than some neuroscientists would like us to believe.

Dr Frederic Schiffer ²

Despite myriad exceptions, the bulk of split-brain research has revealed an enormous degree of lateralisation, or specialization in each hemisphere.

Michael Gazzaniga ³

Different Modes of Thinking

The term 'left brain' used in this book includes both the higher (i.e. the neocortex) and lower (for example, the amygdala) brain structures on the left side of the brain. Similarly, the 'right brain' includes both the higher and lower brain structures on the right side of the brain. According to Bernice

McCarthy, the two brains control two different ‘modes’ of thinking or cognitive styles. Each of us prefers one mode over the other. While the left brain is logical, sequential, rational, analytical and looks at parts; the right brain activities appear random, intuitive, holistic, synthesizing and looks at wholes.⁴ The left brain processes information from parts to whole; the right brain however, processes from the whole to parts.

Right Brain is Holistic, uses Top-Down Processing

According to Ornstein, from the early studies of the split-brain through recent research on the whole competently functioning brain, the scientific understanding has become increasingly certain of the right brain’s role in seeing the large view. Seeing the large organisation is a specialization of the right brain.⁵ More specifically, Newberg and d’ Aquili believe that the right parietal lobe is involved in a holistic (top-down) approach to things whereas the left parietal lobe is involved in a more reductionist and analytic (bottom-up) process.⁶

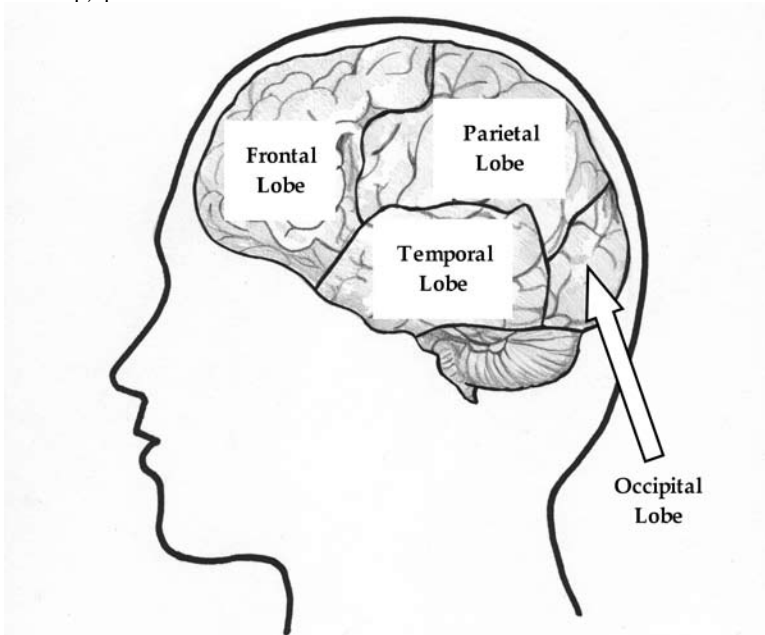


Figure 1: Regions of the Brain

Many split-brain studies confirm that the right brain is superior at assembling pieces of the world into a coherent picture.⁷ When we lack a higher-level perception, the world will seem like a disconnected maze of individual experiences; the brain does not assemble three individual lines into a triangle. We only see a ‘triangle’ when we change our viewpoint. To some

extent, this evidences a ‘higher-dimensional’ view of the subject. Whereas the left brain has a ‘linear perspective’ in that it sees three individual one-dimensional objects i.e. lines; the right brain, on the other hand, sees a whole two-dimensional object i.e. a triangle.

The right side seems to be specialized for the large elements, the overall shapes of objects and the word shape. The left side handles the small, precise links that carry the smaller, more precise meanings and movements. It’s this specialization that contributes to one side being good for the analysis of small features versus the holistic vision of the other side. The left hemisphere is more focused on details and the right hemisphere is better at perceiving overall patterns. This also goes for language processing.

People with right hemisphere damage can always understand the literal meaning of a request, but they cannot always judge what the request means in context (in other words, the ‘other dimensions’ of the subject). The use of metaphor involves the right hemisphere. Metaphors, like indirect language, sarcasm or irony, convey a significance that is different from the literal meaning. Many right brain damaged patients also seem to have difficulty in identifying the gist of passages. In order to do this, we need to be able to see things as a whole.⁸ This has also been alluded to in the metaphysical literature. Charles Leadbeater says that the ‘causal’ [or higher dimensional] consciousness deals with the essence of a thing, while the ‘lower mind’ [associated with the left brain] studies its details.⁹

Right Brain is a Parallel Processor and Appositional

Experiments conducted by Bianki concluded that in animals the parallel-spatial processor of information processing is localised in the right hemisphere and the sequential-temporal processor in the left one.¹⁰ According to Kaiser, ‘Reducing input from the environment to components and sequences is a result of the left side’s form of organisation.’¹¹ McCarthy says, ‘The left brain processes in a linear, sequential, logical manner. When you process on the left side, you use information piece by piece to solve a math problem or work out a science experiment. When you read and listen, you look for the pieces so that you can draw logical conclusions. If you process primarily on the right side of the brain, you use intuition.’¹²

According to Joseph Bogen¹³, the human ‘propositional’ left hemisphere is complemented by an ‘appositional mind’ on the right side. To ‘appose’ means to place attributes in juxtaposition, in a superposition or in parallel. Propositional is an ‘either-or’ or ‘true-false’ approach—either one attribute or its contrary is accepted as true at a point in time. It uses asymmetric (classical or Aristotelian) logic. The right brain uses a ‘both-and’ approach. It uses ‘symmetric logic’—some might say ‘quantum logic.’

Hence, the internal logic used by the right brain is different from the left brain.

According to Ornstein, many researchers in the field have now concluded that the role of the right hemisphere seems to involve maintaining the alternative meanings of ambiguous words in immediate memory, while the role of the left hemisphere is to focus on only one meaning. Generalizing, we could say that the right hemisphere is able to hold an attribute and its corresponding contrary attribute in superposition (or in parallel) whereas the left hemisphere attends to one attribute at a time—first one attribute and then the contrary attribute—in a sequential manner.

Right Brain has Convergent Awareness

Karl Popper and Nobel winning neuroscientist John Eccles, authors of ‘The Self and Its Brain,’ describe the right brain as the ‘minor brain.’ Some have even questioned whether the right brain is conscious at all. The left side has long been considered the dominant hemisphere, responsible for the uniquely human gift of language and because of this—many have argued—our self-awareness and intelligence. Eccles thinks that the right hemisphere is not conscious at all because split-brain patients cannot express the contents of their right hemispheres in words. This is obviously a premature conclusion. How does consciousness arise?

Consciousness is how we feel the affirmation-negation contrast.

Alfred North Whitehead ¹⁴

The Hindu saint, Paramahansa Yogananda says, ‘There are no pictures without light and shadow.’¹⁵ In other words, there is no consciousness of this or that without discrimination or differentiation. Consciousness or conscious awareness arises when complementary attributes are differentiated in the environment—hot from cold, acidic from alkaline, light from dark and so on. Even single-celled organisms move away from certain stimuli and move towards other stimuli by differentiating favorable and unfavorable sensations. The nature of conscious awareness is therefore *necessarily* dualistic. We will describe this type of consciousness or awareness (associated frequently with the left brain) as ‘divergent awareness’ in this book (or conscious awareness.)

A perceptual system, which is neither attracted to an attribute nor repelled by its complementary attribute, does not differentiate hot from cold, acidic from alkaline, light from dark and so on. This would be the opposite of being conscious—but we should not conclude that it is ‘unconscious.’ We will describe this type of consciousness as ‘convergent awareness’ (or

unconscious awareness) in this book. The choices for these terms arise from the different ways in which the two brains relate the self with the environment.

According to Kaiser, the right brain believes the organism includes the environment and subsequently models this extended self. The self is interpreted from the vantage point of the world and *converges* into the self from the environment. The left brain (and lower structures on the left side of the brain), on the other hand, believes events in the world follow the organism's rules of organisation. In other words, the world is interpreted from the vantage point of the self and *diverges* out from the self to the environment. In other words, the right brain uses exterior rules (from the environment) in its neuronal organisation and processing; whereas the left brain uses interior rules (from its self) to perceive and analyse the environment.¹⁶

Anatomical evidence supports these inferences. The left brain has a greater density of cells than the right, and more importantly, there is more gray matter relative to white, with the opposite pattern in the right brain.¹⁷ This suggests that the organisation of the left brain, relative to the right, emphasises processing *within* regions while the right brain emphasises processing *across* regions. Evidence from both normal and brain-damaged populations supports this dichotomy, according to Kaiser.¹⁸

Divergent awareness is asymmetric. It oscillates from an attribute to its complementary contrary attribute over time; and is analytical and discriminatory—this is normally associated with the left brain. Convergent awareness is symmetric and appositional, carrying out parallel processing of dissimilar attributes or synthesizing inputs from two or more serial processing streams—this is normally associated with the right brain. In other words, the right and left brains combine convergent awareness with divergent awareness. This configuration is similar to Bernard Baars' idea of a 'theater (of consciousness)'¹⁹ which combines convergent input with divergent output.

The Right Brain is Visual and Spatially Intelligent

According to Ornstein, damage to the right brain not only destroys the visual information coming from the left, but more importantly our understanding of space. Similarly, damage to the left brain destroys the ability of the right brain to verbalize occasionally (using the left brain's speech centres).²⁰ The left brain verbalizes and is time-like. In contrast, the right brain communicates using visual messages and is space-like. We can say, therefore, that the left brain handles 'name' and the right brain handles 'form'; the right brain handles 'space' and the left brain 'time.' Together, the whole brain gives us the experience of 'name and form' in spacetime.

Spatial intelligence is that aspect of our intelligence that allows us to make judgments about the three-dimensional world in which we live. A football player catching a pass relies on spatial intelligence to judge the trajectory of the ball. An architect uses it to visualise what a building will look like when it is completed. We all use it every time we drive a car and have to judge the distance to the car in front of us. Advanced math courses require good spatial intelligence. This spatial intelligence is related to the ability of the right brain to see things holistically, using a top-down process. As already noted, while the left brain may see three lines, the right brain sees a triangle.

Aging and Brain Dominance

The rates of development between the two brains are different during a person's lifetime. The right brain develops at a faster rate during the first two years in humans. Spear has shown that *an infant attends to more events in an episode than even an adult*. However, this ability deteriorates as the left brain develops. From ages 3 to 5, the left hemisphere develops more rapidly, as the child acquires language.²¹

The gradual elimination of 'blissful' states experienced in childhood may be due to the development of the discriminatory left brain. The old saying that we have to become like a child to 'enter the kingdom of heaven' also becomes more meaningful with our understanding of brain development.

Many aging studies show a decline in right brain functions as we age. For example, many researchers report an age-related drop in spatial memory while no significant analogous changes occur in left brain tasks. Also, memory for faces, a predominantly right brain ability, declines with normal aging.²² As we age, the left brain attempts to control all aspects of the organism, including the flow of information across the corpus callosum. In other words, the left brain becomes dominant. Klisz found that adults in their early forties could best be differentiated from adults in their fifties by impairment tests to their right brains.²³

All this suggests that when we (most of us) come into this world we are right-brain dominant; but when we leave it we are left-brain dominant. Since the right brain is also associated with creativity, does this provide evidence on why the most creative work of many artists and scientists are normally found earlier in life rather than later?

Avoiding Generalizations

The physical boundaries of the left and right brains must not be taken too seriously. We are ultimately concerned more with the types of processing that goes on in the brain—whether bottom-up (starting from parts) or top-down (starting from the whole) rather than their physical locations. The

split-brain experiments show that if the two hemispheres are not connected into a single circuit—that is, if they do not speak to each other—they exist essentially as two major circuits. Only the circuit connected to the language centre seems to result in conscious awareness. Hence, in split-brain patients, the right brain functions do not enter into consciousness directly since it is not connected to the (conscious) left brain. However, it should be noted that the two brains can speak to each other on another level that does not require the corpus callosum. They can also speak to each other via the limbic system (through the thalamus and hypothalamus) and the autonomic nervous system.

Unsuspected Connections and Disconnections

Until recently it was believed that the entire corpus callosum must be severed to provide relief from severe epileptic seizures. However this is not necessarily the case—the corpus callosum only needs to be severed enough to provide relief, without losing all neural integration. Based on this new form of surgery, Dr H G Gordon, a neurobiologist at the California Institute of Technology, also found that a connection at the back of the brain alone is enough to integrate both human minds. According to him, ‘the cerebral hemispheres totally integrate if but a small fraction of the corpus callosum remains intact.’

On the other hand, tumors or blood clots pressing on only part of an intact corpus callosum can cause full-blown Jekyll/Hyde reactions (similar to split-brain patients). Gordon and his co-workers J E Bogen and Roger Sperry believe that tumors and clots cause waves of inhibition to spread to all parts of the corpus callosum. The shocked nerve fibers simply do not carry impulses from one side of the brain to the other. Furthermore, it has also been found that even in a healthy corpus callosum only certain types of information can be carried. Complicated higher level information cannot pass through from one brain to the other.

Split-brains can be initiated both physically and chemically. It may also be initiated psychologically through thought processes and communications between the left and right brain selves—resulting in one side being dominant. Logically, this could mean that a normal person with a dominant left brain may exhibit behavior similar to a split brain person with a partially damaged right brain.

Plasticity of the Brain

The brain is fairly plastic and can accommodate different types of processing if it was organised differently physically—for example if there was significant damage to one hemisphere of the brain. One of Michael Gazzaniga’s

patients developed the capacity to speak out of the right brain 13 years after the brain surgery. There are also cases involving children, where one cerebral hemisphere was removed. Children who have undergone brain removal at an early age develop more or less normally. The remaining cortex takes over the functions once provided by the removed cortex. If the removal occurs later in life, however, this sort of compensation does not occur.

Migration of Skills from Right to Left Brain over Time

It has been noted that while novel skills, such as playing a musical instrument for the first time, may be handled by the right brain, the skills and knowledge tend to migrate to the left brain over time—thus, inhibiting the creativity initially exhibited—this may also be the basis of ‘beginners’ luck.’

Shared Resources and Services

In the 1980s Jeffrey Holtzman of Cornell University Medical College found that each hemisphere is able to direct spatial attention not only to its own sensory sphere but also to certain points in the sensory sphere of the opposite, disconnected hemisphere.²⁴ In other words, certain resources in the left brain are freely available to the right brain and vice versa. The two brains therefore use the other brain for certain parts of the processes that are initiated and concluded in the other brain. Co-operative processing and sharing of resources must be borne in mind when talking about the dichotomy of tasks between the right and left brains.

Left-Handed People

The brain organization of left-handed people is often different from that of right-handed people. This could include a reversed brain organisation or both brains with both language and spatial abilities. For optimal functioning, Ornstein believes that the two major functions of the human mental system need to stay within the range of equilibrium.²⁵ According to him, the right brain specializations develop to their fullest when informed by a fully developed left side. Otherwise we get ‘form without content.’ Both sides of the brain most likely incorporate the other side into their models of the world. The left side may model the right as part of its own organisation. The right side may perceive the left side as partially exterior to the organism, a complicated region of the environment whose rules the right side will attempt to acquire. The body and possibly the other side of the brain are experienced as being the exterior environment and subsequently modeled as such in the right brain.

Sex Differences

Researchers at the University of Pennsylvania Medical Centre have recently reported that, relative to cranial volume, women's brains have a higher proportion of gray matter (which facilitates computations) while men have a higher proportion of white matter (which facilitates communication between groups of cells in different areas of the brain). Studies also show that women have a thicker corpus callosum, which is composed of white matter, connecting the right and left brains, allowing them to integrate their right and left brains better. The corpus callosum, however, is composed of white matter. Women are therefore superior in their capacity to communicate between the different modes of perceiving and relating to the world, according to Kristine Hoeldtke.²⁷

CHAPTER 2



Intuitive versus Discriminating (Rational) Mind

The intuitive mind is a sacred gift and the rational mind is a faithful servant. We have created a society that honors the servant and has forgotten the gift.

Albert Einstein¹

We are now used to hearing about ‘right brain’ and ‘left brain’ processes. However, before the localisation or lateralisation of certain brain processes were discovered, there were many references, in philosophy, religion and psychology, to the *intuitive* mind versus the rational, analytical or *discriminating* mind.

The Lankavatara Sutra, an age-old Mahayanist scripture, speaks of a ‘discriminating mind’ and an ‘intuitive mind,’ which have unmistakable similarities to the attributes given to the left and right brains, respectively. According to this Sutra, it is because of the discriminating mind (which is also called the thinking or intellectual mind) that an objective world evolves. The discriminating mind is portrayed as a dancer and a magician with the objective world as his stage. The intuitive mind, however, is the wise jester who travels with the magician and reflects upon his emptiness and transience—*an observer*.

The intuitive mind (now associated with the non-dominant right brain) partakes of the universality of a ‘universal mind’ and is one with this universal (non-local) mind by reason of its participation in ‘transcendental intelligence’ and at the same time is one with the *mind-system* (the local mind) by its comprehension of differentiated knowledge (generated by the discriminating mind).²

This is consistent with the statement by Def Jehning that the unconscious (which comprises the intuitive and universal mind) is the larger sphere, which includes within it the smaller sphere of the conscious (the discriminating mind) because everything conscious has an unconscious preliminary stage. The intuitive mind sits between the universal mind and the individual’s discriminating mind.

According to this Sutra, the universal mind transcends all individuation and limits; and is devoid of personality. It is like a great ocean, its surface ruffled by waves and surges caused by the activities of the discriminating mind. The discriminating mind has been accused of ‘defiling’ the face of universal mind—forcing the universal mind to play a variety of parts as actors. Consequentially, the universal mind has become the storage and clearing house of all the accumulated mental products and actions of the various actors. Nirvana, according to this Sutra, is achieved by ‘getting rid of the discriminating mind.’ However, the cessation of the discriminating mind cannot take place until there has been a ‘turning-about’ in the deepest seat of consciousness.³ Does this allude to a turning about from the left brain to the right brain?

The Surangama Sutra, another age-old Mahayanist scripture, describes something similar—it identifies both a ‘thinking mind’ and an ‘intuitive mind.’ According to this Sutra, enlightened persons discard the use of their thinking minds. Even then, they are perfectly intelligent because they apprehend knowledge, ‘not by means of their thinking minds, but directly by intuition.’ The intuitive mind, according to this Sutra, is not enlightened by something else; it is ‘self-enlightening.’ The true essence of our consciousness is our ‘enlightened intuition.’ This wonderful intuition, the Sutra says, abides in tranquility *permeating everywhere throughout the phenomenal worlds and universes*.⁴ In other words, the intuitive mind is non-local (as it expands into the ‘universal mind’). It is with the ‘attainment of the essential intuitive mind’ that the intuitive mind’s enlightening nature is known.

Hence, you need to experience the workings of the intuitive mind to know of its mysterious intelligence because unlike analytical thinking the thought processes cannot be traced—it (i.e. the right brain) is perceived as unconscious or a ‘black box’ by the thinking mind (normally associated with the dominant left brain).

The Intuitive Mind's Perception

According to the Surangama Sutra, physical sense perception is by its very nature limited. It says that the objective world arises from the mind itself. Taking these manifestations of the mind as being real we go on discriminating them and cherishing the dualism of 'this' (i.e. an attribute) and 'that' (i.e. its complementary attribute). The multiplicity of objects, however, has no reality in itself and is like a dream. It is not until discrimination is gotten rid of that the fact that 'all things are empty, unborn and without independent existence' can be appreciated. In ignorance things are perceived and in perfect knowledge they are *not perceived*, the Sutra says. Objects and the world neither exist nor do not exist—it depends on your frame of reference.

Over time, the Sutra says, sentient beings have been led astray by mistaking the nature of their mind to be the same as the nature of any other object. Their minds became bewildered by outer objects and the perception of their sight changed to conform to the dimensions of its visual field and to become limited strictly according to outer conditions. If you learn to see things by your true mind, says this Sutra, so perfectly universalized will your mind become that 'even at the point of a single hair all the kingdoms of the universe will be seen.'⁵

We must be careful to distinguish between the perception of our eyes and the intrinsic perception of sight by our enlightened mind that is conscious of the fallible perception of the eyes. Though there may be all degrees of illumination between brightness and darkness, *intrinsic perception* possesses no differentials (in other words no complementary pairs of attributes are discerned). According to the Surangama Sutra, as soon as consciousness (i.e. divergent awareness) appears, then all such phenomena as sight, space, motion etc., will be manifested; and as soon as this consciousness disappears, all such phenomena also disappear. This discriminating consciousness has 'no originality of its own,' in other words it is derivative; it is an illusive manifestation developed by our sensory systems.

Divided and Indivisible Realities

Matte Blanco, a renowned psychologist, describes two antagonizing modes of being: a dividing one (the splitting and polarizing logic of our discriminating consciousness) and an indivisible one (reality as it is, prior to any division by discriminating consciousness). According to Def Jehning, Freud's 'true psychic reality' comes pretty close to what Blanco would describe as our 'second mode of being'—what he calls 'Indivisible Reality.'

Symmetric Logic of the 'Unconscious' Right Brain

Unconscious thought operates with a systematic logical structure of its own. In other words, it has its own internal logic—which is different from the logic used by consciousness. It uses symmetric logic, according to Blanco.⁶ Using this logic, the ordinary concepts of cause and effect; time and space are over-turned. We are confronted with an absence of mutual contradiction and negation; and timelessness.

According to Jehning, psychoanalysts have tended to focus on various detail aspects of Freud's work while disregarding the fundamental and disturbing implications of the idea that the mind (in this context, the conscious left brain) works within a framework of timelessness and spacelessness (i.e. within the environment of the intuitive right brain and the 'universal mind').

Unconscious thinking unites or unifies things which for 'ordinary thinking' are distinct and separated. Relations within the unconscious are *symmetrical*, for instance: 'Mary is different from Clara,' or 'A is identical to B'; they remain true when they are inverted. To use mathematical terminology, they are 'commutative.'

The 'unconscious' is characterised by an increasing prevalence of symmetry. At the 'surface' there is a mixture of asymmetric and symmetric logic (i.e. both commutative and non-commutative operations apply) but the 'deeper' you go into the unconscious, the more symmetrical it becomes. Blanco distinguished different 'strata' in the mind—the 'deeper' the unconscious, the higher the degree of symmetry.

Blanco also noted that the 'unconscious' was timeless, placeless, uses symbols and imagery, appositional, unable to distinguish between hard and fluid reality (or fantasy) and between the part and the whole; and uses a combination of symmetric and asymmetric logic.⁷ It will be immediately noticed that all the attributes of the unconscious described by Blanco are identical to the characteristics of the right brain noted in various experiments cited previously.

Logic of the Unconscious

Symmetric logic basically equates an attribute or property with its contrary or anti-property; in other words Yin = Yang. If there are two events, A and B, symmetric logic allows you to say that if A is before B, then B is before A. The order of the events is not important in symmetric logic. The operation of the logic would therefore be described as 'commutative.' For example, in the arithmetic operation of addition, $1 + 2 = 2 + 1$. In other words, the operation of addition is commutative. On the other hand, ' $1 - 2$ ' is not equal to ' $2 - 1$.' The operation of subtraction is not commutative—the order is important.

Experiencing Superspace in Our Minds

In supersymmetry theory (in modern physics) there are two sets of four dimensions. One set is commutative and the other set non-commutative. The two sets of dimensions, when combined, constitute what is called ‘superspace.’ According to physicists, it is very hard to visualise this geometrically because we have no direct conscious experience of non-commutative geometry. However, considering that the unconscious (according to Blanco) uses a combination of symmetric commutative logic and asymmetric non-commutative logic, we should not be surprised if superspace is experienced as part of our deeper unconscious and in dreams.

The One

According to Blanco, in symmetric logic the part and the whole are interchangeable; classes are dissolved into increasingly larger wholes, until we arrive at ‘indivisible reality’: here the infinity of things is in a mysterious way reduced to *one single thing*.⁸

This can be understood when we reflect on a particle and its entangled anti-correlated particle. In quantum physics, we know that when the particle is disturbed in a certain way, its anti-correlated particle instantaneously changes in a converse way—even if it was on the other side of the galaxy. It is as if the particle and its anti-correlated particle were a *single entity* even though they may be a galaxy or light years apart. This implies that spacetime is an illusion.

The (Mahayanist) Lankavatara Sutra claims that the intuitive mind partakes of the ‘universal mind’—which is often described in the Sutra as a ‘*perfect unity*’—also implying an absence of spacetime.⁹

Neuroscientists, Eugene d’Aquili and Andrew Newberg, from the University of Pennsylvania, have asserted that there is a final mystical experience common to humanity that they call the experience of absolute *unitary* being.¹⁰

Effect of the Discriminating Mind on the One

Dehning argues that because of discrimination, reality is split into opposites. Matte-Blanco views the mind as a dynamic discriminator and classifier. Every second the human mind is classifying things into categories. The ordinary ‘logical’ thinking activity is constantly dealing with combinations of triads: it recognises and makes *propositions* to itself about one thing, another thing, and the *relation* between those two things. Most of these relations are *asymmetrical*, for instance: ‘Simon is the father of David,’ or ‘A is part of B’; the converse order of such relations is not identical to it i.e. it is ‘non-commutative.’

This discriminating consciousness is a typical human phenomenon. ‘I do not know how and why it came into being,’ says Dehning. ‘But I am convinced that it deeply influences our being-in-the-world. Our discriminating consciousness automatically compels us to discriminate and classify these perceptions. “Friend or foe?”—This is the question to which our discriminating consciousness unremittingly tries to find an answer. Whenever we try to listen to a piece of music, to contemplate a landscape or a work of art, some “discriminating” question pops up and disturbs our general impression. There is a human need to try to retrieve some form of direct contact with indivisible reality, beyond the dividing categories of discriminating consciousness.’

Thus our asymmetric discriminating consciousness divides indivisible reality. By its splitting action, discriminating consciousness fragments reality. This crumbling cascades in a never-ending process (of symmetry breaking). Consequently the subject is left with an ever-growing number of things. What was originally one and indivisible falls apart into a plethora of elements that extrapolates infinitely. By establishing relations between different elements in our minds, we try to cement the countless cracks in indivisible reality that our discriminating consciousness caused.

According to Blanco, relations do exist in the indivisible reality, but these ‘relations’ are different from the asymmetric relations we are familiar with. We cannot *represent* them: in order to do so we would have to asymmetrise them, to make them fit into our well-known discriminating—and reductive—schemes. To some extent then, indivisible reality is like a living body—remove a part of it and the part dies.

‘Good’ and ‘Bad’

LeDoux showed that mammalian brains are arranged so that incoming sensory information collected at the thalamus goes through the lower brain structure in the limbic system, called the amygdala, first before reaching the neocortex—long considered the seat of conscious, cognitive reasoning. The amygdala, which is strongly associated with emotion, renders initial good/bad, approach/avoid responses and triggers an autonomic response when it perceives a threat. This initial response, however, can be overridden by the neocortex’s cognitive processing.¹¹

Antonio Damasio believes that the human brain seems to have evolved to favor quick, intuitive judgment first, followed only afterwards by slower, cognitive, conscious processing.¹² There are, in fact, two amygdalae in your brain, one inside the left brain and the other inside the right brain. Each brain hemisphere, therefore, has its own amygdala switch.

For the adult mind it is generally very difficult to suspend the discrimi-

nating activity of consciousness, and to be just aware; meditation may provide a condition in which this pre-conscious awareness can be recovered, Dehning says.

Dual Process Models

Whether we describe it as right vs. left brain, discriminating vs. intuitive mind or thinking/analytical/rational vs. intuitive mind; we are talking about dual-process models. Dual process models of human thinking are becoming more widely accepted in contemporary mainstream psychology. Here is a summary of differences between intuitive and analytical thinking.¹³

Unconscious Intuitive Thinking	Conscious Analytical Thinking
Fast and effortless.	Slow and effortful.
Process is unintentional and is automatically cued. This evidences an absence of personal 'will.'	Process is intentional and is consciously controlled—an exercise of 'free will.'
Process is generally inaccessible, only results show up consciously.	Entire process can be controlled and viewed in consciousness.
Pattern matching, thought is metaphorical, holistic.	Symbol manipulation, thought is truth preserving, analytical.
Common to all mammals.	Unique to humans over age 2 and perhaps some language-trained apes.
Context dependent.	Context independent.
Platform dependent—i.e. inclusive to the brain and body that houses it.	Platform independent—processes can be transmitted to other rule following organisms or machines. In other words, experiences can be easily communicated to others. The information is 'portable.'

Psychologists say that the intuitive aspect of thinking appears to be evolutionarily older and more established than the analytical aspect. Many mammals demonstrate experience-based emotionally-related judgments, but few if any demonstrate analytical reasoning like humans.¹⁴ In addition, human infants clearly develop their ability to make experience-based emotionally-related judgments well before they develop analytical abilities.¹⁵

In evolutionary terms analytical thinking appears to be still in a rel-

atively embryonic stage of development compared to intuitive thinking. Intuitive learning, then, may be the *default* style of human learning.¹⁶ While the words used in the dual process models imply that intuitive thinking is unconscious, as compared with the conscious, this may not be completely accurate. According to Guidano, it might be more accurate to refer to intuitive thinking processes as ‘superconscious...because they govern conscious processes without appearing in them.’¹⁷

CHAPTER 3



The Intelligent, Intuitive ‘Unconscious’

Ian Wilson says that it is a well-attested fact that a remarkable number of the world’s distinguished scientists and mathematicians have made their inventive discoveries or solved some scientific problems in mental states that do not seem to have been normal, verbalizing consciousness (normally associated with the dominant left brain). Dr Jonas Salk, the virologist who discovered the first vaccine against poliomyelitis says, ‘It is always with excitement that I wake up in the morning wondering what my intuition will toss up to me, like gifts from the sea. I work with it and rely on it. It’s my partner.’

In fact, Webster’s dictionary defines intuition as ‘quick and ready insight; immediate apprehension or cognition or the power or faculty of attaining to *direct knowledge* or cognition without evident rational thought and inference.’ [Emphasis added.]

The Unconscious Problem Solver

William James asks: ‘Why do we spend years straining after a certain scientific or practical problem, but all in vain—thought refusing to evolve the solution we desire? And why, some day, walking in the street with our attention miles away from the quest, does the answer saunter into our minds as carelessly as if it had never been called for—suggested possibly by the flowers on the bonnet of the lady in front of us, or possibly by nothing that we can discover? If reason can give us relief then, why did she not

do so sooner?’¹

Henri Poincare, when talking about the creative process, says, ‘Often when one works at a hard question, nothing good is accomplished at the first attack. Then one takes a long rest and sits down anew to the work. During the first half-hour, as before, nothing is found, and then all of a sudden the decisive idea presents itself to the mind.’ This sequence of events is not only evident in scientific quests—similar descriptions are found in religious quests—for example, as described by (Saint) Theresa of Avila or (Saint) John of the Cross. In religion, it may be described as ‘insight’; in scientific circles it may be described as creativity.

Renowned physicist, Helmholtz, admitted that often his ideas arrived suddenly, without any effort on his part, while taking easy walks over wooded hills in sunny weather. Physicist Lord Kelvin reported receiving inspiration in similar ways. He sometimes had to devise explanations for deductions that came to him in a flash of intuition. Gauss described how a solution came to him for an arithmetical theorem that he had spent years trying to prove—like a sudden flash of lightning the riddle happened to be solved. Henri Poincare, the famous mathematician, says that the appearances of sudden illuminations are obvious indications of a long course of previous unconscious work. Before and after, there had to be controlled conscious work, but in between was some mysterious process. In a letter to a French scientific journal in 1886, referring to an arithmetic theorem, the proof of which eluded him for years, Gauss writes, ‘Two days ago, I succeeded, not on account of my painful efforts, but by the grace of God. Like a sudden flash of lightning, the riddle happened to be solved.’²

The ‘Unconscious’ Calculator

Enid Blyton, the novelist, says that she receives directions from what she terms her ‘undermind’ that ‘the story must be 40,000 words long’ and sure enough, the book ends almost to the word. The unconscious appears to possess mind-boggling computational power. There are many cases in history to illustrate this. As an example, let’s look at Zerah Colburn.

Zerah Colburn was born in 1804, the son of a farmer of Vermont, USA. When only six, not yet able to read or write, the young Zerah began giving public demonstrations of his mathematical skills. One of the most spectacular feats related to the number 4,294,967,297, which until shortly before his time was thought to be prime by mathematicians. Leonhard Euler, one of the greatest mathematicians in history, labouriously calculated on paper that it was divisible by 641. When Colburn, ignorant of all this, was given the same problem he swiftly arrived at 641 ‘by the mere operation of his mind.’ The really significant feature about Colburn is that he was totally

unable to explain how he had reached his conclusion. Having never had formal education, he was entirely ignorant of elementary mathematical rules, and could not even perform the simplest multiplication and division sums on paper. Everything was done in his head, where he literally saw the computation form up clearly and effortlessly before him.³

Brain Drain

Truman Stafford could calculate in his head in 60 seconds a multiplication sum whose answer consisted of 36 figures, when only 10 years old. However, when he went on to a professional career in mathematics, he lost this mental gift. Similarly, Richard Whately, a nineteenth century Archbishop of Dublin, although being a calculating genius in early childhood lost the ability after undertaking formal education. Why is this so? David Kaiser offers a clue.

Kaiser noted that novel skills, such as music, which are processed initially in the right brain, migrate over (after extensive practice) to the left brain. This has been noted in lesion and EEG studies ⁴ Over-practicing skills enables an individual to learn how to model exterior rules (of the right brain) in the more confidently controlled domain of interior rules (of the left brain). However, when the skills do migrate to the left brain, the creativity and the computational power diminishes, perhaps because direct access to the universal mind (via the intuitive right brain) diminishes significantly.

The 'Unconscious' Idea Generator

The great Russian composer, Tchaikovsky, says that the germ of a future composition comes to him suddenly and unexpectedly. He says, 'I forget everything and behave like a mad man; everything within starts pulsing and quivering; one thought follows another.' He describes this as a magic process which occurs to him when he is in a 'somnambulistic state.' Brahms told one biographer that when the inspirations for his most famous compositions came to him 'they are clothed in the right forms, harmonies, and orchestration. Measure by measure the finished product is revealed to him.'

Richard Strauss, the composer, also says that when the ideas flowed in him, 'the entire musical, measure by measure' followed. It seemed to him that he 'was dictated to by two wholly different Omnipotent Entities ...and was conscious of being aided by more than an earthly Power.' Puccini described in similar terms. He says that the music of the opera, *Madame Butterfly*, was 'dictated' to him by God. He says, 'I was merely instrumental in putting it on paper and communicating it to the public.'

This echoes the view that normal people with intact brains have experiences which make them feel as if they had more than one mind or one

person in their bodies—like split-brain patients. George Elliot told J W Cross that in all of what she considered her best writings, something that was ‘not herself’ took possession of her, and that she felt her own personality to be ‘merely the instrument through which this spirit, as it were, was acting. The German poet Goethe reported that he wrote his first novel, *Werther*, ‘almost unconsciously, like a somnambulist,’ and was amazed when he realised what he had done.

‘Inner listening’ is the term that is often used when the creative ideas output from what seems to be another person. In many of the experiences the communication even seems to come in the form of an audible voice.

The left brain often views the right brain which is delivering the solutions as another mind or person—which is not far from the truth—as evidenced in experiences of split-brain patients. The illusion of a unitary self is caused by the fact that, for most of the day, we normally only hear the vocal left brain talking. When the right brain intervenes, using the left brain’s speech centres, we attribute the messages to ‘another person.’

Dream Solutions

We know that the right brain takes over when we are in a dream state. The ideas generated in dreams can therefore be attributed largely to the right brain. Niels Bohr, one of the founding fathers of quantum physics, dreamt of a planetary system as a model for atoms, which led to the ‘Bohr model’ of atomic structure and a Nobel Prize. The laboratory procedure for producing insulin on a mass basis was discovered in a dream by Sir Frederick Banting. Otto Loewi dreamt the design of an experiment; went to the laboratory later and performed the experiment and generated the results of the theory of chemical transmission of nervous impulse which won him the 1936 Nobel Prize in Physiology and Medicine. The most popular song in history ‘Yesterday’ was received by Beatle Paul McCartney in a dream—chords and melody.

Ramanujan

Srinivasa Ramanujan was born in India, near Madras, in 1887. By the age of 10, it became clear that Ramanujan was not like the other children. As a child, he had already derived Euler’s identity between trigonometric functions and exponentials. After receiving little formal education, he worked as a junior clerk in the Port Trust of Madras. He then mailed some of the results to his ‘dreams’ to three well-known mathematicians, hoping for contact with other mathematical minds. One was received by the brilliant Cambridge mathematician, Godfrey Hardy. The letter contained 120 theorems totally unknown to Western mathematicians. On reading the letter,

Hardy was stunned. He came to the conclusion that it could only be written by a mathematician of the highest class. In terms of mathematical skills, Hardy later rated Ramanujan even higher than David Hilbert, universally recognised as one of the greatest Western mathematician of the nineteenth century.

Unfortunately, neither Hardy nor Ramanujan were interested in the thinking process by which Ramanujan discovered these incredible theorems, especially when these theorems came pouring out of his 'dreams' with such frequency. Hardy noted, 'It seemed ridiculous to worry him about how he had found this or that known theorem, when he was showing me half a dozen new ones almost every day.' Ramanujan used to say that the goddess of Namakkal inspired him with the formulae in dreams. He kept a note pad next to his bed to write down the formulae that he claimed were revealed to him in dreams. On the spot, Ramanujan could recite complex theorems in arithmetic that would require a computer to prove. Working in total isolation from the main currents of his field, he was able to rederive 100 years' worth of Western mathematics on his own. Jonathan Borwein says, 'He had such a feel for things that they just flowed out of his brain.'⁵

We know that the left brain is active for most of the day and when we go to sleep, activity shifts to the right brain. In dreams, right brain activity is evident.

One interesting aspect of Ramanujan's powers is that he often took hours or even months to labouriously verify and prove what he often received in an instant, and that sometimes his insight turned out to be *wrong*! Ideas arrived at by intuition, just as ideas derived from deliberate conscious thinking, can contain errors.

The Method

Garbage-in Garbage-out

The more clearly, completely and intently you formulate a question and direct it to the unconscious, the more quickly and effectively the unconscious can come up with an answer to it. A sloppy question would generate a half-baked solution: garbage-in garbage-out. Errors in formulating the question or in the information supplied will generate solutions tainted with these errors. This gives us an interesting insight into the nature of unconscious processing—it works like a quantum supercomputer using a different type of logic. It does not in itself have any content, but it links up with content (even non-local content) when required to solve a problem.

The intuitive mind is frequently associated with a universal mind in metaphysical and religious literature. Our local (discriminating) mind cannot fathom the processes that go on in the universal mind-brain. To avoid a

cognitive overload, it treats it as a black box. Is this unconscious processing going on in the universal mind-brain? This question will be explored in a later chapter, including to what extent scientists believe that the universe, as a whole, operates as a supercomputer.

Intent

The strength of our intent affects the priority the intelligent unconscious assigns to a problem. The higher the priority the larger the area freed up in the mind to process the question. Henri Poincare, in an essay on mathematical creativity, said that ‘the appearance of sudden illumination was a manifest sign of long, unconscious work.’ Strauss says, ‘...an ardent desire and fixed purpose combined with intense inner resolve brings results. Determined concentrated thought is a tremendous force...’ Hence, a strong intent is important in obtaining a creative solution.

Scientific and Religious Use of Unconscious Processing

This unconscious processing of questions generated by the conscious mind has been applied not only by scientists, musicians and artists; but also mystics and highly influential religious figureheads like Siddhartha Gautama (the Buddha) who had intently searched for the ‘truth’ for six years, using very well-defined questions. As a result of a consciously initiated process, a mysterious process produces the solution to our problem in a flash, from out of literally nowhere (the unconscious is ‘placeless’ and ‘timeless’) in the form of a religious illumination, a literary image, a scientific understanding.

Elias Howe worked intensely for several years on a scheme to invent a ‘lockstitch’ sewing machine and eventually succeeded after he had a nightmare which suggested the solution and the modern ‘sewing machine’ was born. Amadeus Mozart wrote that it was on occasions when he was entirely alone and of ‘good cheer’ that his ideas flowed best and most abundantly. ‘Whence and how they come, I know not,’ he says. He goes on to write that, ‘...provided I am not disturbed, my subject enlarges itself, becomes methodized and defined, and the whole, though it be long, stands almost complete and finished in my mind, so that I can survey it, like a fine picture or a beautiful statue, at a glance. All this inventing, this producing, takes place in a pleasing lively dream.’

Rudyard Kipling agreed that the key to gaining help from this inner helper was ‘not to think consciously,’ but to ‘drift’ in a reverie. Although trance states are commonly associated with yogis and hypnotists, we all experience trance states everyday—the time just before falling asleep and the time just before waking-up. These are called the ‘hypnogogic’ and ‘hypnopompic’

states, respectively, by psychologists. The philosopher and mathematician, George Spencer Brown, declares that 'to arrive at the simplest truth, as Newton did, requires years of *contemplation*. Not activity, not reasoning, not calculating, not reading, not talking, not making an effort, not thinking—simply bearing in mind what it is that one needs to know.'⁶

Reducing Errors in the Intuitive Process

Intuition must not be confused with sloppy analytical thinking—which may be the result of faulty logic or misperceptions. Intuition requires data to work with, just as the conscious use of logic requires. Data collection is vital to the intuitive process. But as noted earlier this data must be verified before submitting it to the unconscious. Intuition is not always correct because the initial data supplied may be inaccurate or incomplete. Hence, both input and output must be verified by the conscious; both pre and post-processing verification must be undertaken. The ideas that bubble-up into consciousness must be examined using direct observation, additional data collection, logic, and testing.

Intuitive-dominate people often do not test their intuitions. They may operate as though their intuitions are the absolute truth. Since intuitions can be wrong because of incorrect or incomplete input, and since these people can feel absolute certainty of their correctness, they open themselves to making mistakes. Errors will occur in unconscious processing if the process itself is not administered properly.

According to Shirley D and Langan-Fox J, it is possible, based on research, to train individuals to improve their intuitive abilities. The basic steps, according to them, seem to be quieting (or stilling) the mind, learning to focus attention, and adopting a non-judgmental receptive attitude which allows intuitive thoughts to enter consciousness without interference.⁷ It is obvious that these steps are very similar to that adopted in meditative techniques. Meditative 'insight' and creative insights in Science and the Arts basically involve the same processes.

Visual Stories

Intuition often draws on visual and other forms of imagery to communicate its output in the form of 'stories.' There are many examples already given in this chapter. Kekule first discovered that the carbon atoms of the benzene molecule linked up into a ring through watching the flames of fire transform themselves in his mind's eye into snakes that turned round and bit their own tails. Visual output seems more appropriate to the type of (symmetric) logic the unconscious uses and to convey a large amount of information efficiently to the conscious. Symbols can communicate

ideas which may sound hopelessly self-contradictory if verbalized — take the Taoist Yin-Yang symbol which represents the ‘interdependence of opposites,’ for example.

Role of Conscious Analytical Thinking

The growing realisation in modern physics that we live in a multidimensional multiverse forces us to a radical revision of the alleged superiority of consciousness, says Def Jehning. Benjamin Libet’s experiments reveal that all conscious awareness is preceded by unconscious processes. We are therefore forced to conclude that unconscious processes initiate our conscious experiences. Apparently voluntary acts, which appear to be initiated by free will consciously, are found to be initiated unconsciously before an awareness of wanting to act. Nevertheless, we can consciously ‘veto’ any decision made unconsciously. According to Daniel Wegner, since much of what we do seems to surface from unconscious causes, conscious ‘free will’ may be an illusion.

Conscious Will

Daniel Wegner says that conscious will is an experience, not a cause. The thoughts that we attach to our actions are not necessarily the true causes of the actions, and their causal connections is something we ascribe to them. It appears that the experience of will occurs through a system that presents the idea of a voluntary action to consciousness and also produces the action. The idea can occur before or after the action. When people are forced to act rapidly it usually occurs after. It has been found that the experience of ‘will’ occurs mainly when the idea occurs before the act.⁸

Our Sluggish Consciousness

When actions are forced to be fast, consciousness is perpetually late. The sluggishness of consciousness becomes apparent when people do things fast. It typically takes only 100 milliseconds to react to a stimulus but it may take up to 500 milliseconds to become conscious of having responded.⁹ Conscious processes are more flexible and strategic, but they also take more time. This ‘parts-to-whole’ analytical approach of analytical consciousness must necessarily circumambulate around the subject. The approach is a more labourious process but has the advantage of generating information that can be easily communicated to other persons, unlike intuitive judgments—which appear to come out from a black box. The slowness of consciousness, according to Daniel Wegner, suggests that much of what we see and do involves the operation of preconscious mental processes i.e. we may begin to react to a stimulus even before we are consciously aware of it.¹⁰

Consciousness and action seem to play a cat-and-mouse game over time. Although we may be conscious of a series of actions before they are performed, it is as though the conscious mind then slips out of touch. The time interval before and after the action in Libet's study indicates that consciousness pops in and out of the picture and does not really seem to be doing anything.

Nisbett and Wilson asks, assuming for the moment that unconscious intuitive thinking is indeed our primary system of thinking, what part then does conscious analytical thinking actually play? It may be that the *result* of a thinking process, not the thinking process itself, is what manifests as a conscious, cognitive thought.¹¹ What appears as cognitive reasoning may be more accurately described as a rationalization after the event.¹²

For example, participants in a dialogue may each state a position, perhaps that they oppose abortion, and then proceed to explain cognitive arguments, like a lawyer, justifying their position. But even when a skillful and learned opponent defeats every single one of these arguments, the protagonist may concede defeat, but rarely changes his mind. Why? It is probably because our position on the issue was not a result of cognitive reasoning in the first place—it was an intuitive judgment. What appeared to be an accurate cognitive explanation of the protagonist's reasoning was in fact a justification (after the event) of an intuitive judgment—made without knowing exactly how or why.¹³ Polanyi says, '...all knowledge is either tacit or rooted in tacit knowledge. A wholly explicit knowledge is unthinkable.'¹⁴

Contributions of the Right Brain to Science

David Bohm says we must change the orientation of physics. He says we must turn physics around—instead of starting with parts and showing how they work together, we should start with the whole. Yet it is evident that without intuitive and holistic processing by the right brain, Science could not have developed. The many examples cited above and elsewhere show that intuition is as important to Science as it is to Religion.

CHAPTER 4



Complementary Thinking & Feeling

Every major advance in our understanding of the nature of the universe has been preceded by a contradiction.

Ron Cowen, quoting Andrew Strominger
(Harvard University), 2004¹

Through out the nineteenth century and the early part of the twentieth century physicists were fiercely debating whether light was essentially a particle or a wavelike phenomenon. Harman and Rheingold noted that, ‘The peculiar thing about this debate was that both sides could produce sound mathematics and experiments that the other side couldn’t explain, but neither side was able to disprove the opposing point of view.’²

When Niels Bohr introduced the principle of complementarity early in the twentieth century, it was one of the early recognitions that reality is too rich to be adequately represented by any one model or paradigm.

Physicist, Edward Witten, notes that history teaches us that reconciling incompatibilities between theories is a good way to make really fundamental progress. Einstein’s theory of special relativity came from a wish to reconcile two outstanding theories of the day, namely Maxwell’s theory of electricity and Newtonian gravity. Quantum field theory came from an effort to reconcile non-relativistic quantum mechanics with special relativity. The most far reaching advances in the twentieth century have come about

because previous theories weren't compatible with one another. The time-symmetric theories of both Relativity and Quantum Physics conflict with the time-asymmetric theories of Chaos and Complexity theories. In fact, every major part of Physics conflicts with the other at a fundamental level. The certainty of Einstein's 'block universe,' derived from relativity theory, conflicts with the uncertainty in quantum physics. Nevertheless, they appear to be complementary theories.

On the one hand, relativity and quantum theory are irreconcilable; yet on the other, they are mutually dependent.

David Peat, Physicist ³

Each thesis appears to be destined to meet its contra or antithesis (its mirror image) in time. Taking a positive approach, we may say that the antithesis is merely a device to enlarge the thesis so that it is able to explain and predict observed events more accurately. Einstein extended Newton's theories, who in turn extended Galileo's and Kepler's theories. William Blake states, 'Without contraries, there is no progression.' And so it is that students are taught to criticize. For with the contrary view comes progress—a resizing of knowledge. Taking a negative approach, we could be dismayed that there will never be *one* solution. We will never reach the target—only circumambulate around it. The Ramayana (a Hindu scripture) says, 'The world must *suffer* under the pairs of opposites forever.'

Hegelian Cycles—Knowledge breeding Knowledge

Sure, a house is real, but what does it look like? That depends on whether you view it from the front or the back. Sure, an electron is real, but is it a wave or a particle? That depends on what sort of experiment you design to detect it.

Sure, your theory of the universe works pretty well. But it's not the only theory that works well, and another one, in some cases might work better, even though at other times it works worse. The opposite of a great truth is another great truth.

Tom Siegfried, Physicist ⁴

Science appears to be subject to 'hegelian cycles.' Each hegelian cycle consists of a 'propositional state' in which a thesis is formed and established. (If you remember, the left brain had been described as 'propositional.') Then sooner or later it is confronted by a complementary antithesis—another

propositional state which is contrary to the thesis. Then it moves into an appositional state (a characteristic of right brain processes) which collapses into a transthesis—another propositional state—in chronological sequence. A ‘transthesis’ is defined in this book as a thesis which reconciles the thesis with its antithesis. But it is not a mere synthesis of the thesis and the antithesis. It is a new way of looking at things. The thesis and the antithesis then form specific limiting cases of the transthesis. In the next generation or hegelian cycle, the transthesis is identified as the thesis, which again bifurcates after a time, into a thesis and its antithesis.

A review of the history of scientific thought and philosophy will reveal it moving in (what I call) hegelian cycles. A simple example is when photons were thought to be waves (a propositional state—a thesis), and then particles (a propositional state—the antithesis); then the two were considered complementary under Bohr’s complementarity theory (an appositional state) and subsequently ‘wavicles’ under de Broglie and David Bohm’s theories (a propositional state—a transthesis).

The Complementary Brain

Just as in the organisation of the physical world with which it interacts, it has been proposed by Stephen Grossberg, from the Department of Cognitive and Neural Systems of Boston University, that the brain is organised to obey principles of complementarity. In fact, he says, it can be argued that *‘known complementary properties (in the brain) exist because of the need to process complementary types of information in the environment.’*⁵

Complementary aspects of the physical world are translated into complementary brain designs for coping with this world.

Stephen Grossberg, Neuroscientist ⁶

Geometry of Knowledge

Let us use a geometric model to understand a hegelian cycle. If a thesis is represented by a single line, then its conflicting and complementary antithesis would be another line which is orthogonal (i.e. 90 degrees) to it. If the thesis represents the length, then its antithesis represents the breadth—a new spatial dimension. If the thesis (length) and its antithesis (breadth) are imagined to form a square, the ‘transthesis’ (i.e. a new thesis which reconciles and at the same time transcends the original thesis and antithesis) would then be another line orthogonal to this square—the height. The three form a cube.

A person with 3d awareness would be able to see the cube as a whole. A

person with only 1d or linear awareness would see three separate lines—two conflicting lines and one reconciling line. In the past 500 years, Science, in a sense had 1d or linear awareness—in other words it could not conceive of more than one theory to explain reality—it insisted on there only being one. This could be described as ‘propositional Science.’

It’s extremely unsatisfying to find two ultimate descriptions of reality when you’re looking for just one.

Paul Davies, Physicist, 2002 ⁷

Cognitive dissonance arises primarily in the analytical left brain when confronted by two equal and opposite theses. This is unpleasant to the left brain—so it tries to resolve it by ignoring one of the theses and rationalizing the choice. In this way, it can get on with a plan of action. A fork on the road leaves you wondering in which direction to go. If you cannot decide you would be at the fork forever! If you do select one, you ignore the other. Symmetry is broken. We go through similar cycles in our daily (non-abstract) thought processes.

In this context, the right brain’s spatial intelligence is significant. Spatial intelligence includes the perception of three spatial dimensions. Unlike the constricted linear time dimension of the left brain, the cubic space that the right brain perceives shows that the right brain will be able to accommodate at least three diverse theories, without cognitive dissonance, just as it is able to perceive three spatial dimensions orthogonal to each other. But ‘right brain Science’ is still in its infancy. There are, however, signs to a more right brain ‘appositional Science.’

Conflicting theories which are complementary, which individually explain experimental data successfully, are beginning to be seen in Science. (Western) Science is relatively ‘young.’ With its maturation we will see more and more conflicting, but internally self-consistent theories which can explain the same empirical data and predict the same outcomes. This will bring Science to where Philosophy is. Science will simply become a more rigorous ‘Philosophy.’ The rigor increases its utility. This means that there is no absolute, all-encompassing truth that can be given by a 1d theory. Multidimensional reality is much bigger than any particular 1d scientific or religious theory. However, particular scientific or religious 1d theories do convey relative truths—which are empirically or experientially testable. These relative truths have utility—its predictive and explanatory value (within the context of a particular universe).

Theories are computable within their own dimensions, but non-computable across dimensions. When two conflicting theories are reconciled,

they collapse into one dimension and become computable within that dimension. In this case, there is a state reduction in the knowledge process—from two dimensions to one dimension. Logical self-consistency must precede computability. The formalism of quantum theory allows infinitely many ways to decompose the quantum state of the Universe into a superposition of orthogonal states. If we apply this fact to knowledge, it would mean that a multitude of theories would be able to explain the same empirical data. In other words, there would not be any privileged scientific viewpoint. There could be more than one ‘Science’ which is rigorous enough to explain and predict outcomes in a particular universe.

Just as mathematical systems or any acceptable theory must be logically self-consistent, every parallel universe must be logically self-consistent. Each parallel universe is orthogonal (i.e. 90 degrees) to another, just as each face of a cube is, just as each conflicting theory is. Contrafactual attributes of two contradictory lower-dimensional universes can be accepted as axiomatic (i.e. as experiential rather than theoretical attributes) in a higher-dimensional universe. However, they could not be observed at the same time in the lower-dimensional universe because of cognitive dissonance—generated primarily by the analytical left brain. The right brain as we know is appositional.

Kantian Antinomies and the Limitations of a Propositional Science

Antinomy, a term used in logic, means a paradox or unresolvable contradiction. Immanuel Kant believed that when the categories of understanding are carried above possible experience, they often fall into various antinomies, or *equally rational but contradictory views*. Here, reason cannot play the role of establishing rational truths because it goes beyond ‘possible experience’ (as generated by the dominant left brain).

For example, Kant thought that one could reason from the assumption that the world had a beginning in time to the conclusion that it did not, and vice versa. This was part of Kant’s critical program of determining limits to Science and philosophical inquiry. In mathematical logic, antinomies are usually seen as disasters for the formal system in which they arise. In the above example, there appears to be something inherently wrong in asking the question ‘Does the world have a beginning in time?’ We are forced to the conclusion that both answers must be true. We must, in reality, perceive both answers as correct, and thus have a limit to our knowledge. In a sense, this is a limitation in our knowledge of the universe. Siddhartha Gautama refused to answer such questions during his discourses because he knew that an ‘ultimate answer’ would be inherently contradictory. Even Science gives contradictory answers when it reaches

its limits. For example, we are told that electrons are both particles and waves—and so are all quantum objects. The interesting thing about these contradictions is that they are complementary and interdependent—just like the ‘Yin’ and ‘Yang’ of Chinese philosophy. When traditional scientific and conventional religious theories try to reconcile these contradictions they have the quality of myths.

Virtually all myths can be reduced to the same consistent pattern: identify a crucial existential concern, frame it as a pair of incompatible opposites, then find a resolution that alleviates anxiety and allows us to live more happily in the world.

Andrew Newberg and Eugene D’ Aquili ⁸

Move towards an Appositional Science

The philosophy of Science appears to be changing. According to Tom Siegfried, the search for an ultimate physical theory will not produce one and only one picture. Different points of view reveal different pictures. Harvard’s Cumrun Vafa says that the main lesson of recent progress in ‘string dualities’ has been the recognition of the existence of different viewpoints on a physical theory all of which are good for answering some question.⁹

According to Lee Smolin there could be two theories, one where strings are fundamental and field lines are an approximate picture; a second where *the reverse is true*. He says physicists are excited about the possibility that two theories may be just two ways of looking at the same thing. Physicists call this the ‘hypothesis of duality.’ According to him, the hypothesis of duality is the acceptance that there could be two (opposing) ways of describing the same thing.¹⁰ If that is so, this is evidence that we are moving away from a propositional to an appositional Science—at least in modern physics. It seems that this move could not have come about if not for the natural ability of the right brain to be in an appositional or superposed state.

The different frames of relativity theory are all equally valid for describing nature. The frame of reference you use depends on the frame of reference you inhabit. In the same way, many different spacetime signatures may turn out to be equivalent, and we organise physics based on the signature that seems most sensible from our point of view.

Tom Siegfried ¹¹
Strange Matters

Recently, scientists have found that two very different theories which are constructed using different numbers of space dimensions can be equivalent. Juan Maldacena first conjectured such a relation¹¹ in 1997 for a 5 dimensional universe. It was later confirmed for many other universes with different numbers of dimensions by Edward Witten of the Institute for Advanced Study in Princeton, New Jersey; and Steven Gubser, Igor Klebanov and Alexander Polyakov of Princeton University. Examples of this correspondence are now known for universes with a variety of dimensions.¹² Physicist Jacob Bekenstein says that ‘creatures living in one of these universes would be incapable of determining if they inhabited a 5d universe described by string theory or a 4d one described by a quantum field theory of point particles.’

Bekenstein believes, however, that *the structures of their brains might give them an overwhelming prejudice in favor of one description or another, in just the way that our brains construct an innate perception that our universe has three spatial dimensions*.¹³ The ‘unified theory of everything’ that Science is seeking would be really a multitude of logically irreconcilable (conflicting) theories which can only be held together in multidimensional awareness. The limitations of knowledge generated through mainly linear analysis rather than direct experience were discussed and noted more than 2,000 years ago by Hindus and Buddhists. They rejected linear—‘one solution’ models and were motivated to seek the ‘truth’ in more direct ways.

As Wallace puts it, ‘For generations the notion that scientific theories represent objective, independent physical reality has been seriously challenged by philosophers of science. Indeed there are few today who adhere to such straightforward (or naïve) scientific realism. Among the many problems with the realist position is the fact that *‘multiple, mutually incompatible theories can often be presented that equally account for the given body of experimental evidence*.’¹⁴ A philosophically unreflective approach to science gives the impression that objective reality screens out false hypotheses, leading to only one true theory. In fact multiple hypotheses are often put forth, and the choice among them is based on human factors.’

The best that Science can give us is a metaphorical picture of what’s real, and while the picture may make sense, it isn’t necessarily true. In this case, Science is a type of mythology, a collection of explanatory stories that resolve the mysteries of existence and help us cope with the challenges of life.

Andrew Newberg and Eugene D’ Aquili ¹⁵

So is there objective truth? Heron describes objectivity through the broader web of intersubjectivity, ‘What can be known about the cosmos is that it is always known as a subjectively articulated world, whose objectivity is relative to how it is shaped by the knower. But this is not all: its objectivity is also relative to how it is intersubjectively shaped ...It presupposes participation, through meeting and dialogue, in a culture of shared art and shared language (including the rules of language), shared values, norms and beliefs.’¹⁶

Complementary Dualities—Fascinating Maya

In the nineteenth century (and before) the guiding idea was ‘geometry.’ In the twentieth century, the most fruitful principle was ‘symmetry.’ And the idea of the twenty-first century, I believe, will be ‘duality.’

Tom Siegfried, Physicist ¹⁷

The Vedic scriptures declare that the physical world operates under one fundamental law of Maya, the principle of relativity and duality. God is Absolute Unity. The illusory *dualistic* veil he wears is Maya. [Emphasis added.]

Paramahansa Yogananda, Mystic, 1946 ¹⁸

According to Yogananda, the entire phenomenal world is under the inexorable sway of polarity; no law of physics, chemistry, or any other science is free from inherent opposite or contrasted principles. Physical science, therefore, cannot formulate laws outside of Maya. In ‘her’ own domain, Maya is eternal and inexhaustible; future scientists can no more than probe one aspect after another of her varied infinitude. Science, therefore, will remain in a permanent flux, *unable to reach finality*; fit to discover the laws of an already existing and functioning cosmos but powerless to detect what is beyond.

Yogananda warns, ‘All who cling to the cosmic illusion must accept its essential law of polarity: flow and ebb; rise and fall, day and night, pleasure and pain, good and evil, birth and death. This cyclic pattern assumes a certain anguishing monotony after man has gone through a few thousand human births; he begins then to cast a hopeful eye beyond the compulsions of Maya.’¹⁹ Through sheer boredom Man may seek an escape from the cyclical madness which becomes increasingly meaningless with each incarnation. The royal philosopher laments in the Bible:

'Vanity of vanities! All is vanity.
What do people gain from all the toil under the sun?
A generation goes and a generation comes...
The sun rises and the sun goes down.
All things are wearisome...
The eye is not satisfied with seeing
Or the ear filled with hearing

What has been is what will be,
And what has been done is what will be done
There is nothing new under the sun.

...it is an unhappy business that God
has given human beings [and physicists] to be busy with.
All is vanity and a chasing after wind.'

The Bible, Ecclesiastes ²⁰

Thinking and Feeling vs. Perception

It is interesting that we have no problem holding conflicting ideas in our heads in abstract thinking. Often we can also have 'mixed feelings' about a person, event or thing. In other words, we do not find it difficult to move into an appositional state in abstract thinking or feeling. But is this also true for perception and imagination (perceiving through our mind's eye)?

CHAPTER 5



Split Reality

The world must suffer under the pairs of opposites forever.

Ramayana

Binary Splitter in the Brain

Def Jehning

Non-discriminating awareness constitutes the ordinary condition of the infant, especially when he is at rest, neither sleeping nor excited, according to Def Jehning. The infant enjoys this non-discriminating awareness because left brain development (which gives rise to discriminating consciousness) lags behind right brain development at this stage, as noted earlier. Discriminating consciousness (as opposed to non-discriminating awareness) appears from the very moment that oppositions arise—splitting probably corresponds to the *first conscious activity*. This splitting, usually considered a defense mechanism, has a *structuring* effect, says Jehning. By it human experience becomes ‘split,’ divided into opposite (but complementary) poles. This opposition, which is by no means present in the observed ‘thing-in-itself,’ is superimposed on it by (discriminating) consciousness.

Newberg and d' Aquili

The binary operator [in the brain] does not simply observe and identify opposites, but in a very real sense it creates them.

Andrew Newburg and Eugene d'Aquili,
Neuroscientists ¹

Myths, according to Newberg and d'Aquili, present themselves as systems of antinomies, or polar opposites: heaven/hell, good/evil, life/death, because of a basic function of the brain that they call the 'binary operator.'² The binary operator helps us to perceive (a particular) reality by ordering it into pairs of opposites. We need a way to divide space and time into more comprehensible units to orientate ourselves to the outside world. Also, when we experience something as good or bad, pleasure or pain, right or wrong, this is because our binary operator is helping divide reality into sets of opposites or dyads. Each opposite in the dyad derives its meaning from its contrast with the other opposite (its mirror image)—they do not represent absolute functions. The binary operator abstracts qualities of things and arranges them as pairs of opposites, or dyads, whose meaning is intimately related to its partner. This is identical to the dynamics of 'Yin' and 'Yang,' described in Chinese philosophy.

Newberg and d'Aquili conjecture that the binary operator is located on the inferior parietal lobule of the dominant side (usually the left brain) and is simply *one way* that the mind seeks to understand the world. No brain lacking some kind of parietal area could think in terms of opposites, they say, and the binary operator evolved for a purpose.

You have not yet gotten rid of the habit of dividing things that by their nature are indivisible, which had *developed* in the sense organs since time immemorial. [Emphasis added.]

Surangama Sutra ³

The inferior parietal lobule of the left brain not only generates conceptualisations but may be responsible for the human proclivity (which is hardwired in the human brain) for abstract antinomous or binary thinking. Lesions in this area of the brain have been found to prevent patients from being able to name the opposite of any word presented to them.

There is abundant evidence in Science and almost every other aspect of our everyday life that our brains decompose or break down indivisible reality into complementary pairs of opposites. But what does it do after this? It integrates some complementary pairs into wholes, while for other

complementary pairs it suppresses one attribute of the pair which it finds (logically) dissonant. Perception is therefore driven and structured by an internal logic peculiar to a brain and its evolutionary history.

Everett's Many-Minds Interpretation

Many books on quantum mechanics have cited Hugh Everett's theory as 'Everett's Many-Universes/Worlds' theory—suggesting that the universe splits into innumerable parts to accommodate every outcome of the experiment in a measurement process. David Bohm has argued strongly that this is De Witt's interpretation of Everett's theory. Everett's theory had a different orientation.⁴

According to David Bohm, it is not the universe that splits, but it is just awareness as a whole that divides into many parts that are not aware of each other. 'We repeat again what Squires has said—it is not a theory of many universes, but a theory of many viewpoints of one universe. Everett's aim is not mainly to explain the universe, but to explain our perceptions of the universe. Everett's theory relates the universe to various points of view that are contained within it. Everett did not contemplate the splitting of the universe. There is no mention of splitting universes in Everett's work. Indeed Everett's view should not even be called the many-worlds interpretation but rather, as Albert and Loewer have suggested the "Many-Minds" interpretation.'

The Many-Minds interpretation assumes that physical reality corresponds to the total wave function of the universe. According to David Bohm, implicit in Everett's interpretation is that each person has a total mind that can split into many sub-minds that are not aware of each other. Each mind can be aware of a particular brain state corresponding to a memory of a particular experimental result that is stable and distinct from other memories corresponding to different results of the experiment.

If the mind were in the domain of quantum mechanics, the wave function would be in a linear superposition. Everett then assumes a random process in which the original mind splits into two distinct minds each observing a *mirror image* of the other's experimental result. When one mind observes 'plus 1' the other mind observes 'minus 1.' The observations are correlated and its sum is zero. Thus Everett replaces the random 'collapsing' of the wave function by the random 'partitioning' of the total mind.⁵

What would happen if a person is able to integrate his many partial minds? Perhaps advanced meditation techniques allow this to happen. Will his many (partial, anti-correlated) minds 'cancel out' to a void? We will attempt to answer this question in the next few Chapters.

Complementary Attributes and Universes; and the Brain

It is a scientific fact that each elementary particle has a complementary opposite—a special partner called its *anti-particle* that has the same mass but the opposite electric charge. According to Richard Feynman, anti-particles can also be considered as particles moving backward in time—in other words, in ‘reversed time.’ It has also been found that this universe favors ‘left-handed’ particles. In supersymmetry theories, matter-particles (fermions) are reflected as force-particles (bosons) and vice versa. Objects comprising these reflected particles are invisible to us.

There is abundant evidence that the multiverse appears to our brains to be composed of a plethora of pairs of particles and universes with complementary attributes. Contrafactual universes exist and stabilize each other under David Deutsche’s Many-Worlds interpretation of quantum physics. Yet why do we not experience contrafactual universes at the same time? Why do we live in a matter-dominated left-handed ‘classical’ universe?

According to Fred Alan Wolf, it is impossible in any single universe for an object to exhibit two or more contrafactual attributes at the same time. A coin showing heads and tails simultaneously would be a coin showing one side up in one universe and the other down in another universe. Each universe is the confluence of agreements concerning what is logically consistent.⁶

Perhaps our serial mode of perception confines us to a 3d universe which is blocked-off from other contrafactual universes.

Nevertheless, there are complementary pairs of interlocking attributes that can be processed by our brains as a whole—for example the edge and the surface of an object can be processed in parallel streams and then synthesize to present one object to consciousness; while for other complementary pairs, one attribute is suppressed. Whether the rejected complementary attribute is immediately conscious, becomes conscious later (hence, generating *perceptual cycles*) or is left in the unconscious, depends on the degree of dissonance between the attributes in the complementary pair.

We cannot see matter with reverse parity (the so-called mirror matter); we also cannot hope to see antimatter objects because they will be mysteriously and conveniently annihilated by matter objects. Our physical brains also cannot see very high energy objects. Compared to our physical sensory systems, scientific instruments can go somewhat further in what they can measure and observe. But they too have their limitations. We see that when an experiment is set up in one way, electrons appear as waves; when the context of the experiment is changed, they appear as particles—much like how our brains operate. Do you see an old woman or a young lady in this popular illustration?



Figure 2: Old Lady or Young Girl?

We see above a famous perceptual illusion in which the brain switches between seeing a young girl and an old woman. An anonymous German postcard from 1888 depicted the image in its earliest known form, and a rendition on an advertisement for the Anchor Buggy Company from 1890 provided another early example.

Are you able to see the old woman and the young lady at the same time? Impossible? Try to oscillate between the two for about a minute, while relaxing yourself. You will notice that when you are relaxed you can accommodate both images in your conscious perception. In fact, the more you relax, the easier it becomes. The oscillation is analogous to a background-foreground switching activity. This is no different from an experimental set-up (to make strong measurements) which ‘sees’ (or measures) an electron first as a wave, and then as a particle—but not both at the same time. This shows that a brain (making strong measurements) can only accept a group of attributes when it considers them logically self-consistent. It suppresses dissonant attributes. However, if it is relaxed and non-critical (making only weak measurements) it tends to accommodate even contradictory attributes. Classical ‘either-or’ logic is generally associated

with the left brain. ‘Both-and’ logic, which is also sometimes described as ‘quantum logic,’ is generally associated with the right brain. Our everyday perception appears to be largely driven by the ‘either-or’ logic—generally associated with the left brain. This underscores the fact that our perceptions are determined by the internal logic that our brains use at any point of time.

Generalization

‘Yin and Yang’ are symbols of all the fundamental dualities in life in Chinese philosophy. They are interdependent—when one increases, the other decreases—in other words, they are complementary opposites. Why does Yin and Yang oscillate in our daily life? Bhagwan Shree Rajneesh, a modern mystic, tries to explain: ‘The mind is made up of pairs of opposites, so where will the second part go? It will lie under the first waiting for it to exhaust itself. The first gets tired—after all how long can this man keep saying “God”? When he is tired, the second part comes up which prompts him to say, “This man is Satan.” Now these are not two things: they are one. When we love we hate also. He who is our friend is also our enemy deep within.’⁷

Expectations, memories and biases significantly influence perception. If a person views an ambiguous figure and is predisposed to see one figure instead of the other, then this predisposition can affect the way he sees the image. This influence has been shown to be quite strong. For example, in one experiment⁸ participants were shown a reversible figure briefly (in other words, they knew that the image could be perceived as one figure or the other) and then asked to sketch the figure they perceived. All of them could not identify the other figure from their sketch. After drawing the image they initially perceived, participants were even told what the other image was, and still could not identify it in their sketch, even though the drawings were not very dissimilar from the original. This gives us an idea of how strong and persistent the influence on visual processing can be. It effectively blocks the complementary or contrary view.

Previous learning moulds expectations, resulting in selective attention or perception. The perception of a particular 3d universe, when according to Science we are living in a multidimensional multiverse, is an inherited form of selective perception. Perhaps, that is why many meditative techniques stress the importance of ‘unlearning’ and ‘keeping an open mind,’ so that you ‘see things as they are.’

Serial-Linear Operation of Conscious Left Brain

According to psychologists, we know only a single coherent event in each moment—a visual scene, a mental image or a fleeting thought. We cannot do two things *consciously* at the same time, such as carrying on an *intense* conversation and driving in busy traffic. However you can switch attention from one activity to another rapidly—so that it appears that you are conscious of more than one activity. When one activity becomes conscious, the other activity recedes to the background and is operated in an unconscious mode—again analogous to foreground-background switching—with the conscious left brain in the foreground and the ‘unconscious’ right brain in the background during most of the day.

However, it is proposed that if subjects in an experiment relaxed their gaze and/or attention (i.e. when the brain makes only weak measurements of the environment), it may be possible to maintain an awareness of two different images or activities. It is only when attention is focused *strongly* on one activity or part (i.e. when the brain makes strong measurements of the environment) that the other activity or part recedes to the background.

Oscillations and Suppression of Dissonant Sensations

Researchers, Nikos Logothetis and Jeffrey Schall, used two visual streams—a grating moving upward in front of one eye and downward in front of the other. Since the two streams appear to be in the same space, they cannot be interpreted as two separate streams. It was found in this experiment that *one of the two (visual streams) is always suppressed (by the brain)*. It would, therefore, appear to us as if the grating was moving up one moment, and down the next moment. (In reality, there were two separate independent visual streams moving in opposite directions.)

An integrated (binocular) vision breaks down if there are significant differences between the inputs presented to the two eyes. To obtain coherence (i.e. to reduce dissonance), many experiments show that the visual system will suppress one image in favor of another. In the same way, dissonant auditory inputs are also suppressed. Any significant disparity in the inputs to the two eyes or ears causes one of the two flows to be suppressed.⁹ According to Baars, ‘Conscious perception is always coherent, even if the nervous system needs to cancel some input in favor of another.’¹⁰ It seems that inputs to the two eyes, the two ears or two parts of skin, either compete or cooperate.

In general, Baars says, it seems to be impossible for human beings to hold two *different* interpretations of the same thing in consciousness at the same time. In many cases, two representations can be proved to exist fleetingly in the brain, but *only one can be conscious at a time*. We can handle two

streams of visual or auditory information only when they are mutually (i.e. logically) consistent, says Baars.¹¹ Stephen Grossberg shows that complementary pairs of attributes, for example, the surface and boundary of an object can be processed in parallel streams subconsciously, and then synthesized by the brain as a single object to be viewed by consciousness.¹² This is when the inputs co-operate, rather than compete.

Cancellation of Contrary Sensations?

Imagine if human beings can train their brains to see, hear or feel (consciously) opposing or competing complementary sensations at the same time, instead of oscillating—What would they perceive? We would expect the oscillations to become more rapid until it became superposed; then we would expect a cancellation of sensations and a cancellation of consciousness (the latter because without contraries, there is no consciousness). Perhaps, that is why the right brain, which is attributed with parallel processing abilities, appeared to be ‘unconscious’ (in early twentieth century experiments relating to the brain) although it was processing inputs from the environment and the left brain continuously.

One device that actually evidences a cancellation of sensations received by the right and left brains is Robert Monroe’s ‘Hemi-Sync’ device which uses two different signals to the two ears. For example, when a subject is required to be put into a theta brain wave state the technique is to send a signal of 400 hertz through one ear and 404 hertz through the other. The so-called ‘binaural beat’ would then cause the whole brain to resonate in the theta frequency of 4 hertz. In other words, the 404 hertz cancels out against 400 hertz, leaving 4 hertz.¹³ If we applied complementary signals—for example, the same frequency but phased-out—there would be a cancellation or a ‘subtractive combination’ of complementary sensations. Furthermore, it has been noticed that when the same input is given to the brain repeatedly, the brain simply ‘switches-off’ because of the redundancy in the ‘data.’

In ‘both-and’ (or symmetric) logic (used by the right brain) the attribute and contrary attribute are not distinguished—they are treated similarly and equally. This is perceived as redundancy in the brain—and the brain possibly ‘switches-off,’ leaving the mind to be catapulted to a higher dimensional perception (by analogy—the transthesis).

Appearances and Reality

A stick in the water may look ‘broken’ but we know from scientific analysis that it is not broken and that this ‘illusion’ is caused by refracting light. The appearance is of a broken stick but the ‘reality’ is that it is continuous. According to physicist Gary Zukau, our experience tells us that the

physical world is solid, real, and independent of us. Quantum mechanics says, simply, that this is not so—it is a superposition of waves. In other words, the world cannot be as it appears. What we perceive to be physical reality is actually our cognitive suppression of the symmetric void—i.e. suppressions by the brain of one attribute of a complementary pair of attributes due to cognitive dissonance in the brain.

Symmetry in the void breaks down in a cascade due to this continuous suppression. The world that emerges from the cognitive suppression may appear to be substantive, but it is not. If dissonance reduces, however (for example by adopting a non-critical receptive right-brain approach), the suppression eases and symmetry is restored. Our illusory consciousness of this or that object then vanishes.

All knowledge is metaphorical; even our most basic sensory perceptions of the world around us can be thought of as an explanatory story created by the brain.

Andrew Newberg and Eugene d' Aquili
Neuroscientists ¹⁴

CHAPTER 6



The Brain and Mystical Experiences

The right brain, as a whole, has been associated with religious experiences. More specifically, certain parts of the left and right brains have been associated with mystical experiences. These include the temporal lobe and a part of the brain near the core; understood to govern both arousal and quiescence. The latter is thought to play a role in experiences of active bliss similar to mystical trances and raptures. In this state, part of the brain, is believed simultaneously to generate a sense of calmness and alertness contributing to the religious experience of being ‘wholly other.’

Nancey Murphy, professor of Christian philosophy at Fuller Theological Seminary in Pasadena, California, thinks that how God acts in the natural world is one of the most pressing theological questions. She believes that God’s action in human life must be through interactions with the human brain.¹

Temporal Lobe Epilepsy (TLE)

Experiments on monkeys suggest that the temporal lobes mediate various states of consciousness. In the experiments, monkeys were given LSD after having various parts of their brains removed. The monkeys continued to ‘trip’ no matter what parts of the brains were missing until both temporal lobes were removed. The conclusion was that the temporal lobes, in addition to all their other functions (including the processing of music); also function to mediate states of consciousness.

At San Diego's University of California's Centre for Brain and Cognition, Vilayanur Ramachandran studies patients with epilepsy, brain lesions, strokes or head injuries. By testing patients who suffer seizures from temporal lobe epilepsy or 'TLE,' his team found intriguing hints of 'dedicated neural machinery' affecting how intensely someone may respond to spiritual or mystical experiences. Such epileptics display an unusual obsession with religious matters and, during seizures, report overwhelming feelings of 'union with the universe.' The researchers found these people also have a heightened but completely involuntary neural response to religious language. 'Something has happened in their temporal lobes that heightened their response to religious terms and icons,' says Ramachandran. 'There may be a selective enhancement of emotions conducive to religious experience.'²

Temporal lobe epilepsy (or TLE) has been linked to divine encounters, artistic creation and disturbing visitations from other realms. TLE has also often been linked to a variety of transcendent experiences: ecstatic communion with the divine, epiphanies of artistic creation, fearful encounters with alien beings.

A woman who was suffering from TLE testified, 'With TLE, I see things slightly different than before. I have visions and images that normal people don't have. Some of my seizures are like entering another dimension, the closest to religious or spiritual feelings I've ever had. Epilepsy has given me a rare vision and insight into myself, and sometimes beyond myself, and it has played to my creative side. Without TLE, I would not have begun to sculpt.' This condition is caused by unusual electrical activity in the brain's temporal lobes. A significant proportion of people with TLE report that their seizures (i.e. when there is a breakdown in the neural machinery) often bring on extraordinary experiences of transcendent wonder, luminous insight—or, at times, harrowing, uncanny fear.

Michael Persinger, a neuroscientist at Laurentian University in Sudbury, Ontario, found that people with frequent bursts of electrical activity in their temporal lobes report sensations of flying, floating, or leaving the body, as well as other mystical experiences. By applying magnetic fields to the brain, he can also induce odd mental experiences—possibly caused by bursts of neuron firing (similar to epileptic seizures) in the temporal lobes. For example, he has made people feel as if two alien hands grabbed their shoulders and distorted their legs when he applied magnetic fields to their brains.

More recently, several TLE nuns have provided further evidence for an epileptic root of many mystical religious experiences. For example, one former nun 'apprehended' God in TLE seizures and described the experience: 'Suddenly everything comes together in a moment—everything adds

up, and you're flooded with a sense of joy.'

American neurologist Professor Gregory Holmes studied the life of Ellen White, who was the spiritual founder of the Seventh-day Adventist movement. During her life, Ellen had hundreds of dramatic religious visions which were critical in the establishment of the church, helping to convince her followers that she was indeed spiritually inspired. But Professor Holmes believes there may be another far more prosaic explanation for her visions. At the age of nine, Ellen suffered a severe blow to her head. As a result, she was semi-conscious for several weeks and so ill she never returned to school. Following the accident, Ellen's personality changed dramatically and she became highly religious and moralistic. And for the first time in her life, she began to have powerful religious visions. Professor Holmes is convinced that the blow to Ellen's head caused her to develop temporal lobe epilepsy. 'Her whole clinical course to me suggested the high probability that she had temporal lobe epilepsy.'

We will never know for sure whether religious figures in the past definitely did have the disorder but scientists now believe the condition provides an insight into revealing how religious experience may impact on the brain. They believe what happens inside the minds of temporal lobe epileptic patients may just be an extreme case of what goes on inside all of our minds. For everyone, whether they have the medical condition or not, it now appears that activity in the temporal lobes can be altered to generate certain types of religious and spiritual experiences.

Persinger's Findings—Instant TLEs

Persinger believes that spiritual experiences come from altered electrical activity in the brain. David Bear from Harvard Medical School believes that 'a temporal lobe focus in superior individuals (like van Gogh, Dostoevsky, Mohammad, Saint Paul and Moses) may spark an extraordinary search for the entity we alternatively call truth or beauty.' Religion, then, is sometimes our interpretation of altered activities in the temporal lobes and the limbic region of the brain. This is not to demean the mystical experience, because TLE personalities have obviously accomplished great things, whose depth and meaning have radiated far beyond the electrical storms in a single brain.

Persinger has conducted experiments with a helmet that pulses bursts of electrical activity to the brain, stimulating what he calls a 'God experience.' The experience of God, he says, is definitely produced in the brain. 'There are certain brain patterns that can be generated experimentally that will generate the sense, presence and the feeling of God-like experiences,' says Persinger. 'The patterns we use are complex but they imitate what the

brain does normally.’ Persinger originally set out to explore the nature of creativity and sense of self. But his research into patterns of brain activity led him to explore the nature of mystical experiences as well. To do this Persinger puts his subjects in a quiet room, depriving them of light and sound, so that the nerve cells typically involved in seeing and hearing are not stimulated. Then he applies a magnetic field pattern over the *right* hemisphere of the brain.

Persinger claims that most people can experience timelessness and even meet God simply by strapping on his unique helmet. This ‘God Helmet’ gently creates miniature-versions of temporal lobe epileptic seizures by causing short-lived increases in the neuronal firing in the temporal lobes. In other words, the helmet simulates epileptic seizures—but in a safe way.

Patients sit reclined, isolated from sound and with eyes covered. The helmet is strapped to their heads and currents shoot from its solenoids into the brain, generating a low-frequency milligauss magnetic field. The magnetic field, no stronger than that produced by a computer monitor, rotates anticlockwise in a pattern around the temporal lobes. Researchers can cause the helmet’s currents to create micro-seizures in specific regions. When currents are aimed into the limbic regions in the brain, subjects report experiencing extreme emotions, distortions in their body image and sensations of forced motion. When the temporal lobes are stimulated, subjects often report specifically religious, dream-like hallucinations, and four out of five subjects report sensing a spectral presence in the room with them. (Narcotic drugs and alcohol have often produced similar effects.) Why would such sensations arise when the limbic and temporal lobe regions are stimulated? Can we make neurological sense of the religious visions and feelings?

Inside the temporal lobes is the temporal cortex, the left hemisphere of which Persinger suggests is responsible for our sense of self. In most people, there is fairly equal neuronal activity in both the right and left temporal cortexes. However, when activity gets out of synch say, by strapping on Persinger’s helmet, Persinger argues that the left hemisphere interprets the right hemisphere as a separate sensed presence, or sometimes as God. This usually happens in conjunction with extra stimulation in the limbic system, where the hippocampus (associated with equilibrium and memory) and the amygdala (associated with emotion) reside. This region also controls certain aspects of movement. When this region is stimulated with Persinger’s helmet, it makes sense that subjects experience strong emotions and sensations of forced movement. The limbic system also labels specific events such as the sight of loved ones with significance.

The limbic system’s unusual activity during spiritual experience may

help to associate feelings of deep awe and emotional significance with the experience of a sensed presence, a oneness with the Universe, and a sense of infinity. Miniature temporal lobe seizures occasionally occur in otherwise healthy people without the aid of Persinger's helmet. Persinger tested subjects with tendencies for mystical and spiritual experience, and found that they tended to have subtle hemispheric mismatch all the time—even when not suffering a seizure. Potential triggers for seizures include fatigue, high altitude, low blood sugar, personal crisis, anxiety and other physiological stressors. Not everyone may have a 'God-experience.' But those who do may have been predisposed for such an encounter by the inter-hemispheric circuits in their temporal lobes.

Obviously, there is a wide range of spiritual connections that one can experience without Persinger's helmet. But most spiritual experiences appear to involve more or less dramatically the same parts of the brain. Some people may be hard-wired to have such brain-region-specific experiences more frequently, and to varying degrees of intensity. One study suggests that people with mystical experiences are more connected to their subliminal unconscious, and are more prone to dissociation. This dissociation may correlate with the dissociation between the temporal lobes.

The Counter-Arguments

Simulations

Persinger claims that by putting on his helmet, the brain generates erroneous experiences, such as feeling the presence of other (invisible) beings. However, we cannot conclude from this that all these experiences of invisible beings are totally imagined. As pointed out in the metaphysical literature, including the author's 'Our Invisible Bodies,' higher energy bodies are electromagnetic in nature. Although they are difficult for current scientific instruments to detect (due to their very high frequencies), a human being's own higher energy bodies may be able to sense them. Persinger is simulating presences which the brain (and its higher energy counterparts) has evolved to respond to. A good trickster can show a very good hologram of an orange from a distance. Many may believe that it is in fact an orange, although it is only a representation. That doesn't mean that all perceptions of oranges are illusions. In other words, some aspects of Persinger's experiments are tricking the brain to conclude that it is seeing or sensing something. (Other aspects actually deactivate parts of the brain, so that the subject is introduced to a new reality.)

Since perceptions are generated by what the senses tell the brain through a network of nerves, any interception in the network to introduce erroneous data will make the brain come to erroneous conclusions. It will

not be surprising, if following Persinger, scientists are able to induce all the sensations of eating an apple pie in the brain of a person. This does not mean that an apple pie was actually eaten. Neither does it mean that apple pies do not exist just because you can *simulate* the sensations in the brain.

Deactivating the Brain

Daniel Wegner, Professor of Psychology at Harvard University, says that high levels of magnetic stimulation have been found to influence brain functions very briefly and can have effects somewhat like that of a temporary small brain lesion in the area of the brain that is stimulated.³ If that is so, then it is only when brain processes break down that Persinger's subjects experience a different reality. From this point of view, the specific regions of the brain are not being stimulated but are being deactivated. Based on the Many Bodies-Many Universes theory of metaphysics, outlined in the author's book 'Our Invisible Bodies'⁴, this simply confirms that when the brain of a lower energy body 'breaks down,' the cognitive system of a higher energy body is activated—giving rise to a new reality.

Theologians and scientists caution against any attempt to reduce spirituality and, by extension, religious belief, to chemical reactions in the brain. John Haight, a theologian at the Georgetown University Centre for the Study of Science and Religion, said the research confirmed that most spiritual experiences are deeply connected to brain processes. 'However, most theologians are able to distinguish between life and mind having a clearly definable chemical basis and the phenomenon of life and mind that most of us don't believe can be reduced to chemistry.'

Deactivations of Other Parts of the Brain

Besides the temporal lobe, deactivation of other parts of the brain may also give rise to mystical or spiritual experiences. A limbic region (at the core of the brain) stimulated by music, dancing, or the chanting of religious ceremonies can trigger less intense spiritual experiences. These activities, though sometimes less dramatically than meditation or seizures, can also cause the hippocampus to block neuronal activity to other parts of the brain, tagging them with special significance. This evidences a 'stimulate cum block' sequence.

This helps explain the transcendent experiences which some musicians report, or why chanting and ritual is so important to many religious traditions. Neurosurgeons who stimulate the limbic region during surgery say their patients report having religious experiences. This too would have followed the 'stimulate cum block' sequence. Hence, the stimulation of one part of the brain can lead to the deactivation of other parts of the brain.

According to Daniel Wegner, in schizophrenia there may also be experiences of thought insertion (having another person's thoughts appear in your own mind), thought echo (experiencing one's thoughts over again, sometimes in another's voice), thought broadcasting (hearing your own thoughts spoken aloud), or alien control (experiencing one's actions as performed by someone else). Such experiences are often called 'Schneiderian symptoms,' after the psychiatrist Kurt Schneider. These symptoms usually are interpreted as originating outside the self. The voices are very close and real. The drugs used to treat schizophrenia simply pushes the brain back to normalcy.⁵ In other words, it is only when the brain's normal functioning breaks down that such unusual activities occur. The brain cannot therefore effectively insulate the consciousness from other realities.

CHAPTER 7



Deactivating the Brain

A leading study has been conducted by Dr Andrew Newberg, with his late colleague Dr Eugene d'Aquili, in the Department of Psychiatry using high-tech imaging techniques to examine the brains of meditating Buddhists and Franciscan nuns at prayer.¹ The scientists, using what is known as single positron emission computed tomography (SPECT), concluded that intense spiritual contemplation triggers an alteration in brain activity. In the experiments Newberg invited Tibetan Buddhists to his laboratory and set them up with their rugs, cushions and prayer wheels. Before they meditated, an intravenous tube was inserted. This allowed a radioactive isotope to be directed when they pulled a string as they reached a peak meditative state. The isotope remained in the brain long enough so that once the meditation was over the subjects could be put under the rotating triple-head SPECT camera (similar to that used in hospital scans) and photographed to reveal images of their brain activity.

Since the meditators were focusing intently, the prefrontal cortex, associated with attention, lit up. But more strikingly, the parietal lobes showed very little activity. The parietal lobes are associated with the orientation of the body in space and processing information about time and space. More specifically, the left superior parietal lobe creates the perception of the physical body's boundaries. The right superior parietal lobe creates the perception of the physical space outside of the body. Blocked off from neuronal activity, the parietal lobe cannot create a sensation of boundary

between the physical body and the outside world, which may explain the meditators' sense of oneness with the Universe, say Newberg and d' Aquili. Since the parietal lobes were also unable to perform their usual task of creating our linear perception of time, meditators achieved a sensation of infinity and timelessness.

The study found that different parts of the brain can block input into other parts. 'You can block out the input into the area that is giving you an orientation of space and time,' Newberg says. 'It is still trying to give that orientation but it no longer has any input on which to work. The theory is that this gives you a sense of no space and no time.' Newberg says that by blocking the 'orientation association area' the brain would have no choice but to perceive that the self is endless and intimately interwoven with everyone and everything the mind senses. And this perception would feel utterly and unquestionably real.²

The authors also cite studies of seven other Tibetan Buddhists and several Franciscan nuns. The researchers mapped these subjects' brains both before and at the peak of their transcendent feelings. Beforehand, the scan's computer portrays the brain's activity as a palette of fierce reds and rich yellows. During meditation or prayer, however, a marked color change was noted in a small region on the left side of the cerebrum called the posterior superior parietal lobule, which is just behind the crown of the skull. The flaming reds had turned into a deep azure, signaling a substantial decline in activity.³

The posterior superior parietal lobule is responsible for the orientation of objects in 3d space. It is involved in how we locate ourselves in physical space and integrates cues from the environment so that we do not walk into a door or fall down the stairs. The authors termed the specific region the orientation association area and they believe that the decrease in its activity during meditation or prayer is highly significant. The total deafferentation (or 'cutting-off') of the posterior superior parietal lobe, especially on the right, results in a sense of pure space. The subjective experience is one of spacelessness or of total perfect unity. The posterior superior parietal lobule in the left hemisphere is responsible for the self-other dichotomy.

During deep meditation, when the posterior superior parietal lobules on both sides are totally deafferented, not only is there a sense of absolute space, but the distinction between self and the other is obliterated, according to Newberg and d'Aquili.

With no sensory stimulus to delineate the borderline between the self and the world, the authors conclude, the brain would 'have no choice' but to perceive that the self is 'endless and intimately interwoven with everyone and everything the mind senses.' The neuroscientists say, 'A dulling

of spatial perception could well be the key to experiencing a fluid sense of spiritual communion, such as many mystics do; this would also help explain why mystical occurrences, across a wide range of faiths, are often described in metaphorically similar terms.’ In neurological parlance, the orientation association area becomes deafferented or cut-off from inputs from other parts of the brain.⁴

In split-brain operations, the left brain could also be considered cut-off or deafferented from the right brain, and vice-versa. Alternatively, there are drugs that can suppress the functions of one of the hemispheres. Thirdly, it has also been found that one hemisphere can be prevented from knowing what is occurring in the opposite hemisphere via the inhibitory actions of the frontal lobes, which houses the ‘attention association area.’

The effects of deafferentation of the orientation association area include a softening of the boundaries of the self. In a sense, this implies that the self arises as a by-product of spatial and temporal perceptions because this area of the brain generates the spacetime matrix in which we live. More specifically, when inputs to the orientation association area are interrupted, it has to work with whatever inputs it has and its internal logic, thus experiencing infinite space and time, according to Newberg and d’Aquili. The intensity of the experience depends upon the degree of the neural blockage—so there is a spectrum of ‘unitary states’ that can be experienced. This continuum of experiences links the most profound mystical states to the mundane states in daily life.

The total shutdown of neural input would have a dramatic effect on both the left and right brains. The right brain’s orientation area, which is responsible for creating the neurological matrix we experience as physical space, would lack the information it needs to create the spatial context in which the self can be oriented. In this state of deafferentation of the orientation area, the mind would perceive a neurological reality consistent with many mystical descriptions of the ultimate spiritual union: There would be no discrete objects or beings, no sense of space or the passage of time, no line between the self and the rest of the universe. The mind would exist without (the concept of an) ego in a pure state of undifferentiated awareness—a void consciousness—the ultimate unitary state—according to Newberg and d’Aquili.⁵

If the doors of perception were cleansed every thing would appear to man as it is, infinite.

William Blake

Perhaps we should say, 'If the doors of (sensory) perception were completely shut (i.e. deafferented) every thing would appear to man as it is, infinite.'

Cognitive Operators

Newberg and d'Aquili say that functions localised to discrete regions in the brain are not complex faculties of the mind, but elementary operations. More elaborate faculties are constructed from the serial and parallel interconnections of several brain regions. In a way these operations, both elementary and elaborate, are similar to operations performed in basic mathematics as processed information from different areas of the brain are added, subtracted, multiplied, and divided with a wide range of other bits of processed information through the associations provided by neural pathways in the brain. The processes of association along with the plasticity of these connections provide the human brain with a multiplicity of possible expressions.⁶

The neuroscientists have hypothesised seven fundamental cognitive operators in analyzing the operation of the brain as mind, as follows: (1) the holistic operator, (2) the reductionist operator, (3) the causal operator, (4) the abstractive operator, (5) the binary operator, (6) the quantitative operator, and (7) the emotional-value operator. These functions allow the mind to think, feel, experience, order, and interpret the universe. Each cognitive operator carries out a specific function, which combines with the function of the other operators to form the overall basis of the functioning of the mind in response to the external world.

The holistic operator gives us the ability to perceive reality as a whole, to see the 'big picture.' Regardless of the particular object or group of objects involved, whenever one considers or perceives the global or unitary perspective of things, one is employing the holistic operator. The reductionist operator does just the opposite for us by allowing us to discriminate and break wholes down into parts. Often these two operators combine to help form a more accurate view of our ever-changing reality.

The causal operator gives us the ability to perceive reality in terms of causal sequences. It helps us develop a sense of causality lying behind all that we experience, in other words it allows us to string together thoughts and experiences as sequentially related facts that produce a causal effect. The abstractive operator, on the other hand, allows for more creative input in the understanding of reality by forming general concepts based on individual and unconnected thoughts and experience. Any idea that is based on some factual evidence, but is not proved to be factual itself, is generated by the abstractive operator.

The binary operator helps us to perceive reality by ordering it into pairs of opposites. When we experience something as good or bad, pleasure or pain, right or wrong, this is because our binary operator is helping divide reality into sets of opposites or dyads. It is important to note that each opposite in the dyad derives its meaning from its contrast with the other opposite...they do not represent an absolute function.

The quantitative operator permits us to perceive and order reality in a mathematical sense as it gives us the ability to quantify experiences. We use this quantitative ability to help us order objects according to some numbering system or else by estimation of amount.

The emotional-value operator places an emotional value upon the information received by the other cognitive operators, and it is from this emotional value that we can use other operators to act on these generated feelings.⁷

Everything Must Pass through the Brain

Everything that happens in the brain can, in principle, be imaged with the new technology. It is all, in some sense, 'real,' because it represents the flux of electrons along neurons and the flow of neurotransmitters at synapses. Colors would also change on a SPECT scan during illusions and delusions, making them similarly 'real.' For example, hallucinogens, like peyote, that were used by some Native American tribes in their religious rites caused profound alterations in the circuits of the brain which mediate sensory perceptions, like vision and hearing. Similarly, dreams are often interpreted as messages from a supernatural world and are associated with various changes in cerebral regions, particularly those which mediate visual perceptions from the retina, even though the eyes of the dreamer are closed. The words 'real' and 'illusory' become meaningless if one stays strictly within the brain.

The (SPECT) scans taken at the peak of Robert's meditative state, however, show the orientation area to be bathed in dark blotches of cool greens and blues—colors that indicate a *sharp reduction* in activity levels. As we pondered the question, a fascinating possibility emerged. What *if* the orientation area was working hard as ever, but the incoming flow of sensory information had somehow been blocked?

Andrew Newberg and Eugene d'Aquili ⁸

Limitations of the Newberg-d'Aquili Hypothesis

The Newberg-d'Aquili hypothesis raises a number of questions. If the orientation association area was working as frantically as Newburg and d' Aquili suggest, why does the whole orientation area show a sharp reduction in brain activity? Should we not at least see a spot of red or yellow within it? It appears more likely that the whole orientation association area was disabled. It's simply a brain deprived of an orientation association area. Without this area our brains would not be able to construct our 3d worlds.

Newberg and d' Aquili say that if deafferentation causes the state of no space and no time, 'it matters little if the deafferentation causes the state or allows us to enter this state that already exists "out there".' But they offer very little explanation as to how the internal logic generates the unitary state.

This means that the original hypothesis that the unitary state is generated by the orientation association area working on its internal logic has to be discarded. The orientation association area, it seems, is simply disabled or by-passed—allowing us to enter a reality unencumbered by the brain's constructions.

Alternative Hypothesis

What exists out there, if we go by the findings of modern physics is a superposed fluid reality—not the concrete reality generated by our biomolecular brain. This superposed state can be reached if no (or only weak) measurements are made by our sensory systems. This is extremely difficult to achieve in our decoherent biomolecular brain which fixates on this physical universe. The sensory system of a body can be compared to a measuring instrument in the laboratory participating in a double-slit experiment. The moment we observe the world with our biomolecular system—the wavefunction collapses into our familiar universe.

Without an orientation to this 3d physical universe, the brain receives information from the next universe via higher energy bodies. In a higher energy quantum-like universe, the wavefunction of the universe (and the individual within it) does not necessarily collapse. It continues to 'exist' in a superposed state of void consciousness—or what Newberg and d' Aquili call the absolute unitary state. In fact, all elementary particles are in this absolute unitary state until observed in a particular context by a measuring instrument. The context for the observations made by our sensory systems which constantly measure the environment is provided by the various association areas in the brain.

In order to be consciously aware of the unitary state and remember what transpired during advanced meditation after the state passes, the conditions are actually a bit more complicated. It is only when *certain* specific

areas and operations of the brain are *selectively disabled* or switched-off (i.e. when they are bypassed) that the state is experienced. If the whole brain was disabled we would not be able to assimilate the experience into our everyday consciousness. It occurs mainly when the association areas and all the cognitive operators identified by Newberg and d' Aquili (except the holistic operator) in the brain are disabled. The association areas to be disabled include the orientation, verbal-conceptual and visual association areas.

Neurophysiologically, it seems that the language centres are generally *bypassed* in the generation of mystical experiences.
[Emphasis added.]

Andrew Newberg
and Eugene d'Aquili ⁹

The cognitive operators that are disabled include the reductive, abstractive and binary operators. (The holistic operator need not be disabled. The attention area needs to be active to assimilate the experience at the biochemical level.) So it is not only the orientation association area which is disabled before the unitary state can be experienced.

When the relevant areas are disabled, the brain receives information directly from higher energy bodies, without it being filtered through the association areas in the biomolecular brain; and with the holistic operator in our biomolecular brain operating on them. In the cases where the wavefunction of the higher energy quantum-like universe does not collapse, the holistic operator operates on 'total reality'—or the total wavefunction—making very weak or no measurements.

I Think Therefore I Am

On Earth, we *disable* our thought processes in order to approach unity with the Universe. [Emphasis added.]

Joel Whitton and Joe Fisher,
Life between Life ¹⁰

According to Whitton and Fisher, in the life-between-life state, we must start *thinking* to realise our individuality. 'Discarnate life' proceeds unconsciously, and 'only the act of thought allows us to see the edges of our separate clouds within the endless cloud of existence.' There is no experience of existence without thought, according to Whitton and Fisher.¹¹ In other words, there are no separate objects without thought. Associations generate thoughts and thoughts generate associations in the brain. Thinking (or

the generation of useful information) collapses the wavefunction. Descartes formula, 'I think therefore I am' describes the situation well.

As he remains at the peak of perception, the thought occurs to him, 'Thinking is bad for me. Not thinking is better for me. If I were to think and will, this perception of mine would cease, and a grosser perception would appear. What if I were neither to think nor to will?'

So he neither thinks nor wills, and as he is neither thinking nor willing, that perception ceases and another grosser perception does not appear. He touches cessation.

Saying attributed to Siddhartha Gautama ¹²

Surviving

An interesting aspect of the unitary state is that in the unitary state not only is the 3d physical environment no longer experienced, but our bodies and brains also vanish. If we could somehow ask or instruct the person experiencing the unitary state to stand-up or sit on a chair—he would experience difficulties because there is no 3d space provided by the OAA. From the perspective of observers, he would be no different from a person who has a lesion in the OAA of his brain. If he was living in the wild, he would be easily eaten up by an animal. From the perspective of the unitary state, survival in this 3d space is irrelevant. However, from the perspective of other observers in this 3d space the person would appear to be hopelessly ill-equipped to survive. It is not accidental, then, that intuitive insights and spiritual illumination occur when we are extremely relaxed—i.e. when there are no perceived threats to our survival.

To make biological survival possible, Mind-at-Large has to be funneled through the reducing valve of the brain and nervous system. What comes out at the other end is a measly trickle of the kind of consciousness which will help us stay alive on the surface of the particular planet.

Aldous Huxley ¹³

Is it Real?

Skeptics claim that tracing the experience of God into the brain's hardwiring and especially being able to create similar experiences with Persinger's helmet proves that God is a figment of the imagination. They argue that no

evidence indicates that a Divine Power externally imposes these experiences. Some skeptics believe that temporal lobes may contribute to imagination and creativity, but that spiritual experience is a mental error akin to *deja vu*. David Noelle argues, 'How can you trust such an experience when, through science, we can convincingly mimic the fact of God?'

Believers counter with the argument that if God exists, he would of course design the brain so that we could have some form of interaction with him. Others argue that we can never know one way or the other and fault the human brain's limited conceptual abilities. The reality is that it is the disabling of specific brain circuits while maintaining other brain operations that allow us to both experience and assimilate the experience of the unitary state and other intermediate states.

Newberg says that the fact that spiritual experiences can be associated with distinct neural activity does not necessarily mean that such experiences are mere neurological illusions. It is no safer to say that spiritual urges and sensations are caused by brain activity than it is to say that the neurological changes through which we experience the pleasure of eating an apple cause the apple to exist. The difference lies in the fact that most of us agree on the physical existence of an apple. Religious visions are more difficult to describe, reproduce, hold in our hands and take a bite out of. If we do trust our perceptions of the physical world (generated by the brain), Newberg says, then we have no rational reason to declare that spiritual experience (also generated by the brain) is a fiction that is 'only in the mind.'¹⁴

Neuroscientist Eleanor Rosch agrees with Zen practitioners that our everyday perception, even the mostly universal agreement on the existence of apples, may be a useful fiction. Rosch and research partner Christine Skarda point out that the feelings of interconnectedness that people perceive during deep meditation may in fact be just as real as the popular assumption that humans are separate beings. Our perception of separateness from the outer world may just be a handy ability that enables us to achieve certain sensations. The moments of oneness we experience may be the recovery of a larger reality.

Newberg and d'Aquili however warned that too much should not be read into their findings. To suggest that the objective experience of God could be reduced to neurochemical flux is nothing more than naïve idealism. To be consistent we must also make the same claim for the objective reality of the Sun, the Earth and our own bodies.¹⁵

If scientists ran the same tests, they would probably also find that each time you saw your mother-in-law, certain parts of your brain would become activated. Coming to the conclusion that your mother-in-law did not 'really exist,' though comforting, is a dangerous conclusion to come to! Jumping

to such conclusions, might be a serious misinterpretation of the true nature of these mystical experiences.

All perceptions exist in the mind. The Earth beneath your feet, the chair you're sitting, the book you hold in your hands may all seem unquestionably solid and real, but they are known to you only as secondhand neurological perceptions, as blips and flashes racing along the neural pathways inside your skull. The universe, from the nearest chair or table to the farthest stars and galaxies, is constructed from the information that the brain receives from the senses. If you were to dismiss spiritual experience as 'mere' neurological activities, you would also have to distrust all of your own brain's perceptions of the material world, say Newberg and d'Aquili.

Newberg likes to refer skeptics to the apple pie analogy. If you ate a freshly baked, piping-hot slice of apple pie and took a SPECT scan at the moment of your first bite, the parts of your brain that register shape and form, smell, taste, memory, and association would all light up, while other areas of the brain not involved in the task would go dark. This experience leaves its footprint on the brain in much the same way as does a peak meditative moment. But does that mean the apple pie isn't 'real'?

Ultimately, there may be one of two conclusions to draw: the brain is set up to generate the concepts of religion, or the brain is set up by God because God wants us to have those experiences. Newberg says: 'Neuroscience can't answer that.' The research also implies that some people can be predisposed to religious experience and others are not. 'If we understand how the brain works, we may find reasons why certain people are more prone to religion,' says Newberg. Sister Ilia Delio, a neuro-pharmacologist and associate professor of spirituality and ecclesiastical history at Washington Theological Union, believes that because human beings are created by God, they have the means, including the 'hard-wiring' of the brain, to know God. But she is adamant that a biological basis for the experience of God cannot be equated with God. God, she believes, is the ground of all that exists and cannot in any way be equated with material reality, including the brain.

After declaring that these experiences are 'not outside of the range of normal brain function,' Newberg concludes that, 'In other words, mystical experience is biologically, observably, and scientifically real. ...If we do trust our perceptions of the physical world, we have no rational reason to declare that spiritual experience is a fiction that is "only" in the mind.' Revelation, the scientists suggest, need no longer be relegated to the spiritual realm—the sort of thing available only to a select few in the form of burning bushes or thundering voices in the desert. It can be seen as images on a computer screen, in vibrant colors, by all. The authors hypothesise that these images of the left posterior superior parietal lobe may provide a

‘photograph of God.’ Indeed, it is through this neural pathway that ‘God gets into your head.’

And they come close to asserting that the SPECT scan proves the existence of God, or, in the authors’ cross-cultural term, ‘absolute unitary being.’ Those who have experienced advanced states of mystical unity, however, claim that these states do feel like a higher reality.... They insist that when compared to our baseline sense of reality, Absolute Unitary Being is more vividly, more convincingly real... Logic suggests that what is less real must be contained by what is more real.... So, if Absolute Unitary Being truly is more real than subjective or objective reality—more real, that is, than the external world and the subjective awareness of the self—then the self and the world must be contained within, and perhaps created by, the reality of Absolute Unitary Being,’ say the neuroscientists.¹⁶

One fact that clearly should persuade us that what advanced meditators have experienced is real is that the reality they experienced and reported over the centuries correlate with scientific theories generated by cutting-edge physics today. The findings in physics *contradict* the everyday notions of the world—its concrete reality and the existence of space, time, mass and solidity. In fact, it is more of a hallucination to experience space and time and feel the weight of your body than to ‘experience’ their absence.

CHAPTER 8



Virtual Reality

All elements, including spacetime, appear to be discrete and bounded by the Planck scale. As we get closer to reality's 'screen' the image becomes pixelated—each pixel no larger than the Planck scale of 10^{-33} cm. It's as if reality is being projected from a cosmic LCD projector. We see galaxies, stars, planets, plants, animals and ourselves on the universal screen. Is the Planck scale the 'resolution' of this cosmic projector? Are multiple universes projected on multiple screens in a kind of multi-level Cineplex to generate the multiverse?

To participate in virtual reality movies, one has to don specially-made costumes with the relevant sensors and motor response mechanisms attached. Are we wearing a series of 'suits' now? (What are normally referred to as higher energy 'subtle bodies' in metaphysical literature.) Do we return to the void by removing these suits? Relative to the void are not all these universes 'virtual' reality? What is the purpose of these virtual reality movies—for experience, information and entertainment? Who is watching all these movies? Who are you?

Surface Realities

If we imagine a ripple on the surface of a still pond we see a small circular ridge of water surrounded by ever-widening ridges until it merges with the surface of the pond. From the metaphysical point of view, the smallest circular ridge would describe the area of our 3d physical universe; the second

circular ridge (with lower amplitude) would describe the larger area of a higher energy universe; and the third ridge (with even lower amplitude) represents an even larger higher energy universe.

Both physicist and metaphysicist agree that our universe exists only as a disturbance on the surface of a vast ocean—which appears to us, in its depths, as a void. K C Cole, a scientist, asks us to imagine our 3d universe as ‘the scum that forms on the surface of a pond.’ All the forces that make up our everyday universe—electricity, magnetism, and nuclear forces—would be trapped inside this surface. According to string theory, they would be waves vibrating in this surface. However, another, deeper dimension would lie beneath the surface, like the water underneath the scum. Only gravity could make waves in this deeper dimension.¹ Our universe is stuck at the edge of this deeper dimension. According to Reginald Cahill and Christopher Klinger of Flinders University in Adelaide, space and time and all the objects around us are no more than the froth on a deep sea of randomness.

It takes only a negligible amount of energy or disturbance to stir the oceanic energetic void to generate universes.² Physicist David Peat says that the universe we live in is a very fine correction. He asks us to think of a television set plugged into the wall with several amps of electricity at 110 volts entering the set. Superimposed on this energy is a virtually negligible energy—tiny fluctuations in current which are picked up by the antenna from the broadcast station. This negligible energy carries information which shapes the much greater energy generating pictures on the television screen.

The much greater energy of the television itself, which has a simple and symmetrical order, is modified by the negligible energy of the signal, which has a complicated form or (asymmetrical) order. This observation supports metaphysical concepts of a discriminating mind ‘generating waves and in the process asymmetric universes’ in the perfectly symmetric void, with a negligible amount of energy. This negligible amount of energy in an individual’s brain generates pictures on the mental screen unconsciously.

Metaphysical Literature

In 1888 metaphysicist H P Blavatsky said ‘Space is the real world...in its bottomless depths as on its illusive surface; a *surface* studded with countless phenomenal universes, systems and mirage-like worlds.’³ Paramahansa Yogananda, based on direct perception recalled an experience he had in 1946. He says, ‘The breath and the restless mind, I saw, are like storms that lash the ocean of light into waves of material forms—Earth, sky, human beings, animals, birds, trees. As often I quieted the breath and the restless

mind, I beheld the multitudinous waves of creation melt into one lucent sea ...'⁴ According to the Surangama Sutra, the 'disturbing manifestation of an external world' arises because of 'defilements' in the mind. 'When they are *stilled*, there remains only empty space, abiding in perfect unity.'⁵ Of course, the Bible states 'Be *still* and know I am God.'⁶ The Sutra points out:

You have abandoned all the great, pure, *calm* oceans of water, and clung to only one bubble which you regard as the whole body of water in all the hundreds of thousands of seas. [Emphasis added.]

Surangama Sutra ⁷

The concept that the universe is a single bubble has tremendous implications: There may be many other bubbles out there, all of which could be other universes, completely disconnected from ours. There may be more universes than we ever contemplated, but we will have no way of reaching them.

Nobel Laureate Physicist Leon Lederman
and David Schramm ⁸

Physicist, Tom Siegfried, also echoes the Sutra when he says that our universe could turn out to be 'just a bubble of foam in an endless ocean, a tiny island in a vast cosmic sea. The true totality of creation would extend beyond human sensation and imagination.'⁹

Reality on Screens

Based on the latest theories in modern physics, it appears that the information content in any part of our 3d universe does not depend on its 3d volume but on its 2d area.¹⁰ This betrays a characteristic of a hologram. For example, a 3d hologram is projected from a small area in your 2d credit card. Since the 3d hologram is projected from a 2d area, it cannot have more information than what is embedded in the 2d area. Gerard t' Hooft says, 'One must conclude that a two-dimensional surface can contain all information concerning an entire three-space. In fact, this should hold for any two-surface that ranges to infinity. The situation can be compared with a hologram of a three dimensional image on a two-dimensional surface.'¹¹

This leads us to the 'screen theory' in modern physics. The 'screen theory' might describe a screen as something like a quantum computer, with one bit of memory for each pixel—each pixel being two Planck lengths on each side. Physicist Lee Smolin says that if we assume that there are no things but only processes, only screens exist.

All that exists in the world are screens, on which the world is *represented*. [Emphasis added.]

Lee Smolin,
Physicist ¹²

You're holding a magazine. It feels solid; it seems to have some kind of independent existence in space. Ditto the objects around you—perhaps a cup of coffee, a computer. They all seem real and out there somewhere. But it's all an illusion. Those *supposedly solid objects are mere projections emanating from a shifting kaleidoscopic pattern living on the boundary of our Universe*. The world is a hologram. [Emphasis added.]

J R Minkel, Science Reporter,
2002 ¹³

Metaphysical Literature

In 1946 Paramahansa Yogananda explained: 'Just as cinematic images appear to be real but are only combinations of light and shade, so is the universal variety a delusion. The planets, with their countless forms of life, are nothing but figures in a cosmic motion picture. This is the cosmic motion picture mechanism, producing the picture of your body. Your form is nothing but light! The cosmic stem of light, blossoming as my body, seemed a divine reproduction of the light beams that stream out of the projection booth in a cinema to create the pictures on the screen.'¹⁴

A cinematic audience may look up and see that all screen images are appearing through the instrumentality of one imageless beam of light. The colorful universal drama is similarly issuing from the single white light of a Cosmic Source.

Paramahansa Yogananda, 1946 ¹⁵

One question that scientists should ask themselves is how did Yogananda come to this conclusion half a century before Science? This experience, like many other experiences of mystics, shows that a human being can experience reality directly and come to truths without the aid of advanced mathematics and scientific instruments. The deactivation of certain parts of the brain, whether deliberately through meditation or narcotic drugs; or because of some disease or lesion, may be the 'trick.'

One's values are profoundly changed when he is finally convinced that creation is only a vast motion picture; and that not in it, but beyond it, lies his own reality.

Paramahansa Yogananda, 1946 ¹⁶

Illusion of Spacetime

There is mounting evidence from modern physics that spacetime is an illusion. In the Alain Aspect experiment it was confirmed that two particles which are entangled affect each other even if they are light years apart. In John Wheeler's experiment it was found that the history of a particle depended on what happened in the present. Einstein remarked in one of his letters that 'time is an illusion.' Space too is an illusion. The term 'illusion' is used here in the sense that spacetime is relative to the observer's frame of reference. It is very real to the observer from his local frame of reference but it is not definable globally.

Henry Stapp notes that the central mystery of quantum theory is how information gets around so quickly. He asks, 'How does the information about what is happening everywhere else get collected to determine what is likely to happen here?' According to physicist Gary Zukau, the philosophical implication of quantum mechanics is that all of the things in our universe (including us) that *appear* to exist independently are actually parts of one all-encompassing organic pattern, and that no parts of that pattern are ever really separate from it or each other. In other words, none of the observed 'parts' are actually separate in space or time—it is a perfect unity.

Eastern mystics and western poets have been telling us for a long time that whether we speak of something and nothing, Yin and the Yang, the proton and electron, we are describing two parts of an undivided whole.

Stanislav Grof

According to Lee Smolin physicists now regard time as nothing but a measure of change. Neither space nor time has any existence outside the system of evolving relationships that comprises the universe.¹⁷ Former astronaut, Edgar Mitchell, says that we inhabit a quantum world where non-local effects should be expected at all levels of functioning, not just as a curious artifact of the subatomic level of reality.¹⁸ The Surangama Sutra emphatically states 'the perception of the eyes and the objects it sees and space itself, is devoid of location.'¹⁹

...We conclude that the activity of cells in V5 must indeed depend partly on colour input and the activity of cells in V4 partly on motion. Visual consciousness must then be considered non-local.

Andrew Duggins, Geraint Rees, Chris Frith,
Neuroscientists, Department of Cognitive Neurology,
University College London

Different regions in the brain are responsible for different aspects of visual perception, yet consciousness comes up with a single image with all these different aspects coming together. How is this possible? This is often referred to as the ‘binding problem’ in consciousness. Perhaps the solution is in quantum physics.

There are well-confirmed quantum-mechanical effects that have a non-local character—widely separated parts of a quantum system behave as though they are, connected in a mysterious way (as discussed in the Alain Aspect experiment, above). These are known as Einstein-Podolsky-Rosen or ‘EPR’ effects. Neuroscientist Andrew Duggins has suggested that the binding problem in conscious perception may actually depend on non-local EPR effects. Duggins has tested to see whether there are significant violations of ‘Bell’s inequalities’ (a mathematical procedure to test the hypothesis) in the formation of a mental image; indicating the presence of non-local EPR-type connections that would suggest that large-scale quantum effects are part of conscious perception. He concludes from his experiment that visual consciousness must be non-local.

There is also evidence that indicates that subatomic particles constantly appear to be making decisions! More intriguing, these decisions seem to be based on decisions made elsewhere. These particles seem to know instantaneously what decisions are made elsewhere—even if it’s in another galaxy! Gary Zukau asks, ‘How can a subatomic particle over here know what decision another particle over there has made at the same time the particle over there makes it? A particle, as classically defined, is confined to a region in space. It is either here or there, but it cannot be both here and there at the same time. For a particle here to know what is going on over there while it is happening, it must be over there. But if it is over there, it cannot be here. If it is in both places at once, then spacetime must be an illusion because it does not seem to exist for these particles.’

Physicist Bernard Haisch invites us to ask ourselves how the universe of space and time would appear from the perspective of a beam of light. He explains that the laws of relativity are clear on this point. If you could ride a beam of light as an observer, all of space would shrink to a point, and all

of time would collapse to an instant. In the reference frame of light, there is no space and time. If we look up at the Andromeda galaxy in the night sky, we see light that from our point of view took 2 million years to traverse that vast distance of space. But to a beam of light radiating from some star in the Andromeda galaxy, the transmission from its point of origin to our eye was instantaneous. He concludes, 'There must be a deeper meaning in these physical facts, a deeper truth about the simultaneous interconnection of all things.'²⁰

Another source of evidence of the illusion of spacetime is the 'uncertainty principle' in quantum physics. As we approach an elementary particle to measure its precise momentum, its location becomes smeared all over spacetime. The particle does not allow you to pinpoint its precise location. Its evasiveness betrays the slippery and illusory nature of matter and space. Physicist David Bohm believes that an electron is an ensemble enfolded throughout the whole of space. When an instrument detects the presence of a single electron it is simply because one aspect of the ensemble has unfolded. When an electron moves, it is due to a continuous series of such unfoldments and enfoldments—in other words it pops in and out of the implicate void. When a particle appears to be destroyed it has merely enfolded back into the deeper order from which it sprang. The way an observer interacts with the ensemble determines which aspect unfolds and which remains hidden.²¹ According to the renowned neurosurgeon, Karl Pribram, there is no space and time, no causality, no matter and no mind in the holographic, enfolded order.²²

Holographic Projections

Renowned physicist, Roger Penrose, notes that Science seems to be driven to deduce that if mass-energy is to be located at all, it must be in flat empty space—a region completely free of matter or fields of any kind! In these curious circumstances, he says, matter is either there or nowhere at all. This is a paradox. Yet, it is a definite implication of what our best theories are telling us about the 'real' material of our world, he says.²³

Michael Talbot says that creating the illusion that things are located where they are not is the quintessential feature of a hologram. This is because the hologram is a virtual image. In a holographic universe, location is itself an illusion. Just as an image of an apple has no specific location on a piece of holographic film; in a universe that is organised holographically things and objects have no definite location.²⁴ Holographic images are generated from the constructive interference of two waves of coherent light. All the information about a 3-dimensional holographic object is captured in a 2d flat holographic template embedded with the interference pattern. The

image of the object or any semblance of the image cannot be located on the flat holographic template.

If the flat holographic template is broken into many pieces—each piece will still be able to generate a 3-dimensional hologram—although the image would not be as clear as when all the pieces are used. This is the whole-in-the-part or ‘WIP’ feature in holography. Since every piece contains every other piece (since it contains the whole), every piece is interconnected with every other piece. Hence, the examination of each piece will reveal the other pieces—ad infinitum. Each piece is therefore ‘a composite of composites.’ John Taylor says if in our search for the ultimate constituents of nature, we always found that they have their own constituents, and they theirs, ad infinitum; then our whole Universe could then be considered constructed out of self-creating entities. It would then be truly relative: nothing would be fundamental; everything would create and in its turn be created out of everything else.²⁵ Some decades ago, physicist Geoffrey Chew provided the ‘bootstrap model’ of elementary particles, where no particle is considered ‘fundamental.’

Henry Stapp wrote for the Atomic Energy Commission, ‘...an elementary particle is not an independently existing entity. It is, in essence, a set of relationships that reach outward to other things.’ The isolation that we create is an idealization, and one point of view is that quantum mechanics allows us to idealize a photon from the fundamental unbroken unity so that we can study it. In fact, a photon seems to become isolated *because* we are studying it. According to Stapp, the physical world, according to quantum physics, is not a structure built out of independently existing entities, but rather a web of relationships between elements whose meanings arise wholly from their relationships to the whole—much like a hologram. Niels Bohr says that an independent status, in the ordinary physical sense, can be ascribed neither to the phenomena nor to observers. In other words, the world of seemingly independent objects, located within spacetime, cannot be as it appears. What we perceive to be physical reality is actually our cognitive deconstruction or suppression of complementary attributes of the symmetric void. Interconnectedness and the resulting lack of independence of any part of the whole (since it is always connected to the whole) is an inherent feature of a holographically generated multiverse.

Real-Time Holograms

Digital holographic systems can generate holograms based on information fed into a computer, which need not be representations of existing objects but free creations of the mind. An analogy would be computer music or art. A musician may develop a musical manuscript using his laptop which

is then recorded onto a CD (compact disc). The ‘holes’ in the CD do not at all resemble the music. Nevertheless, when a laser beam is bounced-off these holes and processed, music is heard. Similarly, when coherent light is bounced-off the holographically encoded ‘full-void,’ the holographic film of the multiverse, universes appear. Is it any coincidence that information in the brain itself is now thought to be holographically encoded?

Where are We?

If spacetime is an illusion, then where are we? According to physicists Lederman and Schram, the universe is not rotating, there is no axis of rotation and the relatively uniform Hubble expansion tells us that ‘the universe has no centre—no preferred point. All points are equivalent.’²⁶

God is a circle whose centre is everywhere, and circumference nowhere.

Empedocles (Ancient Greek philosopher), Historical

The understanding that all phenomena observed is relative to the frame of reference and that there is no ‘centre’ (i.e. no privileged frame of reference) to the universe betrays the fact that the multiverse is ‘embedded’ or as Bohm would have put it ‘enfolded’ in an implicate order—in this case the ‘full-void’ or the ‘event horizon’ of the multiverse.

The Void

The multiverse is often imagined by a discriminating mind as a ball sitting in a black void. However, Mellen-Thomas Benedict, a near death experimenter advises, ‘The void is inside and outside everything. You, right now even while you live, are always inside and outside the void simultaneously. You don’t have to go anywhere or die to get there. The void is the vacuum or nothingness between all physical manifestations. The void itself is devoid of experience. It is pre-life before the first vibration.’²⁷

According to Buddhists ²⁸, the widest ground of experience appears to be a pure, immediate presence before it becomes differentiated into any form of subject-object duality. Split second flashes of this open ground, which Buddhists have also called ‘primordial awareness,’ ‘original mind,’ ‘no-mind,’ are happening all the time, although one does not usually notice them. Siddhartha Gautama spoke about literally developing awareness in terms of fractions of a second, to awaken people to the fleeting glimpses of an open, precognitive spaciousness that keeps occurring before things get interpreted in a particular perspective.

Hence, our perception actually oscillates between the void and the

manifested universe in split seconds as we deconstruct the void into pairs of opposites, suppress the dissonant attributes, then put it back together again using the brain's holistic operator to present an understandable world to ourselves. This deconstruction-construction process goes on all the time but is imperceptible to our ordinary consciousness. (In other words, we are unconscious of the process—just as you are unconscious of the many complicated biochemical activities that are occurring in your internal organs as you read this book.) The everyday universe is therefore literally disappearing and manifesting every split second. This process is similar to what happens as you look at an image on your computer screen—which is actually regenerated by the system every split second.

In computer parlance, the rate of regeneration is called the 'screen refresh rate.' The refresh rate is important because it directly impacts the viewability of the screen image. Refresh rates that are too low cause annoying flicker that can be distracting to the viewer and can cause fatigue and eye strain. The refresh rate necessary to avoid this varies with the individual, because it is based on the eye's ability to notice the repainting of the image many times per second. While the flicker of the universal screen is imperceptible to most of us, advanced meditators have alluded to it.

Universes and particles are everywhere and nowhere in the void—just as projected holograms are everywhere and nowhere on a holographic film. The full-void is holographically encoded—it is analogous to the holographic template or film. If the universe is everywhere in the void, it also means that the void can be accessed from any place in the universe. If you were deep in the centre of the Earth it would take a much longer time to access the atmosphere. If you were on the crusty surface of the Earth, however, you would have immediate access to it. But the universe is not this kind of sphere. It is a holographic projection emanating from the full-void. Hence, the origins of objects within the multiverse are in fact everywhere in the full-void.

In our universe, objects appear to be related and can be located in a local spacetime grid. In a deeper context, however, they are everywhere and nowhere. The relationships that we see in our everyday world of objects are only appearances. It is an optical illusion. This illusion is not only baffling to laymen and scientists but has even baffled mystics and advanced meditators who have confronted it throughout the ages—to the extent that some have said that ordinary consciousness generates illusions. 'If we got rid of the lenses,' neurosurgeon Pribram proposes, 'we'd experience the interference patterns themselves. We would be in the pure frequency domain. What would that domain look like? Ask the mystics. Though they have trouble describing it, too..., he says.'²⁹

CHAPTER 9



Quantum-Holographic Theory of Perception

Holographic Memory Storage in the Brain

Karl Lashley has pointed out, after conducting numerous experiments on the brains of animals, that neither the learning nor the retention of a habit is localised in any one area of the cortex. Instead, the degree of retardation in learning or loss of memory following cortical lesions is proportional to the amount, and not the place, of the cortical lesion. This fact, which he calls ‘cerebral mass action,’ has been demonstrated over and over again¹, suggesting that memories are stored in the form of holograms or holographic codes.

According to Pribram, the brain uses holographic-like code to encode incoming sensory information. There are no laser beams in the brain. The retinal image is mapped onto the brain cortex which breaks down the image into various waveforms using a mathematical technique called ‘Fourier transforms’ (as in holography). The brain does not store a literal reproduction of an object’s image but an abstract holographic code of wave-phase relationships like the overlapping patterns of light and shade on a holographic plate.¹ In a sense, the brain, according to Pribram, represents the holographic film on which interference patterns are stored. A deeper view would be that the holographic encoding occurs in the full-void or zero point field but these codes are inherent in the holograms that the full-void

projects—which includes our brains and bodies. The universe, our brains and bodies are all holograms emanating from the full-void. Physicist Lee Smolin says that it is not enough to say the world is a hologram—the world must be a network of holograms, each of which contains coded within it information about the relationships between the others.²

The universe is a hologram that is generated by our active participation in it. There is compelling evidence from the ‘double-slit’ and various other experiments that the only time quanta ever manifest as particles are when we are looking at them. When an electron isn’t being looked at, experimental findings suggest that it is always a wave. This suggests that, at the most fundamental level, we are all simply wave-forms in an infinite ocean of waves. Swinney says that at the most fundamental level our bodies and the objects that we see are interference patterns caused by ‘the interaction of consciousness and wave fronts arising from fields of infinite possibility.’³

As previously noted, when the Hindu mystic, Yogananda, quieted his breath and his restless mind (probably the ‘discriminating mind’ associated with the dominant left brain), the multitudinous waves of creation melted into a lucent sea.⁴ And the Surangama Sutra is adamant that the ‘disturbing manifestation of an external world’ arises because of defilements in the mind (these defilements are also referred to as ‘samskaras’). ‘When they are stilled, there remains only empty space.’⁵ Hence, activity in the brain has an effect on the universes perceived. But how is this orchestrated?

Generation of Universes by Minds

Self-consistent universes appear as a result of cognitive suppressions by minds making measurements and breaking the symmetry of a perfectly symmetric void. It is no wonder then that the universe can be correlated so closely with mathematical models which are also created by our minds. Eugene Wigner (the 1963 Nobel Laureate for Physics) exclaims in disbelief, ‘The enormous usefulness of mathematics in the natural sciences is something bordering on the mysterious and there is no rational explanation for it.’

When weak measurements are made by our brains, the ‘empty-void’ collapses into an ocean of waves—with a positive and negative crest. When strong measurements are made, the waves collapse into complementary pairs of particle and antiparticle. If each particle is considered a pixel, we can imagine an infinite perfectly symmetric 2d checkerboard screen of complementary pairs of pixels of plus 1s and minus 1s. This checkerboard is nearly perfectly symmetrical and contains complementary attributes, making it a superposed or ‘full-void.’

Through destructive interference, our brains (and its invisible superstructures) then break the perfect symmetry of plus 1s and minus 1s on this

infinite checkerboard by suppressing dissonant attributes in each complementary pair during strong measurements. (The dissonance arises relative to the internal logic of each evolved brain). There is a cascade of symmetry-breaking. Through constructive interference, our brains (and its invisible superstructures) present to us a unique (asymmetric) 'left-handed' 3d world. Constructive interference, which generates patterns in the void, is the result of standing waves.

Standing Waves

Standing waves are formed whenever two waves with the same wavelength pass in opposite directions in some medium. They arise from the combination of reflection and interference such that the reflected waves interfere constructively with the original waves. The waves change phase upon reflection from a fixed end. The standing wave is a pattern in the combined waves that may manifest on constructive interference or disappear on destructive interference of the waves. Since wavelength and frequency are related, standing waves can only exist for a discrete set of frequencies. That means that to create the standing wave pattern, some source must drive the waves at one of those frequencies. Each standing wave pattern has its own natural frequency, and if we drive the waves near that frequency, we will succeed in generating the corresponding standing wave.

The idea that electrons can only occupy certain discrete energy levels was very perplexing to early investigators and to Niels Bohr himself because the electron was considered to be a particle. It would seem that an electron should be able to orbit around the nucleus at any radial distance. Moving among all orbits would enable electrons to emit all energies of light. But this does not happen. Why the electron occupies only discrete levels is better understood by considering the electron to be, not a particle, but a wave. Using the idea of interference, de Broglie showed that the discrete values of radii of Bohr's orbits are a natural consequence of standing electron waves.

According to Milo Wolff, the 'particle' is a spherical standing wave—a pattern generated by two identical spherical waves travelling radially in opposite directions.⁶ Gabriel Lafrenière concludes that even magnetic and electric fields may be considered standing waves.⁷ The fact that even a single photon or electron shows an interference pattern in a double-slit experiment adds to the evidence that a single electron is a wave. In order to view the electron as a particle, another wave (travelling in the opposite direction) must be generated by a detector that interferes with this wave, to produce a standing wave. The Schrödinger wave equation is in fact a linear combination of two waves travelling in opposite directions. The second wave may actually be the first wave reflected off a detector. Only the reflected waves from mechanical

(linked to the minds of the experimenters) and biological detectors have the special ability to send out waves with the correct phase so that a constructive interference occurs. The original wave and the reflected waves from detectors form standing waves. These standing waves form constructive interference patterns resulting in holograms of particles which form objects.

A Quantum-Holographic Theory of Perception

Look around you now. Are the images of what you see inside of your brain? Or are they outside you—just where they seem to be? I suggest that your mind reaches out beyond your brain and into the world around you. Vision involves a two-way process, an inward movement of light and an outward projection of images.

Rupert Sheldrake ⁸

Rupert Sheldrake tells us that what you see is an image in your mind which is not inside your brain. Your brain is inside your cranium. Your mind is extended in space, and stretches out into the world around you. It reaches out to touch what you see. If you look at a mountain ten miles away, your mind is stretching out ten miles. If you look at a distant star, your mind is extending over literally astronomical distances.⁹

How does a human being perceive a universe? We can assume two waves—one emanating from the environment and one reflected off imprints (or *samskaras*) in the full-void and represented in our holographic higher energy bodies and brains. When the two waves (the incoming and modified reflected wave) interfere (as in a holographic machine), it results in destructive interference, which obscures other universes; and constructive interference patterns (i.e. holograms) in the form of ‘standing waves’—which are (in aggregate) perceived as objects and the ‘world’ by our senses.

In other words, we (who are linked to one point in a complementary pair of points in the full-void by a spectrum of energetic bodies) participate with the light waves from the full-void in projecting the world we see—into infinity! The universal hologram is, therefore, the result of interactions or interlinking of one ‘point’ in the full-void with another—much like the interlinking of ‘gebits’ in Cahill and Klinger’s theory. The interlinking of gebits is equivalent to the interference of waves in the full-void.

According to physicist Richard Gregory, Emeritus Professor of neuropsychology at the University of Bristol, Plato was not entirely incorrect when he thought vision as working by light shooting out of the eyes to form optical images (analogous to the reflected modified wave). According to Gregory,

light enters the eyes to form optical images, which are then projected psychologically out into the external world—as hypotheses (generated by the brain) of what might be out there.¹⁰ Metaphysicist I K Taimni says that an individual's boundless 'mental space' is projected from the centre of his consciousness as an infinite sphere of three dimensions.¹¹ Judith Hooper and Dick Teresi say that even if it is only a metaphor, the hologram is a compelling one for the brain's magic show as it suggests how a finite lump of matter could contain an infinite mindscape.¹²

Reflected Waves of Conscious Entities

According to the proposed quantum-holographic theory of perception, when the two waves intersect, standing waves are formed. The reflected beam in a standard holographic machine is the wave that bounces off the holographic film in the machine. By analogy, the original waves (from the environment) bounce off the holographic memory content of the observer (ultimately embedded in the full-void) as reflected waves—equal and opposite to the original waves, but modified by the samskaras imprinted in our higher energy bodies.

The whole universe, including all observers, exists objectively in a multidimensional reality—according to (Hugh) Everett's 'Many-Minds' theory. Each mind, however, becomes aware of only one facet of this multidimensional reality. Each point of view establishes a relationship between a state of awareness and the state of some part of the universe containing the observing instrument and the observed object. Any part of the multidimensional reality generates a perception only in relationship to 'frames' constituted of the memory of the observer. Everett assumes that each part of the wave function corresponds to a definite state of awareness of the content of the observer's memory.¹³

The Content of Our Memories determine the Reflected Waves

The reflected wave is a wave reflected off the holographic 'film' represented in the unconscious of a conscious being—which constitutes the memory of the observer. The segment of the wavefunction that collapses is therefore determined by the content of our memory directly or indirectly through our interactions with an observing system—in our case, our senses. After collapse, the lens of the biological eye facilitates the conscious capture of retinal images of these holograms of objects and sends them to the brain for further processing and holographic storage (in the void and as represented in the brain)—which in turn determines the nature of the future holograms it perceives. Hence, there is a cycle of thoughts and perceptions which reinforces a particular reality in the conscious left brain.

The Role of Useful Information

Physicists now believe that it is the generation of useful information by a detector in an experiment which collapses the wave function. This was confirmed in an experiment conducted by Anton Zeilinger.

In an experiment done at the University of Rochester it was found that information rather than direct intervention destroys wavelike behavior. On the other hand, erasing information about the path of a photon restores wavelike behavior, as confirmed in an experiment done at the University of California at Berkeley by Raymond Chiao — suggesting that a collapsed wave function can be restored by erasing (historical) information.

Deconceptualisation and deconstruction of theoretical constructs (which reduces ‘useful information’) is an integral part of Zen meditation strategy and in many other meditative techniques found in various religions. In the desert religions (i.e. Christianity, Islam and Judaism) faith is emphasised in the face of conflicting information which nullifies ‘useful’ information. Conceptualisations are generally considered a hindrance in meditation. This is explicitly stated in Buddhist and Hindu scriptures and commentaries more than 2,000 years old. It has already been noted by Newberg and d’Aquili that activities in the verbal-conceptual association areas of the brain are drastically reduced during advanced meditation.¹⁴ ‘White noise’ is used in modern meditation techniques to ‘scramble’ and ‘neutralize’ conceptualisations, using electronics. Conceptualisations represent ‘useful information’ which generates quantum decoherence. This collapses the wave-function trapping the locus of awareness of observers in this or that universe.

Left Brain—A Generator of Useful Information

We know that traditional meditation techniques tend to reduce activities normally associated with the left brain. The left brain is a ‘theory maker’ generating vast amounts of useful information throughout our life. Michael Gazzaniga reminds us that the interpretive mechanism of the left hemisphere is always hard at work, seeking the meaning of events—and churning out conceptual frameworks and ideologies. ‘The left hemisphere seeks explanations for why events occur. It is constantly looking for order and reason, even when there is none’ laments Gazzaniga.¹⁵

But there is an advantage in such a system—by going beyond the simple observation of events and asking why they happened, a brain can cope with these same events better, should they happen again—helping the life form to cope in a particular location of a particular universe.

Elizabeth Phelps at New York University, Janet Metcalfe of Columbia University and Margaret Funnell of Dartmouth College found that the two brains differ in their ability to process new data. When presented with new

information, people usually remember much of what they experience. When questioned, they also usually claim to remember things that were not truly part of the experience. When split-brain patients are given such tests, the left hemisphere generates many false reports. But the right brain does not; it provides a much more veridical account, according to Gazzaniga.

Why the Devil Won't Go Away

The term 'veridical' is defined in the dictionary as 'truthful' and 'not illusory.' This appears to echo what genuine mystics have been saying about their experiences and it is also interesting that Jesus (of Nazareth) characterised the Devil as a 'Liar.' The left and right brains are, figuratively speaking, the Devil and God in us. In split brain patients, the right and left brains operate different personalities and often do battle with each other. Where the integration of the two hemispheres is weak (due to physical, biochemical or psychological reasons) tussles between the two brains or hemispheres can be expected.

A Cloud of Unknowing

Hooper and Teresi note that it is interesting that the path to God (in mystical traditions) seems to be a negative path, a path of 'unknowing.' All the methods of tapping into the 'kingdom of God' within the brain involve getting rid of something—to disassociate and disentangle from everyday concepts. Deconceptualisation reduces 'useful information' and enhances quantum coherence, allowing the meditator to be in a superposed state for long periods of time. Concepts and information, in a sense, freezes or quantizes dynamic reality within a spacetime grid. Dogmatism and doctrines in religion also represent 'useful information' in that they have unique solutions. They effectively confine us to particular universes (within the multiverse).

Physicists tell us the more useful information a universe contains, the more closed and partitioned-off it becomes from other universes. The information in a particular universe interacts with elementary particles to correlate it to a particular universe, so that we see and measure 'standard' particles in our universe.

Fred Alan Wolf argues that according to a new interpretation of quantum physics, observation and awareness have a far greater effect on the physical world than was previously suspected. Intent, through our powers of observation, actually modifies and alters the course of the physical world and causes things to occur that would not normally occur. This implies that there is a deep connection between the observer and the observed. So deep, in fact, that we cannot really separate them. All we can do is alter the way we experience reality. This is where intent comes in. According to him, intent operates in the physical world by altering the observed state of that world. If a quantum

system is monitored continuously, we could say vigilantly, it will do practically anything.

This was confirmed in 1989 when physicist Wayne Itano and his colleagues at the National Institute of Standards and Technology in Boulder, Colorado, observed 5,000 beryllium atoms confined in a magnetic field and then exposed to radio waves. Another experiment that confirmed this phenomenon was reported in the popular science magazine ‘Discover.’¹⁶

Information—the Stuff of the Universe

A causal bodied being remains in the blissful realm of ideas.

Paramahansa Yogananda¹⁷

According to the mystic Paramahansa Yogananda, in order to reach the highest frequency quantum-like ‘causal world,’ we would have to possess such tremendous powers of concentration that, if you closed your eyes and visualised the physical and higher energy universes in all their vastness, you would realise that they exist only as ideas. If by this superhuman concentration you succeeded in converting or resolving the physical and higher energy universes with all their complexities into sheer ideas, he would then reach the causal world and stand on the borderline of fusion between mind and matter. There one perceives everything as forms of consciousness or information, just as a man can close his eyes and realise that he exists, even though his body is invisible to his physical eyes and is present only as an idea (or useful information) to him.¹⁸

Physicist Lee Smolin says that space is nothing but a way of talking about all the different channels of communication that allow information to pass from one observer to another. The holographic principle is the ultimate realisation of the notion that the world is a network of relationships. The relationships revealed by this principle involve nothing but information. The history of a universe is nothing but the flow of information.¹⁹ Hawking points out rather elusively that it may not be only energy, but information, that leaks between (parallel) universes. In fact the ‘ground state’ that Hawking refers to may be something in addition to a state of energy—it may be a ground state of information and order, according to Fred Alan Wolf.²⁰

A final theory must be concerned not with fields, not even with spacetime, but rather with information exchange among physical processes. If so, information is the stuff the world is made of.

Jacob Bekenstein, Physicist²¹

The Platonic Universe

Roger Penrose asks, ‘What right do I have to say that the Platonic [mathematical] world is actually a “world” that can exist in the same sense in which our world exists? It may well seem that it is a rag-bag of abstract concepts that mathematicians have come up with from time to time. Yet its existence rests on the profound, timeless and universal nature of these concepts and on the fact that their laws are independent of those who discover them. Why (do) such precise mathematical laws play such an important role in the behavior of the physical world? How it is that perceiving beings can arise from out of the physical world and are able to ‘create’ mathematical concepts out of some kind of mental model?’²²

It is proposed that the observer (with his limited mind) isolates a logically self-consistent asymmetric universe from the superposed symmetric void. This solves the mystery of why our universe appears to follow mathematical laws in such a precise way. We isolated this self-consistent universe from the superposed void, just as other observers have extracted their own self-consistent universe from the superposed void. The extractions are based on mathematical laws which are inherent in our minds.

The Participatory Universe

The most profound lesson of quantum mechanics, Wheeler remarks, is that physical phenomena are somehow defined by the questions we ask of them. ‘This is in some sense a participatory universe,’ he says. The basis of reality may not be the quantum, which despite its elusiveness is still a physical phenomenon, but the bit (i.e. useful information), the answer to a yes-or-no question, which is the fundamental currency of computing and communications. Wheeler calls his idea ‘the it from bit.’ Following Wheeler’s lead, various theorists are trying to recast quantum physics in terms of information theory.

Already these investigators have found that Heisenberg’s uncertainty principle (which is a bound on information), wave-particle duality and non-locality can be formulated more powerfully in the context of information theory, according to William Wootters of Williams College, a former Wheeler student who is pursuing the ‘it-from-bit’ concept.

Brains Generate Realities by Generating Information

The resolving power of the eye is limited and non-uniform. There are two retinal images which are distorted, tiny, and upside-down.²³ Outside the high-resolution foveal region, the retina is nearly colour-blind and its powers of discrimination are severely limited. The eye is in constant motion, saccading from point to point in the visual field three or four times a second.

As a result, the data made available to the retina takes the form of a succession of alternating snapshots and grey-outs. How, on the basis of this fragmented and discontinuous information, are we able to enjoy the impression of seamless consciousness of an environment that is detailed, continuous, complex and in high resolution? How is it that we come to enjoy such richly detailed snapshot-like visual experiences when our actual direct contact with the world in the form of information on the retina is so limited? This is the problem faced by visual theory.

Mainstream Science proposes that the brain integrates the patchy and fragmentary bits of information on the retina available in successive fixations into a stable, detailed model or representation. But are our biochemical brains able to do this on its own?

The brain is able to do this only because it has access to the holographic template that generated the world unconsciously in the first place and now allows it to reconstruct the world that is presented to consciousness. We need our biological eyes primarily to direct our conscious attention to different areas of the unconsciously projected world. In other words it merely mediates our contact with this projected world. It allows us to move our holographic body within the hologram of the world, which inadvertently develops a sense of self separate from the world because of this. This projected self is an integral part of the projected world and cannot be separated from it.

Theoretically, electromagnetic waves can propagate to infinite distances. Hence, the reflected waves from the content of our memories, represented in our bodies, participate with the original waves emanating from the environment to create an infinite mindscape of standing waves which form constructive interference patterns. The content of the memory represented in each body (and embedded in the full-void) determines the types of universes experienced or perceived.

CHAPTER 10



The Insubstantial Universe

The truth is not easy to see; For one who sees there is nothing.

Saying attributed to Siddhartha Gautama,
Nirvana Sutra ¹

Leadbeater and Besant, two leading metaphysicists of the twentieth century, explained in 1919 that, based on metaphysical evidence, instead of thinking of the ultimate constituents of matter as solid specks floating in a vacuum, we realise that it is the apparent void which is solid and that the specks are but bubbles (of nothing) in it.² In other words, empty space is full and the material universe is literally nothing.

Before you dismiss this as gobbledygook, consider the following. If you took an inventory of particles making up the universe, mass-less photons and neutrinos would dominate. If you were to examine where your body's mass came from, you would have to weigh each atom of your body. Atoms are, however, 99% nothing. If an atom were the size of a huge cathedral, then the electrons would be dust particles floating around at all distances inside the building, while the nucleus, or centre of the atom, would be smaller than a sugar cube. Most of the mass of the atom is in this tiny nucleus, which is composed of neutrons and protons, which in turn are composed of quarks. However, the three quarks that make up the proton contribute only 3% of the mass of the proton. The rest is in the form of tension-energy

among the quarks. So even the nucleus of the atom is close to nothing! That means you are basically nothing.

According to physicist John Hitchcock, all existent stuff in the universe pays for itself by being in gravitational relationship to the rest of the universe. The cosmos, he says, adds up to nothing—the observed negative forms of energy (gravity) and positive forms of energy (mass and radiation) balance to nearly zero in our entire observable cosmos.³

David Bohm echoes what Leadbeater and Besant said in 1919 by giving an example. He says, according to quantum theory, a crystal at absolute zero allows electrons to pass through it without scattering; they go through as if the space was empty. If the temperature is raised, however, inhomogeneities appear; and these scatter electrons. If one were to use such electrons to observe the crystal, only the inhomogeneities would be visible. It would then appear that the inhomogeneities exist independently and that the main body of the crystal was sheer nothingness. Bohm explains, ‘What we perceive with the senses as empty space is actually a plenum—the ground for existence of everything, including ourselves. Things that appear to our senses are generated and sustained by the plenum, into which they must ultimately vanish. Space, which has so much energy, is full rather than empty.’⁴

Mass is a deficiency in an otherwise full space... what we think of as empty space is actually full. ...matter, mass, gravity and other forces, essentially all of the features of the universe we know, are deficiencies in a full space, not additions to an empty space. The world we know is not more than nothing, it is less than everything.

Gevin Giorbran, Physicist

While Bohm arrived at his conclusions based on scientific experiments and mathematical arguments, Leadbeater arrived at it by direct perception. These two approaches—one theoretic and the other experiential has been used by scientists and mystics, respectively. How is it that the scientist and mystic, using different techniques, have arrived at similar conclusions? There are numerous correlations in their independent findings—especially in relation to fundamental issues i.e. not whether Jupiter is the largest planet in the Solar System or whether the Earth is flat or spherical; but whether there is a fundamental constituent in the universe, whether space is empty, whether space and time are illusions.

Many of the mundane questions that scientists ask may be irrelevant to metaphysicists. This is because many metaphysicists were and are con-

vinced that the universe is (in the final analysis) a mind-created insubstantial universe. Furthermore, the mind breeds knowledge—churning out this or that concept or theory which in itself has no end. In these conditions, it would be futile to hold on to theories the way (current) scientists do and to be fixated on material objects as if they existed independently of the mind.

Scientific experiments are confirming that photons, neutrons and even whole atoms act sometimes like waves, sometimes like particles, but they actually have no definite form until they are measured.

The shock of matter being largely empty space may have been extreme enough. But with quantum physics, even this tenuous result would be superseded by the atom itself not really being anything that exists until it is measured.

John Horgan, Quantum Philosophy

The Illusion of Mass

Matter resists acceleration not because it possesses some innate thing called mass, but because the zero point field exerts a force whenever acceleration takes place. Mass is, in effect, an illusion.

There exists a background sea of quantum light filling the universe which generates a force that opposes acceleration when you push on any material object. That is why matter seems to be the solid, stable stuff that we and our world are made of.

Bernhard Haisch, Physicist, 2001 ⁵

According to Bernard Haisch, Alfonso Rueda and H E Puthoff (in their paper, 'Beyond $e=mc^2$,') physical theory need no longer suppose that there is something called mass having an innate property, inertia, that resists acceleration. What is really happening, instead, is that an electromagnetic force acts on the charge inside matter to create the effect of inertia. The presence of charge and its interaction with the zero point field creates the forces we all experience and attribute to the existence of matter. The interpretation would apply even to an electrically neutral particle such as the neutron, because the neutron, at the most fundamental level, is thought to be made up of smaller particles called quarks, which do carry electric charge. Haisch asks, 'Is matter an illusion? Is the universe floating on a

vast sea of light, whose invisible power provides the resistance that gives to matter its feeling of solidity? The mystics seemed to have already known the answer.

Long concentration on the liberating spiritual eye has enabled the yogi to destroy all delusions concerning matter and its gravitational weight; he sees the universe as essentially an undifferentiated mass of light.

Paramahansa Yogananda, Mystic, 1946 ⁶

Light Play

The solid, stable world of matter appears to be sustained at every instant by an underlying sea of quantum light.

Bernhard Haisch, Physicist, 2001 ⁷

It is the underlying realm of light that is the fundamental reality propping up our physical universe, says Haisch. Yogananda already came to this conclusion more than fifty years ago, through direct perception:

My physical body lost its grossness; I felt a floating sensation; the weightless body shifted slightly to the left and right. I looked around the room; the furniture and walls were as usual, but the little mass of light had so multiplied that the ceiling was invisible. 'This is the cosmic motion-picture mechanism,' a voice spoke, 'Your form is nothing but light!'

I gazed at my arms and moved them back and forth, yet could not feel their weight. The cosmic stem of light, blossoming as my body, seemed a divine reproduction of the light beams that stream out of the projection booth in a cinema house.

As the illusion of a solid body was completely dissipated, my realisation deepened that the essence of all objects is light.

Paramahansa Yogananda, 1946 ⁸

The Illusion of Things

Elementary particles are processes carrying little bits of information between events at which they interact, giving rise to new processes. Although

there appears to be static objects around us—the chair, the table and a computer; in reality they are processes since they are composed of elementary particles—like a candle flame in a windless room which appears to us like an independent object until we realise that it is actually changing every second—or the ‘static’ image of an object on your computer screen which is actually being regenerated at minute discrete intervals of time by the underlying system.

Quantum Foam

In 1919 (years before quantum mechanics was developed by Schrödinger and Heisenberg) Leadbeater and Besant explained that bubbles exist at the most fundamental level of spacetime.⁹ They said that the ‘ultimate physical atom’ is nothing but the manifestation of a force which brings together fourteen thousand million bubbles (of nothing) in a particular form. If this force is withdrawn even for a single instant, the bubbles will fall apart again, and the whole physical realm would simply cease to exist. They speculate that there may be a progressive diminution in the size of the bubbles in successive universes. When symmetry is restored, the bubbles (and therefore matter) disappear.

They say that though the bubbles are the basis of all matter, they are not themselves matter—just as bubbles in water are not water but are places in which water is absent. The interiors of these bubbles are void (of water). The ‘substance’ of the material universe is, therefore, basically nothing.

A scientist confirms what Leadbeater and Besant observed in 1919—what we now call the ‘quantum foam.’ Danah Zohar says, ‘At the smallest level of space-time-matter, spacetime is continually fluctuating—creating momentary bubbles of matter, which just as quickly vanish into nothingness again. Such bubbles do not appear only at one place, they bubble everywhere as a kind of frothy quantum foam.’¹⁰

Origins and Future of our Universe—the Big Ripple

Currently, astronomers have calculated that the age of our universe is 13.7 billion years; that the first stars lit up just 200 million years after the cosmos was born; and that it will expand forever at an accelerated pace, thinning and cooling-off until it eventually disappears into nothingness. This is not much different from what the Hindus noted almost two thousand years ago:

At dawn all things manifest
Springing forth from the Unmanifest
And then at nightfall they dissolve again
Into the Unmanifest

Yes! This whole host of beings
 Comes ever anew to be; at nightfall
 It dissolves away—all helpless;
 At dawn of day it rises up again.

The Bhagavad-Gita ¹¹

In the ‘Big Ripple’ the universes (the physical and higher energy universes) will dissolve one by one—in their order of subtlety into the void—just as chemicals disappear into the implicate order in the BZ (Belousov-Zhabotinsky) experiment.

BZ Experiment

In the BZ experiment an acid was mixed with bromine producing fascinating geometric patterns such as concentric circles and Archimedean spirals that propagated across the medium. The reaction results, first, in the formation of colored spots—which then grow into a series of expanding concentric rings or spirals. The colors disappear if the dishes are shaken, and then reappear. The waves continue until the reagents are consumed. This experiment provided scientists undeniable evidence that chemical reactions could oscillate and are not *halted* by equilibrium thermodynamic behavior. Similarly, the manifestation of universes oscillates ‘within’ the void.

Dissolution of the Manifest Multiverse into the Void

Interestingly enough, as the dark expanse in our classical universe expands (as scientists now predict), it would also mean that higher energy universes (which are dark or invisible from our perspective, currently) are also expanding. Just as each lower energy body comes to the end of its life and dissipates, so does each lower energy universe. Before the complete dissolution of our current universe, however, intelligent beings from our current universe would have already abandoned their bodies corresponding to the current universe and would now operate in their new bodies in a higher-energy universe. This sequence will be repeated over and over again until the local multiverse finally dissolves into the implicate order of the unmanifest, perfectly symmetric, void state.

According to metaphysicist Leadbeater, lower-energy particles in our universe are secondary manifestations of higher energy particles.¹² The reverse sequence (back to the void) is therefore a gradual withdrawal from lower-energy universes which transform into higher energy universes—as a result of the transformation of lower-energy particles to higher energy particles. From the perspective of an inhabitant in the lower energy universe, the lower energy universe would appear to be disappearing into nothingness

because the higher energy particles would be invisible (or dark) to the inhabitant.

According to 'Advaita Vedanta' religious philosophy, the sequence of dissolution is the reverse of creation. This reverse process is gradual. Gross matter becomes subtler and subtler. Finally, the whole universe is absorbed and stays in dormancy in unmanifest condition. In this condition, all the three fundamental constituents of Hindu metaphysics, i.e. sattavas, rajas and tamas, are equipoised (restoring symmetry). This condition continues until the equilibrium of the three constituents is disturbed (i.e. when there is a break in symmetry) and creation starts again. Creation is the manifestation of the previously unmanifest; dissolution is the reverse process. 'Space is a positive entity. It is converted into particles and particles are reconverted into it,' says N C Panda.¹³

In other words, according to Advaita Vedanta, universes manifest when there is a break in the symmetry of the full void—moving away from equilibrium, allowing 'phenomenal life' and complexity to manifest. This is consistent with twentieth century's 'chaos theory.' After an unimaginably long period of time, the sequence reverses and everything returns to equilibrium. Astronomer Sten Odenwald points out, 'Although, the equilibrium state appears to be "dormant," strictly speaking, neither the terms "dormant" nor "active" can be applied to it. It is an ineffable state, which is neither static nor dynamic'—the attribute and its contrary attribute are equipoised. Odenwald warns us that 'in the end,' it will be the void that survives through the eternities to come, as all the rest of the material world flashes out of existence.¹⁴

The whole universe might have a huge number of vacuum states, and it might be possible to jump suddenly from one to the other. The recent discovery that the universe started expanding and is heading to a local valley means that one day the universe will dissolve.

John Barrow, Physicist ¹⁵

CHAPTER 11



The *Really* Astonishing Hypothesis

Are these (mystical) unitary experiences merely the result of neurological function or are they genuine experiences which the brain is able to perceive? Could it be that the brain has evolved the ability to transcend material existence and experience a higher plane of being that actually exists?

Our research has left us no choice but to conclude that the mystics may be on to something, that the mind's machinery of transcendence may in fact be a window through which we can glimpse the ultimate realness of something that is truly divine.

Andrew Newberg and Eugene d' Aquili,
Neuroscientists ¹

Newberg and d' Aquili hypothesise that the brain possesses a neurological mechanism for self-transcendence. When taken to the extreme, this mechanism, they believe, would erase the mind's sense of self and undo any conscious awareness of an external world. They describe the ultimate transcendent state an 'absolute unitary' state—a state of pure awareness, a clear and vivid consciousness of everything as an undifferentiated whole. This awareness would be neuro-biologically incapable of differentiating between subject and object, between the limited personal self and the

external, material world. It would perceive and interpret reality as a formless unified whole, with no limits, no substance, no beginning and no end.

Teresi and Hooper ask, 'If our brains were a different size and shape, what would our religions be like? If we had three brain hemispheres instead of two, would our philosophies, our geometries, our mythologies, our notions of causality, space, time, and number be radically different?'² It has already been discussed in the author's book 'Our Invisible Bodies' that different bodies (which are ensembles of sensory systems) allow the observer to experience different universes generated by the different brains. Just as the physical brain facilitates the generation of a 3d space, these higher energy body-brains facilitate the generation of spacetime with a higher number of dimensions.

Def Jehning says that our consciousness is, at its best, strictly three-dimensional in its spatial constructions, and its temporal organisation is linear. Almost everything we win from the 'void and formless infinite' is caught in this reductive structure. We are so immersed in the three-dimensional make-up of our perceptions that we naively believe that reality itself is three-dimensional.

Jehning believes that the fact that cutting-edge physics is telling us that reality is infinite and multidimensional forces us to a radical revision of the alleged superiority of (left brain) consciousness. According to David Kaiser, reducing input from the environment to components and sequences is a result of the left side's form of organisation. Rodney Bomford says that the movement from eternity to temporality is a movement out of the (symmetric) unconscious towards (asymmetric) consciousness and logic (i.e. 'either-or' rather than 'both-and' logic).³

According to Gary Zukau, since the wave-function is thought to be a complete description of physical reality and since what the wave function describes is both idea-like and matter-like, then physical reality must also be both idea-like and matter-like. 'So why do we not see it as idea-like?' he asks. Perhaps it's because we have entrenched ourselves in a left brain reality.

Evolution of the Divided Brain

Bianki, who conducted experiments with rats, concluded that in rats the parallel and spatial processors of information is localised in the right brain; and the sequential and temporal processors in the left one.⁴ Ornstein says that the existence of such different ways to account for the world even when the rat evolved makes it clear that the division in the human brain into different modes of processing is not just a matter of upbringing nor is it a division related largely to language versus no-language. These rat studies and

other studies like them, he concludes, makes it clear that there is a fundamental division in an animal's contact with the world. The division is based on a way of approaching the outside world that evolution worked out long before it thought of us; our divided cortex appeared with the first mammals. According to him, each of these ways of organising reality must have had immediate (evolutionary) advantages.

Recent research has demonstrated that the two cerebral hemispheres are laterally specialized in species as diverse as birds, rodents, and monkeys.⁵ The presence of hemispheric specialization in groups with such varied evolutionary histories may be explained by parallel evolution from common selective pressures. According to David Kaiser, lateral differentiation in neural organisation and function may occur in the earliest brain structures, including the lower brainstem and the thalamus.

Different Brains—Different Realities

It would appear that brief encounters with the right-cognitive style shows that another reality can exist in which an *entirely different* type of thinking dominates. [Emphasis added.]

James Iaccino ⁶

After many years of fascinating research on the split brain, it appears that the inventive and interpreting left hemisphere has a conscious experience *very different* from that of the truthful, literal right brain. [Emphasis added.]

Michael Gazzaniga ⁸

Both hemispheres of the brain are capable of some kind of awareness, but their methods of experiencing and expressing it are *very different*. [Emphasis added.]

Andrew Newberg and Eugene d' Aquili ⁷

Our left and right brains allow us to view reality in two different modes—the left brain presenting it as this or that universe, subject to cycles and dualities; and the (advanced and isolated) right brain presenting it to us as an attributeless void. Dream researchers regard the altered state of consciousness during dreams as very mysterious, according to Iaccino, mainly because a different cognitive style using images (associated with the right brain) is being employed. Upon awakening, the subject's left-analytic mode usually has difficulty or cannot express in words what the right-holistic mode experienced during the dreams. A kind of amnesia sets in.

Advanced Development of the Right Brain or the Holistic Operator

Iaccino says that one characteristic not present in right-holistic processing is the temporal ordering of elements. Rather, 'a present centredness or time-less experience has been associated with this cognitive mode in which all events are perceived to occur immediately and simultaneously.' He goes on to say that this type of thinking is reflected across many Eastern cultures where no distinction is made between past and present; and time is considered 'an ontological absurdity.' He observes that the right brain's 'non-linear mode' is cultivated deliberately in Eastern mystical traditions for the purpose of arriving at a 'more accurate picture of reality not based on time, linear consciousness, or the physical changes of the illusory world.'⁹

If your right brain is in an advanced stage of development (and your left brain activity is largely suppressed), what do you think you will perceive? Would you see or experience anything? The fact that mystics and serious metaphysicists describe reality in remarkably similar ways as physicists today; from the holographic principle to screens, from impermanence to insubstantiality of the universe, from super universes to an attributeless void (the list of correlations is growing), it throws up an interesting question: Does the advanced development of the right brain with its parallel processing of attributes allow you to perceive reality directly?

The slower and more arduous process through the scientific method, supervised by the left brain, is only now throwing up models of reality described in mystical and metaphysical literature centuries and even millenniums ago. Were the Buddhists, Hindus and Taoists right in rejecting the slower left (tortoise) brain method to embark on developing the right (hare) brain to perceive reality directly and in a shorter time?

The Surangama Sutra states all phenomena and their developments are simply manifestations generated by the mind. All causes and effects, from great universes to fine dust come into apparent existence only by means of a discriminating mind.¹⁰ (Are we talking about the development of the left brain consciousness, here?) If indeed our view of the empty multiverse is a cognitive construction, as pointed out by Gary Zukau and Siddhartha Gautama, then the left brain must be primarily implicated for this construction. If the development of the appositional, top-down processing skills of the right brain (and its invisible superstructure in higher energy bodies) is taken to the extreme, it logically follows that every universe and its anti-universe would simply present a void to the right brain's processing style. The binary splitter (identified by Newberg and d'Aquili) would be rendered ineffective.

Merely suppressing left brain activities will not lead to 'enlightenment' (as it is known in Eastern religions). The holistic and parallel process-

ing abilities of the right brain (and its invisible superstructure in higher energy bodies) have to be highly developed over time before the experience of wholeness and emptiness is experienced. The left brain has to keep up with the development of the right brain in order to integrate the ‘wisdom’ generated by the right brain into its own framework. A person who has developed both brains to very high levels leads a two-fold existence—functioning rationally in an asymmetric universe, while abiding in a symmetric void. But are mystics who talk of a spaceless and timeless void hallucinating?

Harman and Rheingold argue that since Science tells us that the universe, of which we are a part, is unitary in nature, we should not be forced to resort to theories involving hallucinations to account for the numerous records of individuals perceiving it accurately. However, many will still find it difficult to believe that man, with his limited senses, could somehow come to perceive that unity directly and unaided.¹¹

In fact, scientists believe that our senses can bring us just such a perception of ‘unbroken wholeness’ of reality. It is believed that our mind-brain tunes into selected ‘vibratory nodes’ (i.e. frequencies) to present a picture of reality simplified enough for us to understand. We learn to fit ourselves into the world by learning to perceive or not perceive whatever the adults around us perceive. Alan Watts points out that there is a tendency to impose too quickly the conventional structures like space, time and the subject-object dichotomy. Harman and Rheingold say it is these ‘left brain tendencies which come between us and any direct perception of the fundamental unity.’¹²

They say our normal mental conditioning, however, is certainly not an insurmountable barrier to the direct perception of reality, as yogis, mystics and shamans have shown us. Dr Robert Benson observed that, ‘...this ecstasy could be induced in the ordinary man in a relatively short time by rhythmic exercises, involving posture, control of breath, coordinated movements, and oral repetitions.’ In fact, this barrier is so easy to overcome, say Harman and Rheingold, that according to Abraham Maslow most people report having had a profound sense of what has been called ‘unitive consciousness’ at some time in their lives. The major precondition, according to one group of Harvard researchers, is a ‘nervous system devoid of mental-conceptual activity...in a state of quiescence, alert, awake, but not active.’

Meditation methods generally discourage both mental verbalizations and conceptualisations. These functions are found in the verbal-conceptual association area (VCAA) which sits at the junction of the parietal, occipital and temporal lobes. The VCAA, according to Newberg and d’ Aquili, is

responsible for the generation of abstract concepts and relating them to words. It is also involved in conceptual comparisons, the ordering of opposites, the naming of objects, grammar and logic.

Harman and Rheingold also point out that although mystics have been telling us how to achieve this state of higher awareness for thousands of years, Science has only officially begun to recognise it since it became possible to reproduce the experience under laboratory conditions, via biofeedback.¹³ The more meditation is practiced, says Maxwell Cade, the easier it becomes to produce and to maintain an alpha rhythm, and the longer continuous alpha rhythm is maintained, the more often the individual experiences states of higher awareness. According to mystics, when one comes to truly know oneself, the pull of the material body and ego personality become greatly decreased. Abraham Maslow comments on his patients who had mystical experiences: ‘This is not a simple a happening as one might imagine from the bare words. To have a clear perception that the universe is all of a piece can be so profound that it changes the person’s character and his world view forever.’

According to Michael Talbot, the objective reality—the world of coffee cups, mountain vistas, elm trees, and table lamps might not even exist or at least not exist in the same way we believe it exists. What was out there was really a vast, resonating symphony of wave forms, a ‘frequency domain’ that was transformed into the world as we know it only after it entered our senses.¹⁴

3 Modes of Perception—3 Modes of Reality

It appears that based on whether we are using serial or parallel perception or a hybrid, we will experience different realities. The extreme scenarios are as follows:

- A universe—Where each attribute in a pair of complementary competitive pair is observed separately over time—a serial perception associated with the left brain.
- A full-void—where all complementary attributes (whether competitive or co-operative) are superposed—perception and non-perception are superposed.
- An empty-void—a state where perception (and non-perception) ceases because all complementary attributes cancel out.

Which state we experience is relative to our orientation. 3 observers would ‘experience’ 3 different modes (of reality)—observing the same phenomenon. The first may observe an attribute. The second will experience a superposition of an attribute and its contrary attribute. The third will not

experience anything. Attributes that are observed ‘simultaneously’ by one observer (i.e. in superposition) is observed as separate attributes by another observer; and as ‘attribute-less’ by a third observer. Using meditative terminology—one may experience ‘perception,’ another may experience a superposition of ‘perception’ and ‘non-perception’; and the third experiences ‘the cessation of perception.’ The latter state is not unconsciousness—it is the canceling-off of the contrary states ‘perception’ and ‘non-perception.’ This ‘non-dual state’ (where dualities or polarities are cancelled-out i.e. where the binary splitter in the brain is rendered ineffective) has been described by or alluded to by every major religion.

Indeed, the multiverse is distinguished from the void only by the degree of symmetry in our awareness—from an asymmetric serial state of awareness to a symmetric parallel state of awareness. This has led to the cryptic saying in Mahayanist Buddhism that ‘Nirvana [the void, loosely defined] is Samsara [the multiverse].’ Universes appear, are in superposition or disappear like a mirage relative to the degree of symmetry in our awareness. When there is perfect symmetry in awareness—being neither attracted to an attribute nor repelled by its contrary attribute (i.e. when an attribute is interchangeable with its contrary attribute), the state is indefinable in terms of classical logic. Contrary attributes within a universe and contrafactual universes are initially superposed, and then a cancellation of these attributes occurs spontaneously.

When there is a break in the symmetry of awareness (for example, when a desire arises—evidencing attractions and aversions) a universe manifests. The ‘Middle Path’ in Buddhism and ‘Centering Meditation’ in Christian contemplation are attempts to restore our awareness to perfect symmetry and achieve a non-dual mode. There are many intermediate states (which correlate to the various higher energy universes and the corresponding meditative states) where the superposed state can be intermittently ‘experienced.’

Symmetry, in the mathematical sense, means that one thing is interchangeable with another. Perfect symmetry in awareness simply means that the individual is neither attracted nor repelled by opposites. In other words, a negative situation is interchangeable with a positive situation; joy is interchangeable with suffering; self is interchangeable with not-self. Pseudo-Dionysus, the fifth century father of mysticism in both Eastern and Western churches, says that God is superior to all opposition between being and non-being; it therefore cannot be asserted either that God is or is not. The modern view, in the light of what has been revealed by quantum physics, may be to say that every thing and every person both exist and does not exist. (Schrödinger’s cat is both alive and dead.)

CHAPTER 12



Superposition in the Full-Void

Lay down all thought, surrender to the void; it is shining...
Or play the game 'existence' to the end; of the beginning.

Beatles, 'Tomorrow Never Knows'

Superposition of Complementary Competitive Attributes

Long before Schrödinger wondered whether his famous cat could be both alive and dead at the same time, a commentator in the Surangama Sutra questioned, '...if water and fire are present universally in the same space and at the same time, how is it that they do not destroy each other? ...how can two different and opposing natures be mutually universal at the same time?' Superpositions of complementary attributes are difficult for the mind to grasp. Entangled particles which are anti-correlated in relation to spin continue to exist within our spacetime. They do not cancel out. Physicist Amir Aczel says that the idea of superposition—of 'being at two places at once'—is related to the phenomenon of entanglement.² Entanglement can be described as a superposition principle involving two or more particles which are generated in the same event but separated in spacetime. Two particles that can be light years away may behave in a concerted way: what happens to one of them happens to the other one instantaneously, regardless of the distance between them. Considering that all particles in this

universe were generated from one event—the Big Bang and its aftermath; in a sense then all particles are entangled with their anti-correlated particles. This also means that the universe is in a superposition of contrary states right now!

The Superposed State

With our current understanding of quantum physics, most physicists have come to accept the superposed state which allows contradictory states to exist at the same time. Quantum superposition, in which a system can exist in two states (such as having two different values of angular momentum or being in two different places) at the same time, has been confirmed in numerous experiments. For example, a single ion can have a measure of existence simultaneously in two places (several nanometers apart) within an atom trap³; or wavelike manifestations of C-60 molecules can be split and sent along separate paths of an atom interferometer.⁴

In a Stony Brook experiment quantum states were superposed on a macroscopic scale. The quantum system in question was a supercurrent (containing billions of electron pairs) flowing around a 140-micron-sized superconducting quantum interference device (SQUID) circuit. This device was a trillion trillion times larger than an atom – and yet exhibited quantum duality associated with waves. In this case a super current was made to flow in opposite directions at the same time. The current was in a superposition of clockwise and anticlockwise flows; it was never zero.⁵

This is also true of the universe which is a composite of attributes and its contrary attributes (Yin and Yang)—which is the same as saying that the universe is in a superposition of Yin and Yang—but it is never zero from our usual frame of reference.

Superposed or Symmetric Logic

Amir Aczel observes that in quantum mechanics we have to abandon the quotidian ‘either-or’ logic in favour of the new ‘both-and’ logic. The concept, he says, is very foreign (to us) since we never encounter it in our daily lives.⁶ Yet Matte Blanco says this is the symmetric logic used by the unconscious.

There is some support for equating unconscious states with quantum superposition. Matte Blanco described the dream world as where ‘paradox reigns and opposites merge to sameness’, also an apt description of the quantum world.

Petro Gopych, Neuroscientist

Mystics who have been using language based on superposed or symmetric logic have had mixed responses—from amusement to accusations of being illogical. While classical Aristotelian logic adheres to the law of non-contradiction, superposed logic transcends it. Superposed logic is not illogical, it is alogical.

Weak Measurements Preserve Superpositions

A quantum particle such as an electron can spin clockwise and anticlockwise at the same time, for example, or exist simultaneously in two places. These strange ‘superpositions’ are extremely fragile. It had been a tenet of quantum theory that as soon as anyone tries to observe a superposition, it collapses back to some kind of normality. Make a measurement of, say, an electron spinning both ways at once and the electron appears to have just one spin. Lifting off the lid from the container containing Schrödinger’s famous cat forces the cat to be either alive or dead. And so this mysterious quantum world of superposed states has remained impossible to explore, until recently.

An international team of scientists, led by Yakir Aharonov in Tel Aviv University, Israel, used weak measurements to reveal interesting features of superposed states.⁷ A ‘weak measurement’ does not disturb a system significantly, so it remains quantum coherent, but each individual measurement is less accurate. To make up for this, the measurement has to be repeated many times in order to get as close to the real answer as possible. On the other hand, a ‘strong measurement’ attempts to be highly accurate in each observation—immediately collapsing the wavefunction to this or that actuality.

Effects of Measurement on Worldview

The organisation of the brain obeys principles of uncertainty and complementarity, as does the physical world with which brains interact, and of which they form a part. This suggests that these principles reflect *each brain’s role as a self-organising measuring device* in the world, and of the world.

Stephen Grossberg, Neuroscientist ⁸

Einstein’s objection to the proposition that consciousness causes the wavefunction to collapse was that non-human machines were doing the measuring. We have to bear in mind, though, that our sensory systems (which include the relevant regions in our brains) are measuring instruments that process information without the aid of the conscious self. Hence, the same mysterious measurement process that leads to wavefunction collapse

in laboratories would be operating in our everyday lives when our brains measure the environment. It is possible to generalize that:

- ‘Strong measurements’ by the (discriminating, left) brain lead to wave function collapses and a manifest universe. The propositional and discriminating human left brain, with its attention to detail and a demand for a high level of accuracy in specific observations, makes strong measurements. This correlates to our ‘classical’ everyday world.
- ‘Weak measurements’ by the (appositional, right) brain preserve superpositions and is associated with the full-void state. The appositional human right brain, with global attention to aggregated information, makes weak measurements. This correlates to certain advanced meditative states.
- ‘No measurements’ by the brain does not manifest anything and is associated with the empty-void state. This correlates to the non-manifestive ‘consciousness’ of a ‘liberated’ monk (as frequently described in Buddhist and Hindu religious literature).

Event Horizons

Event horizons, in a broader sense, mark the boundary between a state where events occur (in spacetime) and a state where events are irrelevant—between the universe and the empty-void. According to general relativity, gravitation severely modifies space and time near a black hole. As the event horizon is approached, time slows down relative to that of a distant observer, stopping completely on the horizon. This is also exactly what happens when the Planck limits are reached. Spacetime, dualities and cycles are suspended, held in abeyance or become frozen at the event horizon. It’s as if somebody pressed the ‘Pause’ button on the universal movie.

John Taylor says that a space traveller will take a finite time to fall into the event horizon around a collapsed star (from his frame of reference). But an observer, who keeps a good distance away, will only see the rocket and the rider going ever more slowly to the star, getting fainter and fainter as they do so. In fact they become redder (due to the gravitational redshift) and fainter; and then become invisible. It will take the spacecraft forever to reach the critical Schwarzschild radius.⁹

According to Ron Cowen, the observer never actually sees the person passing through the event horizon into oblivion. That’s because the gravity at the event horizon, which warps spacetime severely, causes clocks to tick ever more slowly, ultimately freezing time altogether.¹⁰ The voyager, however, rushes right through the horizon without any ill effects.¹¹

On macroscopic scales, within a particular universe, black holes mark

event horizons. On microscopic scales, the ‘Planck limits’ mark the event horizons. When approaching the Planck limits a similar freezing occurs. Gerard ‘t Hooft prefers not to speculate that quantum mechanics breaks down at the Planck scale, but instead suspects that quantum mechanics becomes trivial there. In other words, quantum superpositions are still allowed but become irrelevant.¹²

In 2000 Jack Ng of the University of North Carolina reported in *Nature* magazine that the foaminess of spacetime near the Planck limits leads to an uncertainty in timekeeping (the more accurate the clock, the shorter its lifetime) which in turn leads to a bound on information processing (speed and memory simultaneously)—analogous to the Heisenberg bound on simultaneous measurement of momentum and position. He believes that the faint gurgle of spacetime foam can be detected by just a hundredfold enhancement in certain projects. This suggests that the Planck limits (in our universe) might eventually become a realm that can be approached and measured.¹³

On even larger scales, event horizons are present ‘where’ the universe meets the void. The event horizon of a black hole encircles an invisible black hole sitting inside a manifest universe. On the other hand, the event horizon of the universe encircles the manifest universe which sits inside what appears to be a black hole (a void).

The most outrageous possibility is that we might be living inside an enormous black hole.

R G Daghigh, J I Kapusta, Y Hosotani,
Physicists¹⁴

Superposed Dualities at the Event Horizon

A J Deikman notes that one of the phenomena common to all subjects is what appears to be the ‘simultaneity of conflicting perceptions’ during advanced meditation states. Newberg and d’Aquili say that during meditation or ritual states, logical paradoxes or the awareness of polar opposites may appear simultaneously, both as antinomies and as unified wholes. This experience is coupled with an intensely affective, oceanic or blissful experience. During intense meditative experiences, the experience of the union of opposites is expanded to the experience of the total union of self and other.¹⁵

Dualities become superfluous at the superposed event horizon (the ‘full-void’) and cancels out in the empty-void. Where there is near-perfect symmetry, dualities are equivalent. Up or down, cold or hot means the

same to the observer. A break in symmetry signifies that one of the polarities in the duality takes precedence at a point in time. This is required for any universe to manifest. For example, Science acknowledges that for our universe to exist there must be a preponderance of matter. The universe (as we know it) would not exist if there was an equal distribution of matter and anti-matter. In the nearly perfectly symmetric event horizon (the full-void), polarities and dualities become meaningless and irrelevant as they are indistinguishable. In the perfectly symmetric empty-void they cancel out.

‘Consciousness without feature,’ without end, luminous all around: Here water, earth, fire and wind have no footing. Here long and short, coarse and fine, fair and foul; and name and form [i.e. dualities] are all brought to an end. With the cessation of consciousness, each is here brought to an end.

Saying attributed to Siddhartha Gautama ¹⁶

It is interesting to note that there are two very different types of consciousness mentioned above—‘consciousness without feature’ and just (plain) consciousness. The former alludes to right brain convergent awareness (which merges into a non-local universal mind) and the latter to left brain divergent awareness (as described in Chapter 1). The former is a perfectly symmetric awareness, often called a ‘non-manifestive consciousness,’ which is neither attracted nor repelled by opposites and beyond dualities (i.e. ‘long and short’, ‘coarse and fine’, ‘fair and foul’ etc.).

Physicist John Taylor says, ‘...the traveller into superspace has to leave all his usual notions of space and time behind him. He cannot ask if superspace is hot or cold, whether it is wide or narrow, or whether it is shaped like a cube or sphere. It has no past or future, nor any dimensions. It is a lace-work of worm-holes, forming and disappearing constantly in motion but never advancing or retreating. It is full of ceaseless activity, yet overall it is static and timeless.’¹⁷

Structure within the Full-Void

Heinz Pagels notes that the nothingness ‘before’ the creation of the universe is the most complete void that we can imagine—no space, time or matter existed. It is a world without place, without duration or eternity, without number...yet this unthinkable void converts itself into the plenum of existence—a necessary consequence of physical laws. Where are these laws written into the void? It would seem that even the void is subject to law, a logic that existed prior to time and space. Sten Odenwald remarks that in some

unfathomable way, the gravitational field would contain all the information Nature needed to fashion time and space. Even the things it contained, such as the fundamental attributes, would be part of its invisible fabric.¹⁷

Physicist B J Hiley explained that in experiments which have been made to find the radius of the electron they assume that it has an internal structure. However, they find no structure. The natural assumption is that it is point-like. But it seems very difficult to understand how a point can process the information of its own field coming back from the environment. Therefore, physicists postulate that there should be some structure between 10^{-15} cm and 10^{-33} cm which is the Planck length. He says this is where people think that space-time will break down, although he feels it may break down before that. According to him you can have structure in an electron without being extended in spacetime.¹⁹

Paradoxically, structural information and forms are implicit in the full-void. Identity and intentionality may therefore yet be present (in a 'frozen' state) on the 'surface' of the universe (i.e. the event horizon), although it may become superfluous (and meaningless). This information will be there even when the universe is dissolved but will be activated in the next cycle of manifestation.

How can the full-void or superposed event horizon contain structural information and identities? David Bohm described an interesting device he saw in a BBC television program. The device was a specially designed jar containing a large rotating cylinder. The space between the cylinder and the jar was filled with glycerin. Floating motionless in the glycerin was a drop of ink. When the handle on the cylinder was turned, the ink spread out through the syrupy glycerin and seemed to disappear. But when the handle was turned back in the opposite direction, the ink slowly collapsed upon itself and once again formed a droplet.²⁰ Bohm writes, 'This immediately struck me as very relevant since when the ink drop was spread out, it still had a 'hidden' (i.e. non-manifest) order that was revealed when it was reconstituted.'²¹

As noted in Advaita Vedanta, the universe dissolves into the void, only to reveal itself once again at the dawn of manifestation. All dualities are suspended or superposed in the full-void and cancelled-out in the empty-void. The structure (i.e. form) of the universe appears to be inherent in the apparent emptiness of the full-void. According to Buddhist Mahayanist Scriptures, 'Form is empty, emptiness is form.'²²

According to Danah Zohar the quantum vacuum is very inappropriately named because it is not empty. Rather, it is the basic, fundamental, and underlying reality of which everything in this universe—including ourselves—is an expression. Physicist John Hitchcock believes that the

‘world-field’ in the quantum vacuum contains the forms that generate the universe.

Perfect Symmetry—Perfect Randomness—Perfect Freedom

The void is symmetric. This also means that it is totally random in character and acausal from our perspective. To Reginald Cahill and Christopher Klinger space and time and all the objects around us are no more than the froth on a deep sea of randomness. ‘Far from being merely associated with quantum measurements, this randomness is at the very heart of reality,’ says Cahill. A metaphysicist stated basically the same idea but with a different interpretation.

I K Taimni argues that ‘it is this indeterminateness at the basis of every natural phenomenon which is reflected in and referred to as the principle of uncertainty which has been discovered by physicists. This uncertainty is due to the fact that at the basis of the phenomenal world which is governed by exact natural laws is consciousness. The whole of the manifested universe which is bound by natural laws, and therefore determinate, is embedded, as it were, in consciousness which is free and therefore indeterminate. Uncertainty, therefore, is found at the bedrock of any phenomenon and not in the body of the phenomenon itself.’²³

According to Lynne McTaggart, Einstein himself recognised that matter itself was a disturbance of perfect randomness.²⁴ Physical reality is irreducibly random. Gerard Milburn however questions, ‘But how can anything so beautifully ordered and lawful as the universe arise from such an apparently lawless principle? The apparent intelligibility of the universe is constructed, according to him, bit by bit, from entangled ‘qubits.’²⁵

Asymmetric universes are generated from the symmetric void through repeated breaks in its symmetry. Nature seems to be dissatisfied with too much symmetry. John Hitchcock says, nearly all the symmetry in nature are less symmetric than the cause that gave rise to them.²⁶

Cahill and Klinger view forms as being randomly generated. Others are of the view that it only appears randomly generated because they are generated from an unbounded indeterminate consciousness. Taimni says that when action comes out from an integrated (unbounded, symmetric) consciousness it comes out from the consciousness as a whole and not from any particular act of willing—as in the case of mind ²⁷—much like creative ideas that appear almost from nowhere. The term ‘nowhere’ is significant—the void (or the equivalent illusory black hole interiors ‘in’ the universe) is in fact literally ‘nowhere’ since space is an illusion.

In other words, Taimni is appealing to a top-down and holistic process which gives rise to uncertainty and the probabilistic nature of the physical

world at the subatomic level where it approaches consciousness. Dennis Gabor described the film produced by a holographic system as ‘noise’—a meaningless tangle of swirls. Yet the hologram of an object appears instantaneously when a laser beam is shone onto this ‘noise.’ There is evidence that the whole universe is holographically encoded in the full-void which *appears* to be an irreducibly random void. This randomness of the void also gives it total freedom.

Infinite Energy

The full-void is a source of infinite energy. According to Lynne McTaggart, every exchange of every virtual particle radiates energy. The zero point energy in any one particular transaction in an electromagnetic field is half a photon’s worth. But if you add up all the particles in and out of being, you come up with a vast, inexhaustible energy source—equal to or greater than the energy density in an atomic nucleus—all sitting there unobtrusively in the background of the empty space around us, like one all pervasive, supercharged backdrop. The total energy of this ‘zero point field’ exceeds all energy in matter by 10^{40} . The energy in a single cubic metre of space is enough to boil all the oceans of the world.²⁸ According to David Peat, modern physics tells us that the universe is created in a highly symmetric state but these symmetries are hidden in our everyday world until we reach very high energies—the natural energies of our universe.²⁹ Hence, symmetry will be restored as we journey up higher energy (parallel) universes.

Symmetry and Manifestation

Global symmetry demands that where there is a local violation of symmetry in one universe, this is compensated in some other mirror universe. Every asymmetric manifestation is reflected by its opposite by the perfectly symmetric void. Metaphysicist Taimni says that ‘everything in manifestation must disturb the harmony and distort (or perhaps suppress) the perfection of the Whole. So everything must have its (suppressed) equal and opposite in some-form and some-where.’³⁰ Lynne McTaggart says that the quantum world was a perfect hermetic world of pure potential, only made real—and, in a sense, less perfect—when interrupted by an intruder³¹ i.e. an observer’s brain which suppresses certain attributes of the void—enabling a universe to manifest.

Chirality is the ‘right-handedness’ or ‘left-handedness’ of the universe, that is, it is the asymmetry associated with parity. When the perfect symmetry of the superposed-void is ‘disturbed,’ it collapses and manifests as this or that, left-handed or right-handed universe—which counter-balance each other. Individual universes are chiral. The multiverse, however, disappears

at the global level. At this level, when near-perfect symmetry is reached, the superposed full-void is realised; when perfect symmetry is reached the empty-void is realised.

The perfectly symmetric void is frequently referred to as the ‘unmanifest’ in religious and metaphysical literature. It is, thanks to chirality, says David Peat, that we have an observable (asymmetric) universe at all.³² A universe can only manifest to an observer if there is some asymmetry in the interactions between its particles and forces. If there is perfect mirror-symmetry, there is no manifestation of any universe (in other words, there will be no ‘measurables’ relating to that universe). Similarly, there are no measurables associated with the perfectly symmetric non-manifestive ‘consciousness’ of a ‘liberated’ person (as described in Buddhist and Hindu religious literature).

There is no measuring of a man won to the goal. When all conditions are removed, all ways of telling are removed.

Saying attributed to Siddhartha Gautama ³³

According to A T Mann, the highest states are unmanifest, unknowable and exist beyond the universe. In Hebrew mysticism such a realm is called Ain Soph, the eternal state of being which results when all qualities are removed—the unconditioned state of all things.³⁴

CHAPTER 13



Cancellation in the Empty Void

Cancellation of Complementary Competitive Attributes

The right-holistic mode is particularly good at grasping patterns of relations between the component parts of a stimulus array, integrating many inputs simultaneously to eventually arrive at a complete configuration (i.e. a gestalt).

Iaccino ¹

Physicist Gevin Giorbran says, 'I used to believe that an overlay of worlds, the totally infinite, would be an infinitely dense and infinitely extended three dimensional plane. But now I understand that for every matter universe like our own, there exists an opposite anti-matter world to cancel the first, and thus in truth, if we could observe an infinite universe we would not see anything at all, that is, if we could somehow observe all the worlds together within the same space.' An overlay of worlds would produce a space without any observable matter, where every positive particle is matched with an equal negative particle. The many worlds combined into a single state could possibly create such a perfect medium, where no one thing is apart from others. Yet remove one part and its opposite will appear in its absence. Return the part and the entire infinite field of space returns to zero mass, zero density, zero energy.

What would you perceive if you could perceive the multiverse, with its contrary attributes and universes, as a gestalt? Well, apparently, what logically follows is an attributeless void.

The Attributeless Void

Since contrary attributes cancel out their conjugate partners in the void, the empty-void can be said to be 'attributeless.' Physicist John Hitchcock explains that a particle and its antiparticle (generated in the quantum vacuum) have the same mass but their charge and spin arise in terms of opposites i.e. positive and negative charge, and positive and negative spin; so that the positives and negatives cancel as to net quantity of each attribute which is generated in the process. This is one form of emptiness, which he calls an 'emptiness of attributes.'¹⁹

Total Functioning of the Holistic Operator

Mystics of all religions achieve an immediate sense of God via the total application of the holistic operator to the totality of reality.

Newberg and d' Aquili ²

According to Newberg and d' Aquili, there is a holistic operator located in the parietal lobe in our non-dominant (usually right) brain. In normal, everyday awareness, it is difficult for the holistic operator to function in isolation. However, in intense meditation and prayer this operator can be made to function briefly in an absolute sense 'so that the entire universe is perceived as a unity.' Newberg and d' Aquili describe this as the absolute unitary state. The absolute functioning of the holistic operator, they say, is associated not so much with the concept of God as with the experience of God. If a universe of contrary attributes is experienced holistically it will be both a perfect unity and a perfectly symmetric void.

Deafferentation in Meditation

Yoga is the restraint of the processes of the mind.

Patanjali, Yoga Sutras ³

Total deafferentation is the cutting-off of all input to a cognitive operator in the brain. According to Tola and Dragonetti's commentary on the (Patanjali's) Yoga Sutras, in order to free itself from suffering, the Spirit must 'dis-identify' and disentangle itself from mental processes; it must iso-

late itself from mind and its functions.⁴

This isolation can only be brought about by the restraint of mental processes. By elimination of these (mental) processes, one after the other, the only entity that ultimately remains, will be the Spirit, free and isolated in its total and absolute purity.

During the highest stage of concentration, when there is a total and absolute restraint the Spirit 'dwells established in its own nature...pure, isolated and free...pure consciousness without limitations of space and time, without any inner or external object in which it can be reflected, reduced to motionlessness and to the silence of a quietude raised to its highest level. Once the total restraint is produced...absolute voidness reigns in the mind; it is the deep calm, the profound silence...'⁵

The Physical-Mental Void

While Science views the void as purely 'physical,' meditators know that it has effects that go beyond the 'physical.' We know every emotion and idea has 'physical' correlates. We also have already argued that particle-waves (and fields) possess consciousness as a generic property, in the author's book, 'Our Invisible Bodies.'⁶ And when we look at our physical bodies in the mirror, we know we have both physical and mental attributes.

According to Danah Zohar, one of the fields within the quantum vacuum is thought to be a coherent Bose-Einstein condensate, that is, a condensate with the same physics as the ground state of human consciousness. Understanding this might well lead us to conclude that the physics which gives us human consciousness is one of the basic potentialities within the quantum vacuum. 'It might even give us some grounds to speculate that the vacuum itself is conscious,' she says.⁷

Hence, the void has psychological correlates which a being, who can experience emotional and mental states, can relate to. Accessing the void can therefore have both physical and psychological effects that last a long time.

Sten Odenwald asks, 'Could there really exist some kind of elemental void? Could this place or condition be the complete negation of every physical attribute we can comprehend? It would be timeless, spaceless and empty of content.'⁸ According to Siddhartha Gautama, by passing beyond the state of 'neither perception nor non-perception' (the event horizon of our awareness, the full-void), a man enters and abides in the cessation of perception (the empty-void).⁹ This man, says Gautama, 'does not imagine he is aught or anywhere or anything.' In other words, the illusion of space-time evaporates.

There is a discontinuity between the full-void and the empty-void. Through spontaneous natural forces, this discontinuity is breached and a

‘region’ devoid of space or time or an ‘elemental void’ can be realised—according to Gautama’s findings about 2,500 years ago—and similar findings in other religions.

The Public Void

This void is not a ‘personal’ void. It is objective and can be accessed by anyone, in the present or in the future. According to (Siddhartha) Gautama, ‘Contemplatives and priests who in the past entered and remained in an emptiness that was pure, superior, and unsurpassed all entered and remained in this very same emptiness that is pure, superior, and unsurpassed. Contemplatives and priests who in the future will enter and remain in an emptiness that is pure, superior, and unsurpassed, will all enter and remain in this very same emptiness that is pure, superior, and unsurpassed. Contemplatives and priests who at present enter and remain in an emptiness that is pure, superior, and unsurpassed, they all enter and remain in this very same emptiness that is pure, superior, and unsurpassed.’¹⁰

Rodney Bomford says that both the unconscious and the goal of the mystic are not private, but are one and the same in every individual. For if the mystic reaches non-being, that is to say, nothingness, then this nothingness is simply one and the same. One person’s nothingness is presumably the same as another person’s. If on the other hand the mystic is experiencing the unity of everything—then again that is one and the same. There cannot be two or more ‘everythings.’ The depth of the unconscious is single, not possessed uniquely by the individual. That which the mystic glimpses is not just his or her unconscious, but the unconsciousness of God, an unconscious at its deepest level shared by every animate being, he says. There is something universal in the kind of experience that people have of this deep level—an experience of ‘everything,’ as well as of ‘nothing,’ he says. This experience is what Christian mystics describe as an experience of God, according to him.¹⁰

Newberg and d’Aquili maintain that ‘the actual experience of absolute unitary being is necessarily the same for any individual who experiences it.’ This is necessary from a neurophysiological as well as a philosophical perspective. It is necessarily experienced as an infinite, unified, and totally undifferentiated state.¹¹

Beyond the ‘Gates of Planck’

What we have seen thus far is a progression from explicate order to simple three-dimensional implicate order, then to a multi-dimensional implicated order, then to an extension of

this to the immense 'sea' in what is sensed as empty space. The next stage may well lead to the notion of the implicate order beyond the critical (Planck) limit of 10^{-33} cm.

David Bohm ¹²

Science now hypothesises that beyond the Planck limit (the microscopic superposed event horizon) is a space-less and time-less void i.e. 'where' there is no distinction between 'here and there' or between 'now and then.' There is an absence of classical spacetime and classical objects (including the Sun, Moon, or people). Below Planck scales, dualities are meaningless. Below 10^{-33} cm (Planck space), space ends. At 10^{-43} sec (Planck time) time becomes quantized i.e. it becomes discontinuous. Below 10^{-43} sec, it ends. Consciousness cancels out. Information ends. What is present below Planck scale is neither consciousness nor unconsciousness. According to Andrei Linde, the universe cannot be said to be homogeneous or inhomogeneous because these concepts have no meaning in a place where there is no 'up' or 'down,' no 'before' or 'after' (i.e. where there are no dualities). As a result scientists have no way of predicting what state the universe was in right after the Planck era.¹³

The Empty Void

There the stars do not shine, the Sun is not visible, the Moon does not appear, yet darkness is not found. When a sage has known [this sphere], then from [duality:] form and formless, bliss and pain, he is freed.

Saying attributed to Siddhartha Gautama ¹⁴

The Pat Price studies and the PEAR studies suggest that at a more fundamental level of existence, there is no space or time, no obvious cause and effect.

Lynne McTaggart, Science Reporter ¹⁵

According to Lynne McTaggart, Pat Price studies also suggest that the universe exists in some vast 'here' where here represents all points of space and time at a single instant. In the quantum world of the (zero point) field, a subatomic world of pure potential, life exists as one enormous present.¹⁶ At macroscopic scales, space and time; cause and effect also break down inside a black hole.

At the centre of a black hole lies the singularity where spacetime has infinite curvature. Here it is no longer meaningful to speak of space and time, much less spacetime. Jumbled up at the singularity, space and time cease to exist as we know them. In this bizarre realm in which space and time are broken apart, cause and effect cannot be unraveled.

University of Illinois

Is Perception Indefinitely Extended?

The Surangama Sutra claims that ‘in the state of freedom from intoxicants’ a person ‘will be able to look upon the countries of this world and see them as clearly as an object lying in the palm of his hand. In that state the enlightened ones, ‘looking beyond this world, have seen with like clearness, all the worlds, even hundreds of thousands of worlds. Their sight reaches everywhere. But the perception of the eyes belonging to ordinary sentient beings cannot pierce through the thickness of a tenth of an inch.’¹⁷ In a sphere where time does not exist, it would be natural to be at all places at the same time. The basic operations of the right brain generate an integrated representation of where we are in space. Currently, a 3d space is constructed by our brains for us based on incoming information. If we can operate through other bodies and brains, we need not be restricted to a 3d space. According to renowned physicist, Lee Smolin, when we imagine we are seeing into an infinite 3d space, we are falling for a fallacy in which we substitute what we actually see for an intellectual construct (generated by the brain). The continuous appearance of (3d) space is an illusion, he says.¹⁸ If spacetime is an illusion, then perception could indeed be non-localised and extend ‘indefinitely.’

End of ‘Cycles’

We note that as we go up the energy ladder of (parallel) universes, the frequency increases. Hence, the wavelength decreases. The wavelength of a wave is simply the length of one complete wave cycle—from the crest of one wave to another. Hence, as the wavelength decreases, the cycles contract to a point.

In the highest energy universe, space and time ‘break-up’ and become discontinuous. The same thing would happen if we went down to microscopic Planck scales in the physical universe. In either case, the sub-quantum region is reached.

False and True Vacuums; Full and Empty Voids

According to Alan Wallace, Buddhist contemplative science, like Western physical science, describes two types of vacuums. Firstly a false vacuum—which is called ‘bhavanga’ in Buddhist literature. It is described as ‘the relative ground of becoming, out of which each individual mind-stream emanates.’ Secondly, a true vacuum, or primordial awareness—the absolute state of phenomena out of which space and time, mind and matter, everything in the universe, emerge.²⁰

A false vacuum state has more energy than the true vacuum, which is taken to have zero energy density. The false vacuum has positive energy density.

Stephen Hawking

A false vacuum (the full-void) is the lowest possible energy state, but it is not completely devoid of energy. The false vacuum has energy and structure and is not perfectly symmetrical. Physicists work with false vacuums on a day-to-day basis. The false vacuum is determined by the limitations of technology. But the true vacuum depends on all the laws of nature, whether they have been discovered yet or not.

In the ‘false vacuum’ of the bhavanga, contemplatives experience bliss and luminosity, devoid of conceptualisation, as distinct aspects of consciousness. But in the true vacuum of primordial consciousness, there is no differentiation among these experiences, or of subject and object, indicating a perfect symmetry that transcends relative space, time, mind, and matter. The bhavanga has been characterised as the ground state of the human mind, out of which emerges all mental activity of a single individual. Primordial consciousness, on the other hand, is of the same nature as the ground state of absolute space, out of which emerge all mental and physical phenomena in the universe.

While the relative vacuum of the bhavanga can be realised through the cultivation of a state of mere ‘meditative quiescence,’ the absolute vacuum can be realised only through the cultivation of ‘contemplative (or experiential) insight.’ Such experiential insight is gained by first investigating the origins, location, and manner of dissolution of all types of phenomena, breaking down all reified divisions of ‘outer’ and ‘inner’ (the illusions of space); then resting in a state of ‘luminous’ non-duality.²¹

A true vacuum is defined as whatever remains once we have removed from some well-defined space everything that the laws of nature permit us to take away. But scientists do not know all the laws of nature, so it is difficult for them to conceptualise the true vacuum, let alone create one. Such

a region of space is as empty of material bodies and of energy as Nature allows.

Having no internal structure, it is perfectly symmetrical, timeless, featureless empty space, in which nothing changes, and everything would be the same. Since it is changeless, it is imperceptible to our measuring instruments, and nothing that scientists could do to it would make any difference to it, says Wallace.²²

While the bhavanga has an internal structure and is bound by time and causality, the unity of absolute space and primordial consciousness is the absolute, or true, vacuum, devoid of all internal structure. The true vacuum (empty-void) is perfectly symmetrical. In the true vacuum, particles, fields, and electricity are undifferentiated. In the false vacuum, these entities are distinct from each other. The true vacuum is described as empty of matter and energy in contrast to the false vacuum as empty of matter but not energy.

If you could observe bare consciousness, without mental states, it would appear empty and luminous. Thoughts obscure the luminosity of consciousness.²³

Contemplative Technique to Realise a Mental Vacuum

Contemplatives follow a variety of procedures to create a mental vacuum. One common strategy is to powerfully contract consciousness by focusing on a small mental image, the smaller the object on which consciousness is focused, the more potent the consciousness becomes. When the mind is so concentrated that all physical senses have gone dormant and awareness is luminous and pure, the image is released. In this state, bliss, luminosity, and non-conceptuality are experienced distinctly, just as the various attributes of the false vacuum of physics—particles, fields, and so forth are distinct from one another.

The bhavanga is not a true vacuum because precognitive conceptual structuring of awareness still persists. Even though concepts such as subject and object are not manifest, awareness is still structured by conceptual and biological influences. Like its analogue in physics, the false vacuum of consciousness, the bhavanga, appears to be empty but has structure and energy.

The realisation of the true vacuum of consciousness is by way of achieving the false vacuum of consciousness. The true vacuum of consciousness is utterly free of all conceptual constructs, including space and time, mind and matter, even notions of existence and nonexistence. The true vacuum of consciousness is one of perfect symmetry, for it is non-local, timeless, homogenous, and devoid of internal differentiation.

When scientists observe physical space and its material contents, the perceptual images that they experience arise in the space of consciousness, not some objective space existing independently of consciousness. As neurologist Antonio Damasio points out, ‘There is no picture of the object being transferred from the object to the retina and from the retina to the brain.’ Likewise, when physicists construct mathematical laws and theories to describe nature, those concepts arise in the space of consciousness and nowhere else.²⁴

Physicists have imagined a universe devoid of consciousness, but the only universe of which they have any knowledge is one generated with consciousness.

The external space envisioned by physicists is as devoid of real, subjective experience as the world of experience is devoid of real, objective space. Each one is out of touch with the other, which raises the question: which one, if either, is real?

Allan Wallace²⁵

Physicists’ descriptions of the relative and absolute vacuum states of external space bear striking resemblances to the relative and absolute vacuum states of consciousness described by Buddhist contemplatives, says Wallace. One striking difference, according to Wallace, however, is that the absolute vacuum as conceived by physicists is devoid of consciousness, while the absolute vacuum conceived by Buddhists is of the same nature as non-local, atemporal, primordial consciousness.²⁶ (We have already argued earlier, however, that the vacuum or void does indeed have both physical and psychological attributes—although they may be superposed or cancelled-out in a perfectly symmetric ‘consciousness.’)

Creativity and the Void

Imagine for a moment if you wanted to write on a piece of paper—which already had writing on it. You either would have to erase what was written, modify what was written or be constrained by what was written. To be totally original and not constrained, however, a completely clean piece of paper is necessary to write on.

An attributeless multidimensional void is therefore necessary for original universes to appear. Physicist K C Cole says that the void is the blank template on which the universe is written. Without this blank template, nothing original can be generated.²⁷ The will is not free unless it exists in a void where all possibilities are equally available. Hence, the void itself is the source of our free will. Without a void in us, we would not be

free. Creativity is an expression of the void.

Asymmetric logic has a deterministic feel. It never delivers a new truth. Symmetric logic [of the void], by contrast, has considerable freedom, it can move in a variety of directions.

Rodney Bomford
The Symmetry of God ²⁸

A Christian writer once wrote, ‘when you are in the centre, you have the freedom to move anywhere.’ The key to centering and achieving perfect symmetry and equilibrium in awareness is to be neither attracted nor repelled by events or attributes. This disentangles the mind—allowing it to go into a superposition and then slip into an elemental void through natural forces. Of course, each universe would follow the same route over a much longer time scale than an individual’s trajectory. Ultimately, every particle of consciousness of every being (even ‘incorrigibles,’ according to Buddhist scriptures) will be carried by the universal tide into the void.

As for the cosmos in which we live, beyond the normal unpredictable surprises of the near future, apparently in a far distant future our own spacetime and our parallel anti-matter cosmos which we are inseparably connected to will both merge. A multitude of parallel worlds all unite within one place to return to the medium from which they originated.

Stanislav Grof

Karma—the Force of Symmetry—A Force from the Void?

Regardless of the world’s endless complexity, there is every reason to believe that change moves toward a balance, and the same principle likely applies to all aspects of nature and life. The move towards an undivided whole is likely a universal principle guiding our lives.

Stanislav Grof ²⁹

Karma is a force that brings points of consciousness back to equilibrium, back to perfect symmetry. Each time symmetry breaks there is a force that builds up—pushing consciousness back to the perfectly symmetric void. Heavens and hells are both movements away from the void.

Mystical experience is beyond the realm of opposites. Visionary experience is still within that realm. Heaven entails hell, and 'going to heaven' is no more liberation than is the descent into horror. Even the blissful visionary experiences tend to change sign if it persists too long.

Aldous Huxley³⁰

Abiding in the Void while in the World

I abide much in the void, Ananda... As formerly, so now too, I abide much in the void. ...you should train thus: We will enter upon and abide in the void that is pure and unsurpassed by any other.

Saying attributed to Siddhartha Gautama³¹

According to Paramahansa Yogananda, it is the Spirit of God that actively sustains every form and force in the universe, yet He is transcendent and aloof in the blissful uncreated void beyond the worlds of vibratory phenomena. 'Those who attain "self-realisation" on Earth live in a similar twofold existence,' he explains.³² The left and right brains mediate this two-fold existence—the left-dominant brain presenting to us Samsara and the right brain (devoid of all influence from the left brain) enabling us to realise Nirvana. Hence, the enlightened ones, such as the 'arhats' in Buddhist literature, experience two different realities mediated by the two brains at the same time.

The transmutation brought about through detachment is so ineffably sublime that it enables the sage to live in the world while not being of it.

Bhikkhu Nanananda³³

According to Nanananda, sensory data fall on the enlightened monk only to roll-off like drops of water on a lotus leaf. De S Wettimuny says that the enlightened monk as an individual can experience, in terms of bodily comfort and discomfort, what result is left to be experienced due to earlier residual karma.³⁴ When the monk's (physical) life is over, this karmic residue is exhausted. Hence, after enlightenment, which is mediated by the right brain, the reality of the left brain still persists and is superimposed over the reality that the right brain has realised through enlightenment. This dual state has been described as incomprehensible and difficult to imagine.

After the locus of awareness moves up all the higher energy bodies in parallel universes, in time, it confronts the final superposed event horizon and experiences the ‘full-void.’ Without thinking or willing it slips naturally into an ineffable empty-void. Leadbeater argues that it is somewhat misleading to speak of individual souls merging into the Great Soul. Every monad is fundamentally a spark of the divine. As he or she evolves, the spark evolves into a flame. He or she then becomes more and more conscious of his unity with the divine.³⁵

The divine is really, perhaps, the residual void in all of us. As we ascend, this void expands so that finally there is nothing but the void. Efforts are made to ‘exhaust’ all emotional and mental content from the higher energy bodies. If this is successful, when the physical bodies die, there will be no other universes (heavens or hells) to inhabit—freed from both Samsara (asymmetric reality or the spacetime continuum) and karma. Different beings make different choices—exposing them to different consequences.

The Experience of the Void

Paterson’s Experience

Alex Paterson described his ‘experience’ of the void. He says, ‘It has no actual form and as such was empty, yet paradoxically was so big as to be infinite; it was huge. It could not be defined in any terms of this reality, even to the extent that it had no actual presence even though I was intimately aware of it (a paradox). Thus there was no sound, no sight, no taste, no smell, no feel and no emotion about it, yet somehow I was fully aware of it.’³⁶

I had a sense it was pure awareness, devoid of experience and as such, just is. The void had no form or substance or presence and was everywhere yet nowhere.’ This experience provided me with an insight into the esoteric concept that God just ‘is,’ he says, and as such is everything comprising the universe (including humans), as well as the unmanifest infinite. ‘Being the unmanifest infinite, the void is simply beyond the limitations of time and space associated with the physical universe, which is why it cannot be adequately described in terms of this reality.’³⁷

We are the Universe Interacting with Our Self

Never do we imagine that the infinite must be all around us, that we are entangled within its ebb and flow. No man is an island, but rather part of a seamless whole. *We are all only the universe interacting with itself.* [Emphasis added.]

Stanislav Grof³⁸

Stanislav Grof says, 'When we encounter the void, we feel that it is primordial emptiness of cosmic proportions and relevance. We become pure consciousness aware of this absolute nothingness; however at the same time we have a paradoxical sense of its essential fullness. This cosmic vacuum is also a plenum since nothing seems to be missing in it. While it does not contain anything in a concrete manifest form, it seems to comprise all of existence in a potential form. In this paradoxical way we can transcend the usual dichotomy (the division into two; the binary split) between emptiness and form, or existence and non-existence. However, the possibility of such a resolution cannot be adequately conveyed in words; it has to be experienced to be understood.'

Grof says that people who have had the experience know they have encountered 'God.' However for most of them the term God does not adequately capture the depth of their experience, since it has been distorted, trivialized and discredited by mainstream religions and culture. 'Even the names like Absolute Consciousness and Universal Mind seem to be hopelessly inadequate to convey the immensity and shattering impact of such an encounter. Some people consider silence to be the most appropriate reaction to the experience of the Absolute, because it is obvious to them that those who know do not speak and those who speak do not know...' ⁷³⁹

Non-Manifestive Consciousness

At the superposed event horizon, dualities are suspended, cycles freeze. Passing the event horizon, into the perfectly symmetric void, there is no manifestation of any universe (contrary attributes cancel out). Manifestations occur only when symmetry is broken. In a perfectly symmetric 'consciousness' there is no manifestation of any objects or universes. In metaphysics we would observe that when the mind particle (the residual 'causal' body) disappears, the manifested universe disappears like a mirage. Relative to this perfectly symmetric consciousness only the void is.

According to metaphysical evidence, relative to external observers, the body of the individual will continue to manifest to them even after the mediator passes the event horizon and into the empty-void.

From the viewpoint of an observer outside the black hole, the particle asymptotically approaches the [event] horizon, but never crosses it. On the other hand, from the point of view of a freely falling observer accompanying the in-falling particle the horizon is crossed after a finite time. In fact nothing special happens to the in-falling matter at the horizon.

Daniella Bigatti and Leonard Susskind, Physicists ⁴⁰

The trajectory of the mind has been characterised as an asymptomatic spiral on its approach to Nirvana in Buddhist scriptures and commentaries. Sometimes, all it needs is a ‘nudge’ to fall into the full-void (analogous to the event horizon of a black hole); and then into the empty-void (analogous to the ‘interior’ of a black hole).

CHAPTER 14



Meditation & the Brain

According to Karl Pribram, a lesion in the temporal lobe near the amygdala can produce something akin to mysticism; there is a disruption in self-awareness, a kind of consciousness-without-content, an oceanic feeling and the loss of the distinction between self and the other.¹ While brain machines and drugs may be used in sophisticated ways more often in the future to shift reality modes, Eastern mystical traditions have resorted to various techniques, including viewing diagrams (or yantras), confronting puzzles over phrases that have no rational meaning (or koans), and mental and physical exercises which aim to produce a state of ‘no conceptualising while remaining fully awake.’ Another popular meditation method used consists of silently repeating or chanting a phrase (a ‘mantra’) over and over again, or of concentrating on one object and turning-off the normal internal talk, lessening the hold of the left brain’s verbal mode.

The aim of all these activities is to deactivate the verbal-conceptual association areas in the brain. Drugs have also been used to generate spiritual experiences in a religious setting. Presumably they cause similar changes in the neuronal activity of the brain as does meditative methods—although they may have negative side effects absent from traditional meditation.

Right Brain Good at Detecting Low Frequencies

The non-dominant right brain is much quicker and much more accurate at detecting very large waves of visual information (i.e. low frequency

information), whereas the left is much better at detecting the very short waves (i.e. high frequency information). The low frequency information is like a fuzzy but general outline, the high frequencies convey the details. The large waves form the fundamental background images of our world-view, such as the overall view of the body in space.

According to Ornstein, it could easily be that the two hemispheres process information through different kinds of filters and that in some way the left hemisphere has been tuned like a musical instrument to higher spatial and temporal frequencies and the right to slower ones. Eastern mystical traditions have encouraged listening to low (frequency) tones in chants and bells in temples—thus eliciting and encouraging responses from the right brain, he says.²

Meditation Changes Your Brain

Key parts of the brain actually get thicker during meditation. Brain imaging of regular workers who meditate regularly revealed increased thickness in cortical regions related to sensory, auditory and visual perception, as well as internal perception (for example, the automatic monitoring of heart rate or breathing). The study also indicates that regular meditation may slow age-related thinning of the frontal cortex. The research was led by Sara Lazar, assistant in psychology at Massachusetts General Hospital.³

‘What is most fascinating to me is the suggestion that meditation practice can change anyone’s gray matter,’ said study team member Jeremy Gray, an assistant professor of psychology at Yale. ‘The study participants were people with jobs and families. They just meditated on average 40 minutes each day; you don’t have to be a monk.’ The study involved a small number of people, just 20. All had extensive training in Buddhist Insight meditation. But the researchers say the results are significant.

Most of the brain regions identified to be changed through meditation were found in the right hemisphere. The researchers speculate that other forms of yoga and meditation are likely to have a similar impact on brain structure, but each tradition probably has a slightly different pattern of cortical thickening based on the specific mental exercises involved.⁴

Holistic Perception

The spiritual traditions are mental-training systems. Their own descriptions show a concern with a lessening of the verbal and conceptual approach to the world (associated with the dominant left brain) and do seem to encourage factors that involve the right hemisphere, according to Ornstein. They seek a deeper framework for the meaning of life; and the meaning of one’s life. This means that emphasis was placed in perceiving events in

aggregate.⁵ As noted earlier (see Chapter 1), whereas the left brain's attention is divergent, the right brain is convergent. The left brain sees the universe projected out from its self whereas the right brain sees the universe converging on its self. Hence, meditators focus lightly on a point to coerce the brain to go into a 'convergent right brain mode.'

(Saint) Theresa of Avila described two types of visions she received—one she called 'imaginary visions' which involved imagery and the second which she called 'intellectual visions' which were abstract. She tried to explain the distinction between these two types of vision by giving an example. She asks us to imagine that we are in a room in which are placed many objects. 'Though a person may not remember each object afterwards,' she says, 'he may recall the sight of the whole collection.' In other words, the intellectual vision was seeing things as a whole rather than by parts—a process normally associated with the right brain.⁶

According to neuroscientist, James Iaccino, Eastern religions and cultures emphasise right-modal thinking. He says that past research has shown that calm, restful right-brain alpha rhythms can be produced while inside the yogic meditative state.⁷

Dehabituation and Deautomization

Our ordinary brains 'tune out' in response to continual, repetitious stimulation.⁸ This habituation, according to Ornstein⁹ and Ashbrook¹⁰, seems to be a function of left-mode of thinking. However, yogis can respond to a series of repetitive stimuli at the same reaction level when not meditating.¹¹ Iaccino says that 'this dehabituation and deautomization process' can be learned. One technique that has proved useful in changing left brain dominance involves focusing attention onto a single object (e.g. a blue vase). With continual concentration on every feature of the stimulus, an almost hypnotic (sometimes mystical) state is achieved, in which a blanking out of the left brain's reality occurs. This is replaced by 'unity and oneness.'¹² 'After the subject re-enters the left reality, he or she will carry back some of those right-modal experiences and perceive everyday objects in an entirely new fashion,' says Iaccino.¹³

Bliss

According to Iaccino, right-moders usually overestimate good feelings and drastically underestimate experienced negative circumstances. The right style is claimed to polish perceptions to such a point that happy feelings will dominate over sad ones.¹⁴ Iaccino says that the holistic style attempts to present a more optimistic view of life (sometimes to the point of being irrational) for the express purpose of motivating individuals to live each

day completely and to the fullest.

States of Knowledge

William James believes that mystical states, though similar to emotional states, are also states of knowledge. They are ‘states of insight into the depths of truths or the gist of existence, unplumbed by the discursive conscious intellect.’ Meditation allows you to communicate with the intelligent unconscious.¹⁵

Battle between the Brains

Harman and Rheingold summarizing the perennial wisdom, say that the most essential part of the self is the ‘supraconscious’ not ordinarily accessible to conscious awareness. At higher states of consciousness there is awareness of participation in a transpersonal mind (or the ‘universal mind’); and of the oneness of all. The transient ego, threatened by the revelation, throws up smokescreens to block awareness of this supraconscious.¹⁶

This ego (which is associated with the dominant left brain) has been characterised as Satan or the Devil in conventional religious literature. The ego’s aggressive resistance against the transpersonal mind (accessible via the right brain) is not an exaggeration. The ego sees the other mind/brain in its midst as an enemy. Being intelligent (being the brain hemisphere you most frequently use in everyday life), it devises incredible traps and threats to recover its former glory in a dominant left brain.

The battle between the two minds/brains in our body can be quite real—as was illustrated in one of Roger Sperry’s cases of split-brain patients where one of the patient’s hand was holding a knife to kill himself but his other hand was trying to prevent it. Religious literature abound with stories of how the devil or the ego tries to thwart the upward climb of an aspirant to a more expansive and holistic awareness.

Deconstructing the Brain’s Reality

According to neuroscientist Antonio Damasio, when an image enters the brain via the visual cortex, it is channeled through ‘convergence zones’ in the brain until it is identified. Each convergence zone handles a category of objects (faces, animals, trees, etc.). A convergence zone does not store permanent memories of words and concepts but helps reconstructing them. Once the image has been identified, an acoustical pattern corresponding to the image is constructed by another area of the brain. This is the ‘form’ of the image. Finally an articulatory pattern is constructed so that the word that the image represents can be spoken. This is the ‘name’ of the image.

There are about twenty known categories that the brain uses to organise knowledge, including fruits/vegetables, plants, animals, body parts, colors, numbers, letters, nouns, verbs, proper names, faces, facial expressions, emotions and sounds.

According to Sensei, Buddhist meditation serves to deconstruct mental processes which we have developed during our lifetime. By reversing the process of constructing experience (which is basically what our brains do), meditation brings us into contact with the true nature of reality as it already and always exists.

As the breathing and mental activity (and the equivalent neuronal activity in the brain) become more regular and reduced, the meditator learns to disengage from external reality and the impact of sensations so as to bring awareness carefully to bear on the stream of consciousness. It is at this point that categorizations processes cease. We simply observe but make no attempt to categorize experiences that arise in the stream of consciousness. Awareness is reduced to a subtle flow of mental and physical events.¹⁷

When attention is sufficiently refined through training, all that is actually apparent from moment to moment is a mental or physical event and an awareness of that event. It is at this point in the process of meditation, in which the sense of our being an observer separate from the process of experience, begins to disappear. No longer is there a sense of observing experiences, just individual moments of experience. At this level of awareness, we develop the understanding of how the self is constructed in each moment as a relationship with an object of experience.

Eventually, with much practice, one observes the stream of consciousness as having an observable beginning, a duration and an observable end. In terms of information-processing theory, what the meditator is experiencing is the nature of perception prior to pattern recognition. This is the original 'bare experience.' There is no 'I' or object, past or future, only present experience. What the meditator has actually done, according to Sensei, is to reverse the key stages in the brain's representational process, which yields self and object representations only as the end products of a very long and complex reworking of stimulus information.¹⁸

'Hot' and 'Cool' Meditation

While certain types of meditation appear to have a greater effect on the arousal system... others [have] a greater effect on the quiescent system.

Andrew Newberg and Eugene D' Aquili ²⁰

Newberg and d'Aquili classify meditation into two types—active and passive meditation. In passive ('cool') meditation (or 'via negativa' approach) one simply tries to clear the mind of all thoughts and avoid direct sensory input. Attention is not focused. This blocks-off the verbal-conceptual association area as well as direct inputs from the senses—resulting in a cutting-off (or deafferentation) of the right orientation association area.

In active ('hot') meditation (via 'positiva' approach), the attention is focused on some (physical or mental) object. According to Newberg and d' Aquili, during meditation there is a strong inverse correlation between increasing activity in the frontal lobe (the area associated with focusing attention) and the orientation association area. The more subjects are able to focus during their meditation, the more they are able to block input into the orientation association area.²¹

Although, it is popular to classify meditative techniques as categorically passive or active, a number of meditative techniques, including Buddhist insight meditation, oscillate between the two types of meditation in a single sitting—although one of the two types of meditation will usually dominate over the other.

Insanity

Physicist John Taylor says that it is a good thing, for our own peace of mind, that we cannot explore other worlds directly. 'Meeting my identical twin in all things but his ability to fly or walk on the ceiling could give me quite a shock. It is better for all of us that these bizarre worlds in which "we" also exist are denied us.'²²

The danger of contracting insanity during advanced meditation has been pointed out in the relevant scriptures, by yoga masters and the like. Rajneesh says that we have not yet been able to differentiate religious madness from non-religious madness, so 'in America both of these types of cases are put in the same asylum.'²³ There are usually elaborate preparations for participants in advanced meditation. It is possible that schizophrenics and other 'mentally unsound' patients may have had encounters with beings from interpenetrating universes so different from ours that it causes a shock to their belief systems. It has also been observed that beings from parallel universes (in this case, what we call 'ghosts') have been startled by human attention. A confrontation with superspace would not only be bewildering; it can drive a person, who expects nothing but classical physical behavior, insane.

Superspace is the plethora of possible developments of the space in which we live. Some of them will send a normal human mad if they were experienced.

John Taylor, Physicist ²⁴

John Taylor warns us that we must be prepared for the instantaneous jump from one point of space to another if we want to understand how to penetrate and escape from superspace. 'Near the singularity of a black hole quantum effects will become important and the plenitude of worlds in superspace should begin to be experienced.'

Weak Measurements in Meditation

In most meditative techniques, the individual is taught to observe without any expectations. To relax the gaze and shift into a state of mind which is in equilibrium—neither attracted nor repulsed by any sensations. Unlike normal waking awareness which intensely measures the environment, the meditative mind observes but does not carry-out any strong measurements of the environment. This disentangles the mind from the environment—allowing it to slip into parallel universes or the void.

Switching Mental Gears in Past-Life Regressions

According to Peter Novak, an empty dark void is experienced in near-death experiences and past-life hypnotic regressions. In this void, the subject does not seem to sense the separate presence of anything else; no visible light, forms, body, emotion, issues, relationships, past, future, pressing needs or obligations or goals. No 'other' of any kind. There doesn't seem to be anything else except consciousness or awareness. In the dark void, the subject often experiences no sense of self at all.²⁵

In their book 'Life between Life' Joel Whitton (a neuropsychiatrist at the University of Toronto) and Joe Fisher quote their subjects as saying, 'in the inter-life there's no part of me I can see.' They describe the afterlife as a 'timeless, spaceless glide' through pure nothingness, a 'mysterious void between incarnations' in which identity, memory, and emotions are diminished. One of their subjects reported, 'I felt no fear and no loneliness, although I seemed to be alone.' Another subject, 'All cares and fears were left behind. Time and space were no more than a memory.' Other subjects reported, 'I'm walking in endless nothingness—no floor, no ceiling; no ground, no sky' and 'I'm not aware of being anywhere' and 'it's black.' The subjects of another past-life therapist, Roger Woolger, describes the dark void as follows, 'It's blank...dark...nothing. I find myself in a great aloneness. Nothing there, not even a sense of time.'²⁶

Visits to heavenly realms of light are often described sequentially. However, Whitton, who has performed hundreds of between-life regressions says that there is an ‘utter lack of temporal sequence’ in the realm in between lives. Woolger writes that more than 95 per cent of his subjects’ reports of the inter-life described this same peaceful void.

There is a disagreement among regression researchers about what occurs in the inter-life. Some find that the majority of their subjects only describe floating alone in an empty void. These subjects never catch so much as a glimpse of the ‘light stage’ during their inter-life—no heavenly realm of light or hellish realm of bewildered spirits. Others find that the majority of their subjects describe afterlife experiences inside the realm of light.

Light and Dark States

Novak says that there is some evidence that both dark (the empty void) and light (the manifestation of a particular universe) states are experienced by all past-life subjects. The only reason we hear of one of these stages being reported more frequently than the other may have more to do with the hypnotic commands of the therapist than with the actual experiences of the subjects.²⁷

In those reports where light is reported by the subject, the hypnotist usually uses a certain command to coerce or instruct ‘to move into the light’ or something similar. For example, when Dr Michael Newton’s subjects are regressed to a point in time in between lives, his subjects usually report finding themselves alone in the familiar dark void. However, when Newton commands the subject to ‘shift mental gears,’ to transfer awareness to a different mind, the subject does and is able to recall an existence in a particular higher energy universe. Novak is of the view that the dark and light states are occurring simultaneously and independently of each other.²⁸

Left and Right Brain Realities

This switching from a bright temporal state to a dark timeless state during past-life hypnotic regressions opens up the exciting possibility that hypnosis, besides traditional meditative or contemplative methods, can be used to ‘realise a timeless and spaceless void’ in a shorter time. It is possible that the bright temporal state is associated with left brain reality while the dark timeless state with right brain reality.

Hypnosis

EEG studies show that the hypnotic state is not a form of sleep. It is, in fact, a form of focused alertness, with increased attention in one area and

decreased or absent focus on other areas — much like the active (hot) meditative state of ‘one-pointedness.’ As noted earlier, according to Newberg and d’ Aquili, there is an inverse correlation between the attention association area in the brain and the orientation association area during active (hot) meditation. When the activity in the attention association area increases, there is a sharp reduction in activity in the orientation association area — which provides our orientation to this universe.

According to various researchers, when we are in hypnosis, we are able to get in touch with our subconscious mind (presumably mainly harboured in the right brain). Others have commented that hypnosis is the induction of a trance-like state during which the patient is in an *enhanced* state of awareness, different to sleeping. During a hypnotic trance the conscious mind (frequently associated with the dominant left brain) is suppressed and the subconscious mind (frequently associated with the right brain) is revealed. The left side of the brain is considered to be analytical and conscious. During hypnosis, this side of the brain is distracted, allowing the non-analytical, non-critical subconscious right-side of the brain to become more alert.

Hypnosis is a normal state of mind, one which most people go in and out of every day. It is not an unusual state of mind. You may not feel like you are in a trance or in hypnosis. For most people they simply feel relaxed. People who lose themselves in a movie, a book, or a day-dream are probably experiencing a mild form of self-hypnosis. In fact, all of us pass through brief periods of hypnosis every day: once when falling asleep (i.e. the hypnogogic state) and once again when waking up (the hypnopompic state). These states have already been noted to open up access to the intelligent intuitive unconscious (see Chapter 3).

There are significant changes in brain wave activity during these states. The brain’s waking state registers beta waves. However, just as you are going to sleep it changes to alpha and then to delta and theta in deep sleep. The alpha state is a very dreamy, pleasant state. During this time the mind is very open to visualisations and can create a rich sensory experience.

When you are watching a movie that you are engrossed in, driving down a long monotonous road, listening to music that captures a mood or engrosses you, you are in hypnosis. We experience the hypnotic state every day without being aware of it. When you are in a guided hypnotic trance session, or driving down the road in trance, you have an observer self, which is an actual part of you that is always aware and watching out for you. This observer self has been documented as a credible aspect of our mind that keeps us safe, even when asleep. This observer self has also been mentioned in the Surangama Sutra (see Chapter 2) and can be

associated with the right brain.

When done by an experienced therapist, hypnosis can be considered a form of guided meditation. Self-hypnosis can generate the same cognitive processes as meditative methods. It is no wonder that most persons undergoing past-life hypnotic regression also go through meditative states reported in the metaphysical and religious literature.

CHAPTER 15



Meta-Neurology

...even if there is a soul, our experience of whatever we mean by 'soul' must pass through the brain. The question is how we can show that the brain is what *mediates* all of our experiences.

Andrew Newberg and Eugene D' Aquili ¹

In the metaphysical literature higher energy bodies are mentioned and described. The model in the author's book 'Our Invisible Bodies' sees these bodies as liquid-crystal bodies composed of a magnetic plasma of super particles.² Hence, they are referred to as 'magma' (short for 'magnetic plasma') bodies. How does the brain in the physical biomolecular body interact with these higher energy bodies?

The Surangama Sutra states that 'In heavenly realms there may be seen similarities to light and darkness, and all other phenomena of this world, but that is because of the lingering memory of objects seen in this world. Under those heavenly conditions, you would still have to continue making distinctions between yourself and objects.'³ In other words, the discriminating consciousness (associated with our dominant left brain) is also present in higher energy bodies and their universes. Without it, no universe or body would manifest to primordial awareness.

The 'silver cord,' that is frequently mentioned in books on 'astral trav-

elling,’ operates as a communications cable—much like the corpus callosum in the human brain. While the corpus callosum connects the right and left brains, the silver cord connects one body-brain to another. In other words, activities occurring in the higher energy body-brains are also communicating with the brain in our biomolecular bodies. If this cord is severed or dissolved the activities of the brains in higher energy bodies will not be reflected in the physical-biomolecular brain or mediated by it.

The cognitive-sensory systems of higher energy bodies allow us to experience parallel universes with different spacetime signatures.

The Brain’s Invisible Superstructure

The Visible Brain

Vincent Gaddis, in his article ‘With Brain Destroyed, They Live and Think’⁴ has given many examples of persons, who, with their brains either partially or wholly destroyed, continued to live and think normally. Prof G W Surya reported of a case of a man who had been insane for many years then suddenly became normal just before his death. The autopsy revealed that there was practically nothing of the brain left in his brain pan. A pathological process had gradually destroyed and diminished the brain’s mass but the mystery of his return to normalcy remained unexplained.

Dr Gustave Geley reports a case of a young boy who died in full possession of his mental faculties, although, due to an active abscess, involving the entire cerebellum, this encephalic mass was completely detached from the bulb—which is a condition equivalent to literal decapitation. He has given many such cases in his books which lead to the conclusion that the full spectrum of consciousness exhibited by the biochemical brain does not originate there.

Lorber’s Work

Roger Lewin’s article is ‘Is Your Brain Really Necessary?’⁵ outlined the remarkable research conducted at the University of Sheffield by neurology professor, the late Dr John Lorber. When Sheffield’s campus doctor was treating one of the mathematics students for a minor ailment, he noticed that the student’s head was a little larger than normal and referred the student to professor Lorber for further examination. The student in question was academically bright, had a reported IQ of 126 and was expected to graduate. When he was examined by CAT-scan, however, Lorber discovered that he had virtually no brain at all! Ordinarily, the walls of the cerebrum are 4 to 5 millimetres thick. In this case, the student had less than 1 millimetre of cerebral tissue covering the top of his spinal column. He was suffering from hydrocephalus. Nevertheless, the Sheffield student lived a

perfectly normal life and went on to gain an honors degree in mathematics.

This case is not rare.

In a study of hydrocephalus sufferers carried out by the University of Sheffield, Professor John Lorber discovered that there is no relation between the volume of brain tissue and IQ. Of the 253 subjects in the study, 9 were found to have approximately only 5% of the normal amount of brain tissue. Despite this, 4 had IQ's of above 100, the national average, and another 2 had IQ's of above 126, while one of the subjects proved to be as intelligent as those studying him, he had a first-class degree in Mathematics.

Other Cases

Across the world, there are hundreds of cases of people with hydrocephalus. In this condition, cavities form in the brain that can be so large that they account for 95% of the brain's usual volume.

In 1970, a New Yorker died at the age of 35. He had left school with no academic achievements, but had worked at manual jobs such as a building janitor and was a popular figure in his neighbourhood. Tenants of the building where he worked described him as passing the days performing his routine chores, such as tending the boiler, and reading the tabloid newspapers. When an autopsy was performed to determine the cause of his premature death he, too, was found to have practically no brain at all. Professor Lorber has identified several hundred people who have very small cerebral hemispheres but who appear to be normal intelligent individuals. Some of them he describes as having 'no detectable brain,' yet they have scored up to 120 on IQ tests.

In 1996 in the US, a young boy, here referred to as James, was about to undergo a serious operation. James was only eight years old and suffered from a condition known as Sturge-Weber syndrome, which had caused the formation of abnormal blood vessels in the left hemisphere of his brain. As a result he was afflicted by regular epileptic fits and had a very low mental age; the only word in James's vocabulary was 'Mamma.'

In an attempt to rectify the problem, doctors felt forced to take drastic steps — they decided to remove the entire left side of his brain. The medical team knew that, since the left side of the brain controls the right side of the body, the operation to save James's life would also leave him partially paralyzed. What they did not expect, however, were the developments in James's condition which occurred soon after the surgery. Within weeks, James began to talk and, two years later, was close to reaching a normal mental age. Amazingly, the operation to remove an entire hemisphere of his brain appears to have cured him of his learning difficulties.

Such remarkable examples of adaptability are far more common than

we might think. In conflict with established medical thinking, there are literally hundreds of cases where people have either been born with an underdeveloped brain, or have had large areas of their brain damaged in an accident, but are still able to function normally.

Explanation?

Some scientists believe that the remaining cortex takes over the functions once provided by the removed cortex. However, this explanation cannot be carried too far. In some patients there is so little brain left, one wonders if this explanation is tenable.

There is cynicism on the question of the brain's spare capacity to take over the functions provided by the parts of the brain that have been removed or damaged. 'To talk of redundancy in the brain is an intellectual cop-out to try to get round something you don't understand,' says Patrick Wall, professor of anatomy at University College, London. Norman Geschwind, a neurologist at Boston's Beth Israel Hospital agrees: 'Certainly the brain has a remarkable capacity for reassigning functions following trauma, but you can usually pick up some kind of deficit with the right tests, even after apparently full recovery.'

Some neuroscientists, like Wall, say that, perhaps, we have underestimated the work of the deep sub-cortical structures. 'For hundreds of years neurologists have assumed that all that is dear to them is performed by the cortex, but it may well be that the deep structures in the brain carry out many of the functions assumed to be the sole province of the cortex.' Nevertheless, scientists have studied the sub-cortical structures. No scientist has any evidence that these sub-cortical structures in a normal brain can actually perform the cognitive functions currently attributed to the cortex. Instead of sub-structures we have to turn our attention to super-structures.

The Invisible Superstructure

One explanation is that the physical-biomolecular brain is supported by an invisible superstructure, composed of dark matter, which develops during life. Although there is much indirect evidence of the existence of dark matter (it is mentioned in every current textbook on physics and is estimated to contribute to more than 80% of the matter of the universe), current scientific instruments are unable to detect it directly.

It had been noted previously that children who have undergone brain removal at an early age develop more or less normally (see Chapter 1). Adults have a harder time coping. It was also found that the instances in which brain loss do not interfere with normal life are cases where the condition

develops slowly. Gross surgical lesions in rat brains are known to inflict severe functional disruption, but if the same damage is done bit by bit over a long period of time, the dysfunction can be minimal. Just as rat brains appear to cope with a stepwise reduction of available hardware, so too do human brains in some cases of hydrocephalus. This time delay allows invisible superstructures of higher energy matter to form and link to the remaining visible structures.

The Biomolecular Brain – A Dumb Terminal?

It is true that some conscious experiences are associated with particular activities in particular parts of the brain. Modern scanning techniques show how particular parts of the brain ‘light up’ when particular mental activities are going on. But it is also true that the pictures on the screen of the television set and the sounds coming from the speakers depend on the patterns of electrical activity inside the receiver. It is also true that different parts of the electrical circuitry are involved in the production of images and sounds. But this does not prove that everything you hear and see on television originates inside the receiver.

Rupert Sheldrake ⁶

The brain merely acts as a mediator or a switchboard between higher energy bodies and its environment—or like a semi-intelligent computer terminal connected to an invisible universal supercomputer which carries out the more advanced mental functions. The access to the supercomputer’s processing power and memory by the biochemical brain is of course constrained by its own ‘hard and software.’ Many of the advanced cognitive functions take place in the brains of higher energy (electromagnetic) bodies. The biomolecular brain merely acts as a mediator. What we see in the cortex are ‘hyperlinks’ or ‘shortcuts’ (to use computer terminology) to the brains in higher energy bodies. It is easier to ‘cut and paste’ links from one folder to another on your computer rather than to move entire files.

In other words, there is a transfer of ‘links’ from the cortex to the remaining parts of the brain that remain—not whole functions. Medical science is right in pointing out that plasticity may be the key to understanding these cases of brain loss. However, the evidence shows that this cannot be a substantive plasticity but a superficial plasticity which simply relocates the links to invisible higher energy body-brains. Metaphysicist Charles Leadbeater notes that there are ‘wires of communication’ between

the biomolecular brain and higher energy brains.

Brain Lateralisation and Higher Energy Bodies

Metaphysicist Barbara Brennan (a former NASA scientist and now a ‘subtle energy healer’) observes that the higher energy bodies alternate between structured and structureless bodies. The structured (or crystalline) body is associated with a ‘mental’ body; and the structureless (liquid or fluidic) body an ‘emotional’ body.⁷ The nature of these bodies has been discussed in detail in the author’s book ‘Our Invisible Bodies.’⁸

Leadbeater points out that every part of our (biomolecular) brain is mapped onto these higher energy bodies.⁹ If that is so, then there must be a correlation between the alternate mental and emotional bodies described by Brennan (and in general, the metaphysical literature); and the left and right brains, respectively. The evolution of brain lateralisation in life-forms on Earth (including human beings) allowed these life-forms to access the processing capabilities of higher energy body-brains in parallel super universes.

Alternate higher energy bodies undertake cognitive processes corresponding to the left and right brains. This means that when neural activity is shifted from the left to the right brain, or vice-versa, different higher energy bodies are activated.

The fact that different brain activities are localised in the left and right hemispheres of the brain in a consistent manner has already been discussed in this book. Studies of split brain patients show that the localisation may be so pronounced that the two hemispheres are seen to represent almost two different persons living in a single body! The two minds (or persons) can even have different opinions about people and things. We also now realise (with some astonishment) that the structure of our brain has a profound effect on our post-mortem states.

Post-Mortem States

Brennan identifies four ‘physical bodies’—the physical-biomolecular, with which we are familiar; and three other ‘physical-etheric’ bodies. The first is a ‘template body.’ The second and third are the emotional and mental bodies; which correlate with the right and left brains, respectively.

According to the metaphysical literature, during the death process (of the physical bodies), the mental body dissolves and contracts into the ‘physical-etheric nucleus’ around the heart region. It then travels through a meridian (which would appear to it to be a tunnel) in the template body and exits out of the head. It will subsequently be absorbed by the next higher energy body (effectively reincarnating into a new body).¹⁰

The physical-biomolecular body and the template body (which is closely integrated with it) will then start to disintegrate. So what happens to the emotional body (which is mapped onto our right brain)? If it does not dissolve, it will 'loiter' in familiar places and subsequently be attracted to places where other similar bodies (with similar resonant frequencies) congregate.

Hence, during the death process, there is a 'division of consciousness' as evidenced by the separation of the emotional body (which correlates to right brain awareness) and the mental body (which correlates to left brain consciousness). This has been reported by Peter Novak in his book, 'Division of Consciousness,' and is consistent with the metaphysical and religious literature. Novak describes the emotional body as the 'soul'; and the mental body as the 'spirit.'

Emanuel Swedenborg (the seventeenth century mystic) claims that following the post-mortem 'life-review,' a person's conscious mind (correlated to the left brain) separates from the 'unconscious' mind (correlated to the right brain), and thereafter the unconscious soul enters into heaven or hell. Novak says the conscious spirit then reincarnates into a new body.¹¹

Dr Fredric Schiffer says that one of the most important findings of split-brain research is that each hemisphere of the brain has a mind of its own. He hypothesises that in many people, one mind may be less mature and more disturbed by past trauma than the other.¹² Similarly, when the mental and emotional bodies of the physical-etheric ensemble go their separate ways, they may behave very differently from each other.

The 'unconscious' emotional body, separated during the death process and correlated to our right brain, will exhibit characteristics which will be similar to a left-brain damaged patient or the person in the right brain of a split-brain patient. (And conversely for the 'conscious' mental body). The study of these split-brain patients would therefore throw much light on the behavior of our post-mortem minds which are separated—including dysfunctional spirits and ghosts.

The Unconscious Component (i.e. the Emotional Body) on Separation

If a person had lived a life which brought peace and joy to his inner soul, according to Swedenborg, at death the unconscious would, upon condensing, find these attributes to be its essential nature; and would enjoy a heaven-type experience. Conversely, the unconscious would suffer a hell-type experience.

According to Novak, due to its absolute isolation from all outside stimuli, emotions would come to fill the entire field of awareness of the emotional body; and so would be felt on an absolute level of intensity. And once parted from the conscious half, it would lose all capacity for objective, rational

thought; unable to think clearly, it would be doomed to remain in whatever automatic, subjective, emotionally-based patterns it had forged during life. Having lost the capacity for intelligent decisions, the unconscious would find itself frozen in form, permanently holding whatever opinions, psychological habits, and unresolved emotional complexes it possessed at the moment of death. And since the unconscious is emotionally-oriented, it would focus intently and feed blindly on the emotional content it has built-up over and over again.

If its judgments of its memories were self-approving, the corresponding emotional experience would be absolute, unending, ever-increasing joy; but if those judgments were self-condemning, the emotional responses would be absolute, unending, ever-increasing misery.¹³

According to NINDS (National Institute of Neurological Disorders and Stroke, US) neuro-psychologist, Paul Fedio, the brain's two hemispheres normally work in tandem to judge emotions around us so we can make the right response. The right brain functions like radar, scanning for the blip on the screen—signs of negative emotion or danger—and alerts the left side. (This ability is what may be sometimes called the 'EQ.') The left hemisphere analyses the situation, determines the risk, and formulates a logical strategy. 'But in our research,' Dr. Fedio continues, 'we found that with damage to the left brain, the right brain becomes over-stimulated and runs out of control. The patient becomes anxious, pessimistic, and tense.' (A description that could easily fit some dysfunctional ghosts.)

We know that processes in the right brain (normally associated with the 'unconscious') are unintentional and is automatically cued. There is an absence of personal 'will' and intentionality. We also know that these processes are common to all mammals. The processes in the left brain (normally associated with the 'conscious'), on the other hand, are normally described as 'intelligent,' purposeful and intentional—an exercise of free will and individuality. These processes are unique to humans over age two and perhaps some language-trained apes.

According to Leadbeater, the essence of the higher energy bodies of (generally unconscious) animals goes back to a group-soul, after a short stay in the higher energy 'astral' world.¹⁴ Similarly, the essence of the higher energy body representing the unconscious portion of the human being joins a group-soul, after a short individualised existence. The unconscious (even in a living human being—as represented in the right brain) is not as individualised as the conscious component (as represented by the left brain). (The rate of development of the two brains, as pointed out by Dr Schiffer above, can be quite different.) The sense of a separate identity and self-concept emanates from the discriminating left brain.

Since the higher energy emotional body is a magma (magnetic plasma) body; and because magma bodies with similar physical properties naturally come together, all these non-individualised emotional bodies would gradually be attracted to each other and slowly coalesce and, in time, evolve into demonic or divine archetypes within the collective unconscious.

The Conscious Component on Separation

In leaving the dying body, the conscious (i.e. the mental body in Brennan's model) will also be separated from its unconscious. It would be struck with amnesia, with respect to the type of memories associated with the right brain. The left brain is responsible for the encoding and recall of verbal, temporal-sequential, and language related memories, whereas the right brain is dominant in regard to visual-spatial, non-verbal, and social-emotional memories. Each brain 'stores' in its memory the type of material that it is best at recognising, processing, and expressing.¹⁵ Even before death, when one brain learns, has certain experiences, and/or stores information in memory, this information is not always available to the other brain; one brain cannot always gain access to memories stored in the other brain.¹⁶

According to Novak, in the post-mortem state, without the unconscious subjective perspective, the conscious would not feel related or connected in any way to the world around it. In fact, it would not experience any feeling or emotion whatsoever.¹⁷

Completing the Picture

Novak's theory of a division of consciousness summarizes religious and metaphysical literature over several centuries. It has brought into prominence the post-mortem division. However, it is incomplete. It appears to address only the split of bodies at the lowest rung of the energy ladder.

The higher energy groups of bodies which succeed the physical bodies also alternate with mental and emotional bodies. As each ensemble of bodies (with their emotional and mental components) 'dies,' the mental and emotional bodies go their separate ways. The splitting between the 'soul' and the 'spirit' (as explained in Novak's book 'Division of Consciousness') may be seen as the lowest *horizontal* division. It is not a split between all the mental and emotional bodies in the whole spectrum of higher energy bodies. Each ensemble of higher energy bodies also *vertically* divides during the death process. For example, the physical bodies vertically divide from the higher energy bodies during the death process of the physical bodies.

Novak observed curiously (in contradiction to his theory) that 'apparitions and visitations of the recently dead, often reported by family members shortly after the death, suggest that such souls are not suffering from

any after death division at all. These visitors from the next world seem to have all their wits about them; with functional minds, logic, memories, and senses of identity still intact. These souls have apparently not experienced the division predicted by the BSD [Binary Soul Division].'

He then asks, 'The question is, have they permanently avoided it [i.e. the division], or has it not just caught up with them yet?' The answer, based on the broader theory found in traditional metaphysical theories, is 'both.' The split did occur. However, further splits will occur as each higher energy ensemble (also consisting of mental and emotional bodies) 'unzips' and dies.¹⁸

Contents and other structures, or even whole bodies, that cannot not be integrated with the ensemble of higher energy bodies which are seeking to go to a higher plane or sphere are expelled as soul fragments. They may be considered left-over products—which have other uses in the wider scheme of things. The unconscious fragments that were left behind are now not supported by higher intelligence. They are known variously as 'shades' or 'shells' in the metaphysical literature and have been written about extensively by Leadbeater.

Shades and Shells

Novak should distinguish between what is commonly called 'shades' (which are debris discarded by the rising locus of awareness) in the metaphysical literature with fully living souls (with the spirit still invigorating it).

Leadbeater says that in the course of his physical life the ordinary man usually entangles himself so much in (dark) astral matter (in other words, that he identifies himself so closely with desires associated with lower frequency bodies) that the in-drawing force of the higher energy bodies and consciousness cannot entirely separate him from it again. Consequently, when he finally breaks away from the lower frequency (astral) body and transfers his activities to the higher frequency (mental) body, he loses a little of himself - leaving a remnant of himself in the lower frequency body. 'This gives a certain remnant of vitality to the astral corpse, so that it still moves freely in the astral world, and may easily be mistaken by the ignorant for the man himself,' he says.

Such fragmentary consciousness, says Leadbeater, still retains a person's memories, but is only a partial and unsatisfactory representation of the person. Since the higher consciousness has been withdrawn, 'there is no further development to the memories' in these macroscopic bodies—they are repeatedly played out—and the bodies appear as automata. It's as if the user had left and the computer just keeps re-executing a program from its memory. Leadbeater describes the abandoned astral

corpse with fragmentary consciousness and memories a ‘shade.’¹⁹ (Novak himself describes the ‘unconscious souls’ as ‘discarded’ unconscious minds.²⁰)

At a later stage, Leadbeater says, even this fragment of consciousness dies out of the astral body (due to increasing entropy). It does not return to the higher energy bodies and consciousness to which it originally belonged as Novak implies (just as matter belonging to a physical corpse is abandoned to the processes of Nature). When the astral corpse remains, but without any trace of its former life, Leadbeater describes it as a ‘shell.’²¹

Influence of Resurrection Theories

Novak’s theory implies that the discarded fragments (which are in reality corpses animated by residual energy—like inanimate objects which have picked up some electrostatic charge) should reunite again with the main body. This is similar to certain Christian resurrection theories—where a resurrected physical (primate) body is reunited with its owner.

Eastern religious theories, on the other hand, encourage the abandonment of these bodies, which they call ‘sheaths’ or ‘koshas’ to liberate the divine spark (or divine void) from being trapped in manifested universes. Further encasements in bodies or memories would be detrimental to liberation.

As explained in the author’s book ‘Our Invisible Bodies’¹⁴, the vibratory signatures of the stored incoming particles (i.e. the former nuclei of higher energy bodies) eventually generate higher energy emotional and mental bodies which are identical in composition to the previous bodies (just as DNA can be used to create a clone of the original). In other words, a body similar (but not the same body)—a clone—is ‘resurrected’ using stored vibratory signatures.

Resurrection or Reincarnation?

This also means that while memories (in the form of the unconscious emotional bodies) are abandoned by the ‘ascending spirit,’ they are stored in particles which continue to be linked to the spiritual body. In fact, it is also these stored memories (or *samskaras* in Hindu and Buddhist literature) that results in the dreaded cycles of births and deaths. Therefore, there is actually no urgent need to integrate with broken (macroscopic) soul pieces or fragments from the Eastern religious point of view; as what is implied in Novak’s and similar theories which lean towards the Desert religions.

The particles (particularly the lower energy particles) have been observed to eject from the head of a dying person by metaphysicists and even ordinary persons.²² Memories become dormant in particles stored in higher

energy bodies after they are ejected. They are activated in the next downward cycle to reincarnation to produce similar bodies using new materials, rather than regenerating the old bodies. Similarly, every time an individual reincarnates in a physical body, through the operations of DNA (and its invisible superstructures), a resurrection of a new physical body takes place.

CHAPTER 16



Universal Brain-Mind

The brain is chemically controlled, and experience has shown that it can be made permeable to the superfluous aspects of Mind-at-Large by modifying the normal chemistry of the body.

Aldous Huxley¹

Aldous Huxley is convinced that the function of the brain and nervous system and sense organs is in the main *eliminative* and not productive. 'Each person is at each moment capable of remembering all that has ever happened to him and of perceiving everything that is happening everywhere in the universe,' he says. The function of the brain and nervous system is to protect us from being overwhelmed and confused by this mass of largely useless and irrelevant knowledge, relative to his functioning in the current universe (actually just this small planet). In this way, the normally functioning brain acts as an inhibitor of certain types of experiences.

A person under the influence of mescaline or lysergic acid will stop seeing visions when given a large dose of nicotinic acid. Another inhibitor of visionary experience is ordinary, everyday, perceptual experiences.

Aldous Huxley²

A Gigantic Multi-Tiered Electronic Brain

It is interesting to note that the higher energy (super) universes which are composed of magnetic plasma and filaments punctuated with galaxies resemble nerve fibers punctuated with neural cells in our brains.³ These universes can operate as the many layers of a gigantic electronic brain (analogous to the cortex and sub-cortex in our biomolecular brain) inside which our own super magma brain-bodies live and think. The filamentary structures carry current—just as nerves (to some extent) do. It would not be difficult to incorporate logic gates and arithmetic units in these structures.

The computational power required to generate a tiny living ant, which responds to multiple inputs from the environment and with its unique structure and behavior, would be challenging even to our current supercomputers. Considering that there are maybe trillions of life-forms on this planet alone, only the computational power of a series of higher energy universes would suffice. This is the source of ‘universal intelligence’ and creativity.

Things and Information

According to Science Reporter J R Minkel, in his article ‘If the Universe Were a Computer,’ information theory says that every physical system, from a glass of water to a microchip, holds 1s and 0s in the states of its component particles. Changes in those states could be called ‘computation,’ just as your desktop machine computes by changing the information in its memory.⁴ von Baeyer says that (Anton) Zeilinger’s conceptual leap is to associate bits with the building blocks of the material world. The only possible outcomes of measuring an electron’s spin are ‘up’ and ‘down.’ You can choose any axis to measure the spin along—vertical, horizontal or tilted—but once that axis is chosen only the two results are possible. These outcomes could just as well be labeled ‘yes’ and ‘no,’ or as in digital computers, ‘1’ and ‘0.’⁵

According to Seth Lloyd in a paper called ‘Computational Capacity of the Universe,’ all physical systems register and process information. The laws of physics determine the amount of information that a physical system can register and the number of elementary logic operations that a system can perform. The universe is a physical system and the number of elementary operations it has performed to-date has been calculated to be 10^{120} operations on 10^{90} bits.

Computational Power

Erica Klarreich reports in the journal ‘Science News’ that plants may perform what scientists call distributed emergent computation. Unlike traditional computation, in which a central processing unit carries out programs,

distributed emergent computation lacks a central controller. Instead, large numbers of simple units interact with each other to achieve complex, large-scale computations. Many biological systems appear to carry out this type of distributed computation—for instance, ant colonies, nervous systems, and immune systems.⁶ Steven Levy asks, ‘From a single seed and a set of rules, structures that amazingly resemble natural snowflakes emerge on the computer screen. They are so similar to natural forms that they raise a question: Does nature generate its own complex forms by a like mathematical process?’⁷

Intelligent Animal Behavior

If the intelligent unconscious can intervene in our consciousness and life processes (as discussed in Chapter 3) is it not also possible that this could account for its intervention in Nature? How does a bee construct its mathematically precise honeycomb, how does a spider spin an intricate web, how does a badger construct its dam? Given that the consciousness of these animals may not have evolved into self-consciousness to a degree evidenced in human beings, it is possible that they are harnessing the intuitive and computational powers of their brains (which are normally associated with our right brains).

Animals do not verbalize but most large animals can visualise. They do not generally analyse (left brain-wise) but they intuitively find solutions to locate food and ward-off predators. There are many cases of animal intelligence. Yet the main reason why they are not considered intelligent is because they have not evolved language. But is left-brain type of intelligence (associated with language) the only type of intelligence?

Animals may be largely intuitive in executing intelligent operations. Of course, we prefer to describe it as ‘instinctual.’ But instinct is just the bottom rung, emotion the middle rung, and intuition the top rung on the ladder of unconscious intelligence.

Karmic Calculator

You will never get out until you have paid the very last penny.

Saying attributed to Jesus (of Nazareth)⁸

Accountability is a fundamental concept in many religions. In Eastern philosophies, this concept is given the name ‘karma.’ Karma, from individuals to groups of living beings, may be similarly generated in a highly detailed computational process—where all parts of the universe are involved. Karma is a fundamental conservation law—every part of the universe is

accountable to the rest of the universe—and the whole multiverse is moving towards greater symmetry and entropy—consistent with the Second Law of Thermodynamics.

We ‘r’ Us—Our Shared Brain

Harman and Rheingold believe that the research on remote viewing suggests that ‘the creative/intuitive mind could be getting information in ways other than from the lifelong learning of the person. Research on telepathic communication suggests that we are all joined at a deep level; research on psychokinesis indicates a connection between mind and the external environment.’⁹

Information Fields

Rupert Sheldrake says that he sees minds as being ‘field-like’ and ‘mental fields’ as the basis for habitual patterns of thought. Mental fields go beyond, through, and interface with the electromagnetic patterns in the brain. In this way mental fields can affect our bodies through our brains. ‘However, they are much more extensive than our brains, reaching out to great distances in some cases,’ he says.¹⁰

The higher energy universes have enormous computational power. Autistic savants and the greatest scientists, including Einstein, have this ability to tap into these universes. There is sympathetic resonance between similar thought forms so that they cluster and form ‘databases.’ These thought-forms can be considered ‘morphic fields’ which are generated and retained in the higher energy universes for some time. Nevertheless, although similar thought-forms can influence and facilitate the final structure of the life-form, they do not determine it—as what is being suggested by Sheldrake. (What determines the forms are the bioparticles in each body; in the case of the biomolecular body, this is the DNA molecule).

The Earth’s higher energy magmaspheres, while having its own memory, serves at the same time as a storehouse of all thoughts generated on Earth. The Earth’s memory store can be accessed through what many metaphysicists call the ‘Akashic records.’ Nevertheless, since all physical objects have their dark matter counterparts, larger mental bodies and storehouses of memories exist at the level of the Solar System, the galaxy, clusters of galaxies, the universe and the multiverse as a whole.

Global Memory

In 1908 Leadbeater explained that there is an affinity between any particle of matter and the record which contains its history—an affinity which enables it to act as a kind of conductor between that record and the faculties

of anyone who can read it. The scenes through which we pass in the course of our life seem to act in the same manner upon the cells of our brain through which our mind is put en rapport with particular portions of ‘the (Akashic) records.’¹²

From the 1930s onwards, Wilder Penfield developed a surgical procedure for epileptics, involving the use of a local anesthetic to open up and operate on a patient’s exposed brain while the patient remained fully conscious. This enabled Penfield to perform remedial treatment and at the same time use the opportunity to map out the functions of different areas of the brain cortex. When he applied his electrode to the patient’s temporal lobe, the patient began to describe a complete flashback to an episode from earlier in his life. The scenes always moved forward, and only forward—and never still. If music was involved, this followed the precise original tempo; the full score of which the patients would be able to hum with total accuracy—much as an autistic savant would be able to reproduce music with a high accuracy—almost like a recording machine. The temporal lobe has also been implicated in near-death experiences. It appears that cells in the brain are ‘hyperlinked’ to some non-local memory like the Akashic records. Some scientists like to think of records being mirrored in the zero point field:

If all subatomic matter in the world is interacting constantly with this ambient ground-state energy field, the subatomic waves of the [zero point] field are constantly imprinting a record of the shape of everything. As the harbinger and imprinter of all wavelengths and all frequencies, the zero point field is a kind of shadow of the universe for all time, a mirror image and record of everything that ever was.

Lynne McTaggart, *Science Reporter*¹³

Records imprinted on the zero point field are the ‘Akashic records’ of metaphysicists. This forms the ‘memory’ of the universal brain-mind.

According to Leadbeater, if the observer is not focusing on them, the records simply form the background to whatever is going on. Under such conditions they merely reflect the mental activity of a greater consciousness on a far higher plane¹⁴—which is accessible to us. We are in a sense living in a much larger brain. This suggests that we use the shared (information processing) services of a much larger brain with other human beings. Observing the dynamic and visual Akashic records would be like watching the larger brain’s movie from a distance. As you move closer and focus on what is going on in a particular scene, you are immediately in the

scene, surrounded by all the characters.

The characters of course cannot see you. Neither can you change anything in the scene. In this way, a person can time travel as an observer, without violating causality. What you are seeing is in the past—and sometimes in the future (our past or future is relative to our frame of reference). Nevertheless, the rate at which ‘the story unfolds’ can be altered. Leadbeater warns that the Akashic records must not be confused with mere man-made thought-forms, which exist in abundance in the higher energy planes or spheres.¹⁵ It is possible that if the right brain is not shielded effectively from the usually dominant left brain (the ‘theory maker’) many errors will arise when reading the records.

Brief History of the Akashic Records

The Akashic records or ‘The Book of Life’ can be equated to the universe’s super computer system. It is this system that acts as the central storehouse of all information for every individual who has ever lived upon the Earth.

Kevin Todeschi,
Cayce Scholar

The ‘Akashic records’ was a term coined by the Theosophical movement (which originated in the 19th century) and referred to a universal filing system which records every thought, word, and action. These records are embedded in the ‘Akasha’—which is the Sanskrit word for ‘sky’, ‘space’ or ‘ether’. The records are said to have existed since the beginning of Creation. Some describe these records as similar to a Cosmic or collective consciousness. The records have been referred to by different names including the Cosmic Mind, the Universal Mind, the collective unconscious, or the collective subconscious. The Akashic records resemble a library and has also been compared to a universal computer (some have described it as the ‘Mind of God’). There are various databases covering different subjects.

The ‘Akashic records’ and ‘Universal Mind’ have also been referred to at various times and places as the ‘Hall of Records’ and ‘Hall of Knowledge’. Different people, at different times, in different ways, to different degrees are and have been able to access the Akashic records; apparently accessible via our subconscious mind. Some writers believe that free from and independent of all religions and faiths, there exist many libraries or record repositories such as the Akashic library throughout the universe; on various planes of existence. It is a complete and thorough record of everything

that has ever occurred, including the thoughts and feelings of every individual, all through time.

The well-respected Australian metaphysicist Robert Bruce defines the Akashic records as ‘an infinite, never-ending, inter-dimensional, energetic echo field, containing perpetual echoes [similar to the zero point field] generated by each and every act of consciousness, in energetic form. [Different] levels of the Akashic records can be accessed and perceived [or viewed] in various ways during an out-of-body experience, with the most common being the traditional “library” scenario.’ Bruce considers the records to be an energetic medium as opposed to the common belief that the records are a structured ‘esoteric repository’.

Some who believe in the records claim that they were used by ancient peoples around the world, including the Indians, Moors, Tibetans, Egyptians, Persians, Chaldeans, Greeks, Chinese, Hebrews, Christians, Druids, and Mayans. The belief is that the ancient Indian sages of the Himalayas knew that each soul recorded every moment of its existence in a ‘book,’ and that if one attuned oneself then one could read that book. In Egypt, it is said, those who could read the ‘Akasha’ were held in high standing and were often found advising Pharaohs on daily activities and dream interpretation. A Chinese seer named Sujujin was reported to need only the first name of anyone to access the records and describe their life history; another Chinese seer, named Tajao, explored a variety of topics in the records which span over two thousand years. The Bible mentions the records as a ‘Book of Life’ on several occasions, both in the Old and New Testaments.

The first reference in the Scripture to some mysterious book is found in Exodus 32:32. After the Israelites committed a most grievous sin by worshipping the golden calf, Moses pleaded to God on their behalf, even offering to have his own name struck ‘out of thy book which thou hast written’ to compensate for the wrong-doing. Later, in the Old Testament, we learn that there is nothing about an individual that is not known in this same book. In Psalm 139, David makes reference to the fact that God has written down everything about him and all the details of his life—even that which is imperfect and deeds which have yet to be performed.

It was believed that the Druid cultures of England and Wales demonstrated the ability to access the records. The famous seer Nostradamus was claimed to have gained access to the records. Rudolf Steiner, the Austrian-born philosopher who lived up to the early twentieth century, and founder of the Anthroposophical Society, possessed the ability to perceive information beyond the material world: a ‘spiritual world’ which was just as real to him as the physical world was to others. When asked about the source of

his information, Edgar Cayce, the renowned clairvoyant (who died in 1945), replied that there were essentially two: The first was the subconscious mind of the individual for whom he was giving the reading and the second was the Akashic records.¹⁶

Records Etched in the Fabric of Reality

Einstein displaced the theory of the ether with his 1905 Special Theory (of Relativity) and then resurrected the concept with the idea of a spacetime manifold in his 1915 General Theory (of Relativity). Based on a modern interpretation (and a simple substitution of terms) the Akashic records would be said to be written on this spacetime manifold. In fact, Edgar Cayce said just that:

Upon time and space is written the thoughts, the deeds, the activities of an entity—as in relationships to its environs, its hereditary influence; as directed—or judgment drawn by or according to what the entity’s ideal is.

Edgar Cayce¹⁷

When Cayce was asked to explain what was meant by ‘The Book of Life’ he replied that it was, ‘The record that the individual entity itself writes upon the skein of time and space...’¹⁸ World-renowned Cayce scholar Kevin Todeschi says that ‘The Edgar Cayce readings suggest that each of us writes the story of our lives through our thoughts, our deeds, and our interactions with the rest of creation’—echoing Lynne McTaggart’s description of the dynamic interaction of the universe with the zero point field.

Accessing the Records

Every human being contributes and has access to the Akashic records. Various techniques (e.g. yogic breathing and visualisations) can be employed to quiet the mind to achieve the focused, preconscious state necessary to access the records. The Akashic records are said to be visible and are often compared to seeing a full color movie with a plot and characters. When viewing the future, the events are known, but the responses are only probable. Based on an individual’s responses in the past, the Akashic seer or reader can investigate probable future responses and give the highest future probability; including witnessing several alternate endings to the main characters in a movie. At some point in the evolution of the Akashic reader, however, a state of unification and awareness can be achieved in which even the future responses are known with absolute clarity instead of only as a probability.

It is believed by some that the events recorded on the Akashic records can be ascertained or read in certain states of consciousness—which can be induced by certain stages of sleep, weakness, illness, drugs, and meditation—so not only mystics but ordinary people can and do perceive the Akashic records. It is believed that the Akashic records make clairvoyance and psychic perception possible. Some psychics who do past life readings claim to receive their information from the Akashic records. Forensic psychics, who assist the police in investigations, appear also, quite frequently, to be accessing these records. We also have the ability to access the records in our dreaming state. The information received in precognitive dreams (clairvoyant dreams relating to an event or a state not yet experienced) is often said to be ultimately derived from the Akashic records.

Certain persons in subconscious states do read the Akashic records. An explanation for this phenomenon is that the Akashic records are the macrocosm of the individual subconscious mind. The intuitive mind (associated with the right brain) of the individual acts as a bridge between the discriminating mind (associated with the left brain) and the Universal Mind (as noted in the Lankavatara Sutra, see Chapter 2). The collective subconscious includes a network of subconscious minds which can be read by other subconscious minds. Someone who meditates regularly, over time, learns to restrain mental activities in the conscious mind (often associated with the left brain) and to go deeper and deeper within the subconscious mind (which is often associated with the right brain) until it merges with the ‘bedrock’—the Universal Mind. There he begins to be able to perceive this universal knowledge. Instead of being limited to information and experiences that are accessible from the biomolecular brain he or she now has an expanded consciousness (and effectively using a larger brain) that is capable of receiving the accumulated knowledge of millions of people over thousands and tens of thousands of years.

Edgar Cayce did his readings in a sleep state or trance. Dr Wesley Ketchum described Cayce’s method: ‘Cayce’s subconscious...is in direct communication with all other subconscious minds, and is capable of interpreting through his objective mind [normally associated with the left brain] and imparting impressions received to other objective minds, gathering in this way all knowledge possessed by endless millions of other subconscious minds.’ Apparently Cayce was interpreting the collective subconscious mind long before the psychiatrist C G Jung postulated his concept of the collective unconscious, according to Dr Daniel Condron.¹⁹

Access to the Akashic records will differ from person to person. It may often be presented as a library of books, one single book; images on a television or movie screen, or perhaps even on a computer. They are not

actual books or scrolls, though many people see them as such when they access them, but they are actually energetic vibrations that are translated into these images and forms to make it accessible to our consciousness.

Modes of Access

According to Max Heindel's paper on the 'Memory of Nature', the Akashic records may be read in different modes. In the lower energy 'etheric plane' there are pictures of all that has happened in the world—at least several hundred years back, or much more in some cases—and they appear almost as the pictures on a screen. In order to see an event unfolding in 'everyday sequence' (with the arrow of time pointing forward), Heindel advises us to rewind to a point in time before the event we are interested in. Then the scenes will roll forward in orderly sequence (just as Penfield's patients saw the scenes moving forward) until we come to the episode we are interested in.

In a 'higher world' the 'Memory of Nature' is read in an entirely different manner; covering the essence of a whole life or event. For example, if we concentrated our thoughts on the historical Martin Luther, we will call up in our mind at one flash the whole record of his life. There will be neither beginning nor end, but we shall obtain at once the essence of his whole existence. Heindel explains, 'Neither will this picture or thought or knowledge be outside ourselves, so that we stand as spectators and look at the life of Luther, but the picture will be, so to speak, within ourselves, and we will feel ourselves as if we were actually Luther. This picture will speak to our inner consciousness and give us a thorough understanding of his life and purpose. We shall feel whatever he felt and obtain a perfect understanding of what the man was from the cradle to the grave. Every thought, no matter how secret, and every act, no matter how well concealed, will be known to us with all the motives and everything that led up to the event, and thus we shall obtain a most thorough understanding of the life of Luther, so intimate that probably not he himself during life, realised himself as perfectly as we shall then.'²⁰ This experience, incidentally sounds very similar to a life review during a near-death experience, as described by the metaphysicist, Charles Leadbeater.²¹

Difficulty in Translating into Temporal Sequences

Having obtained such an intimate and thorough knowledge of Luther, Calvin, Napoleon, or any other man or event in history, or before the date when history was written, the ordinary conclusion would be that we should be able to write books that would explain all these things in the most accurate and comprehensive manner. However, Heindel explains that anyone

who has tried to read the 'Memory of Nature' as kept in that high region will testify that they have felt just that way when they left the reading and returned to their ordinary brain consciousness. However, thought must be manifested through the brain and to be intelligible to others it must be translated into sentences consecutively unfolding the ideas to be conveyed. No one who has not felt this limitation on coming back from the 'Heaven World' with such valuable information can realise the chagrin and despair which one feels when he endeavors to do this, laments Heindel. In the highest regions, Heindel explains, all things are included in an eternal here and now: there is neither time nor space; beginning nor end.

To arrange what was 'seen' and 'heard' and 'felt' in that state of consciousness into consecutively arranged ideas in conventional time is next to impossible. It simply refuses to filter through the brain, according to Heindel. 'We who have seen and heard know what we have seen and heard, but we are unable to utter it. There is no human language or tongue that can translate these things in an adequate manner and give to another anything but the faintest feeling, the most attenuated shadow of the glorious reality', says Heindel.²² This frustration is also a common one heard among near-death experiencers.

Interaction with the Present

Much more than simply a memory storehouse, the Akashic records are said to be interactive. The records appear to have a tremendous influence upon our everyday lives, our relationships, our feelings and belief systems, and the potential realities we draw toward us. According to Helena Blavatsky (who lived in the nineteenth century), Russian immigrant, mystic, and founder of the Theosophical Society, the Akashic records are much more than simply an account of static data which may be gleaned by a sensitive; instead, the records have an ongoing creative stimulus upon the present.

The records connect each one of us to one another. They contain the stimulus for every archetypal symbol or mythic story and have been the inspiration for dreams and inventions. They draw us toward or repel us from one another.

They are the unbiased judge and jury that attempt to guide, educate, and transform every individual to become the very best that she or he can be. (A description that will be familiar to near-death experiencers who have undergone life reviews.) They embody an ever-changing fluid array of possible futures that are called into potential as we interact and learn from the data that has already been accumulated.

According to Ernesto Ortiz, references in the Old Testament and beyond give us the sense that there is a collective storehouse of knowledge that

is written on the fabric of reality. The amount of information now stored in computer memory and crossing the Internet highway daily is literally unfathomable. And yet, this vast complex of computer systems and collective databases cannot begin to come close to the power, the memory, or the recording capacity of the Akashic records, he says. The Akashic records contain the entire history of every soul (i.e. its ‘world line’) since the dawn of Creation. These records connect each one of us to one another and have an effect upon us, here and now. In fact, the records have such an impact upon our lives and the potentials and probabilities we draw toward us that any exploration of them, it is claimed, would provide us with deep insights into the nature of ourselves and our relationship with the universe.

Collective Unconscious

Jung’s description of the collective unconscious has similarities with the Akashic records, the Cosmic Mind and ‘cosmic consciousness’. It is a general metaphysical belief that individual human consciousness is like an island in a vast ocean of countless other islands. Above the surface of the water there is a sense of separate existence, with definite boundaries where the shore meets the sea. Beneath the surface however, the island is connected to all the other islands. Personal awareness, beneath our everyday consciousness, merges with a collective unconscious—through which we may be able to receive insights otherwise denied to us.

Jung describes the collective unconscious as the all controlling deposit of ancestral experiences from untold millions of years, the echo of prehistoric world events to which each century adds an infinitesimal small amount of variation and differentiation. These primordial images are the most ancient, universal, and deep thoughts of mankind.

Edgar Cayce discovered that he could put himself at will into the state of mind in which he could tap into this reservoir of knowledge. He dictated 14 million words while in this state of wider awareness. His findings suggest that we all have this ability to tap into this information—truly the collective unconscious—but few of us can bring it to conscious awareness.

Life Reviews during Near-Death Experiences

Cayce has stated that each person will be held accountable and will be ‘confronted’ with his or her own personal Akashic record of what they have or not done in life; in the *after life*. This is of course what often happens during a near-death experience when persons who have undergone a near-death experience report a ‘life review.’

In discussing the process for accessing the Akashic records, Cayce described his experience as follows: ‘I see myself as a tiny dot out of my physi-

cal body, which lies inert before me...Suddenly, I am conscious of a white beam of light. As this tiny dot, I move upward following the light...As I move along this path of light I gradually become conscious of various levels upon which there is movement. Upon the first levels there are vague, horrible shapes, grotesque forms such as one sees in nightmares. Passing on, there begin to appear on either side misshapen forms of human beings with some part of the body magnified. Again there is change and I become conscious of gray-hooded forms moving downward. Gradually, these become lighter in color. Then the direction changes and these forms move upward and the color of the robes grows rapidly lighter. Next, there begin to appear on either side vague outlines of houses, walls, trees, etc., but everything is motionless. As I pass on, there is more light and movement in what appears to be normal cities and towns. With the growth of movement I become conscious of sounds; at first indistinct rumblings, then music, laughter, and singing of birds. Quite suddenly I come upon a hall of records. It is a hall without walls, without ceiling, but I am conscious of seeing an old man who hands me a large book, a record of the individual for whom I seek information.’²³

Once given the record, Cayce had the ability to select the information which would be most capable of assisting the individual at that time in his or her life. Frequently, a reading might suggest that only a selection of the available material was being provided, but that the individual was being given that which would be ‘most helpful and hopeful.’ Additional insights were frequently provided in subsequent readings once an individual had attempted to work with and apply the information which had been given previously. Cayce’s account above could ‘pass-off’ easily as a near-death experience. This and many other similarities lead to the conclusion that the Akashic records are being accessed in the life reviews during near-death experiences.

Based on records, available from the ‘International Association for Near-Death Studies’, experiencers frequently describe their life reviews as ‘panoramic’ or ‘holographic’. In a life review, the experiencer’s perception includes not only their own perspective in increased vividness, as if they were reliving a given episode, but that of all other parties they interacted with at each point being reviewed. The term ‘3d’ is also employed to describe the inclusion of different physical perspectives onto a scene. The ‘high density of information’ was described by one reporting individual as enabling him to count every nearby mosquito; but equally common is the description of feeling the emotional experience of the other parties, including in one case virtually everyone in a room. While some accounts appear to describe scenes as selected, others narrate the experience as including

details that they had long forgotten. Cognition expands dramatically. Betty Eadie, one near-death experiencer recounted, ‘I was astonished that I could understand so much information at such a speed.’

You relive your life when you have a life review in 360 degrees panorama. Without turning your head, you may see your past, present and future. You may even see how many leaves were on the tree when you were six years old, ‘playing in the dirt in the front yard.’ You may watch your life from a second person’s point of view. You literally become every person that you’ve ever encountered. You will feel what it feels like to be that person and you will feel the direct results of your interaction between you and that person.

The life review, indeed, has many interesting characteristics which are similar to a reading of the Akashic records. These include instantly ‘becoming’ everyone you came in contact with in your entire life (feeling their emotions, thinking their thoughts, living their experiences, learning their motives behind their actions); reliving every detail of every second of your life, every emotion, and every thought simultaneously and the way you dealt with others and how others dealt with you; viewing a few special deeds in your life and replaying a part of your life review to focus on a particular event for instruction; and viewing past lives and/or your future. Your motives for everything will be as visible as your actions. This is why it has been repeated often that reading the Akashic records would have a beneficial effect on your personal development.

Life reviews have been described as viewing a movie, a video, a vivid 3d color display of your entire life or segments of your life. It has even been described as viewing hundreds of television screens with each screen showing a home movie of one event in your life. Some have described it as viewing a three-dimensional hologram of your life in full color, sound, and scent. Betty Eadie recounted that her life appeared before her in the form of what we might consider extremely well defined *holograms*, but at tremendous speed.

The scenes can also go into a preview mode, viewing scenes of your life in little bursts; at random, with the scenes of your life skipping from one scene to another; in fast-forward mode, viewing scenes of your life at a tremendous speed; in slow-motion or paused, in order to focus on a particular detail of your life. You may also enter the scene and relive your entire life with scenes of your life projected around you, with square screens up and down the walls and on the ceiling. This is very similar to how Leadbeater, described reading the Akashic records.

These variations in the speed of the reviews and selections of specific ‘clips’ are characteristics of a deliberate review—very similar to a reading

or review of the Akashic records. Contemporary experiencers may also see a screen that displays a tremendous amount of scientific data, numbers and universal codes—similar to how some autistic savants and geniuses view their ‘solutions’ on their ‘mental screens.’

A less contemporary type of review may be of a higher being reading from a Book of Life (for Christian experiencers) or a being reading from the Akashic records (for Hindu experiencers). The review can take place before a ‘Council of Elders’ who are seated at a table or even in an amphitheater the size of a sports stadium filled with light beings who will observe your review. They witness everything you did, even in secret. Nevertheless, the review will feel like a fact-finding rather than a fault-finding review. The beings may pause the review for awhile if you are upset; apparently to strengthen you with love. They also take into consideration various aspects about your life; such as, how you were raised, what you were taught, the pain inflicted upon you, and the opportunities missed or not received. However, you are the judge. The beings merely facilitate the review.

Clairvoyance

Clairvoyance is defined as a form of extra-sensory perception whereby a person perceives distant objects, persons, or events, including seeing through opaque objects and the detection of types of energy not normally perceptible to humans (for example, radio waves). Typically, such perceptions are reported in visual terms, but may also include auditory or touch impressions.

‘Remote viewing’ is closely related to clairvoyant abilities. It allows a ‘viewer’ to gather information on a ‘target’ consisting of an object, place, person, etc., which is hidden from physical view of the viewer and typically separated from the viewer by some distance. Remote viewing is often done in conventional time; although some have reported to have crossed into the past or future.

It had been reported that in some instances psychics working with the CIA were asked to spy on Soviet military bases in their dreams. They had many remarkable successes and were able to provide verifiable information about the chosen targets. Your dreams may already spontaneously reveal clairvoyant knowledge about distant locations or the future. Pre-cognitive dreams are a special category of ‘dream clairvoyance’ which appears to tell us that time may be an illusion (i.e. it is not the same in different frames of reference).

Psychometry, or the ability to know about the history of a person, thing or place using touch, is based on the metaphysical belief that every thought, action, and event that has ever occurred since the beginning of time leaves

an impression on the ‘ether’ (now interpreted as Einstein’s spacetime manifold or the zero point field). Psychometric skills have therefore been closely linked to the ability to read the Akashic records. As Leadbeater pointed out, each cell in the brain seems to be linked to certain portions of the Akashic records. Many clairvoyants who tune into the past, including psychic detectives or forensic psychics, are believed to read the Akashic records in order to get their information.

The role of forensic psychics in fighting baffling crimes appears to be growing. In one case, a teenage girl vanished on her way home from school. The police contacted psychic Nancy Orlen Weber who offered uncannily accurate descriptions of the crime, the suspect and where he’s been hiding—using her clairvoyance. New Jersey police, trying to solve the murder of a woman bludgeoned to death in her own bed, first think her boyfriend did it. A desperate family member contacts Weber—who ‘sees’ that the boyfriend is innocent, and gives police details that help undo the real killer’s alibi. While shooting pool in a Louisiana bar, Andre Daigle meets a beautiful and mysterious woman. That night, he disappears. With no clues to go on, Andre’s family calls in psychic Rosemarie Kerr, whose remarkable visions provide the answers. New Orleans investigators are stumped when a young mother turns up beaten to death, and her son gravely injured. The suspects, the husband and his friend, blame each other, so investigators turned to Kerr, who, tapping into the fallen wife’s ‘vibration,’ discovers a truth that breaks the case. A flooded creek during an unexpected storm rips two children from their mother’s arms and they go missing. Psychic Dr Sally Heading helps track them down using clairvoyance. The psychics often felt the pain of the victim and in some cases viewed the crime scene from the attacker’s point of view. They were literally re-living the events. This is obviously very similar to reading the Akashic records or undergoing a life review in a near-death experience.

Is it a Record or an Alternate Reality?

Closer to our current era, a great deal of contemporary information on the Akashic records has been made available by both reputable psychics and modern-day mystics—individuals who have somehow perceived beyond the limits of three dimensions.

Kevin Todeschi, Cayce Scholar

Cayce alluded to the fact that the Akashic records were not simply a transcription of the past but included the present, the future, and certain

probabilities as well. Max Heindel said that in a ‘higher world’ the ‘Memory of Nature’ is read in an entirely different manner; covering the essence of a whole life or event. In 1899, Leadbeater reported that on a ‘very high plane’ the past, present and future are all existing simultaneously. He gives the analogy of a passenger in a train. ‘The passenger, if he could never leave the train nor alter its pace, would probably consider the passing *landscapes* as necessarily successive and would be unable to conceive their coexistence.’²⁴ [Emphasis added.] Leadbeater apparently anticipated Einstein’s ‘block universe’ concept and the relativity of simultaneity through his direct experience with super universes.

Paul Davies says, ‘Physicists prefer to think of time as laid out in its entirety—a ‘timescape’, analogous to a *landscape*—with all past and future events located there together.’ [Emphasis added.] This is generally described as the ‘block universe’ concept in physics.

‘Human experience is temporal. Hence, we generally believe that only the present is real; while the past no longer exists and the future does not yet exist. We also frequently believe that the future is indeterminate and contingent. By contrast, in the block universe past, present, and future all exist simultaneously. All events are fully determined, and none are contingent.’ In a sense time becomes ‘spatialised’ i.e. it behaves as a spatial dimension.

Just as we envision all of space as really being out there, as really existing, we should also envision all of time as really being out there, as really existing too.

Brian Greene, Physicist,
The Fabric of the Cosmos

Einstein’s block universe bears a strong resemblance to descriptions of the nature of the Akashic records in higher planes—by Edgar Cayce, Max Heindel, Charles Leadbeater and other metaphysicists. The question now arises: Are the dynamic Akashic records being continuously written or is it simply an alternate reality where time is absent or diluted? When we ‘read’ the Akashic records, are we peering into another reality where the measure of time is different, relative to the reality we are viewing it from?

Are the Akashic Records in the Brain?

That deaf, dumb and blind kid sure plays a mean pinball!
How do you think he does it? I don’t know!

The Who, ‘Pinball Wizard’

Researchers are probing the savant mind from the inside; using both gene mapping and PET scans. As these two paths of investigation converge, many of our long-held notions about the limits of human potential are being overturned. Neuroscientists believe that ‘savants tap into areas of the mind that function like supercomputers, compiling massive amounts of data from the senses to create a working model of the world.’

Derek Paravicini is a highly acclaimed jazz pianist who plays regularly with top names to packed houses. Stephen Wiltshire’s gift is art, and books of his drawings have quickly become best sellers around the world. However, what is baffling about Derek and Stephen is that they have IQs of less than 60, experience difficulty communicating, and often struggle to lead a normal life. They are ‘savants.’ Savants are people who possess severe disabilities along with flashes of brilliance.

The term savant dates from the late 19th century, when a small number of people in European asylums classified as feeble-minded ‘idiots’ were discovered paradoxically to have extraordinary, even uncanny skills. One had memorized ‘The Decline and Fall of the Roman Empire’ after reading it a single time. Others were able to multiply long columns of numbers instantly and factor cube roots in seconds, though they could barely speak. Savant syndrome itself is rare. The rarest of the rare is the prodigious savant, like Raymond Babbitt (portrayed in the movie ‘Rain Man’) who could memorize phone books, count 246 toothpicks at a glance, and trump the house in Vegas.

For savants, asking for a birth date is a common way of introducing themselves. In every culture, the enhanced skills of savants cluster in the same narrow domains: numerical and calendar calculation, artistic and musical proficiency, mechanical aptitude, and feats of memorization. Neuroscientists say that these tasks draw primarily on the strengths of the brain’s right hemisphere, indicating that, in many savants, a healthy right hemisphere is overcompensating for damage to the left. Many savants are left-handed, and most have deficits in language—additional clues that something is amiss in the left hemisphere. According to scientists, autism rewires the brain’s entire network, from the limbic system to the executive functions in the frontal lobes that enable us to absorb new experiences, prioritize tasks, set goals, and imagine the future. When these areas are *damaged*, we are at the mercy of a flood of incoming sensory impressions and conflicting impulses. Geneticists are also starting to identify DNA anomalies in savants from birth. More than a dozen genes may contribute to autism. Several other forms of mental *impairment* also produce islands of startling ability—known as splinter skills.

In ‘The Man Who Mistook His Wife for a Hat,’ Oliver Sacks wrote

about the twins who amused themselves for hours trading six-digit prime numbers—although they were incapable of performing even simple multiplication. They told Sacks that they saw prime numbers just ‘appear in their minds’. To understand how mentally retarded savants can do such complex calculations subconsciously, Darold Treffert says, we need to examine one of the oldest, least-evolved regions of the brain: the *primitive storehouse of memory*.

Treffert believes that when associative memory systems, located in the higher regions of the cortex, fail older parts of the brain, the ancient pathways in the basal ganglia known as habit memory, take over. Habit memory is Pavlovian, an archive of involuntary stimulus/response loops—the memory that never forgets how to ride a bike. It’s not that savants remember everything, says Treffert; it’s that they are unable to forget anything.

Treffert is convinced that some savants do not have to learn the algorithms involved in tasks like calendar calculating. The software comes preinstalled. ‘You have to go beyond talking about traits,’ he says, ‘and start talking about the *genetic transmission of knowledge*.’ [Emphasis added.] The drawing abilities of most savant artists, for example, burst forth with no preparation, no training, and no practice—as if their skills were already there, fully fledged, needing only access to a pencil or a brush.

Metaphysicists generally appeal to reincarnation theory for such spontaneous knowledge. They point out that in many cases of reincarnation, where there is unexplainable and spontaneous knowledge from birth, there is no genetic link between the biomolecular body of the reincarnated person and his previous biomolecular body.

Impairment Uncovers Genius

San Francisco neurologist Bruce Miller noticed that certain people diagnosed with fronto-temporal dementia, suddenly develop aptitudes for music and art when their language faculties are destroyed by the disease. One patient, a 78-year-old linguist, began composing classical music soon after the onset of dementia, though he had little musical training; he felt that his mind was being ‘taken over’ by notes and intervals. Another patient, an established landscape artist, turned toward abstraction and painted even more expressively as her verbal skills declined. Brain scans of fronto-temporal dementia patients confirm patterns of damage similar to those found in many savants. As the disease progresses, these patients experience curious perceptual alterations, becoming more attentive to textural details, visual patterns, and sounds.

Bruce Miller now believes that as some patients with fronto-temporal dementia get worse, they also get better. He posited that the dementia does

not create artistic powers in these patients, it *uncovers* them. The disorder switches-off inhibitory signals from the left temporal lobes, enabling suppressed talents in the right hemisphere to flourish.

Instant Genius

As new research reveals more areas of untapped potential in the brain, some neurologists are asking whether there might be a way for the average person to switch on these hidden skills without having to suffer the kinds of brain trauma seen in Miller's dementia patients. At the 'Centre for the Mind' in Sydney, Allan Snyder has built on the work of Treffert and others to suggest that autistic savants have 'privileged access' to the mind's raw data before it is parsed and filtered by the brain's executive functions. Musical savants, he believes, have absolute pitch because they tap directly into the discrete frequency receptors in the cortex without any left-hemisphere meddling. Savant artists draw with exceptional accuracy, he says, because 'they see the world as it really is.'

Our knowledge and expertise blind us. If we could switch-off our conceptual mind, we could have a momentary literal viewing of the world. The computational abilities of savants may give them glimpses of the world *as it really is*. [Emphasis added.]

Allan Snyder

You would be excused if you thought that the above verse was taken from some ancient Buddhist scripture. Buddhism, Hinduism and other Eastern meditative traditions; and Christian contemplatives; have always looked at concepts as barriers to 'realisation,' 'enlightenment' or 'union with the Divine.' Buddhism has always insisted that we need to see things 'as they really are'. This implies that meditative practices can also be used to 'uncover our genius'.

Some believe that savants acquire their peculiar skills like any normal person, through repetitive practice. Another view is that savants have more highly developed brains in specific domains. These explanations do not fit well with reports that savant skills can emerge 'spontaneously', e.g. following an accident or at the onset of fronto-temporal dementia, and that these skills do not improve qualitatively with time, even though they may become better articulated. Furthermore, it would appear highly coincidental that a single savant can display several of these peculiar skills and that the same skills are found in savants across cultures, argues Snyder.

An alternative explanation is that savant skills are largely innate,

requiring little or no practice. Because of their brain *impairment*, savants have a paradoxical access to a wealth of information that resides equally within everyone but cannot normally be accessed. To test this hypothesis, Snyder suggested that repetitive ‘transcranial magnetic stimulation’ may be used to temporarily facilitate savant-like skills in normal people. Low frequency magnetic stimulation inhibits brain activity thereby creating ‘virtual lesions.’ Similar to what Michael Persinger had been doing with his ‘God Helmet.’ Snyder delivered the inhibiting treatment for 15 minutes at either 0.5 Hertz or 1 Hertz over the left fronto-temporal lobe of 11 healthy participants—an area of the brain implicated in the savant syndrome, both in the case of ‘born savants’ and savants who emerged later in life due to fronto-temporal lobe dementia. Three of the four ‘facilitated’ participants experienced altered psychological states after stimulation. One participant said he was more ‘alert’ and ‘conscious of detail.’²⁵

Snyder believes he is switching-off the conceptual mind by creating ‘virtual lesions’ in the left temporal lobes. Volunteers given this treatment, Snyder says, draw more naturalistically, and their proofreading skills also improve, because they see what’s in front of their eyes, rather than what their conceptual minds think they are seeing. According to Snyder, recent experimental findings are consistent with the possibility that savant-like skills are accessible (can be switched on) by turning-off (disinhibiting) the part of the brain that inhibits access to such skills.²⁶ Such magnetic stimulation is known to inhibit the normal functioning of localised regions of the brain.²⁷

We emphasise that these changes are due to the *inhibiting* influence of low frequency transcranial magnetic stimulation. They are due to *turning-off* part of the brain, not exciting it. The intent of our study is not to devise a clinical application, but rather to provide empirical evidence for the hypothesis that savant-like skills can be facilitated in a healthy individual by *suppressing* part of the brain with transcranial magnetic stimulation. [Savant skills] are not normally accessible without a rare form of brain *impairment*. [Emphasis added.]

Allan Snyder ²⁸

Snyder’s findings support Aldous Huxley’s eliminative theory of the brain and also the extended theory presented in this book which concludes that it is due to the *impairment* or *shutting-off* of specific parts of the brain that results in mystical and psychic states; and access to information which would not normally be associated with our everyday state of

consciousness.

Snyder believes that the mental apparatus to perform ‘lightning fast,’ calculations resides in us all, even though it is not normally accessible.²⁹ This suggests that the unusual skills of savants can be used as a diagnostic tool to probe information from lower-level mechanisms which is not available to introspection in the normal mind. However, the savant has not revealed unknown or unexpected mechanisms in the case of drawing or perfect pitch, according to Snyder. The physics of natural scenes already tells us how perspective must be computed by the brain and discrete frequency analysers are already known to be the primary auditory receptors. ‘Nor, in this vein, should the savants’ astonishing feats of recall for detail reveal anything new about mental processing,’ Snyder says, ‘since much evidence supports the view that we all store an enormous amount of information, with only a minute subset available for recall.’³⁰ Our recall, like our drawing skills, appears to be concept orientated.³¹ This blocks us from unfiltered information.

Facts or Assumptions?

Medical science and those associated with it assume that the information is buried inside the brain. But can this information be non-local? The invisible superstructure that supports the activities of the brain, which has been discussed in this book, is a better candidate for the complex calculations and recall (by reading the Akashic records) that savants have.

Impairment not only uncovers savant skills but intuitive knowledge and mystical visions. Pre-cognitive dreams which suggest the dilution of time betrays the fact that these experiences do not originate with the brain but pass through it—as suggested by many psychics, mystics and metaphysicists—in the process getting filtered and clogged-up. This produces the familiar near-death experience amnesia or the post-birth amnesia of a re-incarnated being.

According to ‘Hebb’s rule’ in neuroscience, when neurons repeatedly fire in a particular pattern, that pattern becomes a semi-permanent feature of the brain—i.e. it becomes a memory. If the connections so formed should later prove of little use, resulting from infrequent firings across the previously strengthened synapses, the connections weaken on their own from the lack of stimulation. Yet we know from the study of autistic savants that they can remember prodigious amounts of information from just one encounter with the stimulus spontaneously even decades after the event with photographic clarity. There appears to be no need for rehearsal, reinforcement or constant recall to strengthen synapses. How does Hebb’s rule fit into all this? Surely this suggests a different type of memory mechanism

which is clearly not explained in current neuroscience – which studies only the biomolecular brain.

A ‘photographic’ recall, CD-like audio recall, fast calculations and video player-operations such as ‘fast-forwarding’ and ‘rewinding’ suggest an electromagnetic substrate which can be found in higher energy magnetic plasma bodies. These are only ‘uncovered’ or ‘unveiled’ more fully when biochemical operations in the brain fail.

So long as neuroscientists are fixated on the brain, they will never realise that the brain acts, just like a TV, basically as a receiver and tuner. The scientist, who exclaims, ‘See, we have proof — the PET scans show that the neural activity in the brain has changed,’ is missing the point. All experiences can be interpreted by changes in the brain because the transmission passes through the brain.

Unless the person takes a wider view — gets his eyes off the TV and looks around to see the background infrastructure of TV aerials or cables, he will be oblivious to the fact that the signals are being transmitted from a broadcasting station. Instead of trying to get the wet biomolecular brain to explain everything in piecemeal — like proposing an epicycle to explain each deviation from a planet’s orbit (before Modern Science) — it is time for a shift in paradigms. In fact, all explanations become easier and more natural when we take the view that the biomolecular brain that is visible to us is just the tip of an iceberg. There are invisible superstructures that Science is only beginning to suspect.

In order for the paradigmatic shift to occur in neuroscience, neuro-scientists must look to cutting-edge physics for the wider view. There are current scientific theories (taught in mainstream physics) which tell us that only 1% of the universe is visible to us. If that is the case, why treat the visible brain as an end in itself? Isn’t it logically possible for an invisible superstructure to be supporting the more complex operations observed and currently being misattributed to mysterious processes in the wet biomolecular brain?

The conscious self is a construct of evolutionary processes and is unquestionably distinct from pure awareness. Individual consciousness is a secondary reality deriving from organic evolution and pure awareness. Unlike individual subjective consciousness, *pure awareness is nonlocal, unlimited and creative.* [Emphasis added.]

Andrew Newberg and Eugene d’Aquili,
Neuroscientists ³³

CHAPTER 17



Full-Time Mystic, Part-Time Scientist

The mystic's knowledge is experiential; scientific knowledge is analytical. To understand the difference, we can consider two beings with different modes of perception—one being, the scientist, can only see lines—a 1d perception. The other being, representing the mystic, can see 3d objects. Both have the ability to think abstractly. The only difference is in their perception of the world. In this example, imagine reality as a 3d cube. In forming a model of this cube, the 1d being would generate a plethora of theories to explain how the lines form up into a cube. The 3d being, however, can see the cube—its nature would be self-evident and axiomatic to him. It would appear superfluous to him to construct theories that the 'separate lines make up the cube.'

While linear thinking and theory-making is associated with the left brain, the right brain is associated with spatial intelligence—which includes 3d perception. Michael Gazzaniga writes that the left brain is constantly and reflexively generating theories to explain the internal and external events that occur around us. And it is because of that structure that we always attribute causes to everything that happens to us.¹ Findings suggest that the interpretive mechanism of the left hemisphere is always hard at work, seeking the meaning of events. It is constantly looking for order and reason, even when there is none—which leads it continually to make mistakes. It tends to over-generalize, frequently constructing a potential past as opposed to a true one.² Of course, while Science generates theories it also

checks it; so there is a correcting mechanism.

In trying to communicate with the 1d observer and trying to relate to the latter's theories, the mystic often tries to interpret his 3d experiential knowledge in the context of 1d analytic knowledge, after getting acquainted with the latest 1d theories and then extending them to fit his observations. It is here that many mistakes are made. The mystic may not be adequately versed in the latest 1d (scientific) theories. He may not even have any interest in them previously or currently. The relevant theories and mathematics may be so far short of explaining the 3d observation that it may take decades or lifetimes to construct 1d theories that adequately describe them.

The mystic is therefore confronted with this dilemma. After many years of evolving to a new awareness in a higher dimensional consciousness, he has to now descend to lower-grade analysis to explain to 1d analysts his truths in terms of what they know. In doing so, he has to tether his higher dimensional consciousness now to a lower dimensional consciousness in order to relate his 3d (experiential) knowledge to the existing 1d (analytical) knowledge. He may neither have the expertise nor the motivation to do this. This knowledge, which is highly prized by the 1d beings, is uneconomical, long-winded and 'dead' to him. He has to force himself to an unrewarding task of going back to 1d basics. Most mystics, however, choose to remain where they are and try to coerce and educate 1d'ers to a higher dimensional awareness through mental training. However, 1d'ers may not always be very responsive to the new knowledge because they cannot readily relate to them.

This is particularly true of scientists. Firstly, this is because of the attachment that a scientist has to his body of knowledge that he had created and tested. He would therefore expect the mystic to relate his knowledge to this body of knowledge. Secondly, his 1d knowledge would be so extensive and intensive that the mystic would have a hard time trying to relate his 3d experiential knowledge to this vast 1d analytic knowledge of the scientist. The mystic would have to be a 'full-time' 1d scientist and 3d mystic—at the same time! Even to ask one scientist to be an expert in two different areas of Science would be a tall order. To ask a mystic to promptly take an interest in something that he had already rejected a long time ago and now to become an expert in it would be almost impossible. Hence, there are very few mystic-scientists. This also explains the current gap between Science and Religion.

However, to fulfill a mystic's social responsibilities the mystic has to find time to 'update' his scientific knowledge and relate his experience to this knowledge. At the same time, 1d'ers have to embark on exercises to develop their consciousness and awareness. This will put fewer burdens

on teachers with higher dimensional consciousness. There could also be intermediaries who are sympathetic to both parties and who have the ability to interpret the findings of one party to another. Notable examples include William James, Carl Jung, Ken Wilber, Gopi Krishna, Itzhak Bentov and Rudolf Rucker (this is not an exhaustive list).

Experiential versus Analytic Knowledge

Harman and Rheingold say that ‘one of the primary characteristics of the experience of mystical states is that it does not lend itself well to precise verbal expressions. They are experiential traditions.’ William James called this quality ‘ineffability’ and explains that no definite report of the content of the experience can be given by the subject in words. ‘The quality must be directly experienced; it cannot be imparted or transferred to others.’

While (bottom-up) analysis (associated with the left brain) is natural for the 1d’ers, analysis diminishes and becomes superfluous for the 3d’ers (who appear to be using intuition or ‘direct knowledge’—associated with the right brain). What are considered theoretical deductions (logical extensions from axioms) in a lower dimensional space would be considered axiomatic (‘self-evident’) in a higher dimensional space. The mystic does not need theories because he has first-hand experience of it by altering the way his brain processes information from the environment or even changing the body-brain that he is operating in.

When Niels Bohr invoked the complementarity principle, which basically states that the reality of electrons or photons cannot be reduced to a (1d) particle concept or a (1d) wave concept, he edged Science out of a purely linear approach. Both contradictory ‘dimensions’ must be accepted at the same time to understand the nature of the electron or photon. Although this can be understood abstractly, most of us cannot perceive this directly or even imagine it (in our mind’s eye). The dominant left brain, possessing serial perception, oscillates between two contradictory concepts or images. Bohr’s complementarity principle is not mathematically derived from quantum theory—it was invoked on an intuitive basis to explain the conflicting theories which arose from experimental results. It cannot be ‘proven’ within quantum theory.

In higher dimensional perception, because the observer is part of the environment he is observing, the subject-object dichotomy breaks down. If we perceived our bodies in all 4 dimensions (3 space plus 1 time dimension), our bodies would be indistinguishable from the universe as every particle is connected to every other particle in time, beginning from the ‘Big Bang.’ The whole universe was the size of a particle in the first instant that this universe was generated. It is only because the dimensionality of our frame

of reference is less than the dimensionality of the universe that we perceive our bodies as separate objects in a universe. This is the shaky basis of what we call ‘objectivity.’ The universe, perceived in this frame of reference is devoid of subjectivity.

As the dimensionality of the frame of reference of perception increases, objects merge with the universe and the two become indistinguishable. If a person was observing himself as an object, then as the dimensionality of his frame of reference increases, he merges and becomes indistinguishable from the universe. The dichotomy between subjectivity and objectivity then breaks down. What if the dimensionality of our frame of reference is greater than the universe? Then the universe would become an object in us.

A swelling glory within me began to envelop towns, continents, the Earth, Solar and stellar systems, tenuous nebulae, and floating universes. The entire cosmos, gently luminous, like a city seen afar at night, glimmered within the infinitude of my being.

Paramahansa Yogananda ³

Mystics perceive this directly and experience it first hand. To a scientist, however, a mystic may appear very simplistic because he does not carry around a big bag of rigorous theories to support what he says. The knowledge gained by the mystic is axiomatic and self-evident. Since there is no theory, nothing can be communicated to the scientist in terms of linear theories—only observations. A 1d analysis of the 3d experience would generate several self-contradictory (geometrically orthogonal) 1d theories.

Although analysis which is associated with the left brain is an integral part of meditation, it is generally not associated with meditation in the layman’s mind. Its purpose is mainly to assimilate the experience of the right brain into the left brain’s framework. Perhaps it has not been emphasised because there is a risk that the brain-mind may get ‘carried away’ with analysis which provides pseudo multi-dimensionality—multidimensional models, not multidimensional experiences. These are not ‘self-evident’ truths—they are disconnected correlates and cheap substitutes of multidimensional experience.

Multidimensional experience, which represents a ‘top-down’ approach to knowing, when translated to linear scientific theories is therefore necessarily paradoxical and ineffable as each dimension is orthogonal (contradictory) to another. Linear theoretical analysis, which represents a ‘bottom-up’ approach to knowing (similar to cognitive processes associated with the left brain) is necessarily incomplete, compared to 2d or 3d experience; because

of the condition of logical self-consistency within each dimension. Each dimension is 'closed-off' (insular) but unbounded (within that dimension) for a 1d'er. Furthermore, emergent properties brought about by the interaction of various dimensions (or theories) may be missed.

One clue to the development of polarities in knowledge generation is the 'excluded middle.' Aristotelian (bivalent, asymmetric) logic, which excludes the middle, generates polarities, which in turn generates complexity. If the universe is a mirror, then the excluded middle is the crack in the middle of the mirror—so that the attributes in one broken part of the mirror is reflected in the other mirror with reversed attributes. This is evidenced in the fractals 'Cantor's set' and 'Koch's snowflake'—both examples of complexity arising from excluding the middle. Polarities arise when the middle is excluded. Experience is in the middle, analysis leaves you at the poles.

End of Science

One limitation of experiential mystical knowledge is its increased subjectivity, since, most of this knowledge is axiomatic. It may be difficult to communicate this knowledge to 'linear analysts.' The second disadvantage is that since the 3d'er has no theories, only axioms, his knowledge would be perceived to be of little value to the linear scientist. This argument may be used to support analysis against experience. As it stands in history, the mystic says that we do have the facilities to perceive reality directly, stating that such abilities have been underdeveloped in human beings. The scientists are not convinced, citing the lack of empirical evidence. However, with new scientific instruments and unavoidable changes to scientific theories, the realities that mystics experienced and are experiencing are being increasingly reflected in modern scientific theories.

If everybody took the mystic's route, we would find that as our experience is enhanced, the need for linear analysis is reduced and can even be eliminated. Science would become redundant. Knowledge would become totally axiomatic and experiential. However, until consciousness is brought to higher dimensions, Science would still have a crucial role to play. It can generate higher dimensional knowledge through linear correlates of higher dimensional experience. In fact, there is a 'one-to-one' mapping of linear analysis to higher dimensional experience. However, the 'mapping' is not an experience. The difference between a linear mapping and a 3d experience is that the former is sequenced in time (correlating it with the left brain) but the latter is simultaneously perceived (correlating it with the right brain).

Reality Decomposition in Lower Dimensions

Bottom-up processing breaks the world into tiny pieces and then puts it back with theories and laws in a process of generalization. In a kind of ‘reverse engineering’ it takes the world apart and studies its components to see what relationship these components have with other components. The discovered relationships (invariants or symmetries) are expressed in theories and laws. To a certain extent, this is ‘second-hand’ knowledge. The advantage of this knowledge, however, is that it is portable—it can be easily communicated to others. Something similar happens when 3d sounds received by a telephone receiver is converted to 1d bits of data that travel along telephone lines. The ‘portability’ of scientific knowledge has made it popular. The disadvantage of this knowledge is that it has to be reconstructed by the receiver involving a labourious process. This may introduce errors due to incorrect processing of the data and noise in the incoming signals.

Furthermore, the difference between holistic experiential knowledge and ‘analytical knowledge by parts’ is the difference between knowing 12 edges or lines and their relationships and seeing a cube. While a 3d observer may see a cube, a linear observer sees 12 edges. Furthermore, this linear observer notices that these 12 edges have some relationship. This is because they appear to move together. Also, if he punches into one edge (let us imagine the cube as a wooden crate), the others vibrate and deform. Then he formulates a theory from this relationship. He empirically tests his theory. Every time he punches into one edge, at least one other edge deforms in the opposite direction. So he formulates a theory, that for every action there is an equal and opposite reaction. All other linear experimenters record the same result. This theory then becomes a law.

However, for a 3d observer, these laws and theories are superfluous. Because of the lack of two dimensions, the linear observers have to formulate a number of theories and laws to link disparate events. To the linear observer-analyst this theory and law is meaningful. To the 3d observer, the relationship between the edges is ‘self-evident’ (axiomatic)—there is no need for proof. The linear theory appears simplistic to the 3d observer. What is axiomatic to the 3d observer is theoretic to the linear observer.

‘Subjectivity’ of Higher Dimensions

There is an increasing integration of disconnected events and observations as the dimensions of consciousness increases. There is also a movement towards experience (and experiential knowledge) and greater subjectivity (a movement from theorems to axioms).

The subjectivity of 3d experiential knowledge means that the mystic cannot share his experiences with linear analysts in a direct way. However,

the 'subjectivity' arises partly due to the fact that his listeners are linear thinkers. If all his listeners were '3d observers,' his knowledge would not be considered 'subjective' and 'incommunicable.' This 'subjectivity' is therefore, in the first instance, a measure of the disparity between the communicator's and the listener's dimensionality of consciousness.

From another point of view this subjectivity can be considered a prejudice generated by linear analysts-scientists. The only difference between an empirically-tested theory and an experientially-tested theory is that in the former the measuring instruments are non-human (or more generally, not self-conscious). If a 3d observer outlines an experiment to be conducted with human measuring instruments (i.e. the senses and the brain-mind) and the outcome of this experiment is confirmed by the majority of experimenters, this should be considered an objective result. But it is not. In hard Science, generally, the outcome is considered to be 'objective' only if the majority of experimenters record the same results using non-human measuring instruments.

Epilogue

Redefining the Partnership

There are mistakes and imprecision in scientific experiments. There are contradictions in scientific theories. Just like Religion, Science too has its share of tricksters and fraudsters.

Science and Religion (more accurately Spirituality) are complementary—one is empirical, the other is experiential. The experiences of Religion should be analysed by Science in a respectful way for its own benefit—not to be summarily dismissed just because it does not conform to conventional scientific theory. These are valuable human experiences which can be studied to develop our scientific knowledge of the world around us and ourselves.

Science would eventually mature and accept contradictory theories (which explain the same experimental results) as part of a multidimensional reality. In this way, there will be more resonance between Science, Philosophy and Religion. As Science moves into an appositional phase—where conflicting and complementary internally self-consistent ‘linear theories’ are accepted (as in the case of the particle-wave duality in quantum physics), we will see a closer matching between scientific and mystical models of reality.

Moving Forward

There is much evidence to support the view that a different kind of reality is experienced when we develop our right holistic brain—a reality which is just being explored and described by Science. This reality has been described in religious and metaphysical literature. Meditative techniques have been developed, even as far back as 2,500 years ago, to enter into this reality. ‘Spiritual’ drugs have also been used by certain cultures to facilitate entry

into alternate realities.

In the future, sophisticated electronic instruments and drugs may effectively cause the deafferentation of the relevant parts of the brain—and channel the mind-stream to different meditative states. Using genetic-engineering and ‘brain-engineering,’ the future human brain may be customized to the user’s requirements—enabling ‘mind tourists’ or psychonauts to take tours to parallel universes and different states of consciousness safely; and even migrate from one reality to another.

Synergistic Relationship between the Brains

The left and right brains in the human body have a synergistic relationship—each brain enabling the other brain to maximize its natural abilities. Frederic Schiffer says, ‘We may have two minds, or distinct parts of our personality. When they are similar, our personality is harmonious and we feel a sense of mental well-being. When the two sides are in conflict; we feel confused, stressed, anxious, depressed.’

The emphasis on the right brain in meditation does not appear to be an end in itself. Since we are left-brain dominant, this movement basically bring us back to the centre. In fact, in meditation, we frequently focus our eyes in between our eyebrows. Eye movements have been shown to correlate to neural activities in the relevant brain. Focusing at the centre means maintaining a middle position, between the two brains. Meditation also makes us more conscious of the contents of our sub-conscious. It is a way for our left brain to get to know our right brain much better.

On a metaphysical level, harmony between the brains means harmony and integration between our ‘mental’ bodies and our ‘emotional’ bodies. The real goal of spirituality appears to be the integration of these bodies—so that the two become one body, one mind. But a balance between right and left brain activity is also a mark of the genius. Hence, the spiritual goal is also an operational goal for living life to the fullest.

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Chapter 17: Full-Time Mystic, Part-Time Scientist

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Can we enter into a Reality unbounded by Space or Time?

It is a common theme in religious theory, particularly in the East, that the reality we perceive in our everyday waking consciousness is an illusion – much as a stick in water appears ‘broken’ because of the refracting light. Most of us would dismiss this suggestion, except for the fact that Science is beginning to say the same. Modern physics clearly points out that we live in a multi-dimensional multiverse; and that space and time are stubborn *illusions* – to quote Albert Einstein himself. The intriguing question is: How did mystics who lived more than 2,000 years ago come to the same conclusions without the aid of scientific instruments or advanced mathematics?

If scientific instruments and advanced mathematics are not necessary to realize these conclusions, this leads us to an even more intriguing question: Can we ‘perceive’ reality directly if we tried? This book aims to answer these questions by exploring processes in our brain which will allow us or block us from doing this.

Jay Alfred has a keen interest in conceptual physics and theoretical metaphysics. After years of detailed and disciplined research, he presents never-before published insights into the relationships and interactions between the (physical) brain, our invisible (or ‘dark’) higher energy bodies and the void.

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